

**Town of Kittery  
 Planning Board Meeting  
 September 8, 2022**

**28 Wyman Avenue —Sketch Plan Review, Cluster Residential Development**

Action: Accept or deny plan as complete; continue application to a subsequent meeting: Pursuant to Title 30-A M.R.S.A. §4401-4408 *Municipal Subdivision Law* and §16.8.10.H, *Cluster Residential Development* of the Town of Kittery Land Use and Development Code, owner Lusitano, LLC requests approval for a cluster residential development proposing three (3) single-family residences as a condominium on real property with an address of 28 Wyman Avenue (Tax Map 16, Lot 148) located in the Residential-Urban (R-U) Zone.

**PROJECT TRACKING**

REQ'D	ACTION	COMMENTS	STATUS
YES	Sketch Plan Acceptance/Approval	June 9, 2022 September 8, 2022 possible approval	Accepted, no yet approved
NO	Site Visit	June 28, 2022	Held
YES	Preliminary Plan Review Completeness/Acceptance		N/A
YES	Public Hearing	TBD	TBD
YES	Preliminary Plan Approval		N/A
YES	Final Plan Review and Decision	TBD	TBD

**Applicant: Prior to the signing of the approved Plan any Conditions of Approval related to the Findings of Fact along with waivers and variances (by the BOA) must be placed on the Final Plan and, when applicable, recorded at the York County Registry of Deeds. PLACE THE MAP AND LOT NUMBER IN 1/4" HIGH LETTERS AT LOWER RIGHT BORDER OF ALL PLAN SHEETS. As per Section 16.8.11.M - Grading/construction final plan required. Grading or construction of roads, grading of land or lots, or construction of buildings is prohibited until the original copy of the approved final plan endorsed has been duly recorded in the York County registry of deeds when applicable.**

**Project Introduction**

The property at 28 Wyman (Map 16, Lot 148) currently has a boarding house and a garage/barn located on it. The lot is 82,839 sf (1.9 acres) in size and is located in the Residential-Urban Zone (R-U). A wetland spreads along the northern portion of the property. The property fronts Wyman Avenue in two places but neither has sufficient frontage (100 continuous feet required) so the lot is legally non-conforming as regards street frontage. A residential neighborhood surrounds the property.

The Board first reviewed this project in January as a preliminary site plan review. The project was reclassified to a minor subdivision (per State statute and Title 16, a subdivision includes anything that creates residential units that do not share a common wall) and the Board reviewed it as a cluster subdivision on June 9<sup>th</sup> and visited the site on June 28<sup>th</sup>. Kittery permits cluster residential development and makes a conventional subdivision a special exception so the applicant is offering the plans as a cluster residential development that also is a condominium – meaning that the three residential units will share the one lot.

25 At the meeting on June 9<sup>th</sup>, the Board accepted the sketch plan. The applicant has resubmitted with plan  
26 revisions still under sketch plan. This is necessary because there are only two stages to a minor subdivision  
27 review – sketch and final. This means that most important aspects of the plan get worked out during sketch,  
28 rather than preliminary as is the case with major subdivisions of more than four lots.  
29

### 30 **Purpose of Application Phase**

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31  
32 The sketch plan phase allows the Board to: 1) determine if sufficient information has been supplied, and if  
33 not request the information, 2) to ask questions and 3) give direction to the applicant. If the Board finds the  
34 application insufficient or requires additional information, the Board should request that information be  
35 provided for the next meeting.  
36

### 37 **Submission Requirements**

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38  
39 The Subdivision Ordinance in Section 16.8.10. requires the following information for Preliminary Plan  
40 submittal:  
41

#### 42 *Covenants*

43 No information on any covenants nor Condominium Association documents were provided with the plan.  
44 **Update:** this stage of the subdivision process does not require COA documents. In this case per State  
45 statute, covenants mean any existing easements or other land use covenants that may exist for the property.  
46 The applicant's engineer informed staff that there are no known easements or covenants on this property.  
47

#### 48 *High-intensity Class "A" soil survey and soil interpretation sheets*

49 The applicant has provided a soil survey.  
50

#### 51 *Available community facilities*

52 **Update:** The plan highlights a "Common Area" green space on sheet C-2 with the addition of where the  
53 50-foot wetland buffer markers will be installed. The common area will serve the three residences of the  
54 condominium development.  
55

#### 56 *Utilities*

57 The site plan (sheet C-4) shows the plan for utility services. The plan shows using an existing sewer  
58 connection, as well as using an existing water connection. Existing overhead electrical lines will terminate  
59 at a new pole where underground electrical service will extend to each condo unit. A stormwater  
60 management plan has been supplied with drop inlets connected to an outfall at the eastern edge of the  
61 property. This outfall appears to be located in an area labeled "Common Area" on other plan sheets.  
62

#### 63 *Number of residential or business lots and/or dwelling units;*

64 Applicant has detailed that three single family dwelling units are proposed. The applicant has provided the  
65 net residential calculations to show a yield of 3 units.  
66

#### 67 *Typical lot width and depth*

68 There are no new lots being proposed, as all three dwelling units are proposed on the existing lot.  
69

#### 70 *Price range*

71 No price range information was given. The applicant has supplied dwelling unit layouts.  
72

#### 73 *Business areas*

74 No business areas are proposed.

75 *Playgrounds, park areas and other public areas;*  
76 There are no parks, playgrounds or public areas proposed.

77  
78 *Street improvements*

79 The plan proposes a 40-foot right-of-way with a 16-foot-wide pavement strip that ends as a shared common  
80 driveway.

81  
82 In addition, all the Cluster Residential Development submission requirements under 16.8.10.H.(5) have  
83 been met:

84 [1] *Dimensional modifications/standards, land area identified as net residential acreage, net residential*  
85 *density* – located in plan notes and on the plans (C-2) as applicable, see additional information under  
86 *Development Standards.*

87 [2] *Constraints to development* – shown on C-2

88 [3] *Natural features statement* – information from J. Noel, wetland scientist and letter from DEP (see  
89 paragraph with more details below) in the June 9<sup>th</sup> submission.

90 [4] *Building envelopes shown* – the building footprints are shown.

91  
92 The applicant in the June 9<sup>th</sup> submission provided a letter from the Maine Department of Environmental  
93 Protection stating that the vernal pool identified on the site is not significant, noting that the pool provides  
94 some habitat for wood frogs and spotted salamanders but does not meet biological criteria. The vernal pool  
95 was surveyed by Joseph Noel.

96

97 **Development Standards**

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98 *Setbacks*

100 The proposed residential structure closest to the wetland is shown to be over 100 feet from the wetland.  
101 The end of the shared driveway (per §16.3, a driveway may service two or less residential units) depicted  
102 on the plan is located approximately 65 feet from the wetland. Per Table 16.5.30 *Minimum Setbacks from*  
103 *Wetlands and Waterbodies*, a traveled way of road or driveway can be located 10 feet from the wetland.  
104 Rear and side setbacks for the R-U zone are 15 feet which is the requirement (see §16.4.13.D)

105

106 *Road/Common Driveway*

107 The plans show a 16-foot-wide private way which extends just past Unit 1. From there, a common driveway  
108 provides access to Unit 2 and 3. Because the street frontage for this property is nonconforming (less than  
109 100 feet) and the proposed use is intensifying from one residential use/building to three residential  
110 uses/buildings, the private road will serve to provide both access and frontage to the units. However, it is  
111 not required for each unit to have its own 100-foot frontage because it is a condominium – one lot shared  
112 in common by three residential units. As shown on the plans the private way is over 100 feet long, thus  
113 providing the frontage required for the condominium. The private way will be named by the applicant (once  
114 the name is approved by the Town's addressing officer) and all three units will derive their addresses from  
115 that road, if the plan is approved.

116

117 **Update:** June 9<sup>th</sup>'s plan did not include a turnaround that didn't require travel on private driveways. During  
118 the Technical Review Committee review, the Fire Chief required that a hammerhead turnaround be located  
119 on the private road. This plan shows the turnaround located across from Unit 1. The turnaround is noted to  
120 be 30 feet long. The Fire Chief will be asked to weigh in again on this plan.

121

122 There are also Condo Owners Association-related considerations. All three units will need to pay for upkeep  
123 and maintenance of the private road (and stormwater systems) while only two will be involved in upkeep  
124 and maintenance of the private driveway as currently presented.

125 Recommendation: Staff will have the Fire Chief review the plans at the next Technical Review Committee  
126 meeting.

127  
128 *Open Space*

129 Per §16.8.10.H.(6).(e), a cluster residential development must provide open space. The requirement is that  
130 50% of the lot must remain undeveloped (which usually includes all the wetlands, water bodies etc.) with  
131 30% of that comprised of upland. **Update:** Open space calculations are shown in C-2's plan note #7. While  
132 the calculations shown appear to be accurate, the note states that there is .98 acres of open space provided  
133 but below that it shows .94 acres as Common Open Space but nothing for either of the remaining two  
134 categories of open space. Where is the remaining .4 acres located?

135  
136 Staff noted to the applicant's engineer that the limited common areas around each residential unit are very  
137 limited. **Update:** The Limited Common Areas have been expanded which resulted in less Common Open  
138 Space.

139  
140 Recommendation: Staff recommends that the open space calculations clarify where all .98 acres of open  
141 space are and represent them suitably in the plan notes and on the plans.

142  
143 *Cluster Residential Development*

144 An important component of a cluster residential development plan is that dimensional requirements are  
145 allowed flexibility in the interests of reducing infrastructure and impact on the land. The plan as shown is  
146 compact, with limited impervious surface, underground utilities as required, public water and sewer, and  
147 infrastructure located beyond required setbacks from the wetlands.

148  
149 *Waivers*

150 The applicant will want to address the submission requirements of both the cluster residential development  
151 and Kittery's subdivision ordinance. There may be instances where the applicant would like to request a  
152 waiver. Waiver requests are best submitted during sketch plan, rather than final plan.

153  
154 *Additional Reviews*

155 Staff will send the plans out for peer review to CMA before the applicant submits for Final Plan but after  
156 the Fire Chief reviews the plans.

157  
158 **Recommended Motions**

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159  
160 Below are motions, depending on how the Planning Board will like to proceed:

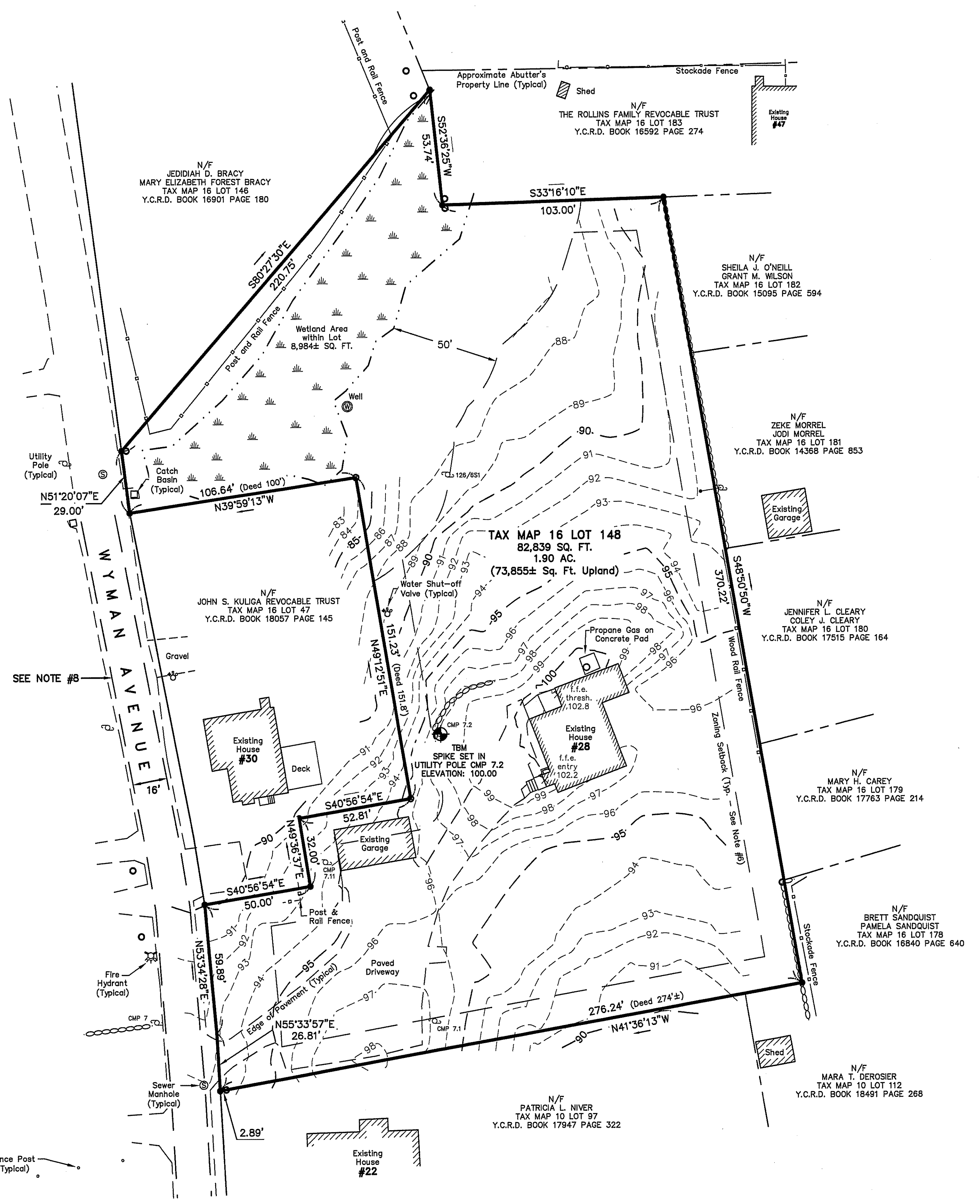
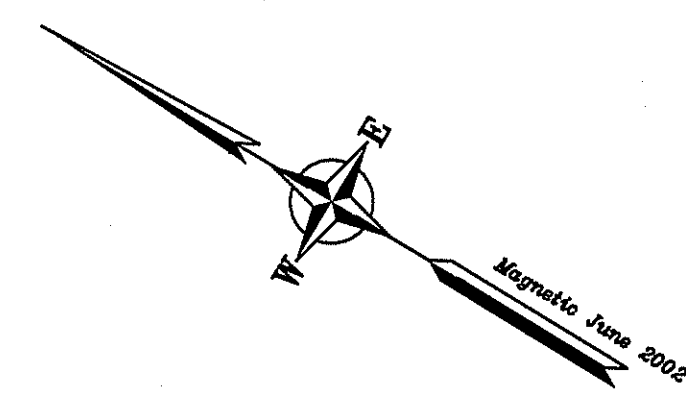
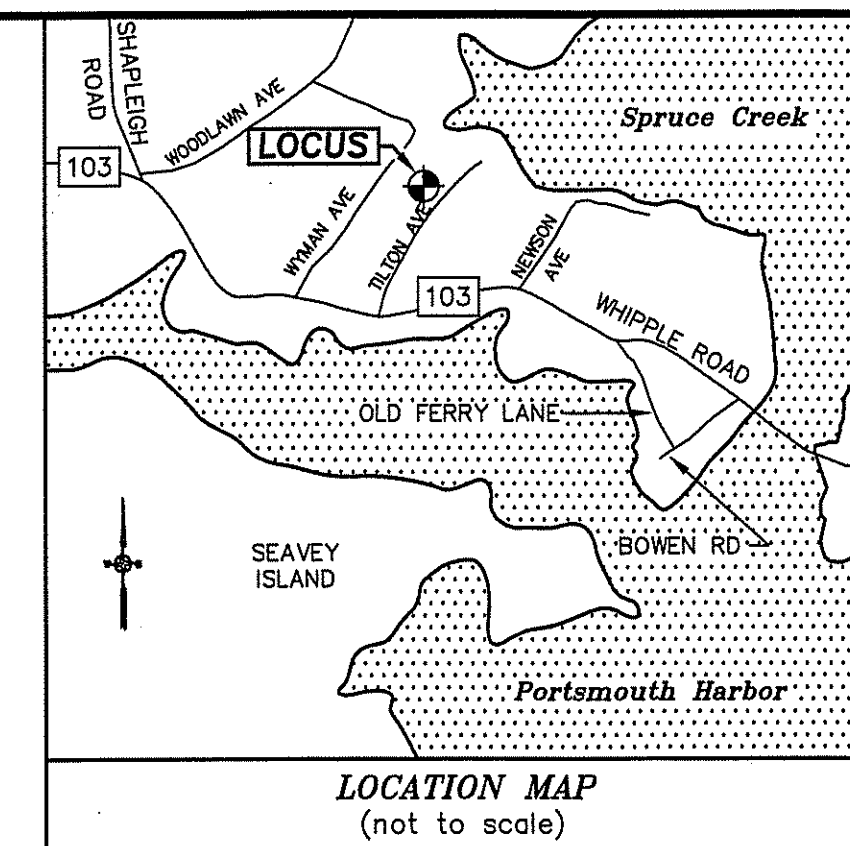
161  
162  
163 ***Move to approve the sketch plan cluster residential development application***

164  
165 *Move to approve the sketch subdivision plan application from owner Lusitano, LLC for a cluster residential*  
166 *development proposing three (3) single-family residences as a condominium on real property with an*  
167 *address of 28 Wyman Avenue (Tax Map 16, Lot 148) located in the Residential-Urban (R-U) Zone*

168  
169 ***Move to continue the sketch plan cluster residential development application***

170  
171 *Move to continue the sketch subdivision plan application from owner Lusitano, LLC for a cluster residential*  
172 *development proposing three (3) single-family residences as a condominium on real property with an*  
173 *address of 28 Wyman Avenue (Tax Map 16, Lot 148) located in the Residential-Urban (R-U) Zone*





ZONING DATA PER KITTERY ZONING ORDINANCE  
(LAST AMENDED JANUARY 11, 2021 - SEE NOTE #6):

BASE ZONE: Residential-Urban (R-U)

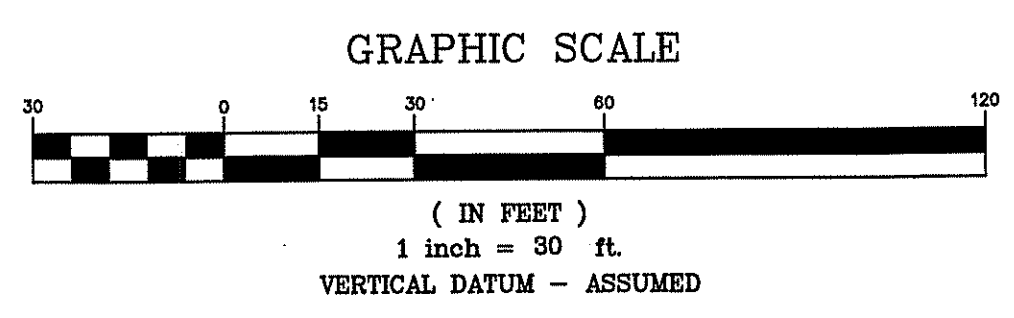
REQUIREMENTS:  
 MINIMUM LAND AREA: 20,000 Sq Ft  
 PER DWELLING UNIT: 20,000 Sq Ft  
 MINIMUM LOT SIZE: 100 Ft  
 MINIMUM STREET FRONTAGE: 30 Ft  
 MINIMUM FRONT YARD: 20%  
 MAXIMUM BUILDING COVERAGE: 15 Ft\*  
 MINIMUM REAR AND SIDE YARDS: 35 Ft\*

BUILDING COVERAGE CALCULATION:

LOT AREA: 82,839 SQ. FT.  
 HOUSE: 1,635± SQ. FT.  
 GARAGE: 678± SQ. FT.  
 TOTAL: 2,313± SQ. FT. (2.8%)

MONUMENTATION LEGEND:

- MONUMENT FOUND PER PLAN REFERENCE #1
- IRON ROD WITH CAP #1322 SET PER PLAN REFERENCE #1



PLAN REFERENCES:

1. "STANDARD BOUNDARY SURVEY FOR PROPERTY AT 28 WYMAN AVENUE, KITTERY, YORK COUNTY, MAINE OWNED BY HARRY A. & PATRICIA J. HANNIGAN", PREPARED BY NORTH EASTERLY SURVEYING INC., DATED APRIL 14, 2008, AND RECORDED AT THE Y.C.R.D. AS PLAN BOOK 329 PAGE 7.
2. "LAND OF MATTAWAMKEAG REALTY CO., LOCATED IN KITTERY, MAINE," BY JOHN W. DURGIN CIVIL ENGINEERS DATED JUNE 10, 1941 AND RECORDED AT Y.C.R.D. PLAN BOOK 16 PAGES 31 & 32.
3. "PLAN OF PARCEL OF LOTS ON PROPERTY OF HARRY N. WYMAN IN KITTERY, YORK COUNTY, MAINE" PREPARED BY C.S. GERRISH, CE, DATED DECEMBER 8, 1938, Y.C.R.D. BOOK 17 PAGE 7.
4. "STANDARD BOUNDARY SURVEY FOR PROPERTY AT 44 TILTON AVENUE, YORK COUNTY, KITTERY, MAINE OWNED BY CANDACE J. DELISIO" PREPARED BY NORTH EASTERLY SURVEYING, INC., DATED SEPTEMBER 12, 2002.
5. "STANDARD BOUNDARY SURVEY FOR PROPERTY AT 49 TILTON AVENUE, KITTERY, YORK COUNTY, MAINE OWNED BY SARA GALLANT GRASTY" PREPARED BY NORTH EASTERLY SURVEYING, INC., DATED JANUARY 9, 2008, RECORDED Y.C.R.D. BOOK 328 PAGE 15.

NOTES:

1. OWNERS OF RECORD:  
TAX MAP 16 LOT 148  
LUSITANO, LLC  
Y.C.R.D. BOOK 17499 PAGE 681  
DATED FEBRUARY 23, 2007
2. TOTAL EXISTING PARCEL AREA:  
TAX MAP 16 LOT 148  
1.90 Acres
3. BASIS OF BEARING IS PER PLAN REFERENCE #1.
4. APPROXIMATE ABUTTER'S LINES SHOWN HEREON ARE FOR REFERENCE PURPOSES ONLY AND SHALL NOT BE RELIED UPON AS BOUNDARY INFORMATION.
5. EASEMENTS OR OTHER UNWRITTEN RIGHTS MAY EXIST THAT ENCUMBER OR BENEFIT THE PROPERTY NOT SHOWN HEREON.
6. ZONING INFORMATION AND SETBACKS SHOWN HEREON ARE FOR REFERENCE PURPOSES. CONFIRM CURRENT ZONING REQUIREMENTS WITH THE TOWN OF KITTERY PRIOR TO DESIGN OR CONSTRUCTION.
7. THE BOUNDARY SHOWN HEREON IS PER PLAN REFERENCE #1.
8. ABUTTING DEEDS CALL FOR A "16-FOOT WIDE PASSAGEWAY" WHERE WYMAN AVENUE EXISTS. A 30-FOOT WIDE RIGHT OF WAY (AS SHOWN ON ABUTTING PLANS) WAS ASSUMED FOR THE BOUNDARY SHOWN HEREON, REFERENCE IS MADE TO PLAN REFERENCE #1.

PURPOSE OF PLAN:

THE PURPOSE OF THIS PLAN IS TO SHOW EXISTING CONDITIONS FOR DESIGN PURPOSES. THIS PLAN IS NOT A STANDARD BOUNDARY SURVEY AND IS NOT INTENDED TO BE RECORDED, USED FOR CONVEYANCE, OR ANY OTHER TITLE PURPOSE.



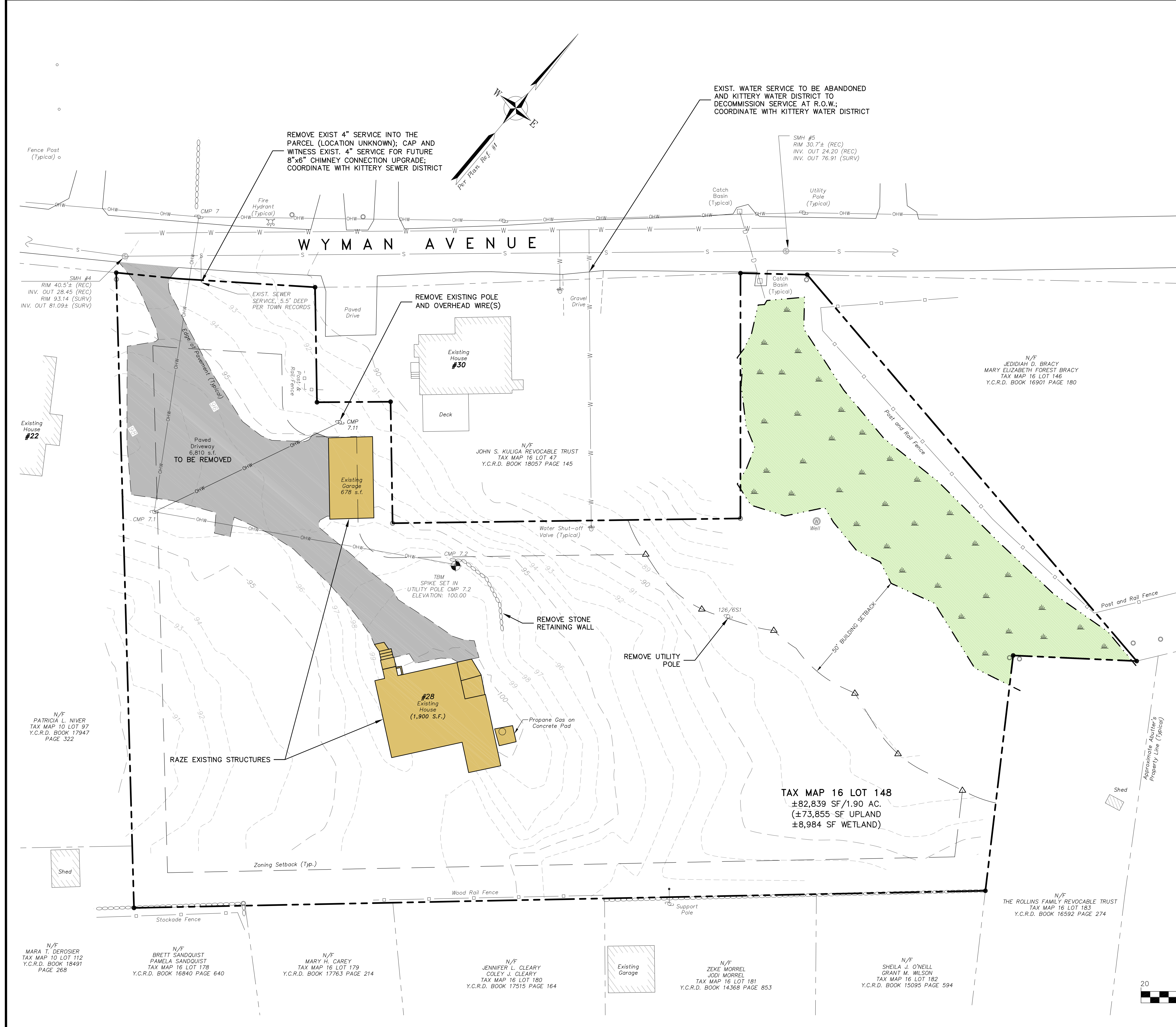
*Peter L. Agrodnia*  
7/9/2021

**EXISTING CONDITIONS PLAN**  
 FOR PROPERTY AT  
**28 Wyman Avenue**  
 Kittery, York County, Maine  
 OWNED BY  
**Lusitano, LLC**  
 Attn: Jim Higgins  
 119 Kings Highway No., Eliot, ME 03903

North  
  
**EASTERLY SURVEYING, Inc.**  
 SURVEYORS IN N.H. & MAINE 191 STATE ROAD, SUITE #1  
 (207) 439-6333 KITTERY, MAINE 03904

SCALE: 1" = 30'	PROJECT NO: 08610	DATE: 7/9/21	SHEET: 1 OF 1	DRAWN BY: A.H.P.	CHECKED BY: P.L.A.
DRAWING No: 08610_EXISTING_CONDITIONS					<b>Tax Map 16 Lot 148</b>
FIELD BOOK No: Kittery #40					

REV.	DATE	STATUS	BY	CHKD	APPD.



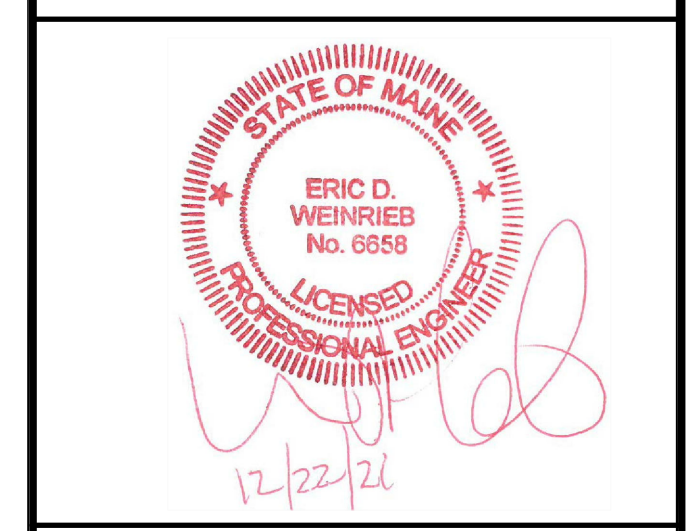
**DEMOLITION NOTES**

1. CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES SCHEDULED TO REMAIN.
2. ALL MATERIALS SCHEDULED FOR DEMOLITION OR REMOVAL ON PRIVATE PROPERTY SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TIMELY NOTIFICATION OF ALL PARTIES, CORPORATIONS, COMPANIES, INDIVIDUALS AND STATE AND LOCAL AUTHORITIES OWNING AND/OR HAVING JURISDICTION OVER ANY UTILITIES RUNNING TO, THROUGH OR ACROSS AREAS TO BE DISTURBED BY DEMOLITION AND/OR CONSTRUCTION ACTIVITIES WHETHER OR NOT SAID UTILITIES ARE SUBJECT TO DEMOLITION, RELOCATION, MODIFICATION AND/OR CONSTRUCTION.
4. AT NO TIME SHALL ANY UTILITY SERVICE OR VEHICULAR ACCESS TO ADJOINING PROPERTIES BE COMPLETELY INTERRUPTED UNLESS A FULL SHUTDOWN IS COORDINATED WITH ALL AFFECTED PARTIES AND UTILITY PROVIDER(S).
5. ALL UTILITY DISCONNECTIONS/DEMOLITIONS/RELOCATIONS SHALL BE COORDINATED BETWEEN THE CONTRACTOR, ALL APPROPRIATE UTILITY COMPANIES, KITTERY DPW AND ADJOINING PROPERTY OWNERS AS NECESSARY. UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELATED EXCAVATION, TRENCHING AND BACKFILLING.
6. WHERE SPECIFIED TO REMAIN, MANHOLE RIMS, CATCH BASIN GRATES, VALVE COVERS, HANDHOLES, ETC. SHALL BE ADJUSTED TO FINISH GRADE UNLESS OTHERWISE SPECIFIED.
7. SEE EROSION CONTROL PLANS FOR PERIMETER EROSION AND SEDIMENT CONTROL MEASURES THAT SHALL BE IN PLACE PRIOR TO DEMOLITION ACTIVITIES.
8. ALL MATERIAL SCHEDULED TO BE REMOVED SHALL BE LEGALLY DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS/CODES.
9. CONTRACTOR TO CONTACT KITTERY WATER DISTRICT (KWD) AND KITTERY SEWER DISTRICT (KSD) A MINIMUM OF TWO WEEKS PRIOR TO ANY DEMOLITION TO COORDINATE ALL WORK CONCERNING DISCONNECTION/DEMOLITION OF ANY PROPOSED WATER AND SEWER LINE IMPROVEMENTS.
10. ALL WATER AND SEWER DISCONNECTIONS SHALL CONFORM TO KSD AND KWD STANDARDS.
11. NO BURNING SHALL BE PERMITTED PER LOCAL REGULATIONS.
12. HAZARDOUS MATERIALS ENCOUNTERED DURING DEMOLITION AND CONSTRUCTION ACTIVITIES SHALL BE ABATED IN STRICT ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL REGULATIONS.
13. THIS PLAN IS INTENDED TO PROVIDE MINIMUM GUIDELINES FOR THE DEMOLITION OF EXISTING SITE FEATURES. UNLESS OTHERWISE NOTED TO REMAIN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL BUILDINGS, PAVEMENT, CONCRETE, CURBING, SIGNS, POLES, UTILITIES, FENCES, VEGETATION AND OTHER EXISTING FEATURES AS NECESSARY TO FULLY CONSTRUCT THE PROJECT.

ENGINEER:

133 Court Street  
(603) 433-2335

Portsmouth, NH 03801  
www.altus-eng.com



**THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION**

ISSUED FOR: **REVIEW**

ISSUE DATE: **DECEMBER 22, 2021**

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EBS	12/22/21

DRAWN BY: \_\_\_\_\_ RMB  
 APPROVED BY: \_\_\_\_\_ EBS  
 DRAWING FILE: 5235CONDO.DWG

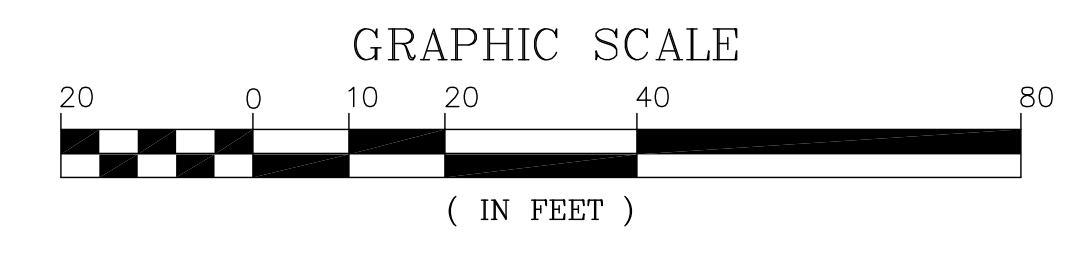
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 (24"x36") 1" = 20'  
 (11"x17") N.T.S.

OWNER/APPLICANT:  
 LUSITANO, LLC  
 JIM HIGGINS  
 119 KINGS HIGHWAY NO.  
 ELIOT, MAINE 03903

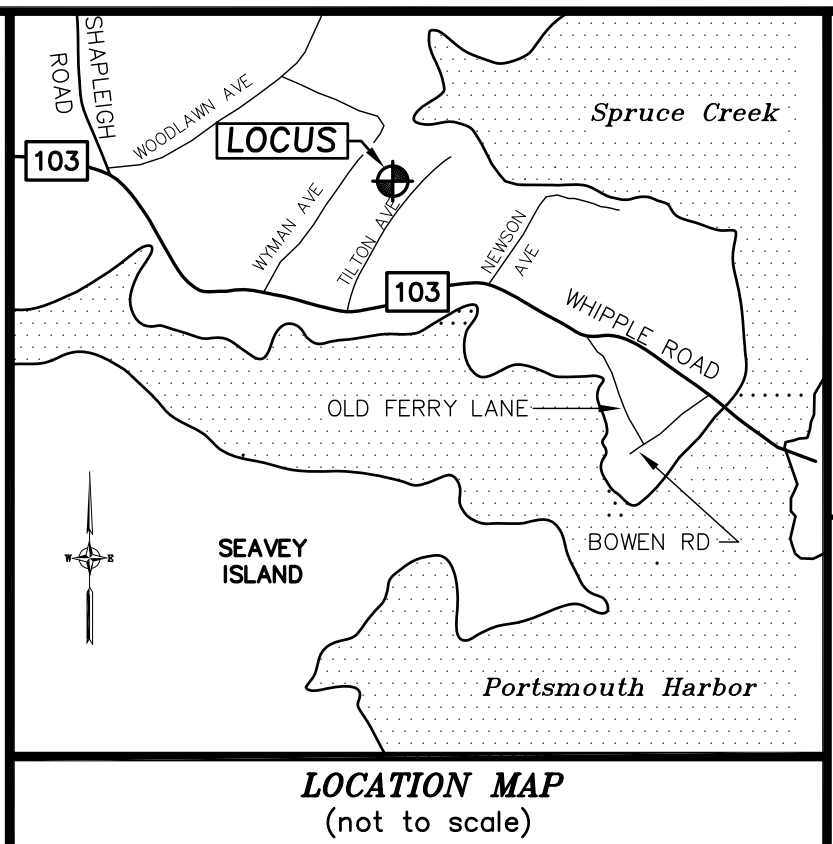
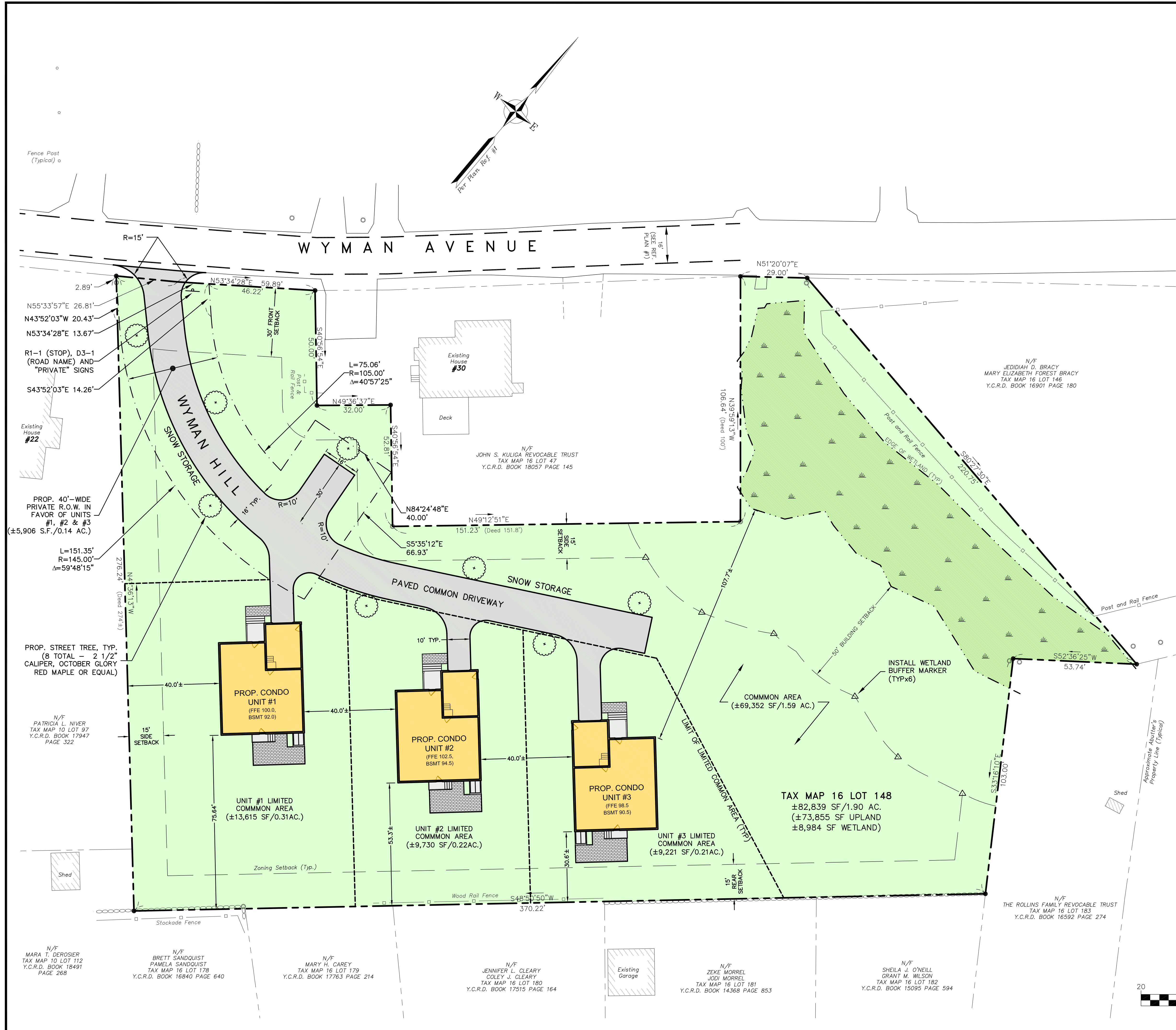
PROJECT:  
**WYMAN HILL**  
 TAX MAP 16, LOT 148  
 28 WYMAN AVENUE  
 KITTERY, MAINE

TITLE:  
**DEMOLITION PLAN**

SHEET NUMBER:  
**C - 1**



P5235



ENGINEER:  
**ALTUS**  
 ENGINEERING, INC.  
 133 Court Street Portsmouth, NH 03801  
 (603) 433-2335 www.altus-eng.com

SURVEYOR:  
 North  
**W. EASTERLY**  
 SURVEYING, Inc.  
 SURVEYORS IN N.H. & MAINE  
 191 STATE ROAD, SUITE #1  
 KITTERY, MAINE 03904  
 (207) 439-6333

**SITE NOTES**

- DESIGN INTENT - THIS PLAN SET IS INTENDED TO DEPICT A THREE (3) SINGLE-FAMILY DETACHED CONDOMINIUM PLAN WITH SHARED RIGHT OF WAY AND COMMON DRIVE.
- PLAN REFERENCE: "EXISTING CONDITIONS PLAN FOR PROPERTY AT 28 WYMAN AVENUE, KITTERY, MAINE" BY NORTH EASTERLY SURVEYING, INC., DATED PRELIMINARY JULY 7, 2021.
- LOT AREA: ±82,839 S.F. (±1.90 ACRES) EXISTING
- ZONE: RESIDENTIAL USE (R-U)
- DIMENSIONAL REQUIREMENTS -
 

	STANDARD	PROVIDE
MINIMUM LOT AREA PER UNIT	20,000 S.F.	>20,000 S.F. MIN.
ROAD FRONTAGE	100 FT.	88.89 FT. MIN.
FRONT YARD	30 FT.	>30 FT. MIN.
SIDE YARD	15 FT.	>15 FT. MIN.
REAR YARD	15 FT.	>15 FT. MIN.
BUILDING COVERAGE	20 %	2.8% EXISTING 5.7% PROPOSED
WETLANDS SETBACK (< 1 ACRE)	50 FT.	>100 FT.
16' DRIVEWAY (FROM TOE)	10 FT.	> 10 FT.
- DENSITY/NET RESIDENTIAL AREA CALCULATIONS:
 

TOTAL LOT AREA	1.90 AC.
LESS WETLANDS	- 0.21 AC.
LESS RIGHT OF WAY	- 0.17 AC.
NET RESIDENTIAL AREA =	1.52 AC.
- NUMBER OF DWELLING UNITS PERMITTED  
 (1.52 AC \* 43,560 SF/AC / 20,000 S.F./UNIT) = 3.31 UNITS  
 NUMBER OF DWELLING UNITS PROPOSED = 3 UNITS
- OPEN SPACE CALCULATIONS:  
 50% TOTAL LOT AREA AND 30% NET RES. AREA REQUIRED  
 TOTAL LOT AREA: 1.90 AC. x 50% = 0.95 AC. REQUIRED  
 NET RES. AREA: 1.52 AC. x 30% = 0.46 AC. REQUIRED  
 TOTAL LOT AREA = 1.90 AC.  
 LESS ROW = -0.16 AC.  
 LESS LIMITED COMMON AREA = -0.71 AC.  
 LESS DRIVEWAY AREA = -0.05 AC.  
 OPEN SPACE PROVIDED = 0.98 AC.  
 (49% OF TOTAL LOT, 64% OF NET RES. AREA)  
 OPEN SPACE, RESERVED: 0.00 AC.  
 OPEN SPACE, COMMON: 0.94 AC.  
 OPEN SPACE, PUBLIC: 0.00 AC.
- WETLANDS WERE DELINEATED BY MIKE MARIANO IN 2017.
- AREA OF DISTURBANCE LESS THAN 43,560 SF, THEREFORE NOI AND SWPPP INSPECTIONS ARE NOT REQUIRED.
- SNOW SHALL BE STORED AT THE EDGE OF PAVEMENT AND IN AREAS SHOWN.
- ALL CONSTRUCTION SHALL MEET THE MINIMUM STANDARDS OF THE TOWN OF KITTERY & MEDOT'S STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION, LATEST EDITIONS. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
- CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAWCUT LINES WITH RS-1 IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
- BUILDING AREA SHOWN IS BASED ON FOOTPRINT MEASURED TO THE EDGE OF FOUNDATIONS AND/OR SLABS. ACTUAL INTERIOR SPACE WILL DIFFER.

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: REVIEW

ISSUE DATE: AUGUST 11, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EBS	12/22/21
1	ADD PRIVATE R.O.W.	EBS	05/19/22
2	REV. PER PLANNING BOARD	EBS	06/21/22
3	ADD TURN AROUND	EBS	08/11/22

DRAWN BY: RMB  
 APPROVED BY: EBS  
 DRAWING FILE: 5235CONDO.DWG

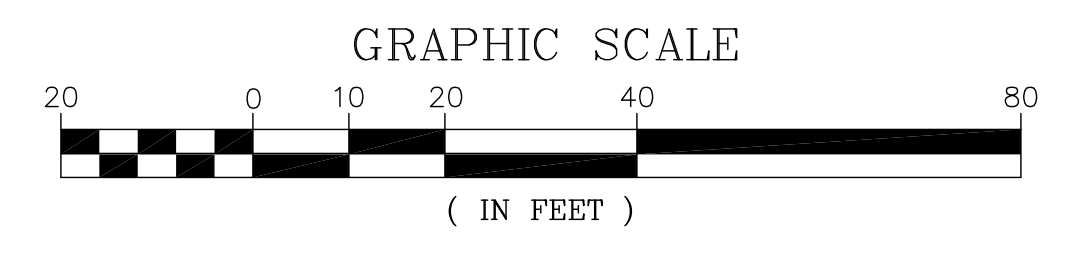
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 (24"x36") 1" = 20'  
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OWNER/APPLICANT:  
 LUSITANO. LLC  
 JIM HIGGINS  
 119 KINGS HIGHWAY NO.  
 ELIOT, MAINE 03903

TOWN OF KITTERY, PLANNING BOARD

CHAIR	DATE
OWNER	DATE
APPLICANT	DATE

YORK ss REGISTRY OF DEEDS  
 RECIEVED 20  
 AT \_\_\_\_\_ H \_\_\_\_\_ M \_\_\_\_\_ M. AND  
 RECORDED IN BOOK \_\_\_\_\_ PAGE \_\_\_\_\_  
 ATTEST:  
 REGISTER



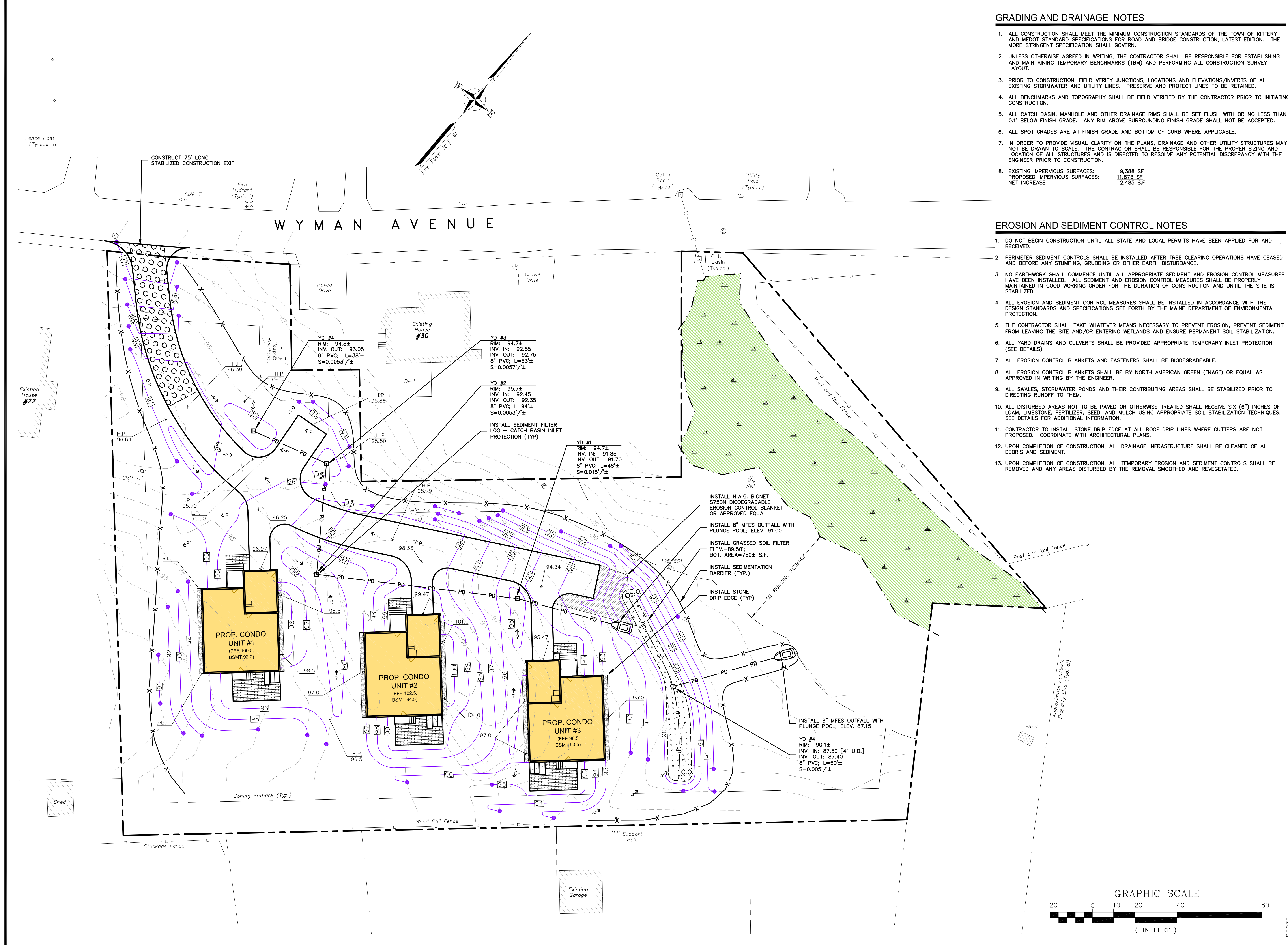
PROJECT:  
**WYMAN HILL**  
 TAX MAP 16, LOT 148  
 28 WYMAN AVENUE  
 KITTERY, MAINE

TITLE:  
**CONDOMINIUM  
 SITE PLAN**

SHEET NUMBER:  
**C - 2**

P5235





**GRADING AND DRAINAGE NOTES**

1. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE TOWN OF KITTEERY AND MEDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
2. UNLESS OTHERWISE AGREED IN WRITING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING TEMPORARY BENCHMARKS (TBM) AND PERFORMING ALL CONSTRUCTION SURVEY LAYOUT.
3. PRIOR TO CONSTRUCTION, FIELD VERIFY JUNCTIONS, LOCATIONS AND ELEVATIONS/INVERTS OF ALL EXISTING STORMWATER AND UTILITY LINES. PRESERVE AND PROTECT LINES TO BE RETAINED.
4. ALL BENCHMARKS AND TOPOGRAPHY SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO INITIATING CONSTRUCTION.
5. ALL CATCH BASIN, MANHOLE AND OTHER DRAINAGE RIMS SHALL BE SET FLUSH WITH OR NO LESS THAN 0.1' BELOW FINISH GRADE. ANY RIM ABOVE SURROUNDING FINISH GRADE SHALL NOT BE ACCEPTED.
6. ALL SPOT GRADES ARE AT FINISH GRADE AND BOTTOM OF CURB WHERE APPLICABLE.
7. IN ORDER TO PROVIDE VISUAL CLARITY ON THE PLANS, DRAINAGE AND OTHER UTILITY STRUCTURES MAY NOT BE DRAWN TO SCALE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER SIZING AND LOCATION OF ALL STRUCTURES AND IS DIRECTED TO RESOLVE ANY POTENTIAL DISCREPANCY WITH THE ENGINEER PRIOR TO CONSTRUCTION.
8. EXISTING IMPERVIOUS SURFACES: 9,388 SF  
 PROPOSED IMPERVIOUS SURFACES: 11,873 SF  
 NET INCREASE: 2,485 SF

**EROSION AND SEDIMENT CONTROL NOTES**

1. DO NOT BEGIN CONSTRUCTION UNTIL ALL STATE AND LOCAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.
2. PERIMETER SEDIMENT CONTROLS SHALL BE INSTALLED AFTER TREE CLEARING OPERATIONS HAVE CEASED AND BEFORE ANY STUMPING, GRUBBING OR OTHER EARTH DISTURBANCE.
3. NO EARTHWORK SHALL COMMENCE UNTIL ALL APPROPRIATE SEDIMENT AND EROSION CONTROL MEASURES HAVE BEEN INSTALLED. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE PROPERLY MAINTAINED IN GOOD WORKING ORDER FOR THE DURATION OF CONSTRUCTION AND UNTIL THE SITE IS STABILIZED.
4. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE DESIGN STANDARDS AND SPECIFICATIONS SET FORTH BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION.
5. THE CONTRACTOR SHALL TAKE WHATEVER MEANS NECESSARY TO PREVENT EROSION, PREVENT SEDIMENT FROM LEAVING THE SITE AND/OR ENTERING WETLANDS AND ENSURE PERMANENT SOIL STABILIZATION.
6. ALL YARD DRAINS AND CULVERTS SHALL BE PROVIDED APPROPRIATE TEMPORARY INLET PROTECTION (SEE DETAILS).
7. ALL EROSION CONTROL BLANKETS AND FASTENERS SHALL BE BIODEGRADABLE.
8. ALL EROSION CONTROL BLANKETS SHALL BE BY NORTH AMERICAN GREEN ("NAG") OR EQUAL AS APPROVED IN WRITING BY THE ENGINEER.
9. ALL SWALES, STORMWATER PONDS AND THEIR CONTRIBUTING AREAS SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
10. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE SIX (6") INCHES OF LOAM, LIMESTONE, FERTILIZER, SEED, AND MULCH USING APPROPRIATE SOIL STABILIZATION TECHNIQUES. SEE DETAILS FOR ADDITIONAL INFORMATION.
11. CONTRACTOR TO INSTALL STONE DRIP EDGE AT ALL ROOF DRIP LINES WHERE GUTTERS ARE NOT PROPOSED. COORDINATE WITH ARCHITECTURAL PLANS.
12. UPON COMPLETION OF CONSTRUCTION, ALL DRAINAGE INFRASTRUCTURE SHALL BE CLEANED OF ALL DEBRIS AND SEDIMENT.
13. UPON COMPLETION OF CONSTRUCTION, ALL TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL BE REMOVED AND ANY AREAS DISTURBED BY THE REMOVAL SMOOTHED AND REVEGETATED.

ENGINEER:  
  
 133 Court Street Portsmouth, NH 03801  
 (603) 433-2335 www.altus-eng.com

STATE OF MAINE  
  
 ERIC D. WEINRIEB  
 No. 8968  
 LICENSED PROFESSIONAL ENGINEER  
 8/11/22

**THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION**  
 ISSUED FOR: REVIEW  
 ISSUE DATE: AUGUST 11, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EBS	12/22/21
1	REV. PER PLANNING BOARD	EBS	06/21/22
2	ADD TURN AROUND	EBS	08/16/22

DRAWN BY: RMB  
 APPROVED BY: EBS  
 DRAWING FILE: 5235CONDO.DWG

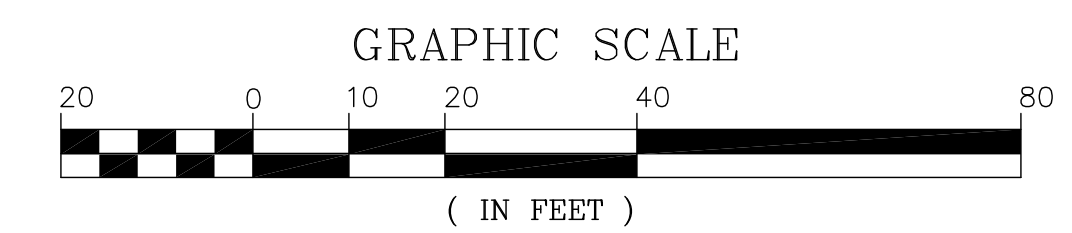
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OWNER/APPLICANT:  
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 JIM HIGGINS  
 119 KINGS HIGHWAY NO.  
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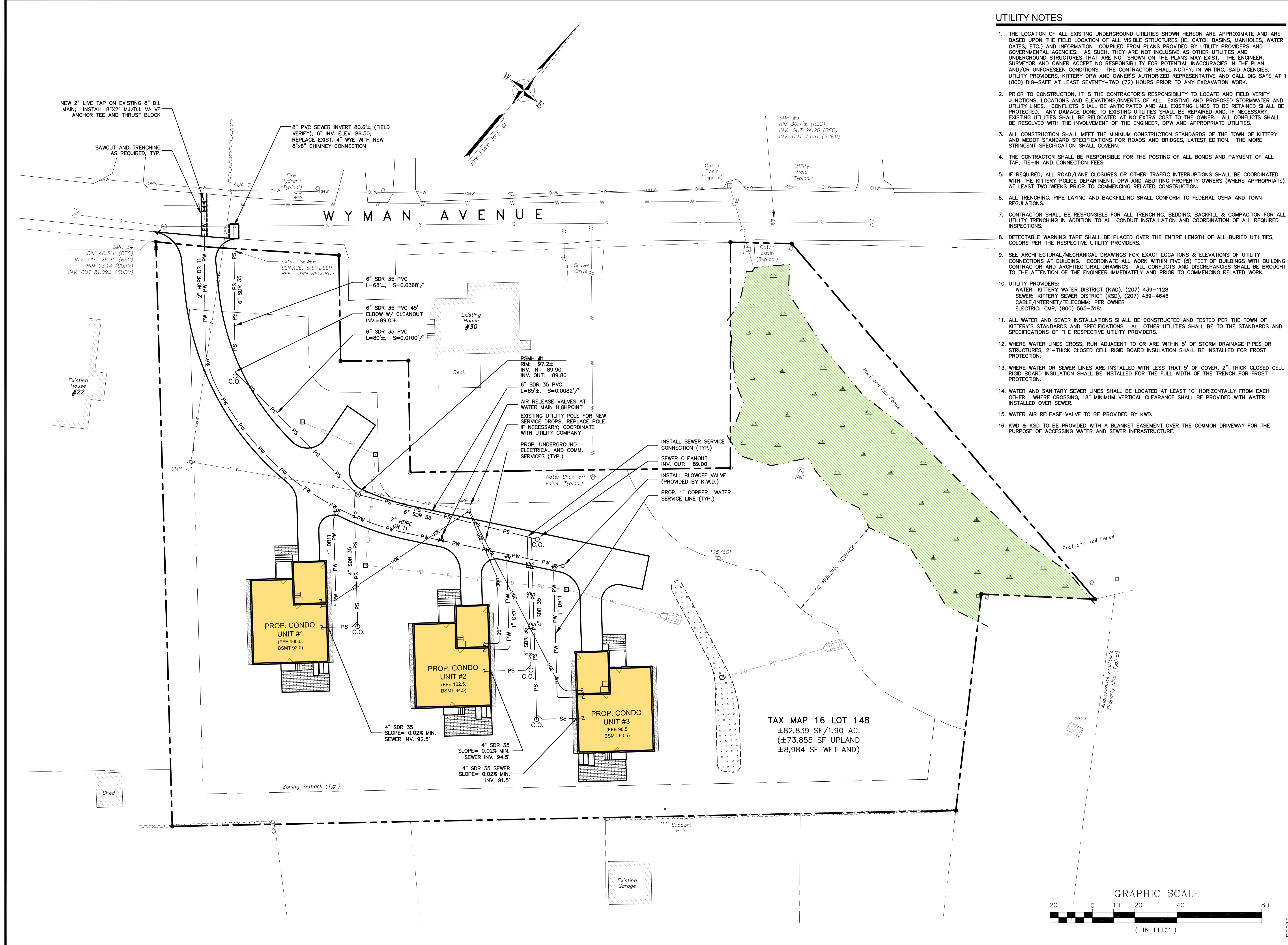
PROJECT:  
**WYMAN HILL**  
 TAX MAP 16, LOT 148  
 28 WYMAN AVENUE  
 KITTEERY, MAINE

TITLE:  
**GRADING & STORMWATER MANAGEMENT PLAN**

SHEET NUMBER:  
**C - 3**



P5235



**UTILITY NOTES**

1. THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED UPON THE FIELD LOCATION OF ALL VISIBLE STRUCTURES (IE. CATCH BASINS, MANHOLES, WATER GATES, ETC.) AND INFORMATION COMPILED FROM PLANS PROVIDED BY UTILITY PROVIDERS AND GOVERNMENTAL AGENCIES. AS SUCH, THEY ARE NOT INCLUSIVE AS OTHER UTILITIES AND UNDERGROUND STRUCTURES THAT ARE NOT SHOWN ON THE PLANS MAY EXIST. THE ENGINEER, SURVEYOR AND OWNER ACCEPT NO RESPONSIBILITY FOR POTENTIAL INACCURACIES IN THE PLAN AND/OR UNFORESEEN CONDITIONS. THE CONTRACTOR SHALL NOTIFY, IN WRITING, SAID AGENCIES, UTILITY PROVIDERS, KITTERY DPW AND OWNER'S AUTHORIZED REPRESENTATIVE AND CALL DIG SAFE AT 1 (800) DIG-SAFE AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO ANY EXCAVATION WORK.
2. PRIOR TO CONSTRUCTION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND FIELD VERIFY JUNCTIONS, LOCATIONS AND ELEVATIONS/INVERTS OF ALL EXISTING AND PROPOSED STORMWATER AND UTILITY LINES. CONFLICTS SHALL BE ANTICIPATED AND ALL EXISTING LINES TO BE RETAINED SHALL BE PROTECTED. ANY DAMAGE DONE TO EXISTING UTILITIES SHALL BE REPAIRED AND, IF NECESSARY, EXISTING UTILITIES SHALL BE RELOCATED AT NO EXTRA COST TO THE OWNER. ALL CONFLICTS SHALL BE RESOLVED WITH THE INVOLVEMENT OF THE ENGINEER, DPW AND APPROPRIATE UTILITIES.
3. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE TOWN OF KITTERY AND MDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE POSTING OF ALL BONDS AND PAYMENT OF ALL TAP, TIE-IN AND CONNECTION FEES.
5. IF REQUIRED, ALL ROAD/LANE CLOSURES OR OTHER TRAFFIC INTERRUPTIONS SHALL BE COORDINATED WITH THE KITTERY POLICE DEPARTMENT, DPW AND ADJUTING PROPERTY OWNERS (WHERE APPROPRIATE) AT LEAST TWO WEEKS PRIOR TO COMMENCING RELATED CONSTRUCTION.
6. ALL TRENCHING, PIPE LAYING AND BACKFILLING SHALL CONFORM TO FEDERAL OSHA AND TOWN REGULATIONS.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCHING, BEDDING, BACKFILL & COMPACTION FOR ALL UTILITY TRENCHING IN ADDITION TO ALL CONDUIT INSTALLATION AND COORDINATION OF ALL REQUIRED INSPECTIONS.
8. DETECTABLE WARNING TAPE SHALL BE PLACED OVER THE ENTIRE LENGTH OF ALL BURIED UTILITIES, COLORS PER THE RESPECTIVE UTILITY PROVIDERS.
9. SEE ARCHITECTURAL/MECHANICAL DRAWINGS FOR EXACT LOCATIONS & ELEVATIONS OF UTILITY CONNECTIONS AT BUILDING. COORDINATE ALL WORK WITHIN FIVE (5) FEET OF BUILDINGS WITH BUILDING CONTRACTOR AND ARCHITECTURAL DRAWINGS. ALL CONFLICTS AND DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY AND PRIOR TO COMMENCING RELATED WORK.
10. UTILITY PROVIDERS:  
 WATER: KITTERY WATER DISTRICT (KWD), (207) 439-1128  
 SEWER: KITTERY SEWER DISTRICT (KSD), (207) 439-4646  
 CABLE/INTERNET/TELECOMM: PER OWNER  
 ELECTRIC: CMP, (800) 565-3181
11. ALL WATER AND SEWER INSTALLATIONS SHALL BE CONSTRUCTED AND TESTED PER THE TOWN OF KITTERY'S STANDARDS AND SPECIFICATIONS. ALL OTHER UTILITIES SHALL BE TO THE STANDARDS AND SPECIFICATIONS OF THE RESPECTIVE UTILITY PROVIDERS.
12. WHERE WATER LINES CROSS, RUN ADJACENT TO OR ARE WITHIN 5' OF STORM DRAINAGE PIPES OR STRUCTURES, 2"-THICK CLOSED CELL RIGID BOARD INSULATION SHALL BE INSTALLED FOR FROST PROTECTION.
13. WHERE WATER OR SEWER LINES ARE INSTALLED WITH LESS THAN 5' OF COVER, 2"-THICK CLOSED CELL RIGID BOARD INSULATION SHALL BE INSTALLED FOR THE FULL WIDTH OF THE TRENCH FOR FROST PROTECTION.
14. WATER AND SANITARY SEWER LINES SHALL BE LOCATED AT LEAST 10' HORIZONTALLY FROM EACH OTHER. WHERE CROSSING, 18" MINIMUM VERTICAL CLEARANCE SHALL BE PROVIDED WITH WATER INSTALLED OVER SEWER.
15. WATER AIR RELEASE VALVE TO BE PROVIDED BY KWD.
16. KWD & KSD TO BE PROVIDED WITH A BLANKET EASEMENT OVER THE COMMON DRIVEWAY FOR THE PURPOSE OF ACCESSING WATER AND SEWER INFRASTRUCTURE.

ENGINEER:  
  
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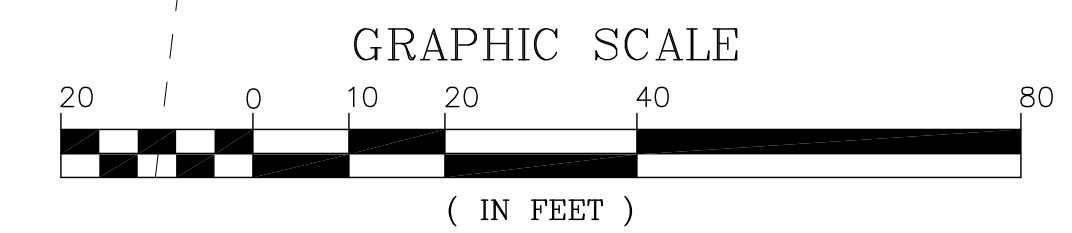
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OWNER/APPLICANT:  
 LUSITANO, LLC  
 JIM HIGGINS  
 119 KINGS HIGHWAY NO.  
 ELIOT, MAINE 03903

PROJECT:  
**WYMAN HILL**  
 TAX MAP 16, LOT 148  
 28 WYMAN AVENUE  
 KITTERY, MAINE

TITLE:  
**UTILITY PLAN**

SHEET NUMBER:  
**C - 4**



PS235

**PROJECT NAME AND LOCATION**

Wyman Hill  
Map 16 Lot 148  
Kittery, Maine

Latitude: 043° 05' 16" N  
Longitude: 070° 43' 45" W

**DESCRIPTION**

The project consists of a three (3) single-family detached condominium units with shared right-of-way and drive. The project will be completed in a single phase.

**DISTURBED AREA**

The total area to be disturbed is approximately 0.8 acres for constructing new driveway and dwelling units (including lot development). Prior to lot clearing and soil disturbance, sedimentation barrier shall be installed to prevent sediment leaving the lot.

**SEQUENCE OF MAJOR ACTIVITIES**

- 1. Install temporary erosion control measures including perimeter controls as noted on the plan. All temporary erosion control measures shall be maintained in good working condition for the duration of the project.
2. Clear and grub wooded area; strip and stockpile loam. Stockpiles shall be temporarily stabilized with hay bales mulch and surrounded by a hay bale or silt fence barrier until material is removed and final grading is complete.
3. Shut off and terminate existing services; demolish existing structures and pavement.
4. Construct ditches and stabilize prior to directing flow to them.
5. Construct drainage structures, swales & road base materials.
6. Ditches and swales with grades over 5% shall have sides and bottom reinforced with excelsior matting.
7. Shape site to desired grades.
8. Loam (6" min) and seed all disturbed areas not paved or otherwise stabilized.
9. Install landscaping.
10. When all construction activity is complete and site is stabilized, remove all temporary erosion control measures and any sediment that has been trapped by these devices.

**NAME OF RECEIVING WATER**

Unnamed wetlands complex and open drainage systems to tidal waters of Spruce Creek.

**TEMPORARY EROSION AND SEDIMENT CONTROLS AND STABILIZATION PRACTICES**

All work shall be in accordance with state and local permits. Installation or construction of erosion control measures shall conform to the practices described in the 2014 Revision to the 2003 Maine Erosion and Sediment Control Field Guide for Contractors, published by the Maine Department of Environmental Protection.

Minimum erosion control measures will need to be implemented and the contractor will be responsible to maintain all components of the erosion control plan until the site is fully stabilized. However, based on site and weather conditions during construction, additional erosion control measures may need to be implemented. All areas of instability and erosion must be repaired immediately during construction and need to be maintained until the site is fully stabilized or vegetation is established. A construction log must be maintained for the erosion and sedimentation control inspections and maintenance.

As indicated in the sequence of Major Activities, perimeter controls shall be installed prior to commencing any clearing or grading of the site. Structural controls shall be installed concurrently with the applicable activity. Once construction activity ceases permanently in an area, silt fences and hay bale barriers and any earth/dikes will be removed once permanent measures are established.

During construction, runoff will be diverted around the site with stabilized channels where possible channels where possible. Sheet runoff from the site will be filtered through hay bale barriers, stone check dams, and/or silt fences. All storm drain inlets shall be provided with inlet filters or stone check dams. Stone rip rap shall be provided at the outlets of drain pipes and culverts where shown on the drawings.

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 desired vegetative cover is established. These control measures are essential to erosion prevention and also reduce costly rework of graded and sloped areas.

Temporary vegetation shall be maintained in these areas until permanent seeding is applied. Additionally, erosion sedimentation measures shall be maintained until permanent vegetation is established.

**INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES**

- A. GENERAL
1. Perimeter controls shall be installed prior to earth moving operations.
2. The smallest practical portion of the site will be denuded at one time and no more than be mulched in one day. All disturbed areas must be stabilized by temporary measures within 5 days of initial disturbance and stabilized by permanent measures immediately after final grading.
3. Sediment barriers shall be installed downgradient of stockpiles and diversion swales installed upgradient of stockpiles to prevent movement of soil.
4. Built-up sediment shall be removed from silt fence or other barriers when it has reached one-third the height of the tubular barrier or bale, or when "bulges" occur in silt fence.
5. All diversion dikes shall be inspected and any breaches promptly repaired.
6. Temporary seeding and planting shall be inspected for bare spots, washouts, and unhealthy growth.
7. The owner's authorized engineer shall inspect the site on a periodic basis to review compliance with the plans.
8. All ditches and swales shall be stabilized prior to directing runoff to them. All diversion dikes will be inspected and any breaches promptly repaired.
9. Temporary water diversion basins, etc) shall be used as necessary until areas are stabilized.
10. Ponds and swales shall be installed early on in the construction sequence (before rough grading site).
11. All cut and fill slopes shall be seeded/loamed within 72 hours of achieving finished grade.
12. An area shall be considered stable if one of the following has occurred:
a. Base coarse gravels have been installed in areas to be paved;
b. minimum of 90% vegetated growth as been established;
c. A minimum of 3 inches of non-erosive material such as stone or riprap has been installed; or
d. Erosion control blankets have been properly installed.

**MULCHING**

- Application
In sensitive areas (within 100 ft of streams, wetlands and in lake watersheds) temporary mulch shall be applied within 7 days of exposing soil or prior to any storm event.
Areas, which have been temporarily or permanently seeded, shall be mulched immediately following seeding.
Areas which cannot be seeded within the growing season shall be mulched for over-winter protection and the area should be seeded at the beginning of the growing season.
Mulch anchoring should be used on slopes greater than 5% in late fall (post September 15), and over-winter (September 15 - April 15).

**Type of Mulch**

Hay or Straw Mulches
Organic mulches, including hay and straw, shall be air-dried, free of undesirable seeds and coarse materials. Application rate shall be 2 bales (70-90 pounds) per 1000 sq. ft. or 1.5 to 2 tons (90-100 bales) per acre to cover 75 to 90 % of the ground surface. Hay mulch subject to wind blowing shall be anchored via: netting; peg and twine or tracking.

**Erosion Control Mix**

Erosion control mix shall consist primarily of organic material and shall include any of the following: shredded bark, stump grindings, composted bark or other acceptable products based on a similar raw source. Wood or bark chips, ground construction debris or reprocessed wood products shall not be acceptable as the organic component of the mix. It can be used as a stand-alone reinforcement:
On slopes 2 horizontal to 1 vertical or less.
On frozen ground or forested areas.
At the edge of gravel parking areas and areas under construction.

**Other reinforcement BMPs (i.e. riprap) should be used:**

- On slopes with groundwater seepage;
At low points with concentrated flows and in gullies;
At the bottom of steep perimeter slopes exceeding 100 feet in length;
Below culvert outlet aprons; and
Around catch basins and closed storm systems.

**Composition**

Erosion control mix shall contain a well-graded mixture of particle sizes and may contain rocks less than 4" in diameter. Erosion control mix must be free of refuse, physical contaminants, and material toxic to plant growth. The mix composition shall meet the following 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.

**Installation**

- Erosion control mix shall not be used on slopes steeper than 2:1.
On slopes of 3:1 or less; 2 inches plus an additional 1/2 inch per 20 feet of slope up to 100 feet.
On slopes between 3:1 and 2:1, 4 inch plus an additional 1/2 inch per 20 feet of slope up to 100 feet.
The thickness of the mulch at the bottom of the slope needs to be:
<20° of slope 2.0' 4.0'
<60° of slope 3.0' 5.0'
<100° of slope 4.0' 6.0'
It shall be placed evenly and must provide 100% coverage with the soil totally invisible.

Any required repairs shall be made immediately, with additional erosion control mix placed on top of the mulch to reach the recommended thickness. When the mix is decomposed, clogged with sediment, eroded or ineffective, it shall be replaced or repaired. Erosion control mix mulch shall be left in place. If the mulch needs to be removed spread it out into the landscape.

**Maintenance**

All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied. Nets shall be inspected after rain events for dislocation or failure. If washouts or breakage occur, re-install the nets as necessary after repairing damage to the slope. Inspections shall take place until grasses are firmly established (95% soil surface covered with grass). Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface. Repair as needed.

**TEMPORARY VEGETATION**

**Considerations**

- Proper seedbed preparation and the use of quality seed are important in this practice just as in permanent seeding. Failure to carefully follow sound agronomic recommendations will often result in an inadequate stand of vegetation that provides little or no erosion control.
Nutrients and pesticides used to establish and maintain a vegetation cover shall be managed to protect the surface and ground water quality.
Temporary seeding shall be used extensively in sensitive areas (ponds and lake watersheds, steep slopes, streambanks, etc.).
Late fall seeding may fail and cause water quality deterioration in spring runoff events, thus other measures such as mulching shall be implemented.

**Specifications**

Seedbed Preparation
Apply limestone and fertilizer according to soil test recommendations. If soil testing is not feasible on small or variable sites, or where timing is critical, fertilizer may be applied at the rate of 600 pounds per acre or 13.8 pounds per 1,000 square feet of 10-10-10 (N-P2O5-K2O) or equivalent. Apply limestone (equivalent to 50 percent calcium plus magnesium oxide) at a rate of 3 tons per acre (138 lb. per 1,000 square feet).

**Seeding**

- Select seed from recommendations in enclosed table.
Where the soil has been compacted by construction operations, loosen soil to a depth of 2 inches before applying fertilizer, lime and seed.
Apply seed uniformly by hand, cyclone seeder, drill, cultipacker type seeder or hydroseeder (slurry including seed and fertilizer). Hydroseeding that includes mulch may be left on soil surface. Seeding rates must be increased 10% when hydroseeding.

**Mulching**

Apply mulch over seeded area according to the TEMPORARY MULCHING BMP.

**Maintenance**

Temporary seeding shall be periodically inspected. At a minimum, 95% of the soil surface should be covered by vegetation. If any evidence of erosion or sedimentation is apparent, repairs shall be made and other temporary measures used in the interim (mulch, filter barriers, check dams, etc.).

**Temporary Seeding Rates and Dates**

Table with 5 columns: Seed, Lb./Ac, Seeding Depth, Recommended Seeding Dates, Remarks. Rows include Winter Rye, Oats, Annual Ryegrass, Sudangrass, Perennial, and Temporary mulch with or and/or without dormant seeding.

**SEDIMENT BARRIERS**

**Tubular Sediment Barrier**

- To be provided by an approved manufacturer or supplier;
Installed per manufacturer's specifications;
Barrier shall be removed when they have served their useful purpose but not before the upslope areas has been permanently stabilized.

**Organic Filter Berm** See detail

**Installation**

- Sediment barriers shall be installed along the down gradient side of proposed ground disturbance areas prior to any construction activities.
The barrier must be placed along a relatively level contour.

**Maintenance**

- Hay bale barriers, silt fences and filter berms shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. They shall be repaired immediately if there are any signs of erosion or sedimentation below them. If there are signs of undercutting at the center or the edges of the barrier, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam.
Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier still is necessary, the fabric shall be replaced promptly.
Sediment deposits should be removed when deposits reach approximately one third (1/3) the height of the barrier.
Filter berms should be reshaped as needed.
Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed or removed to conform to the existing grade, prepared and seeded.
Additional stumps may have to be removed to the construction stabilized entrance, rock barriers, stone lined swales, etc., periodically to maintain proper function of the erosion control structure.

**PERMANENT SEEDING**

- Bedding - stones larger than 1 1/2", trash, roots, and other debris that will interfere with seeding and future maintenance of the area should be removed. Where feasible, the soil should be tilled to a depth of 6" to prepare a seedbed and mix fertilizer (refer to Landscape Drawings and Specifications) into the soil.
Fertilizer (refer to Landscape Drawings and Specifications) - lime and fertilizer should be applied evenly over the area prior to or at the time of seeding and incorporated into the soil. Kinds and amounts of lime and fertilizer should be based on an evaluation of soil tests.
Seed Mixture (See Landscape Drawings for additional information):
3.1. Lawn seed mix shall be a fresh, clean new seed crop. The Contractor shall furnish a dealer's guaranteed statement of the composition of the mixture and the percentage of purity and germination of each variety.
3.2. Seed mixture shall conform to landscape specifications
Sodding - sodding is done where it is desirable to rapidly establish cover on a disturbed area. Sodding an area may be substituted for permanent seeding procedures anywhere on site. Bed preparation, fertilizing and placement of sod shall be performed according to the S.O.S. Handbook. Sodding is recommended for steep sloped areas, areas immediately adjacent to sensitive water courses, easily erodible soils (fine sand/silt), etc.

**DEWATERING**

A dewatering plan shall be implemented to address excavation de-watering following heavy rainfall events or where the excavation may intercept the groundwater table during construction. The collected water needs treatment and a discharge point that will not cause downgradient erosion and offsite sedimentation or within a resource.

All dewatering discharge locations shall be located on relatively flat ground at least 75' from streams and 25' from wetlands. The contractor shall utilize dirtbags, erosion control mix berms, or similar methods for filtration of dewatering and shall conform to the Maine Erosion and Sediment Control BMPs.

**MONITORING SCHEDULE**

The contractor shall be responsible for installing, monitoring, maintaining, repairing, replacing and removing all of the erosion and sedimentation controls or appointing a qualified subcontractor to do so. Maintenance measures will be applied as needed during the entire construction cycle, immediately following any significant rainfall, and at least once a week, a visual inspection will be made of all erosion and sedimentation controls as follows:
Silt fence shall be inspected and repaired. Sediment trapped behind these barriers shall be excavated when it reaches a depth of 6" and redistributed to areas undergoing final grading.
Construction entrance shall be visually inspected and repaired as needed. Any areas subject to rutting shall be stabilized immediately. If the voids of the construction entrance become filled with mud, more crushed stone shall be added as needed. The public roadway shall be swept should mud be deposited/tracked onto them.

**STANDARDS FOR STABILIZING SITES FOR THE WINTER**

The following standards and methodologies shall be used for stabilizing the site during the winter construction period:

- Standard for the timely stabilization of disturbed soils (any area having a grade greater than 25%) - the contractor will seed and mulch all slopes to be vegetated by September 15th. If the contractor fails to stabilize any slope to be vegetated by September 15th, then the contractor will take one of the following actions to stabilize the slope for late fall and winter:
A. Stabilize the soil with temporary vegetation and erosion control mats; by October 1st the contractor will seed the disturbed slope with winter rye at a rate of 3 pounds per 1000 square feet and then install erosion control mats or anchored hay mulch over the seeding. The contractor will monitor growth of the rye over the next 30 days.
B. Stabilize the slope with wood-waste compost; the contractor will place a six-inch layer of wood-waste compost on the slope by November 15th. The contractor will not use wood-waste compost to stabilize slopes having grades greater than 50% (2h:1v) or having groundwater seeps on the slope face.
C. Stabilize the slope with stone riprap; the contractor will place a layer of stone riprap on the slope by November 15th. The development's owner will hire a registered professional engineer to determine the stone size needed for stability on the slope and to design a filter layer for underneath the riprap.
Standard for the timely stabilization of disturbed soils - by September 15th the contractor will seed and mulch all disturbed soils on the site. If the contractor fails to stabilize these soils by this date, then the contractor will take one of the following actions to stabilize the soil for late fall and winter:
A. Stabilize the soil with temporary vegetation; by October 1st the contractor will seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1000 square feet, and anchor the mulch with plastic netting. The contractor will monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before November 1, then the contractor will mulch the area for stabilization as described in item iii of this standard.
B. Stabilize the soil with sod; the contractor will stabilize the disturbed soil with properly installed sod by October 1st. Proper installation includes the contractor pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.
C. Stabilize the soil with mulch; by November 15th the contractor will mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1000 square feet on the area so that no soil is visible through the mulch. Immediately after applying the mulch, the contractor will anchor the mulch with netting or other method to prevent wind from moving the mulch off the disturbed soil.
Winter inspections shall be performed after, each rainfall, snowstorm or thawing and at least once a week. All areas within 75 feet of a protected natural resource must be protected with a double row of sediment barrier.

**EROSION CONTROL REMOVAL**

An area is considered stable if it is paved or if 90% growth of planted seeds is established. Once an area is considered stable, the erosion control measures can be removed as follows:

- Silt Fence: Silt fence shall be disposed of legally and properly off-site. All sediment trapped behind these controls shall be distributed to an area undergoing final grading or removed and relocated off-site.
Stabilized Construction Entrances: The stabilized construction entrance shall be removed once the compacted roadway base is in place. Stone and sediment from the construction entrance shall be redistributed to an area undergoing grading or removed and relocated offsite.
Miscellaneous: Once all the trapped sediments have been removed from the temporary sedimentation devices the disturbed areas must be regraded in an aesthetic manner to conform to the surrounding topography. Once graded these disturbed areas must be loamed (if necessary), fertilized, seeded and mulched in accordance with the rates previously stated.

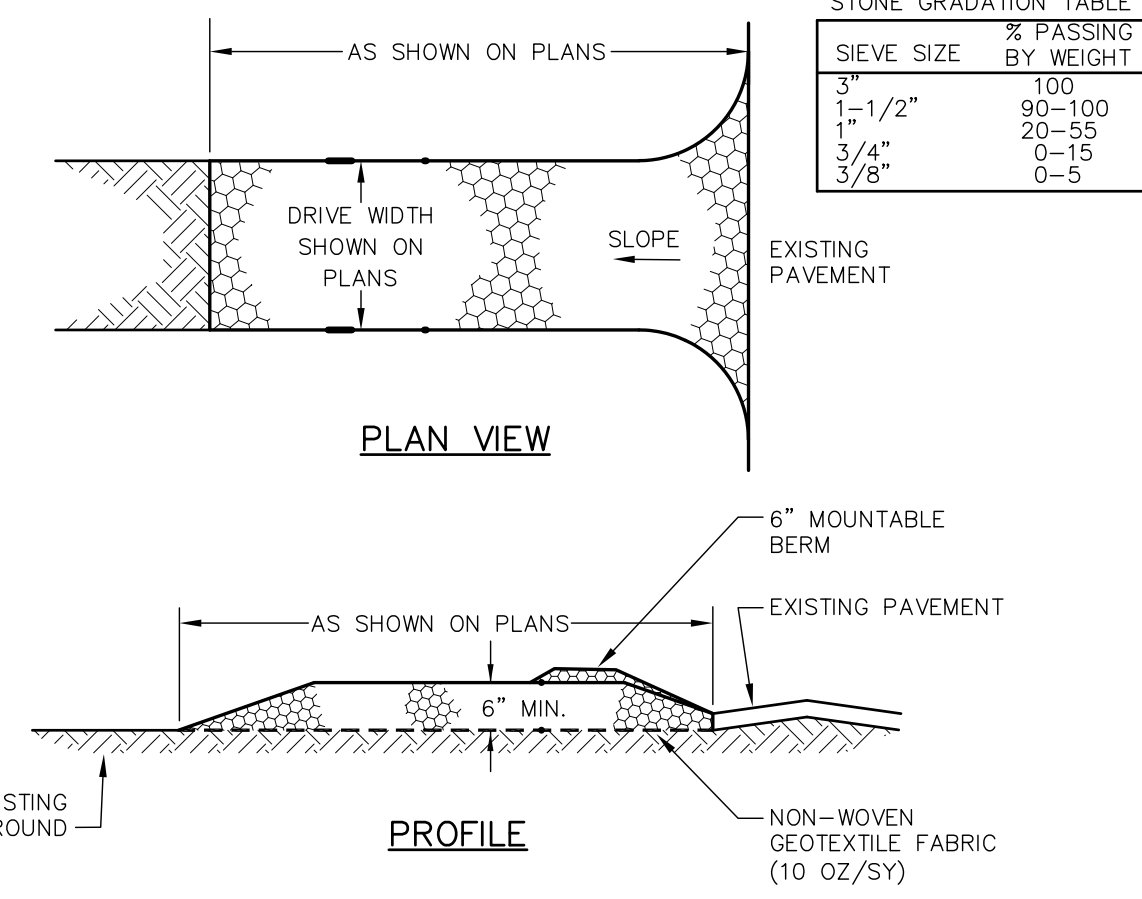
The above erosion controls must be removed within 30 days of final stabilization of the site. Conformance with this plan and following these practices will result in a project that complies with the state regulations and the standards of the natural resources protection act, and will protect water quality in areas downstream from the project.

**INSPECTION AND MAINTENANCE**

- All sediment control measures shall be inspected at least once each week and following any storm event of 0.5 inches or greater for the duration of construction and until the site is fully stabilized. An inspection report shall be made after each inspection by a qualified inspector engaged by the Owner. The qualified inspector shall be a Professional Engineer licensed in Maine or be a Certified Professional in Erosion and Sediment Control approved by the Owner.
All measures shall be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours and completed within 72 hours.
Inspection and maintenance requirements: Inspect disturbed and impervious areas, erosion and stormwater control measures, areas used for storage that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspect these areas at least once a week as well as before and after a 0.5 inches or greater storm event and prior to completion of permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards in the MCGP and any departmental companion document to the MCGP, must conduct the inspection. This person must be identified in the inspection log. If best management practices (BMPs) need to be modified or if additional BMPs are necessary, implementation must be completed within 7 calendar days and prior to any storm event (rainfall). All measures must be maintained in effective operating condition until areas are permanently stabilized.
Inspection Log (report): A log (report) must be kept summarizing the scope of the inspection, name(s) and qualifications of the person making the inspection, the date(s) of the inspection, and major observations relating to operation of erosion and sedimentation controls and pollution prevention measures. 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 needing replacement, and location needing additional BMPs, note in the inspection log the correct action taken and when it was taken. The log must be made accessible to the 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 the permanent stabilization.

**HOUSEKEEPING**

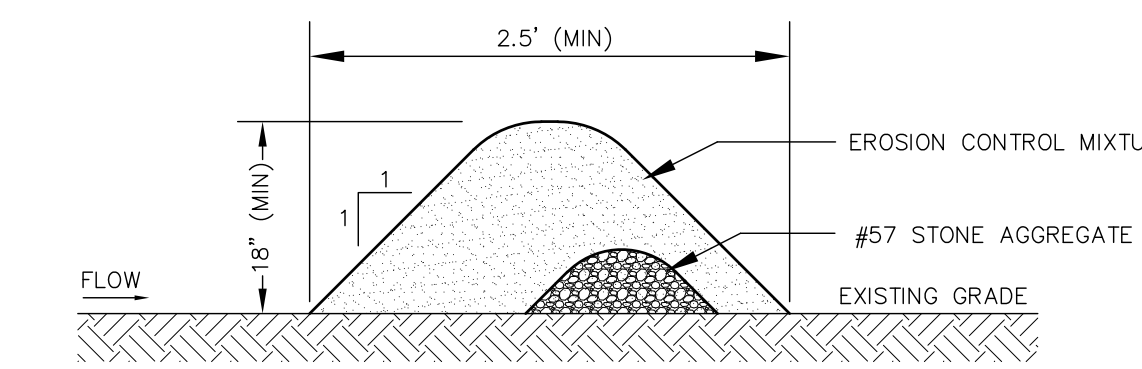
- Spill prevention: Controls must be used to prevent pollutants from construction and waste materials stored onsite, including storage practices to minimize exposure of the materials to stormwater and appropriate spill prevention, containment, and response planning implementation. The contractor and owners need to take care with construction and waste materials such that contaminants do not enter the stormwater. The storage of materials such as paint, petroleum products, cleaning agents and the like are to be stored in watertight containers. The use of the products should be in accordance with manufacturer recommendations. When fueling equipment, including snowblowers and lawnmowers, have oil absorbent pads available below the fueling. Refueling of small engines by the owner should occur in the garage or on a paved surface. Any spill or release of toxic or



**CONSTRUCTION SPECIFICATIONS**

- STONE SIZE - MEDOT STANDARD STONE SIZE #4 - SECTION 703 OF MEDOT STANDARD.
LENGTH - DETAILED ON PLANS (50 FOOT MINIMUM).
THICKNESS - SIX (6) INCHES (MINIMUM).
WIDTH - FULL DRIVE WIDTH UNLESS OTHERWISE SPECIFIED.
FILTER FABRIC - MIRAFI 600X OR EQUAL APPROVED BY ENGINEER.
SURFACE WATER CONTROL - ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE, IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES SHALL BE CONSTRUCTED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS WILL REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AT ALL ENTRANCES TO PUBLIC RIGHTS-OF-WAY, AT LOCATIONS SHOWN ON THE PLANS, AND/OR WHERE AS DIRECTED BY THE ENGINEER.

**STABILIZED CONSTRUCTION EXIT NOT TO SCALE**

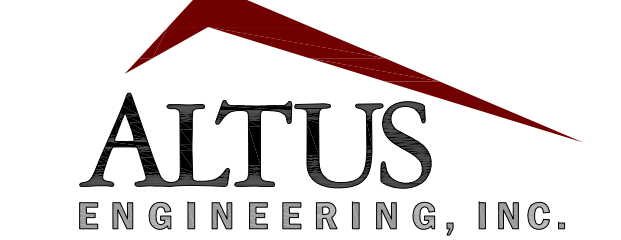


**NOTES**

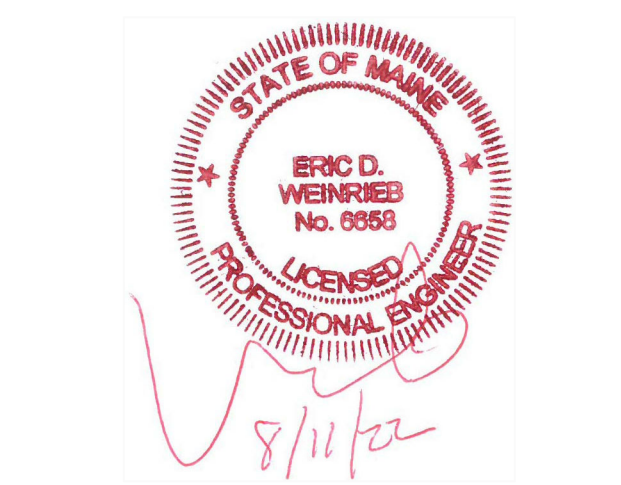
- ORGANIC FILTER BERMS MAY BE UTILIZED IN LIEU OF SILT FENCE OR OTHER SEDIMENT BARRIERS.
THE EROSION CONTROL MIXTURE USED IN FILTER BERMS SHALL BE A WELL-GRADED MIX OF PARTICLE SIZES THAT MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER, STUMP GRINDINGS, SHREDDED OR COMPOSTED BARK, AND/OR ACCEPTABLE MANUFACTURED PRODUCTS AND SHALL BE FREE OF REFUSE, PHYSICAL CONTAMINANTS AND MATERIAL TOXIC TO PLANT GROWTH. EROSION CONTROL MIXTURE SHALL MEET THE FOLLOWING STANDARDS:
a) THE ORGANIC CONTENT SHALL BE 80-100% OF DRY WEIGHT.
b) PARTICLE SIZE BY WEIGHT SHALL BE 100% PASSING A 6" SCREEN, AND 70-85% PASSING A 0.75" SCREEN.
c) THE ORGANIC PORTION SHALL BE FIBROUS AND ELONGATED.
d) LARGE PORTIONS OF SILTS, CLAYS, OR FINE SANDS SHALL NOT BE INCLUDED IN THE MIXTURE.
e) SOLUBLE SALTS CONTENT SHALL BE >4.0mhos/cm.
f) THE PH SHALL BE BETWEEN 5.0 AND 8.0.
ORGANIC FILTER BERMS SHALL BE INSTALLED ALONG A RELATIVELY LEVEL CONTOUR. IT MAY BE NECESSARY TO CUT TALL GRASSES OR WOODY VEGETATION TO AVOID CREATING VOIDS AND BRIDGES THAT WOULD ENABLE FINES TO WASH UNDER THE BERM.
ON SLOPES LESS THAN 5% OR AT THE BOTTOM OF SLOPES NO STEEPER THAN 3:1 AND UP TO 20' LONG, THE BERM SHALL BE A MINIMUM OF 12" HIGH (AS MEASURED ON THE UPHILL SIDE) AND A MINIMUM OF 36" WIDE. ON LONGER AND/OR STEEPER SLOPES, THE BERM SHALL BE TALLER AND WIDER TO ACCOMMODATE THE POTENTIAL FOR ADDITIONAL RUNOFF (MAXIMUM HEIGHT SHALL NOT EXCEED 2').
FROZEN GROUND, OUTCROPS OF BEDROCK, AND VERY ROOTED FORESTED AREAS PRESENT THE MOST PRACTICAL AND EFFECTIVE LOCATIONS FOR ORGANIC FILTER BERMS. OTHER BMP'S SHOULD BE USED AT LOW POINTS OR CONCENTRATED RUNOFF, BELOW VERT. OUTLET APRONS, AROUND CATCH BASINS, AND AT THE BOTTOM OF STEEP PERIMETER SLOPES THAT HAVE A LARGE CONTRIBUTING AREA.
SEDIMENT SHALL BE REMOVED FROM BEHIND THE FILTER BERMS WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE BERM.
ORGANIC FILTER BERMS MAY BE LEFT IN PLACE ONCE THE SITE IS STABILIZED PROVIDED ANY SEDIMENT DEPOSITS TRAPPED BY THEM ARE REMOVED AND DISPOSED OF PROPERLY.
FILTER BERMS ARE PROHIBITED AT THE BASE OF SLOPES STEEPER THAN 8% OR WHERE THERE IS FLOWING WATER WITHOUT THE SUPPORT OF ADDITIONAL MEASURES SUCH AS SILTFENCE.

**ORGANIC FILTER BERM NOT TO SCALE**

**ENGINEER:**



133 Court Street  
(603) 433-2335  
Portsmouth, NH 03801  
www.altus-eng.com



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**ISSUE DATE: AUGUST 11, 2022**

Table with 3 columns: NO., DESCRIPTION, BY, DATE. Row 0: INITIAL SUBMISSION, EBS, 12/22/21. Row 1: GENERAL REVISIONS, EBS, 08/11/22.

**DRAWN BY:** \_\_\_\_\_ **RMB**  
**APPROVED BY:** \_\_\_\_\_ **EBS**  
**DRAWING FILE:** \_\_\_\_\_ **5235DETAILS.DWG**

**SCALE:**  
**NOT TO SCALE**

**OWNER/APPLICANT:**  
**LUSITANO, LLC**  
**JIM HIGGINS**  
**119 KINGS HIGHWAY NO.**  
**ELIOT, MAINE 03903**

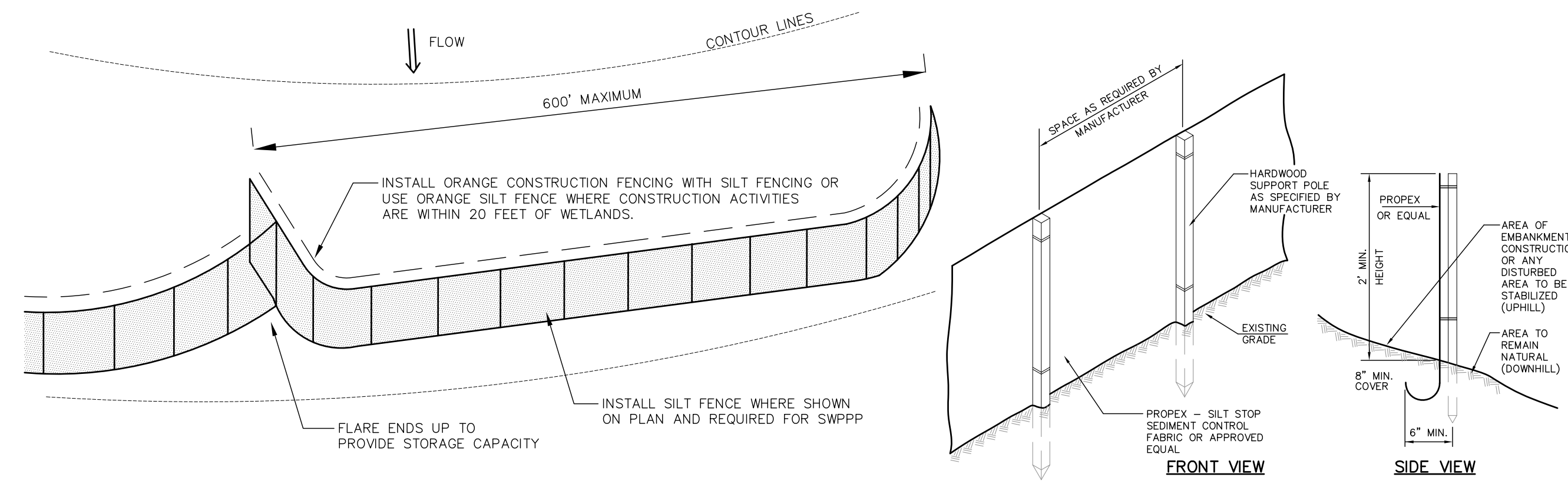
**PROJECT:**  
**RE-DEVELOPMENT PLAN**

**TAX MAP 16, LOT 148**  
**28 WYMAN AVENUE**  
**KITTERY, MAINE**

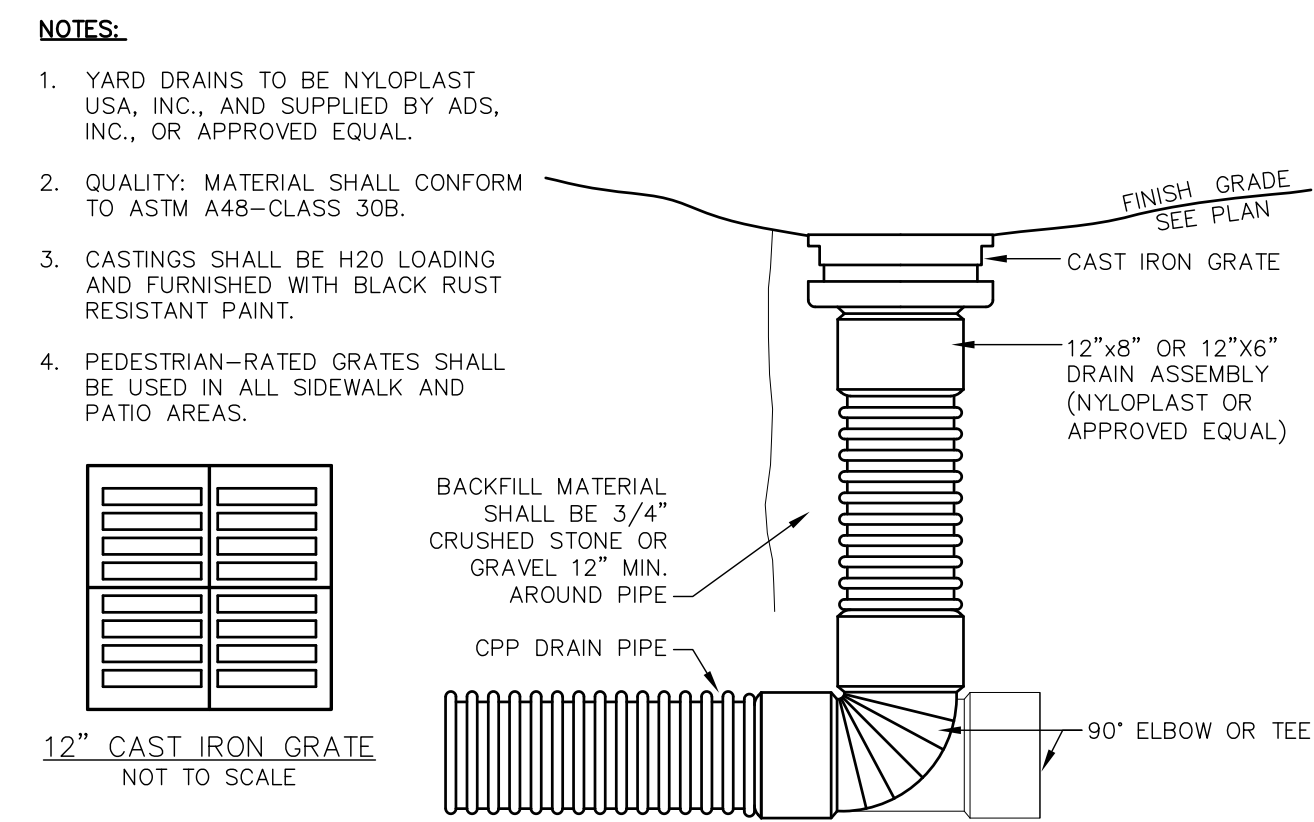
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**EROSION CONTROL NOTES**

**SHEET NUMBER:**  
**C - 5**

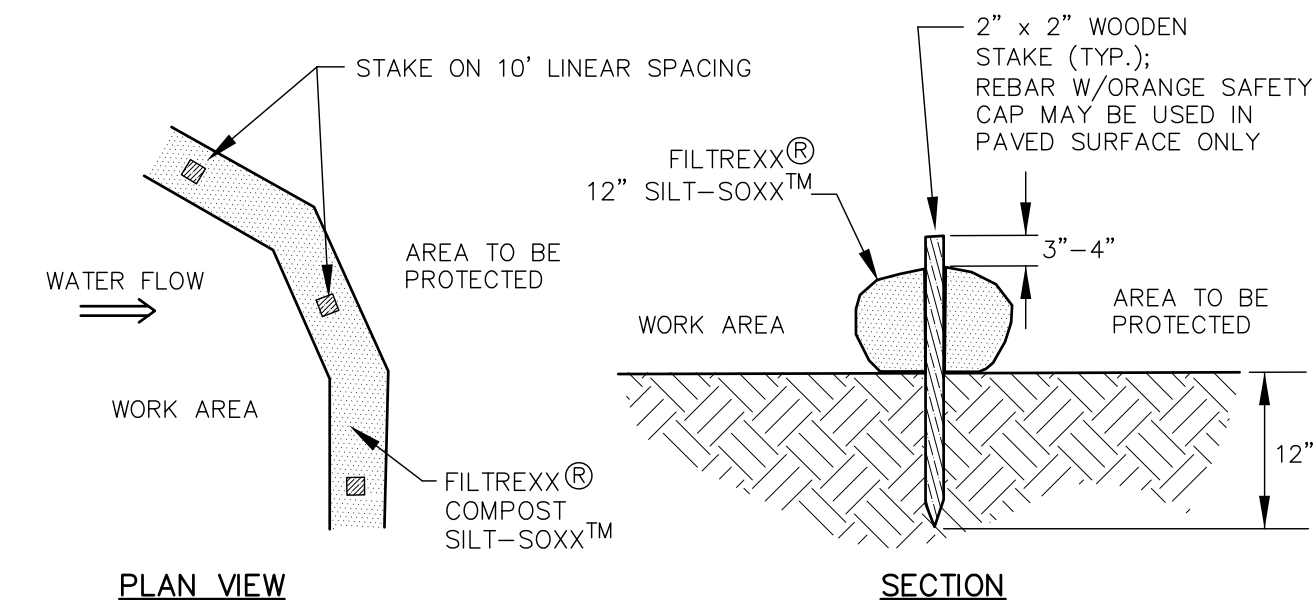
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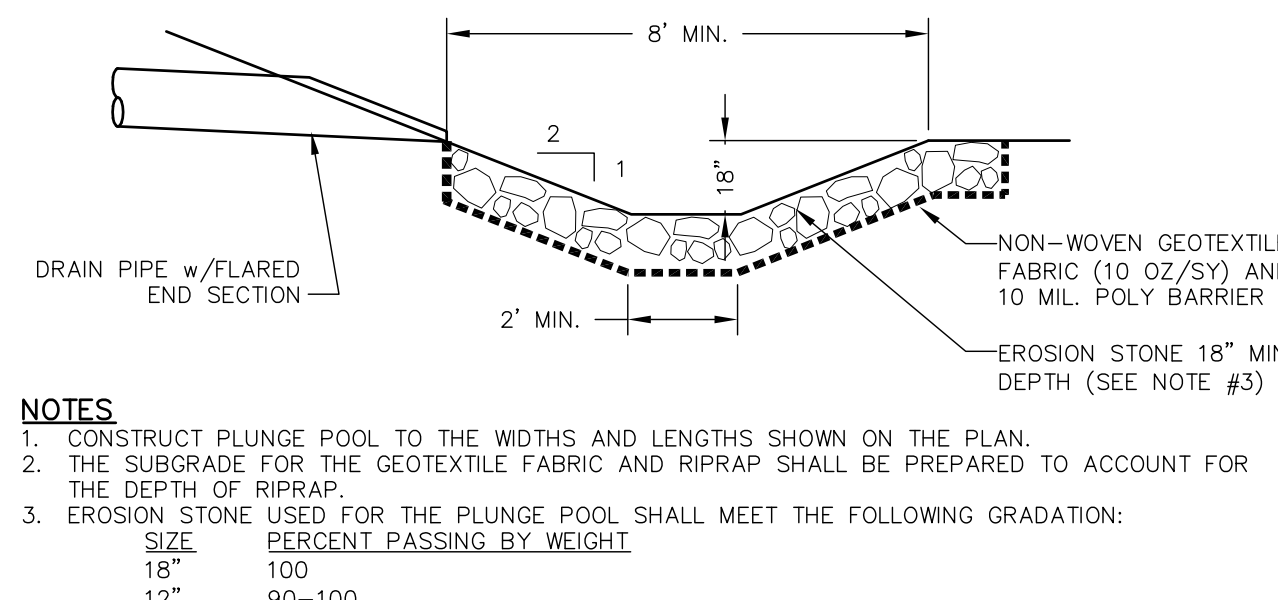
**SILT AND ORANGE CONSTRUCTION FENCE LAYOUT DETAIL** NOT TO SCALE



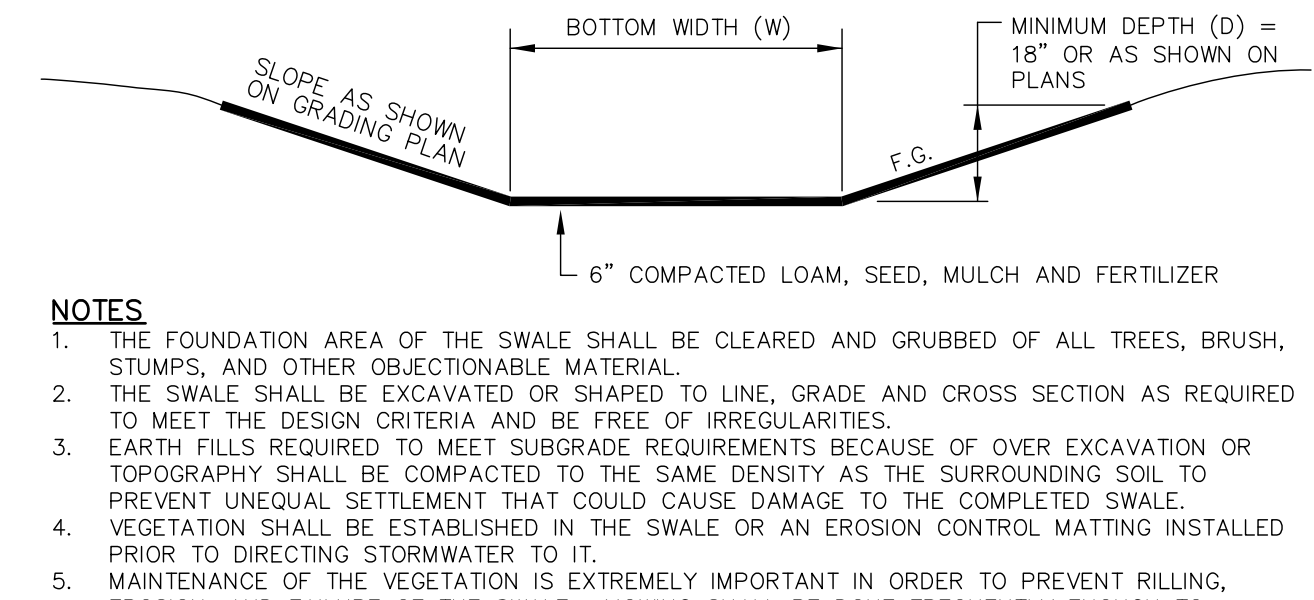
**YARD DRAIN (YD)** NOT TO SCALE



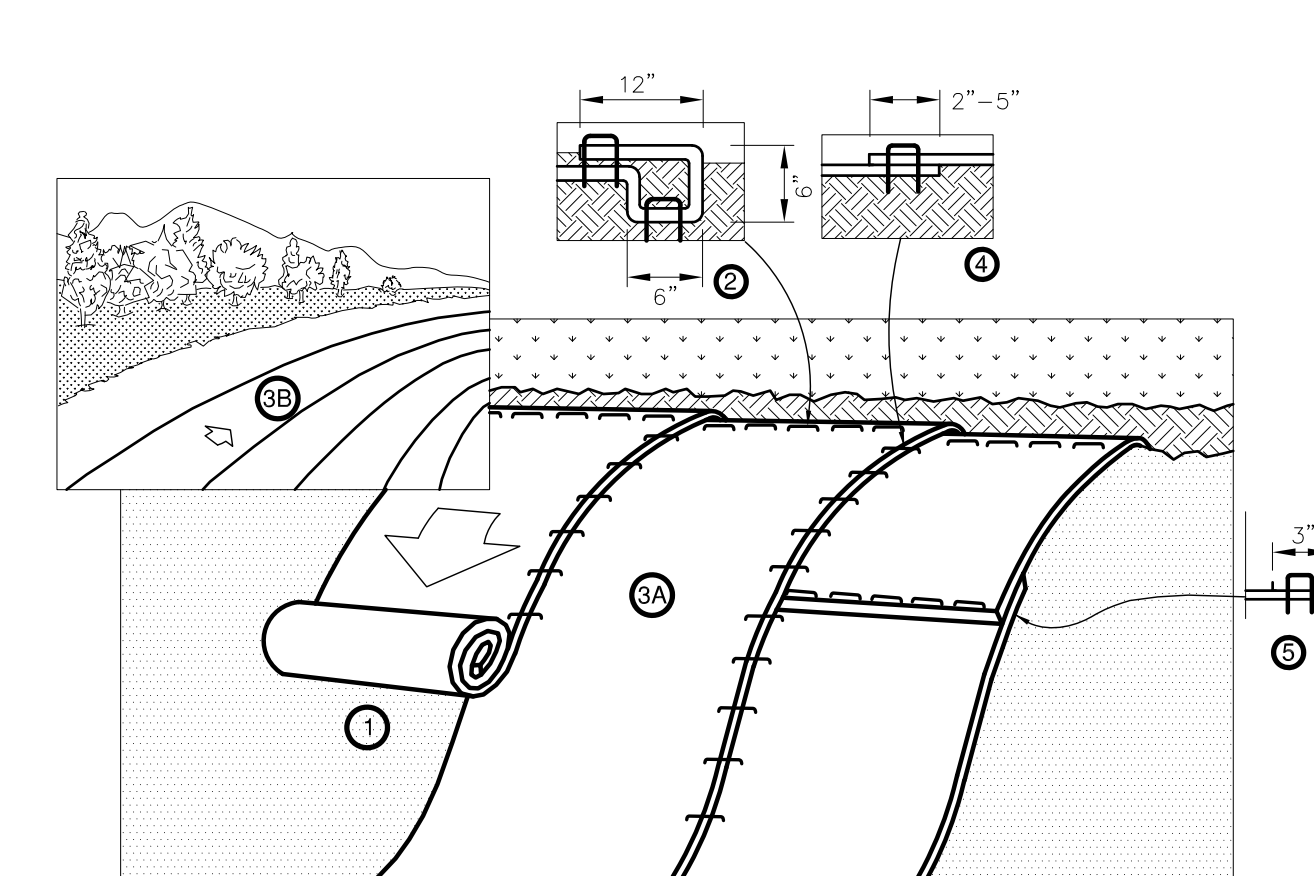
**TUBULAR SEDIMENT BARRIER** NOT TO SCALE



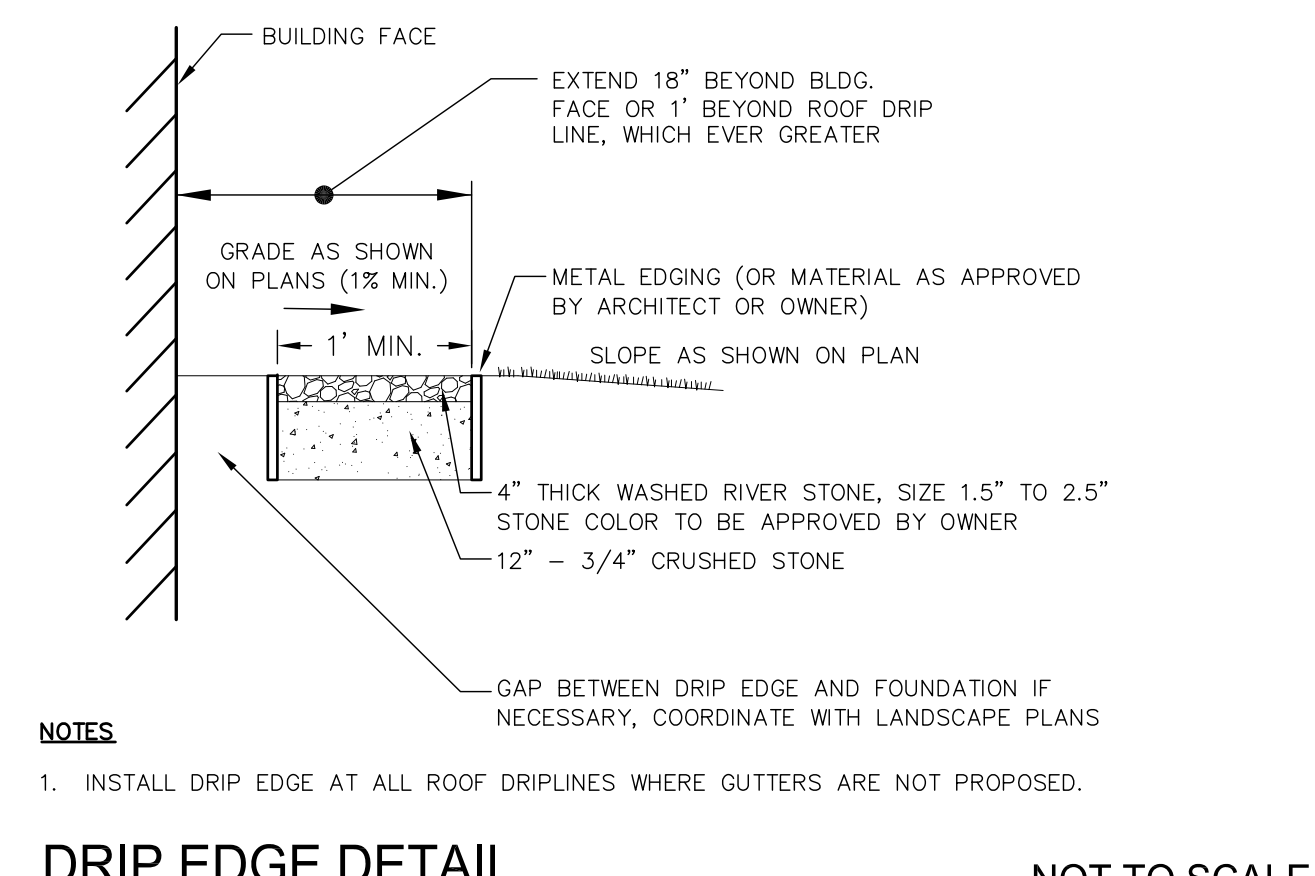
**PLUNGE POOL** NOT TO SCALE



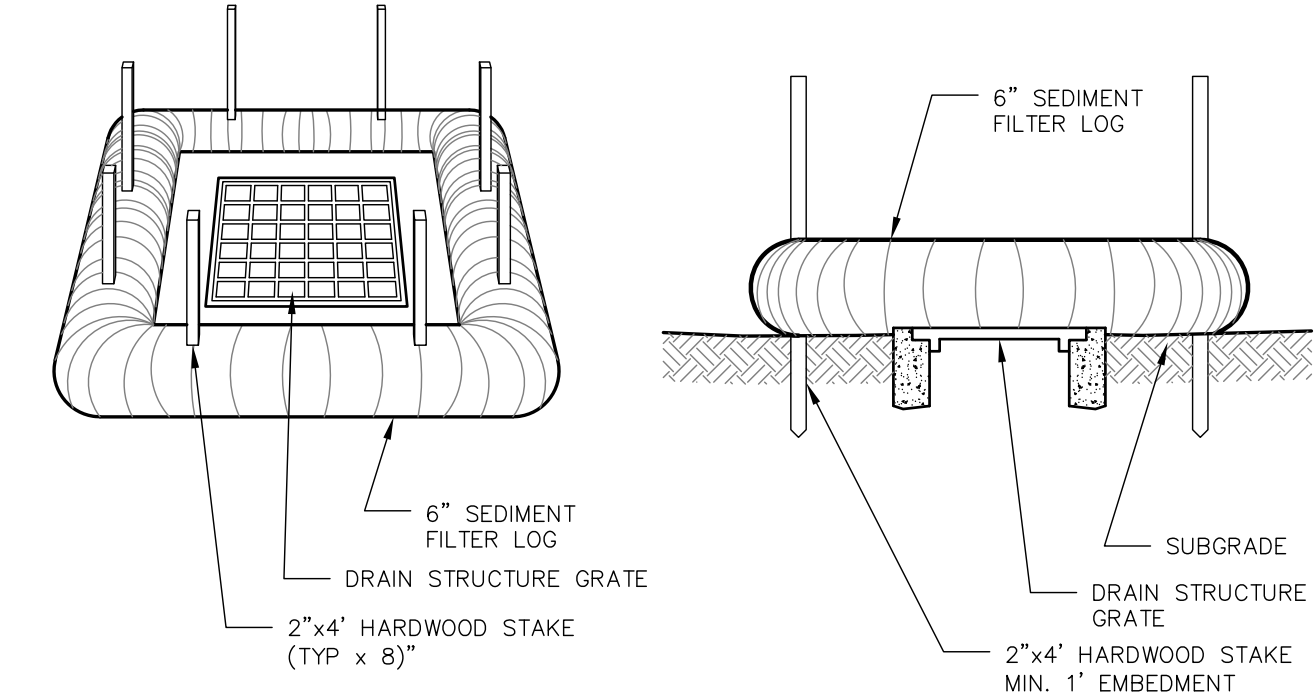
**VEGETATED SWALE** NOT TO SCALE



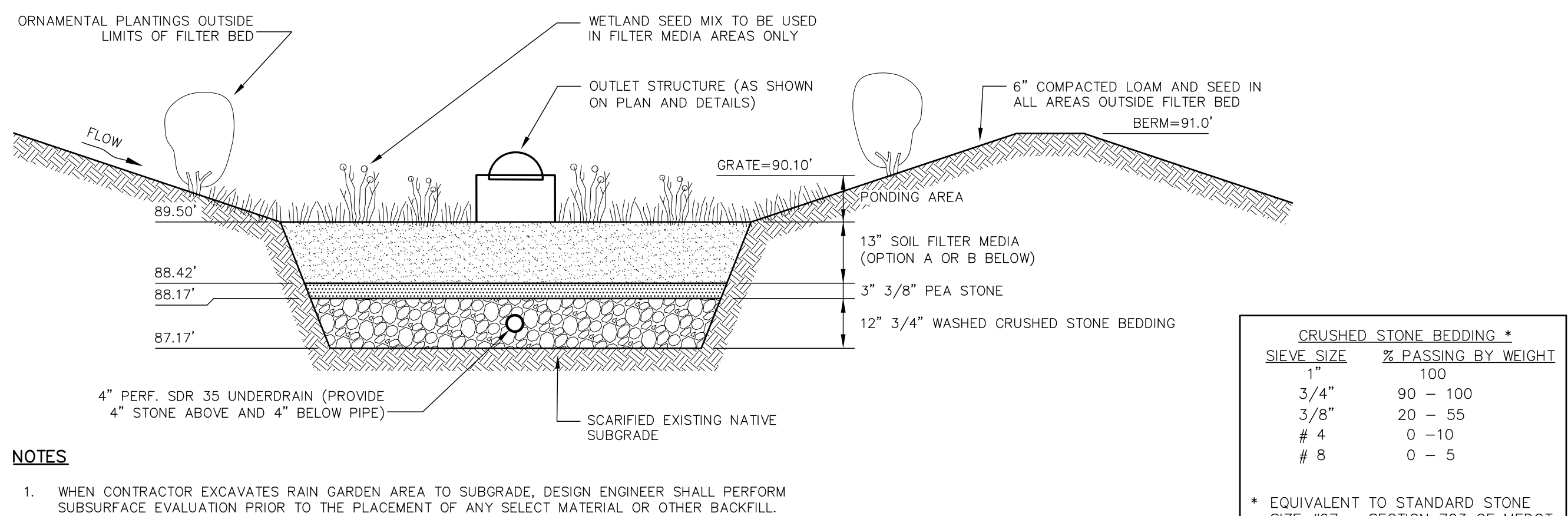
**EROSION CONTROL BLANKET - SLOPE** NOT TO SCALE



**DRIP EDGE DETAIL** NOT TO SCALE



**SEDIMENT FILTER LOG - CATCH BASIN INLET PROTECTION** NOT TO SCALE

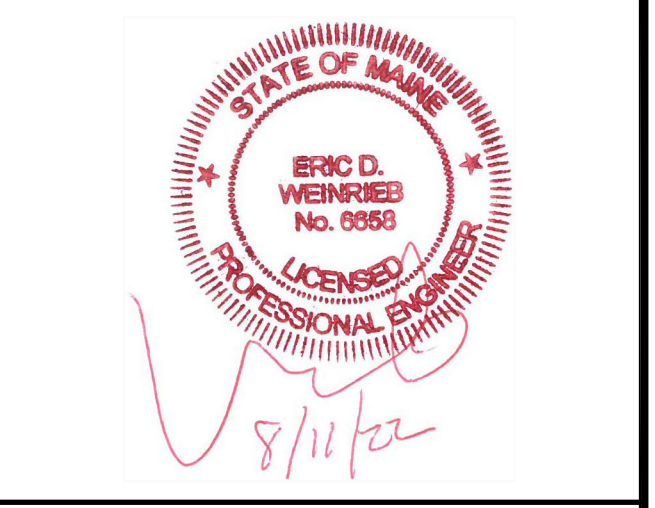


**TYPICAL GRASSED SOIL FILTER (GSF)** NOT TO SCALE

**NOTES:**

1. THE FOUNDATION AREA OF THE SWALE SHALL BE CLEARED AND GRUBBED OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL.
2. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE DESIGN CRITERIA AND BE FREE OF IRREGULARITIES.
3. EARTH FILLS REQUIRED TO MEET SUBGRADE REQUIREMENTS BECAUSE OF OVER EXCAVATION OR TOPOGRAPHY SHALL BE COMPACTED TO THE SAME DENSITY AS THE SURROUNDING SOIL TO PREVENT UNEQUAL SETTLEMENT THAT COULD CAUSE DAMAGE TO THE COMPLETED SWALE.
4. VEGETATION SHALL BE ESTABLISHED IN THE SWALE OR AN EROSION CONTROL MATTING INSTALLED PRIOR TO DIRECTING STORMWATER TO IT.
5. MAINTENANCE OF THE VEGETATION IS EXTREMELY IMPORTANT IN ORDER TO PREVENT RILLING, EROSION, AND FAILURE OF THE SWALE. MOWING SHALL BE DONE FREQUENTLY ENOUGH TO CONTROL ENCROACHMENT OF WEEDS AND WOODY VEGETATION AND TO KEEP GRASSES IN A VIGOROUS CONDITION. THE VEGETATION SHALL NOT BE MOWED TOO CLOSELY SO AS TO REDUCE THE EROSION RESISTANCE IN THE SWALE.
6. THE SWALE SHOULD BE INSPECTED PERIODICALLY AND AFTER ANY STORM GREATER THAN 0.5" OF RAINFALL IN 24 HOURS TO DETERMINE ITS CONDITION. RILLS AND DAMAGED AREAS SHOULD BE PROMPTLY REPAIRED AND REVEGETATED AS NECESSARY TO PREVENT FURTHER DETERIORATION.

FILTER MEDIA MIXTURES			
Component Material	Percent of Mixture by Volume	Gradation of material	
		Sieve No.	Percent by Weight Passing Standard Sieve
<b>Filter Media Option A</b>			
ASTM C-33 concrete sand	50 to 55		
Loamy sand topsoil, with fines as indicated	20 to 30	200	15 to 25
Moderately fine shredded bark or wood fiber mulch, with fines as indicated	20 to 30	200	< 5
<b>Filter Media Option B</b>			
Moderately fine shredded bark or wood fiber mulch, with fines as indicated	20 to 30	200	< 5
Loamy coarse sand	70 to 80	10	85 to 100
		20	70 to 100
		60	15 to 40
		200	8 to 15



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NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EBS	12/22/21
1	REV. GUSF DETAIL	EBS	08/11/22

DRAWN BY: RMB  
 APPROVED BY: EBS  
 DRAWING FILE: 5235DETAILS.DWG

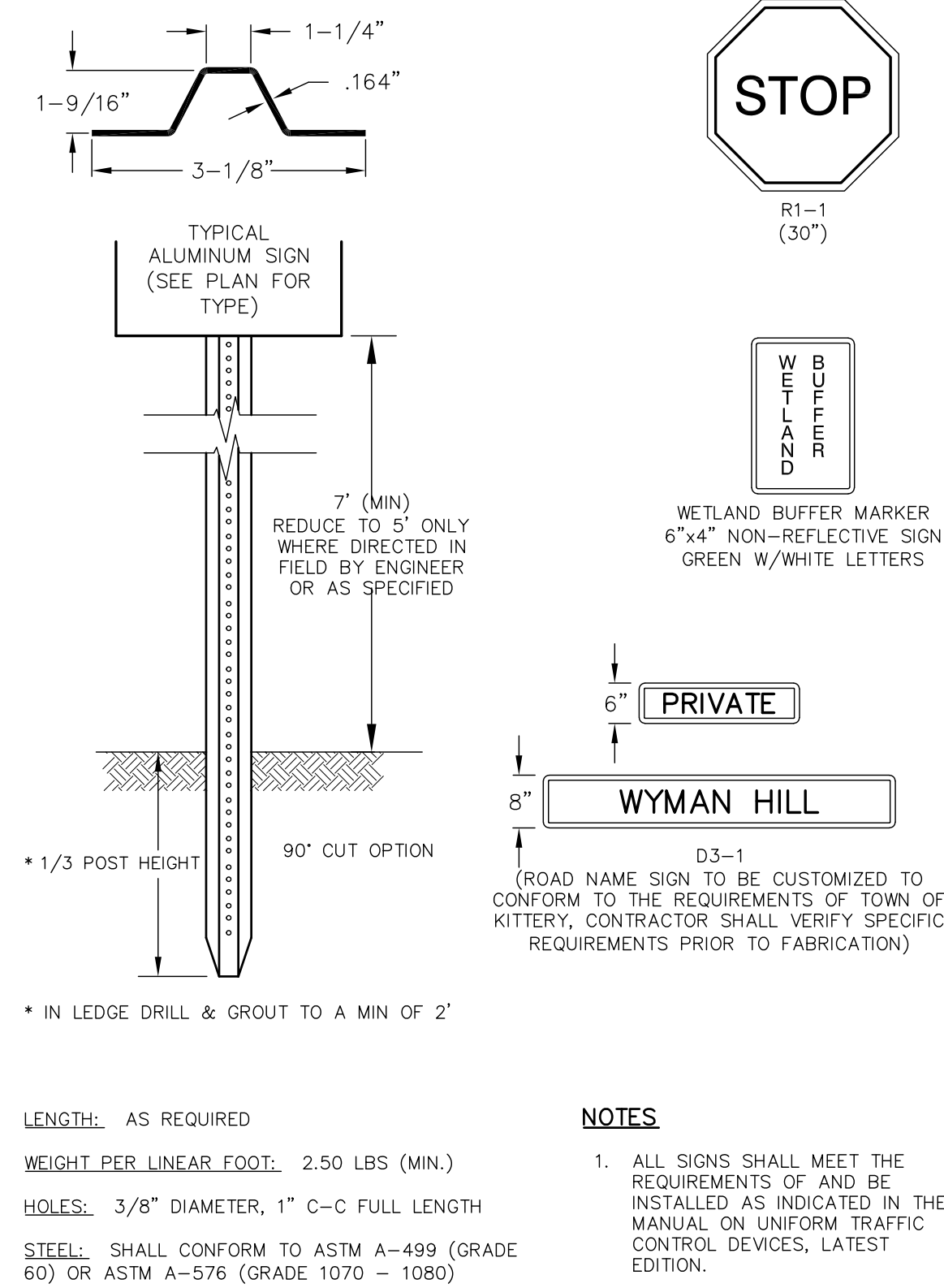
SCALE: NOT TO SCALE

OWNER/APPLICANT:  
 LUSITANO, LLC  
 JIM HIGGINS  
 119 KINGS HIGHWAY NO.  
 ELIOT, MAINE 03903

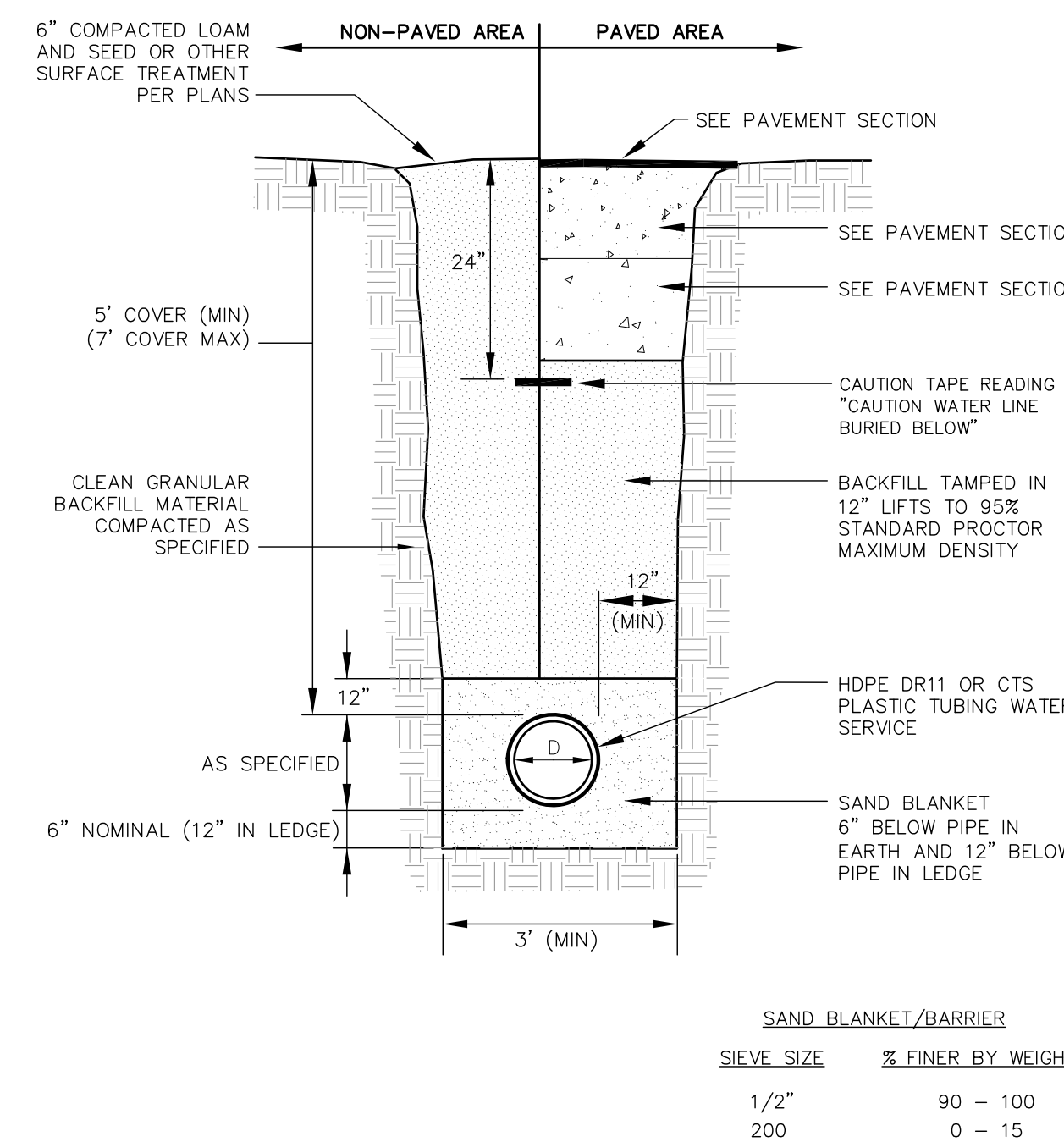
PROJECT:  
**RE-DEVELOPMENT PLAN**  
**TAX MAP 16, LOT 148**  
 28 WYMAN AVENUE  
 KITTERY, MAINE

TITLE:  
**EROSION CONTROL DETAILS**

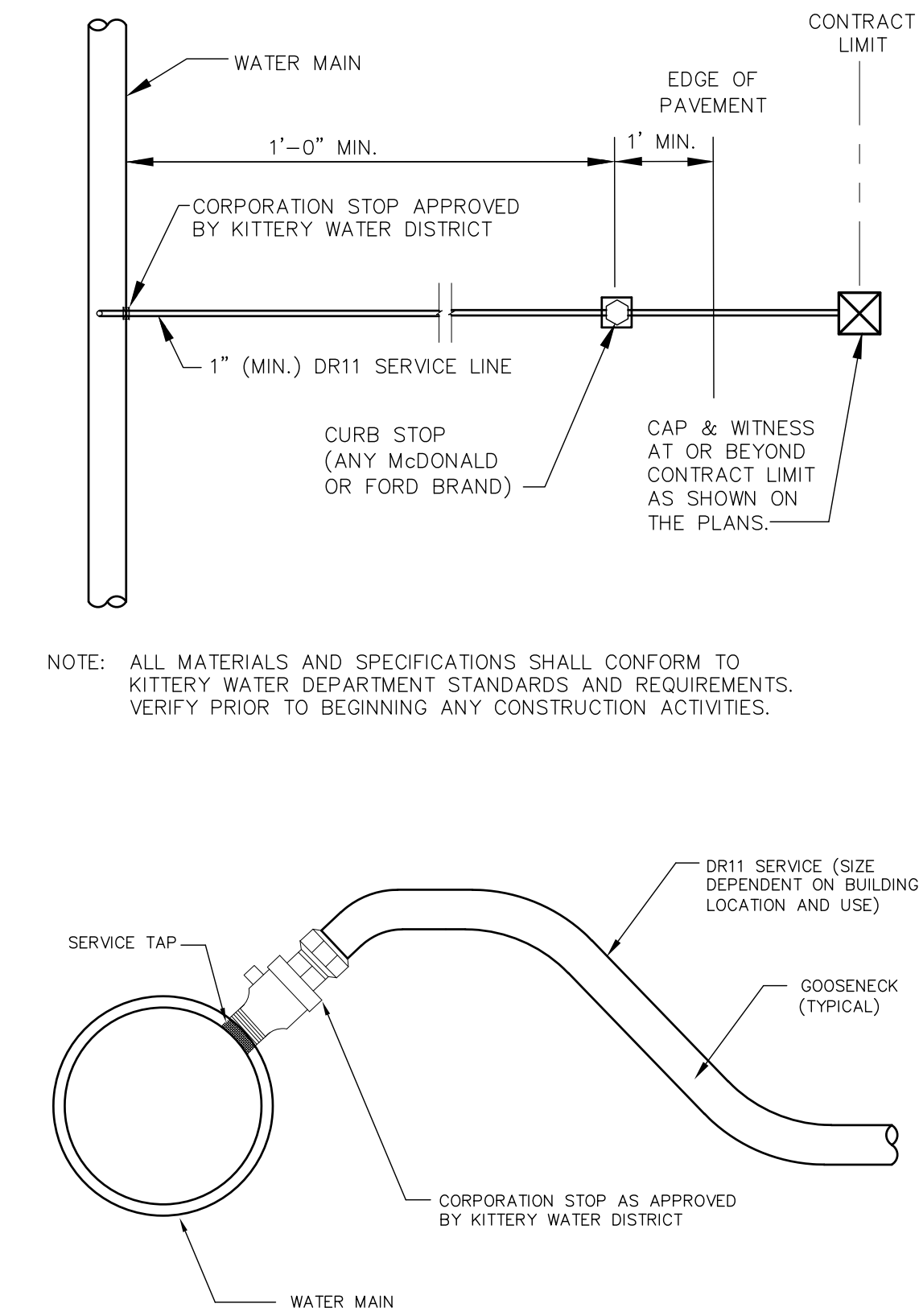
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**C - 6**



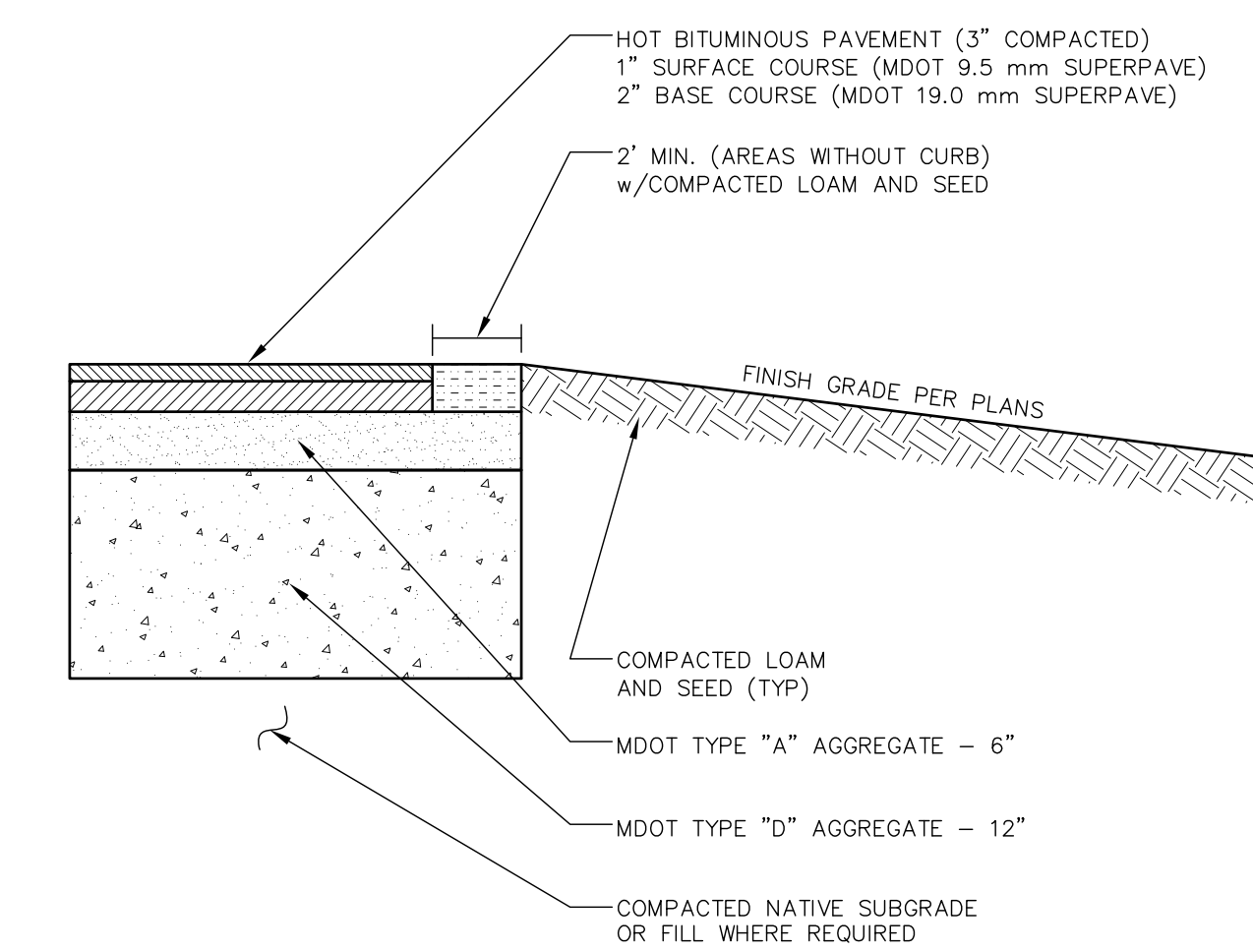
**SIGN DETAILS NOT TO SCALE**



**WATER MAIN TRENCH NOT TO SCALE**

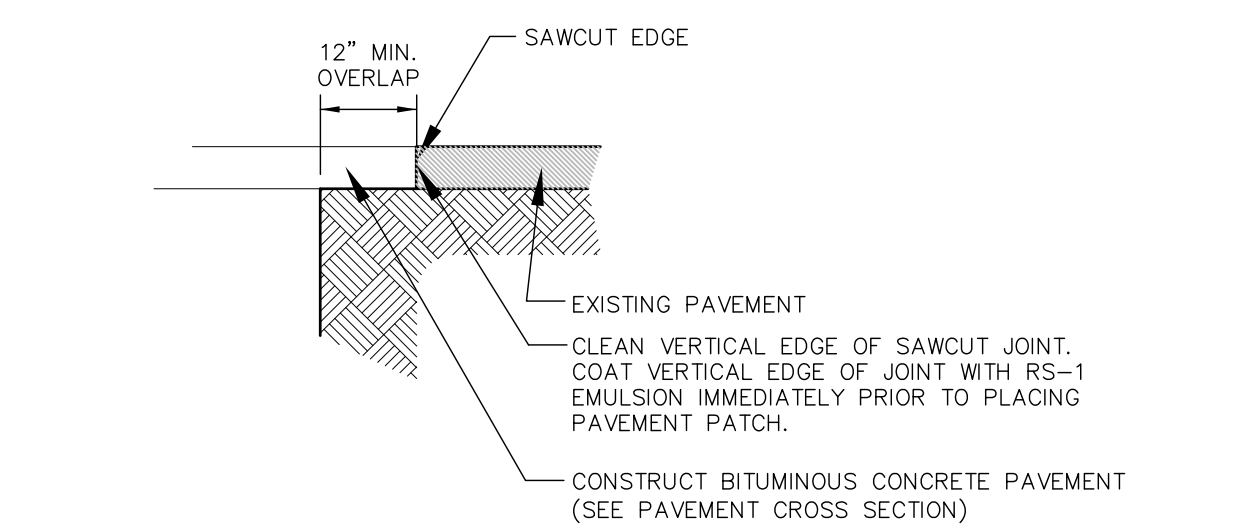


**WATER SERVICE CONNECTION NOT TO SCALE**

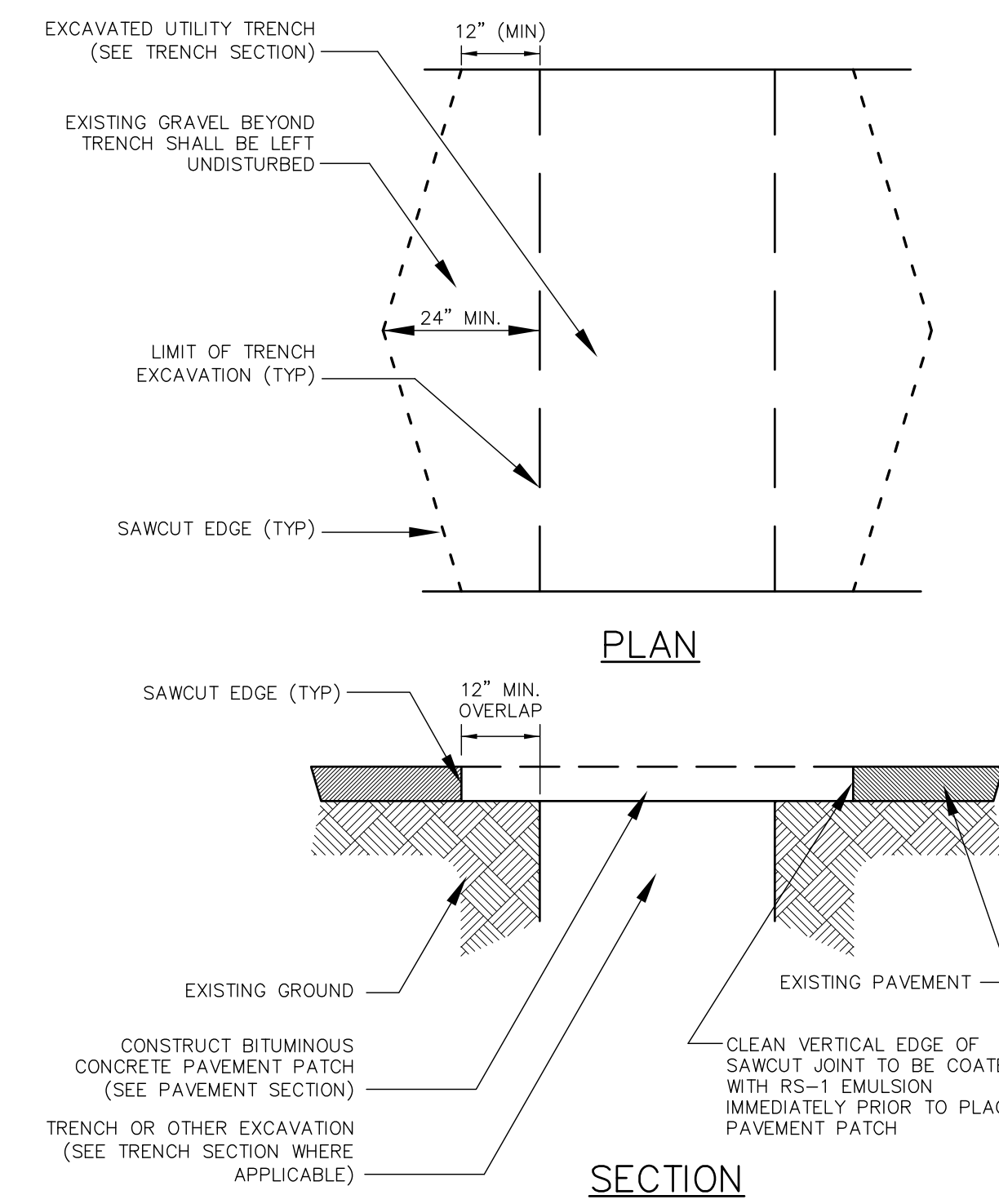


- NOTES FOR STANDARD AND HEAVY DUTY ASPHALT PAVEMENT**
- PROJECT GEOTECHNICAL REPORT MAY REQUIRE A DIFFERENT PAVEMENT CROSS SECTION(S). THE CONTRACTOR SHALL BE RESPONSIBLE FOR READING AND FOLLOWING ALL RECOMMENDATIONS IN THE GEOTECHNICAL REPORT. IN THE EVENT THAT THE REPORT AND CIVIL PLANS DIFFER, THE MORE STRINGENT SPECIFICATION SHALL APPLY.
  - ALL EXISTING FILL, BURIED ORGANIC MATTER, CLAY, LOAM, MUCK, AND/OR OTHER QUESTIONABLE MATERIAL SHALL BE REMOVED FROM BELOW ALL PAVEMENT, SHOULDERS AND UNDERGROUND PIPING/UTILITIES TO DEPTHS RECOMMENDED IN GEOTECHNICAL REPORT.
  - SUBGRADE SHALL BE PROOFROLLED A MINIMUM OF 6 PASSES WITH A 10-TON VIBRATORY COMPACTOR OPERATING AT PEAK RATED FREQUENCY OR BY MEANS APPROVED BY THE ENGINEER.
  - FILL BELOW PAVEMENT GRADES SHALL BE GRANULAR BORROW COMPACTED PER DOT REQUIREMENTS.
  - SIWELK CONTRACTOR SHALL COORDINATE GEOTECHNICAL ENGINEERING INSPECTIONS WITH THE CONSTRUCTION MANAGER PRIOR TO PLACING GRAVELS.
  - TACK COAT SHALL BE APPLIED BETWEEN SUCCESSIVE LIFTS OF ASPHALT.
  - THE BITUMINOUS PAVEMENT SHALL BE COMPACTED TO 95 PERCENT OF ITS THEORETICAL MAXIMUM DENSITY AS DETERMINED BY ASTM D-2041. THE BASE AND SUBBASE MATERIALS SHOULD BE COMPACTED TO AT LEAST 95 PERCENT OF THEIR MAXIMUM DRY DENSITIES AS DETERMINED BY ASTM D-1557.

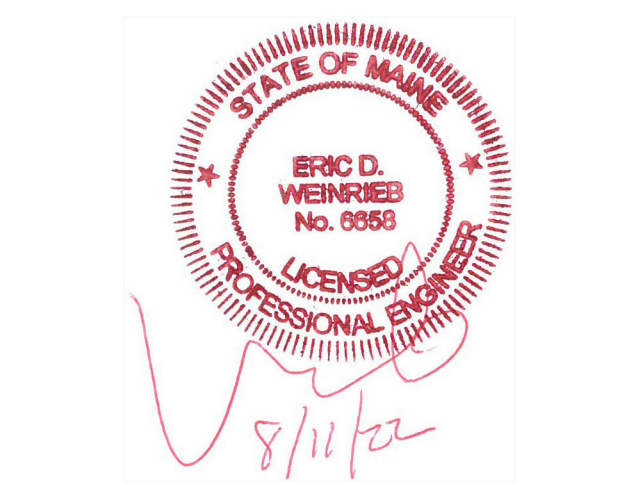
**STANDARD DUTY ASPHALT PAVEMENT NOT TO SCALE**



**TYPICAL PAVEMENT SAWCUT NOT TO SCALE**



**TYPICAL TRENCH PATCH NOT TO SCALE**



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0	INITIAL SUBMISSION	EBS	12/22/21
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DRAWN BY: RMB  
 APPROVED BY: EBS  
 DRAWING FILE: 5235DETAILS.DWG

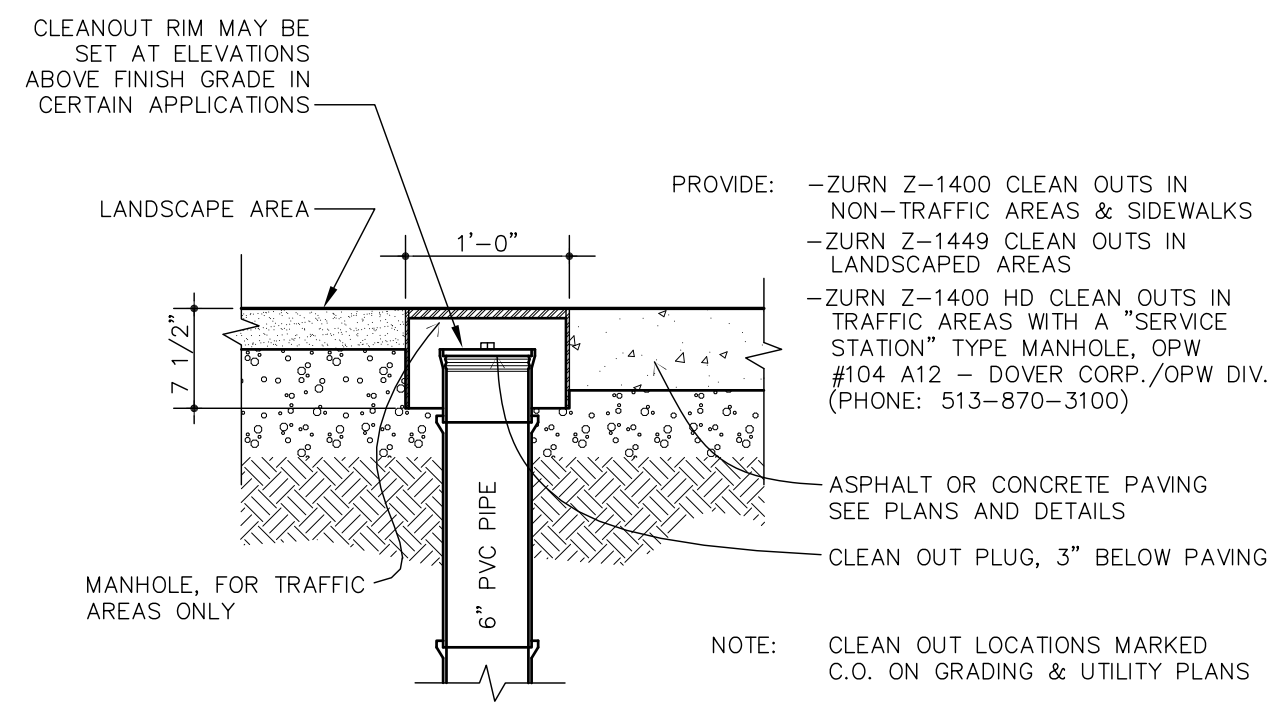
SCALE: NOT TO SCALE

OWNER/APPLICANT:  
 LUSITANO, LLC  
 JIM HIGGINS  
 119 KINGS HIGHWAY NO.  
 ELIOT, MAINE 03903

PROJECT:  
**RE-DEVELOPMENT PLAN**  
 TAX MAP 16, LOT 148  
 28 WYMAN AVENUE  
 KITTERY, MAINE

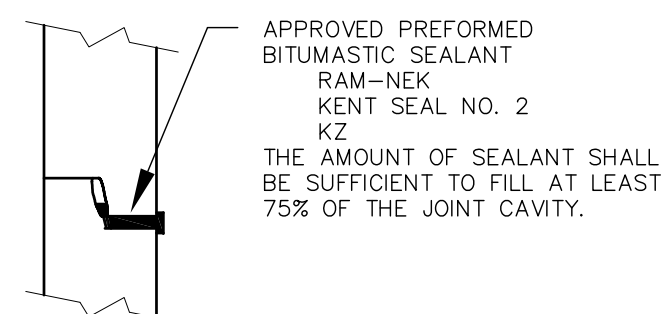
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 DETAIL SHEET

SHEET NUMBER:  
**C - 7**



**CLEANOUT**

NOT TO SCALE

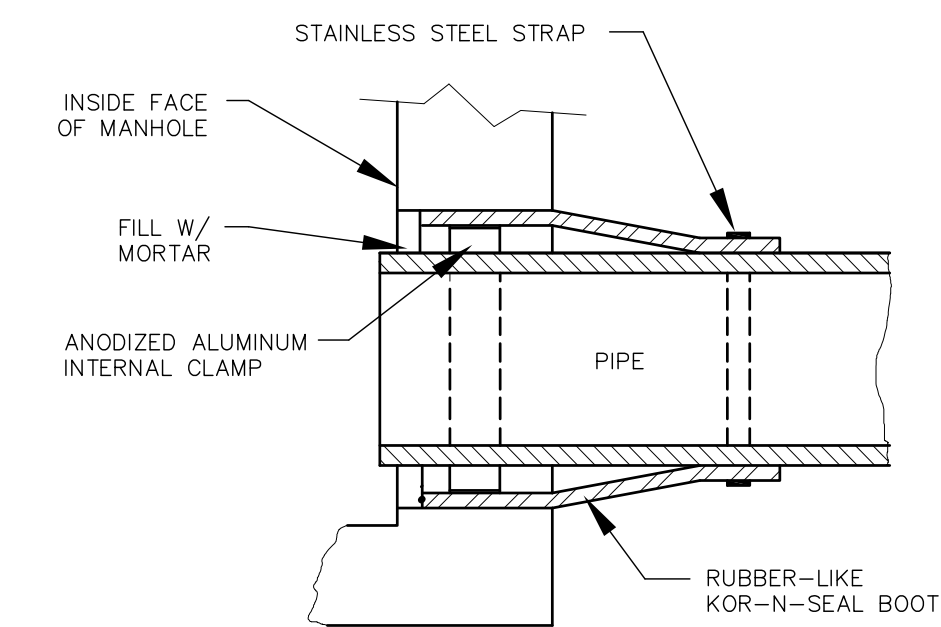


**BITUMASTIC**

NOTE: ALL GASKETS, SEALANTS, MORTAR, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.

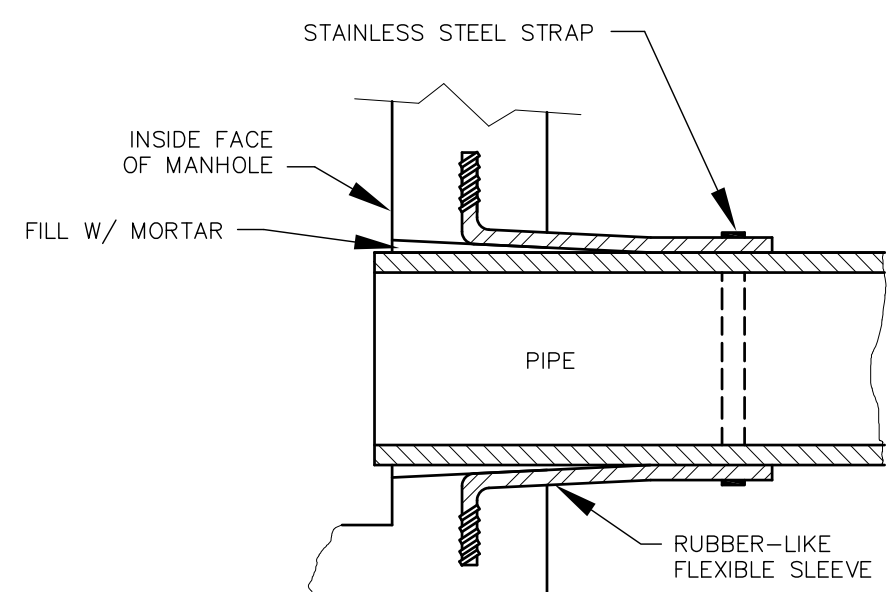
**SEWER MANHOLE DETAIL B**

NOT TO SCALE



**KOR-N-SEAL JOINT SLEEVE (OR EQUAL)**

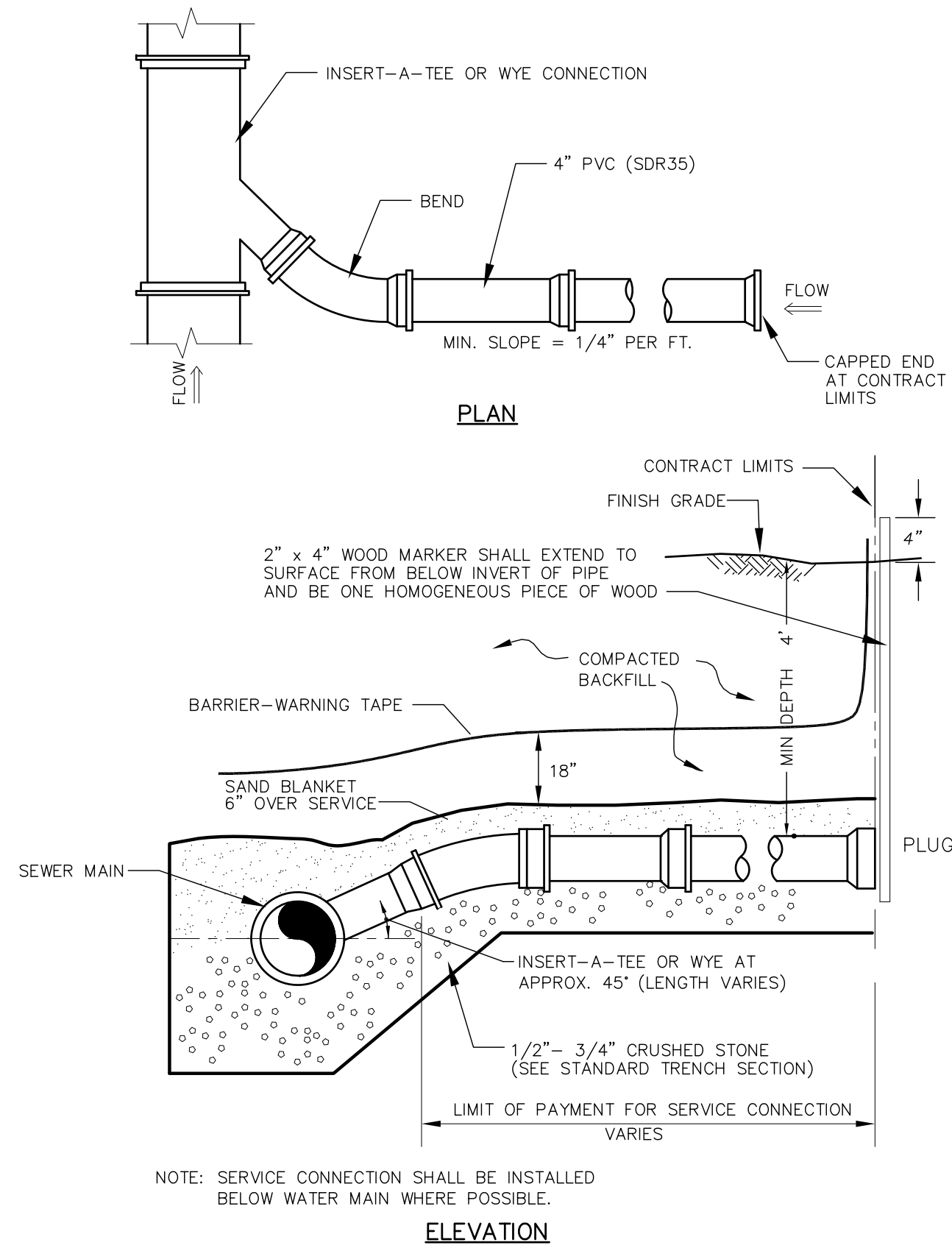
NOTE: ALL GASKETS, SEALANTS, MORTAR, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.



**LOCK-JOINT FLEXIBLE MANHOLE SLEEVE (OR EQUAL)**

**SEWER MANHOLE DETAIL A**

NOT TO SCALE

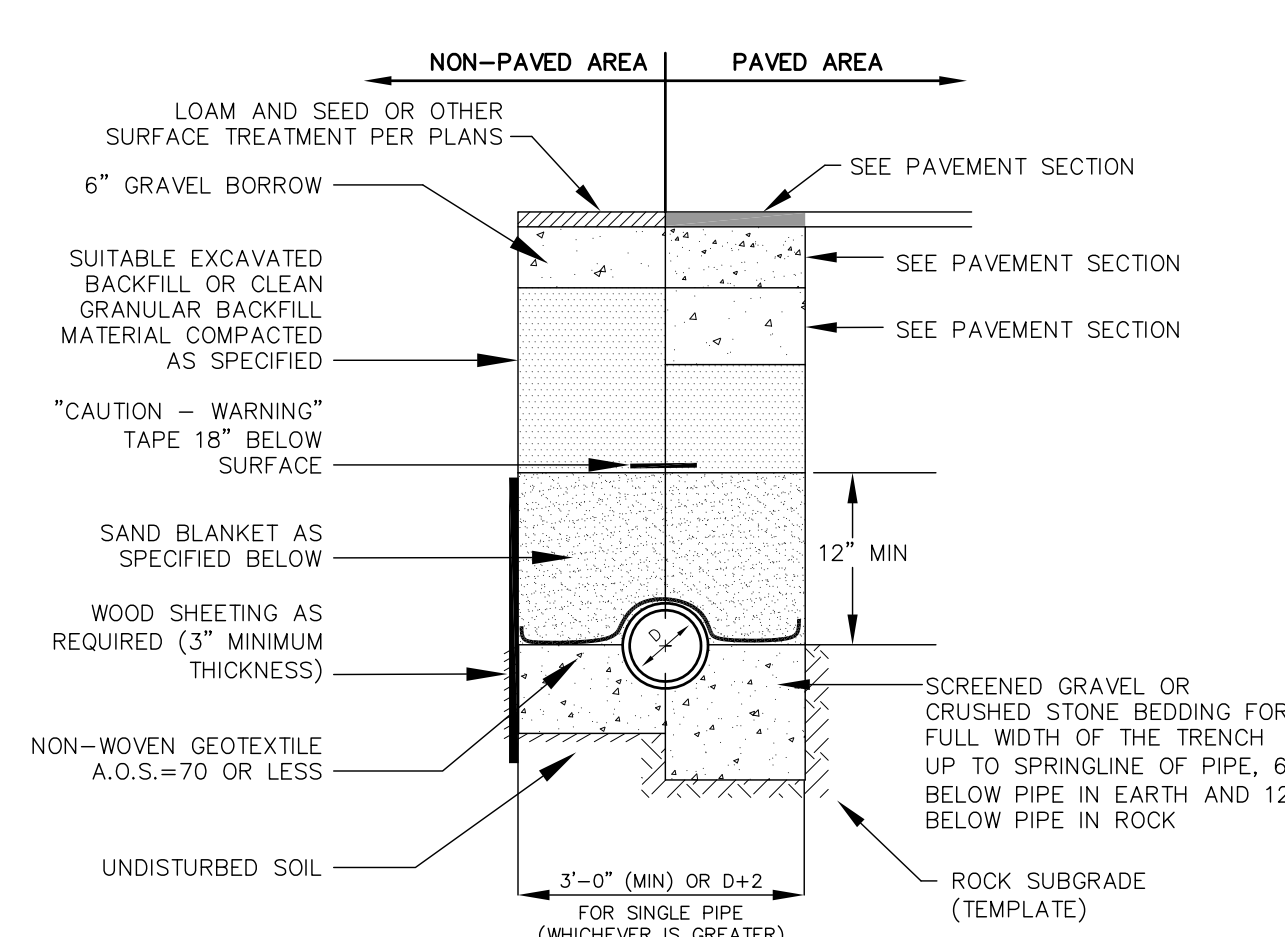


**SEWER SERVICE CONNECTION**

NOT TO SCALE

**DRAINAGE & SEWER TRENCH**

NOT TO SCALE



**NOTES**

- BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.
- INSULATE GRAVITY SEWER AND FORCEMAINS WHERE THERE IS LESS THAN 5'-0" OF COVER WITH 2" THICK CLOSED CELL RIGID BOARD INSULATION, 18" ON EACH SIDE OF PIPE.
- MAINTAIN 12" MINIMUM HORIZONTAL SEPARATION AND WIDEN TRENCH ACCORDINGLY IF MULTIPLE PIPES ARE IN TRENCH.

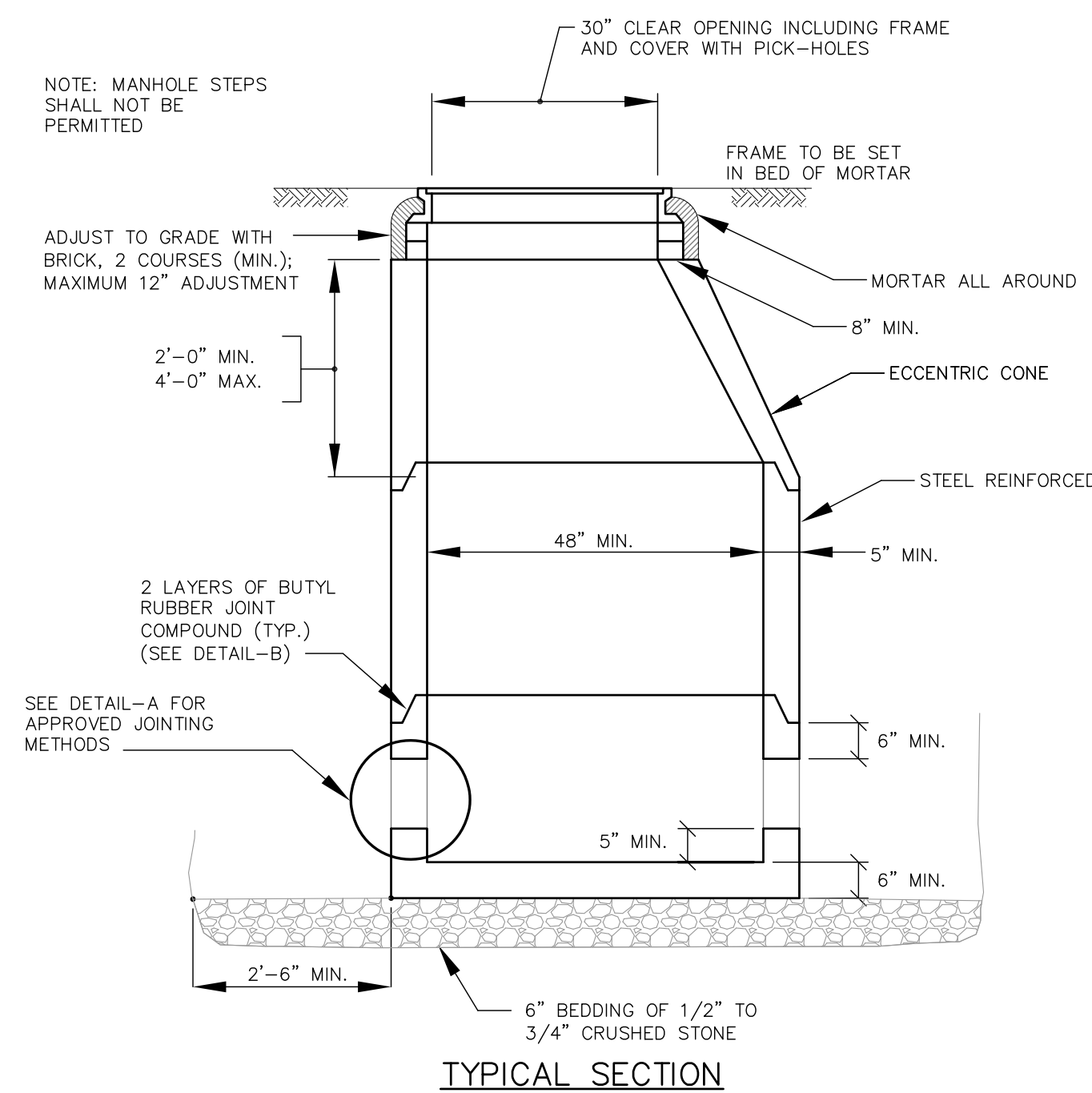
SAND BLANKET/BARRIER		SCREENED GRAVEL OR CRUSHED STONE BEDDING	
SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% PASSING BY WEIGHT
1/2"	90 - 100	1"	100
200	0 - 15	3/4"	90 - 100
		3/8"	20 - 55
		# 4	0 - 10
		# 8	0 - 5

**STANDARD TRENCH NOTES**

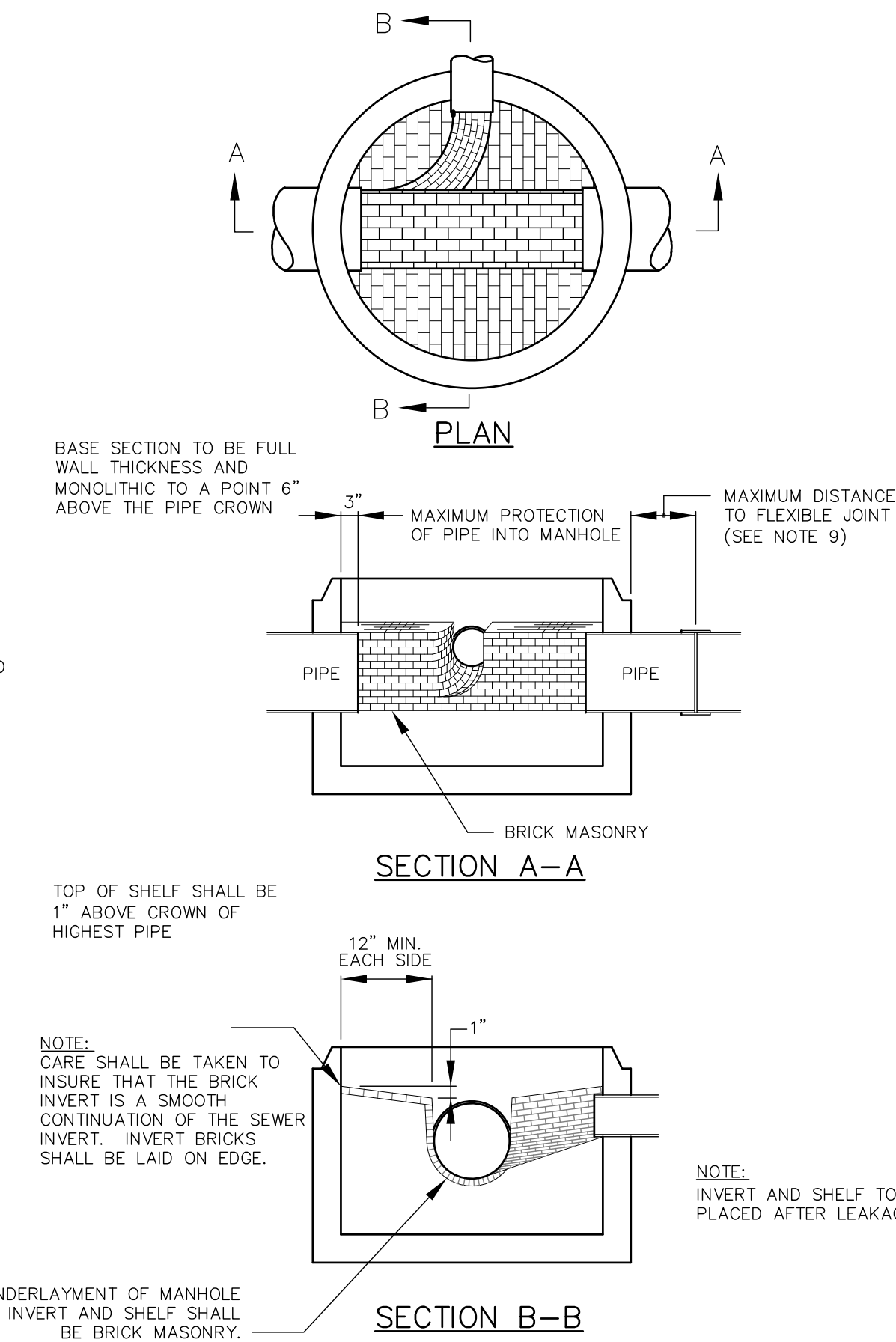
- ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE: BACKFILL AS STATED IN THE TECHNICAL SPECIFICATIONS OR AS SHOWN ON THE DRAWING.
- BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING THE GRADATION SHOWN IN THE TRENCH DETAIL. WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR CRUSHED STONE 1-1/2 INCH TO 1/2 INCH SHALL BE USED.
- SAND BLANKET: CLEAN SAND FREE FROM ORGANIC MATTER MEETING THE GRADATION SHOWN IN THE TRENCH DETAIL. BLANKET MAY BE REPLACED WITH BEDDING MATERIAL FOR CAST-IRON, DUCTILE IRON, AND REINFORCED CONCRETE PIPE PROVIDED THAT NO STONE LARGER THAN 2" IS IN CONTACT WITH THE PIPE AND THE GEOTEXTILE IS RELOCATED ACCORDINGLY.
- SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALKWAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT, OR CLAY. ALL EXCAVATED LEDE MATERIAL, ALL ROCKS OVER 8 INCHES IN LARGEST DIMENSION, AND ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION. IN CROSS COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK, OR PEAT, IF SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE SEWER FOR MAINTENANCE AND POSSIBLE RECONSTRUCTION WILL BE PRESERVED.
- BASE COURSE AND PAVEMENT SHALL MEET THE REQUIREMENTS OF THE MAINE DEPARTMENT OF TRANSPORTATION'S LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES - DIVISION 700.
- SHEETING, IF REQUIRED: WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID-DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION 1 FOOT ABOVE THE TOP OF PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.
- W = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES IN NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE OUTSIDE DIAMETER (O.D.) ALSO, W SHALL BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.
- FOR CROSS COUNTRY CONSTRUCTION, BACKFILL, FILL AND/OR LOAM SHALL BE MOUND TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
- CONCRETE FOR ENCASEMENT SHALL CONFORM TO THE MAINE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS STANDARD SPECIFICATION REQUIREMENTS FOR CLASS A (3000#) CONCRETE AS FOLLOWS:  
CEMENT: 6.0 BAGS PER CUBIC YARD  
WATER: 5.75 GALLONS PER BAG  
CEMENT MAXIMUM SIZE OF AGGREGATE: 1 INCH  
CONCRETE ENCASEMENT IS NOT ALLOWED FOR PVC PIPE.
- CONCRETE FULL ENCASEMENT: IF FULL ENCASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MINIMUM). BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS.
- MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION DESIGN STANDARDS REQUIRE TEN FEET (10') SEPARATION BETWEEN WATER AND SEWER. REFER TO TOWN'S STANDARD SPECIFICATIONS FOR METHODS OF PROTECTION IN AREAS THAT CANNOT MEET THESE REQUIREMENTS.
- IN AREAS WHERE DEWATERING IS REQUIRED OR THE TRENCH SLOPE EXCEEDS 5%, THE CONTRACTOR SHALL INSTALL TRENCH DAMS IN ACCORDANCE WITH MEDEP REGULATIONS.

**MANHOLE NOTES:**

- IT IS THE INTENTION OF THE MAINE DEP THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE, STRENGTH AND LEAKPROOF QUALITIES CONSIDERED NECESSARY BY THE COMMISSION FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS, SHALL BE AS SHOWN ON THE DRAWING. MANHOLES MAY BE AN ASSEMBLY OF PRECAST SECTIONS, WITH OR WITHOUT STEEL REINFORCEMENT, WITH ADEQUATE JOINTING, OR CONCRETE CAST MONOLITHICALLY IN PLACE WITH OR WITHOUT REINFORCEMENT IN ANY APPROVED MANHOLE. THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS (H=20 LOADING) WITHOUT FAILURE AND PREVENT LEAKAGE IN EXCESS OF ONE GALLON PER DAY PER VERTICAL FOOT OF MAN-HOLE CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE, A PERIOD GENERALLY IN EXCESS OF 25 YEARS IS TO BE UNDERSTOOD IN BOTH CASES.
- BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED.
- PRECAST CONCRETE BARREL SECTIONS, CONES AND BASES SHALL CONFORM TO ASTM C478.
- LEAKAGE TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE TOWN'S STANDARD SPECIFICATIONS AND WITH MAINE DEP 10-144 CMR 241.
- INVERTS AND SHELVES MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW AT CHANGES IN DIRECTION. THE INVERTS SHALL BE LAID OUT IN CURVES, OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY. BRICK MASONRY SHALL CONFORM WITH ASTM C32.
- MORTAR MORTAR USED FOR MANHOLE CONSTRUCTION SHALL CONFORM WITH MAINE DEP 10-144 CMR 241.
- FRAMES AND COVERS MANHOLE FRAMES AND COVERS SHALL CONFORM WITH ASTM A48/48M, BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. A 3-INCH (MINIMUM HEIGHT) LETTER "S" FOR SEWERS OR "D" FOR DRAINS SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
- BEDDING SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33.  
100% PASSING 1 INCH SCREEN 0-10% PASSING #4 SIEVE  
90-100% PASSING 3/4 INCH SCREEN 0-5% PASSING #8 SIEVE  
20- 55% PASSING 3/8 INCH SCREEN  
WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR CRUSHED STONE 1-1/2" TO 1/2" SHALL BE USED.
- CONCRETE FOR DROP SUPPORT SHALL CONFORM TO THE REQUIREMENT FOR CLASS A (3000 LBS.) CONCRETE OF THE MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AS FOLLOWS:  
CEMENT 6.0 BAGS PER CUBIC YARD  
WATER 5.75 GALLONS PER BAG CEMENT  
MAXIMUM SIZE OF AGGREGATE 1 INCH 9.
- FLEXIBLE JOINT A FLEXIBLE JOINT SHALL BE PROVIDED WITHIN THE FOLLOWING DISTANCES:  
PVC PIPE - 60"  
RCP & CI PIPE - ALL SIZES - 48"  
AC & VC PIPE - UP THROUGH 12" DIAMETER - 18"  
AC & VC PIPE - LARGER THAN 12" DIAMETER - 36"
- SHALLOW MANHOLE IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H=20 LOADS.



**SEWER MANHOLE**

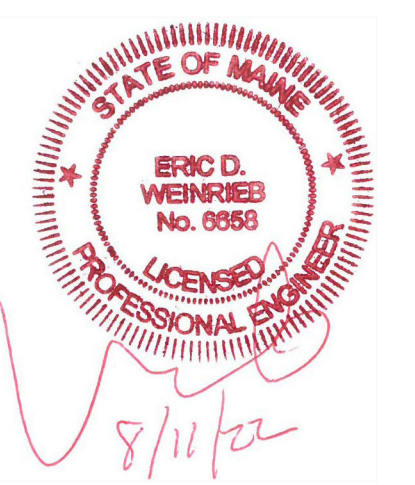


NOT TO SCALE

ENGINEER:

**ALTUS ENGINEERING, INC.**

133 Court Street Portsmouth, NH 03801  
(603) 433-2335 www.altus-eng.com



THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: REVIEW

ISSUE DATE: AUGUST 11, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EBS	12/22/21
1	GENERAL REVISION	EBS	08/11/22

DRAWN BY: RMB  
APPROVED BY: EBS  
DRAWING FILE: 5235DETAILS.DWG

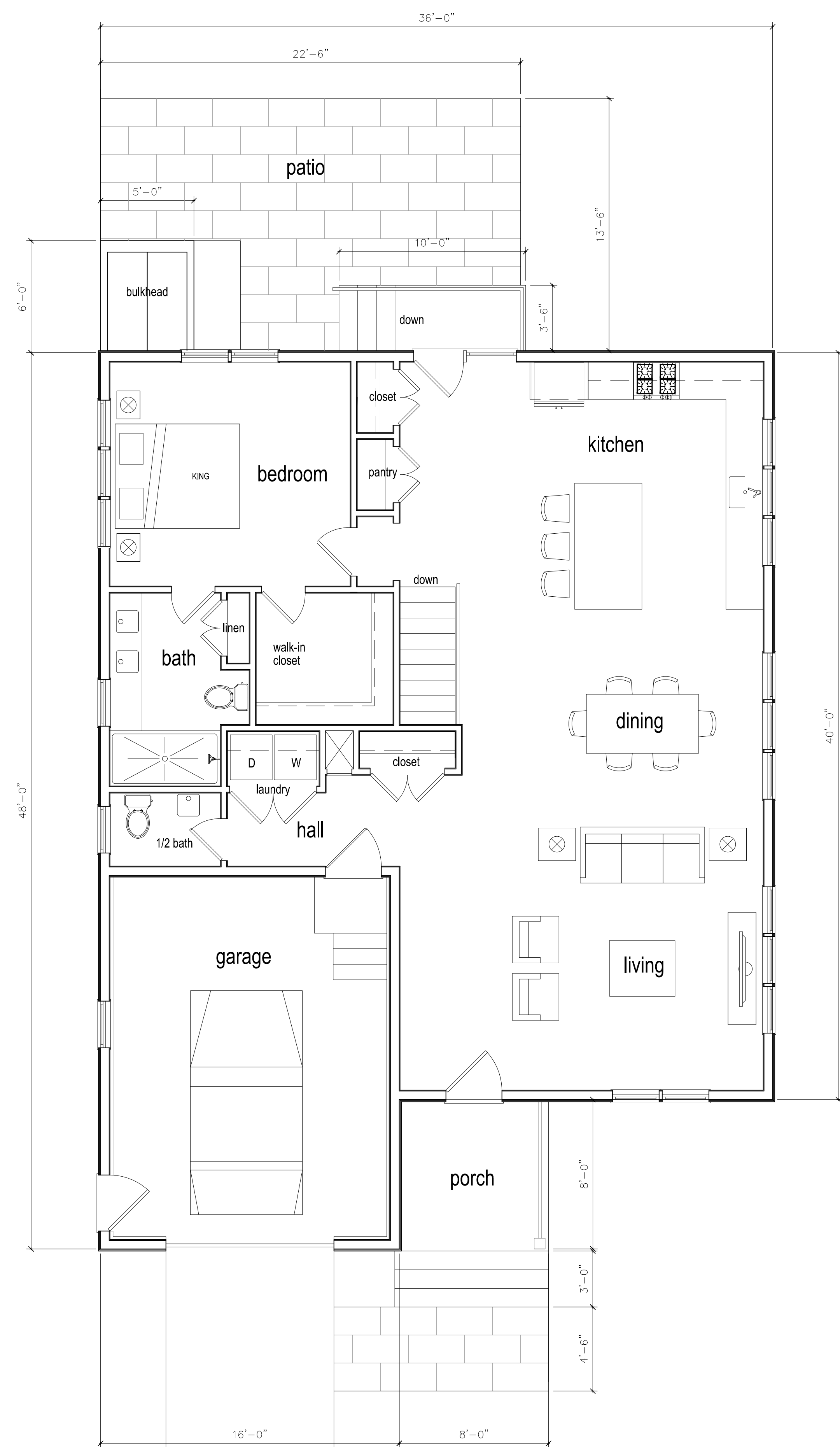
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OWNER/APPLICANT:  
LUSITANO, LLC  
JIM HIGGINS  
119 KINGS HIGHWAY NO.  
ELIOT, MAINE 03903

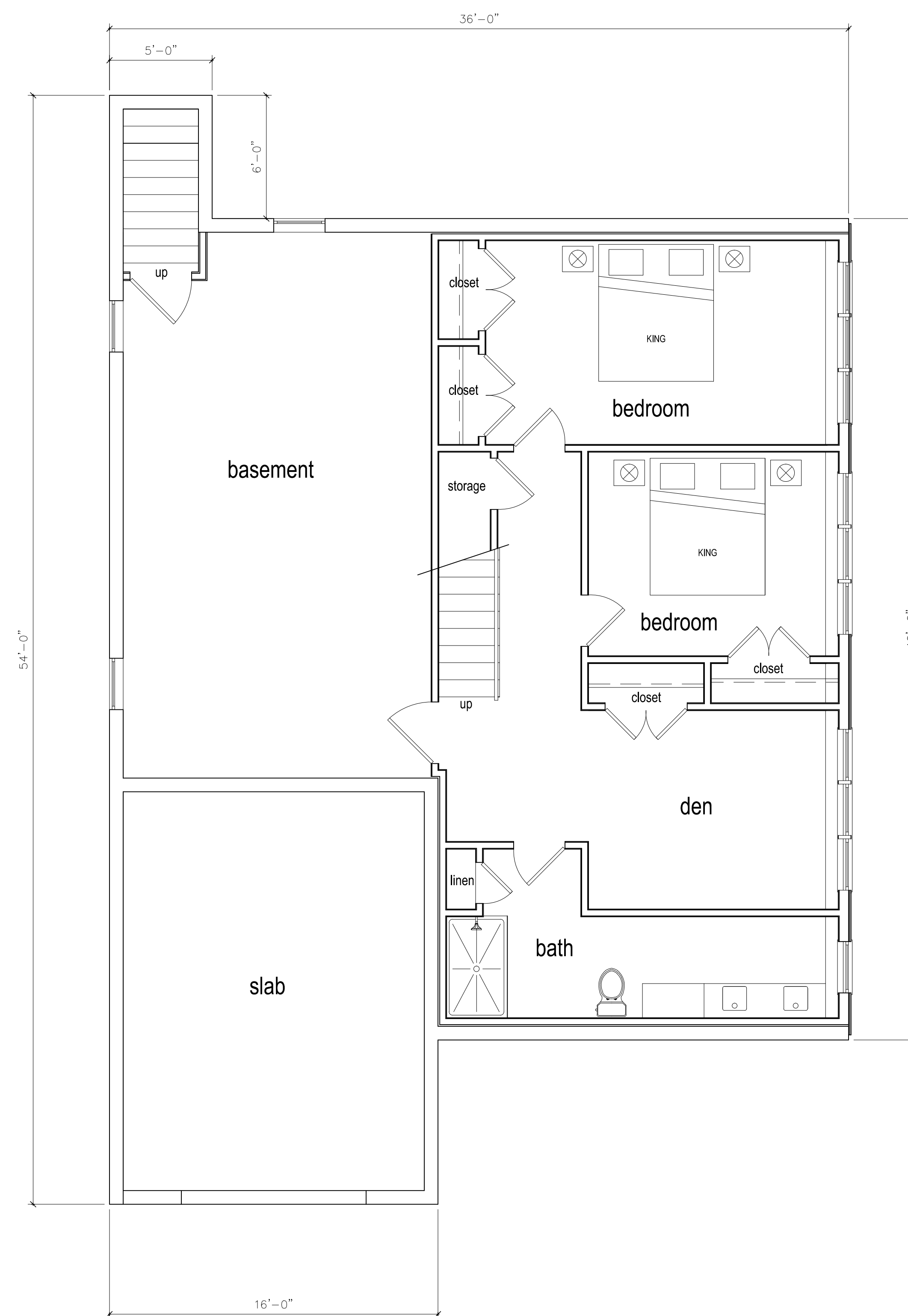
PROJECT:  
RE-DEVELOPMENT PLAN  
TAX MAP 16, LOT 148  
28 WYMAN AVENUE  
KITTERY, MAINE

TITLE:  
DETAIL SHEET  
SHEET NUMBER:

C - 8



**PROPOSED 1ST FLOOR**  
(Living Space: 1177 sq. ft.)



**PROPOSED LOWER LEVEL**  
(Living Space: 729 sq. ft.)

**Wyman Hill**  
**Residential Unit**  
28 Wyman Avenue  
Kittery Maine

architectural designer  
**HIGGINS + DESIGN**

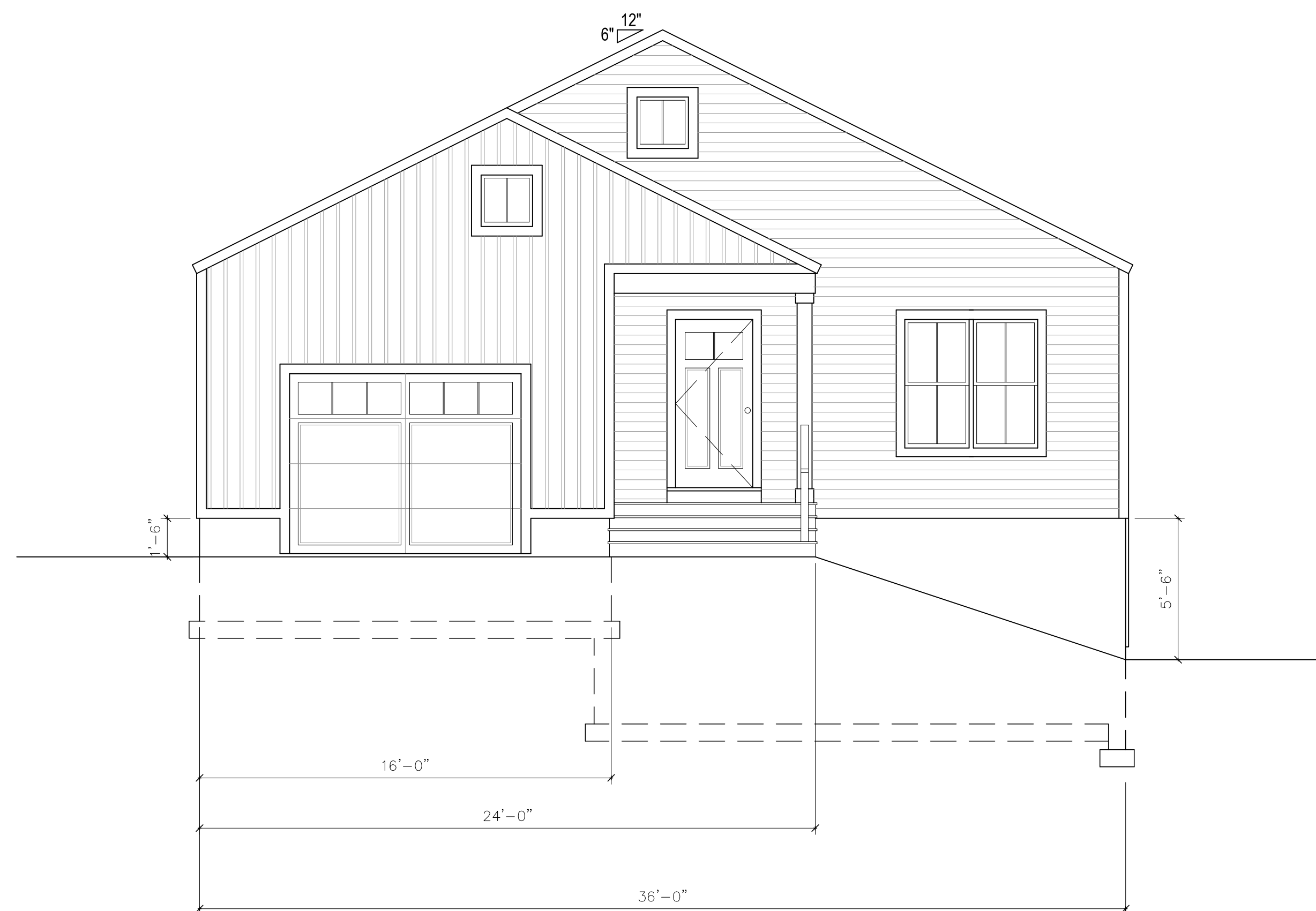
119 Kings Highway North  
Eliot, ME 03903  
Tel 617.501.6149  
jimhiggins05@comcast.net

**Proposed Residential Unit**

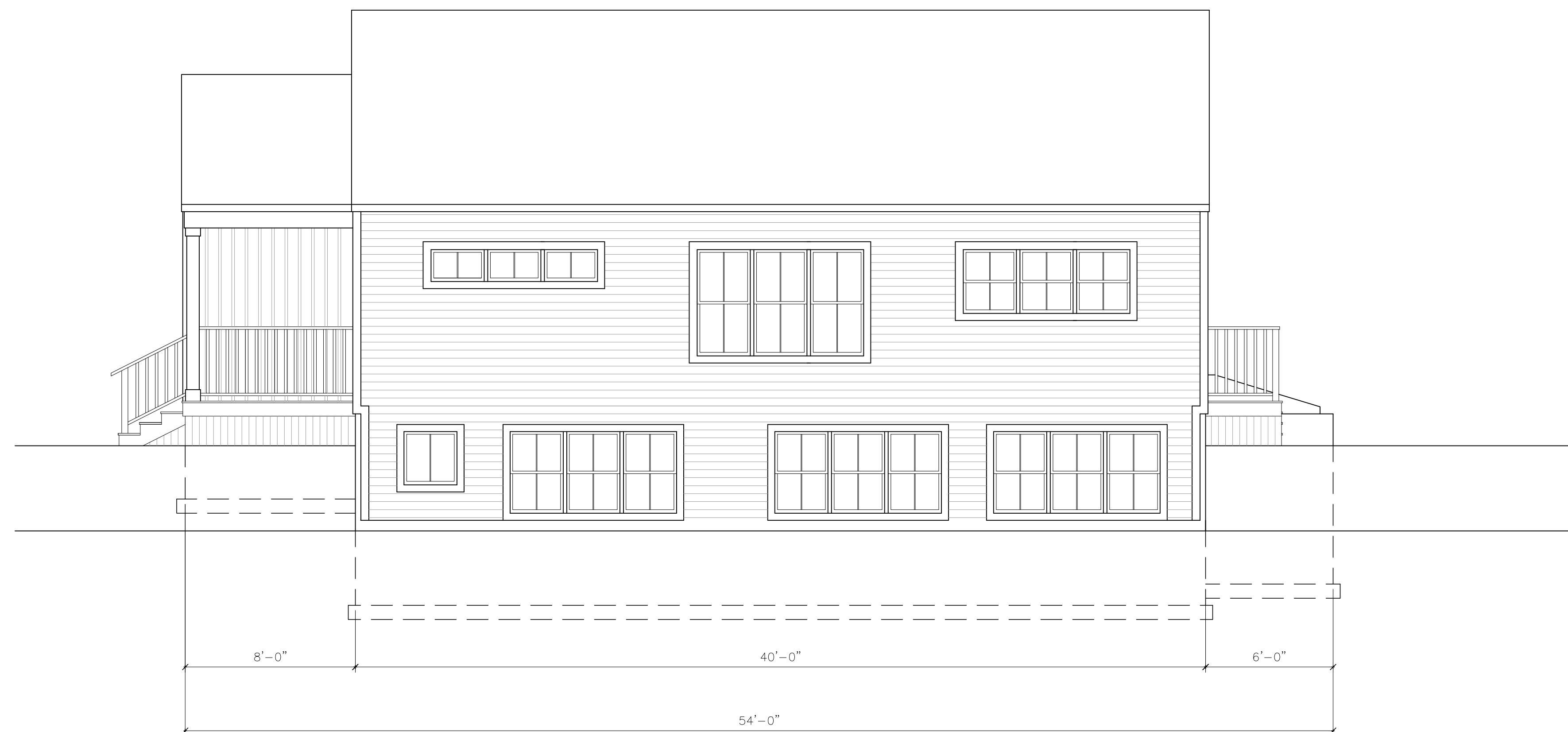
**LAYOUT PLANS**

scale  
1/4"=1'-0"  
date  
November 22, 2021  
project  
Kittery01

**A01**



FRONT ELEVATION



RIGHT SIDE ELEVATION

# Wyman Hill

## Residential Unit

28 Wyman Avenue  
Kittery Maine

architectural designer

## HIGGINS + DESIGN

119 Kings Highway North  
Eliot, ME 03903  
Tel 617.501.6149  
jimhiggins05@comcast.net

## Proposed Residential Unit

## ELEVATIONS

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date  
November 22, 2021

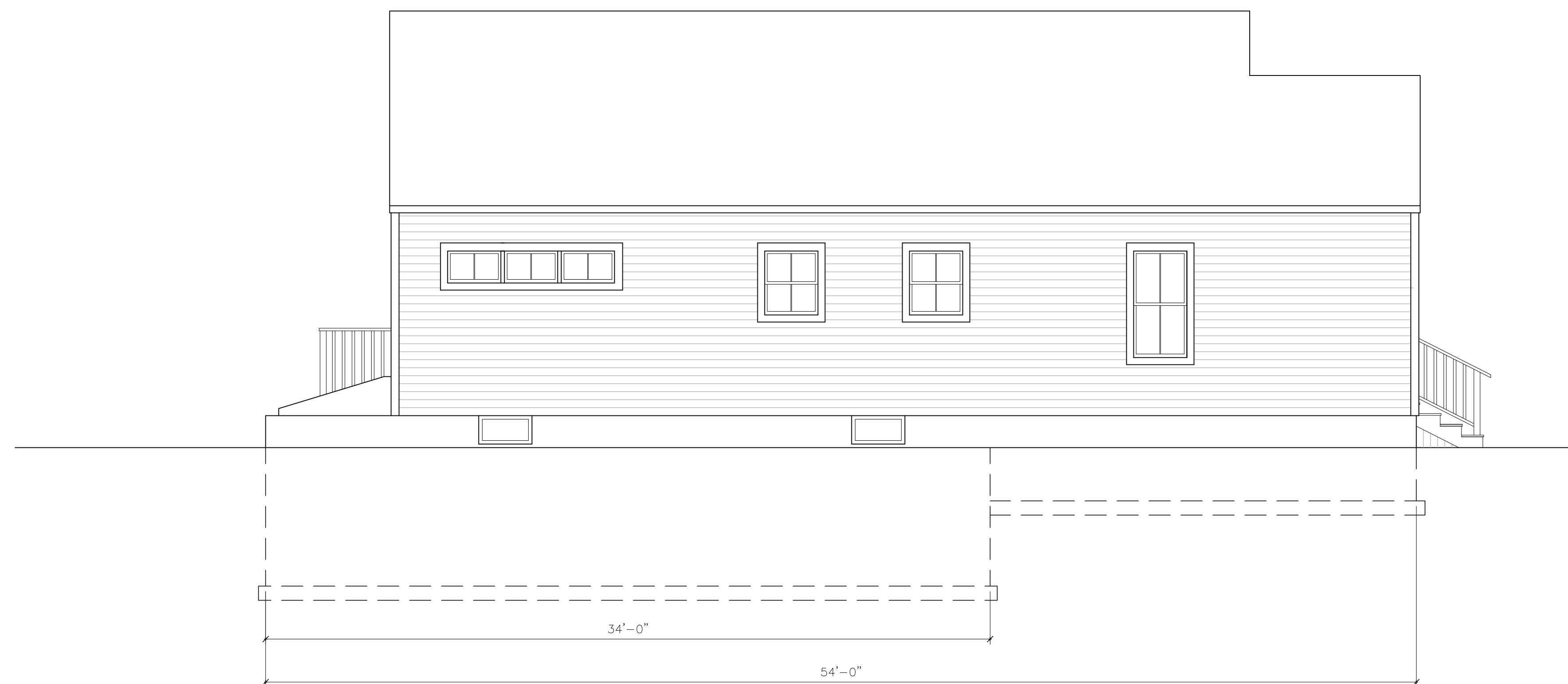
project  
Kittery01

# A02





BACK ELEVATION



LEFT SIDE ELEVATION

# Wyman Hill

## Residential Unit

28 Wyman Avenue  
Kittery Maine

architectural designer

## HIGGINS + DESIGN

119 Kings Highway North  
Eliot, ME 03903  
Tel 617.501.6149  
jimhiggins05@comcast.net

## Proposed Residential Unit

## ELEVATIONS

scale  
1/4"=1'-0"

date  
November 22, 2021

project  
Kittery01

# A03

# DRAINAGE ANALYSIS

FOR

## Wyman Hill

28 Wyman Avenue  
Kittery, ME

Tax Map 16, Lot 148

August 11, 2022

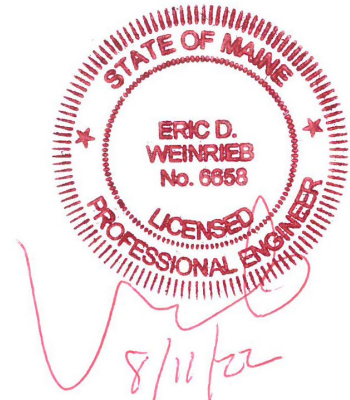
*Prepared For:*

**Lusitano, LLC**  
**Jim Higgins**  
119 Kings Highway North  
Elliot, ME 03903

*Prepared By:*

**ALTUS ENGINEERING, INC.**

133 Court Street  
Portsmouth, NH 03801  
Phone: (603) 433-2335



# Table of Contents

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	Project Description
	Site Overview
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# Section 1

## Narrative

## **PROJECT DESCRIPTION**

The property at 28 Wyman Avenue currently hosts a residential dwelling used as a boarding house primarily with open lawn except for a small section of wooded wetland on the north perimeter. The application contemplates the construction of three single-family detached houses together with associated site improvements.

The stormwater management system proposed will include a grassed underdrained soil filter to reduce peak flows and treat runoff from the site's impervious areas prior to leaving the site.

### ***Site Soils***

The Natural Resources Conservation Service (NRCS) classifies the site soils as Lyman loam (Ln) with a hydrological soil group (HSG) designation of D.

### ***Pre-Development (Existing Conditions)***

The Pre-Development Watershed Plan (Sheet WS-1) reflects the current conditions of the site which include the existing building and parking areas. The current site can be divided into two (2) subcatchments which discharge to the east and west property lines.

### ***Post-Development (Proposed Conditions)***

The proposed project will construct three (3) new residential units, a new drainage system and associated site improvements.

As shown on the attached Post-Development Watershed Plan (Sheet WS-2), the site was divided into six (6) subcatchment areas in the post-development conditions. The same points of analysis that were used in the Pre-Development model (POA #'s 1 and 2) were used for comparison of the Pre- and Post-development conditions.

## **CALCULATION METHODS**

The drainage study was completed using the USDA SCS TR-20 Method within the HydroCAD Stormwater Modeling System. Reservoir routing was performed with the Dynamic Storage Indication method with automated calculation of tailwater conditions. A Type III 24-hour rainfall distribution was utilized in analyzing the data for the 2, 10 and 25 year - 24-hour storm events using rainfall data provided by Maine DEP. Infiltration rates through biofilter media were set at 2.5 in/hr with a phase-in depth of 0.01'.

### ***Disclaimer***

Altus Engineering, Inc. notes that stormwater modeling is limited in its capacity to precisely predict peak rates of runoff and flood elevations. Results should not be considered to represent actual storm events due to the number of variables and assumptions involved in the modeling effort. Surface roughness coefficients (n), entrance loss coefficients (ke), velocity factors (kv) and times of concentration (Tc) are based on subjective field observations and engineering judgment using available data. For design purposes, curve numbers (Cn) describe the average conditions. However, curve numbers will vary from storm to storm depending on the antecedent runoff conditions (ARC) including saturation and frozen ground. Also, higher water elevations than predicted by modeling could occur if drainage channels, closed drain systems or culverts are not maintained and/or become blocked by debris before and/or during a storm event as this will impact flow capacity of the structures. Structures should be re-evaluated if future changes occur within relevant drainage areas in order to assess any required design modifications.

### ***Drainage Analysis***

A complete summary of the drainage model is included in the appendix of this report. The following table compares pre- and post-development peak rates at the Point of Analysis identified on the plans for the 2 and 25-year storm events:

**Stormwater Modeling Summary  
Peak Q (cfs) for Type III 24-Hour Storm Events**

	<b>2-Yr Storm (3.30 inch)</b>	<b>10-Yr Storm (4.90-inch)</b>	<b>25-Yr Storm (6.20 inch)</b>
<b>POA #1 (West Property Line)</b>			
Pre	0.82	1.52	2.10
Post	0.61	1.15	1.60
<b>Change</b>	<b>-0.21</b>	<b>-0.37</b>	<b>-0.250</b>
<b>POA #2 (East Property Line)</b>			
Pre	2.41	4.55	6.34
Post	2.13	3.79	5.09
<b>Change</b>	<b>-0.28</b>	<b>-0.76</b>	<b>-1.25</b>

As the above table demonstrates, the proposed peak rates of runoff will be decreased from the existing conditions for all analyzed storm events.

## **CONCLUSION**

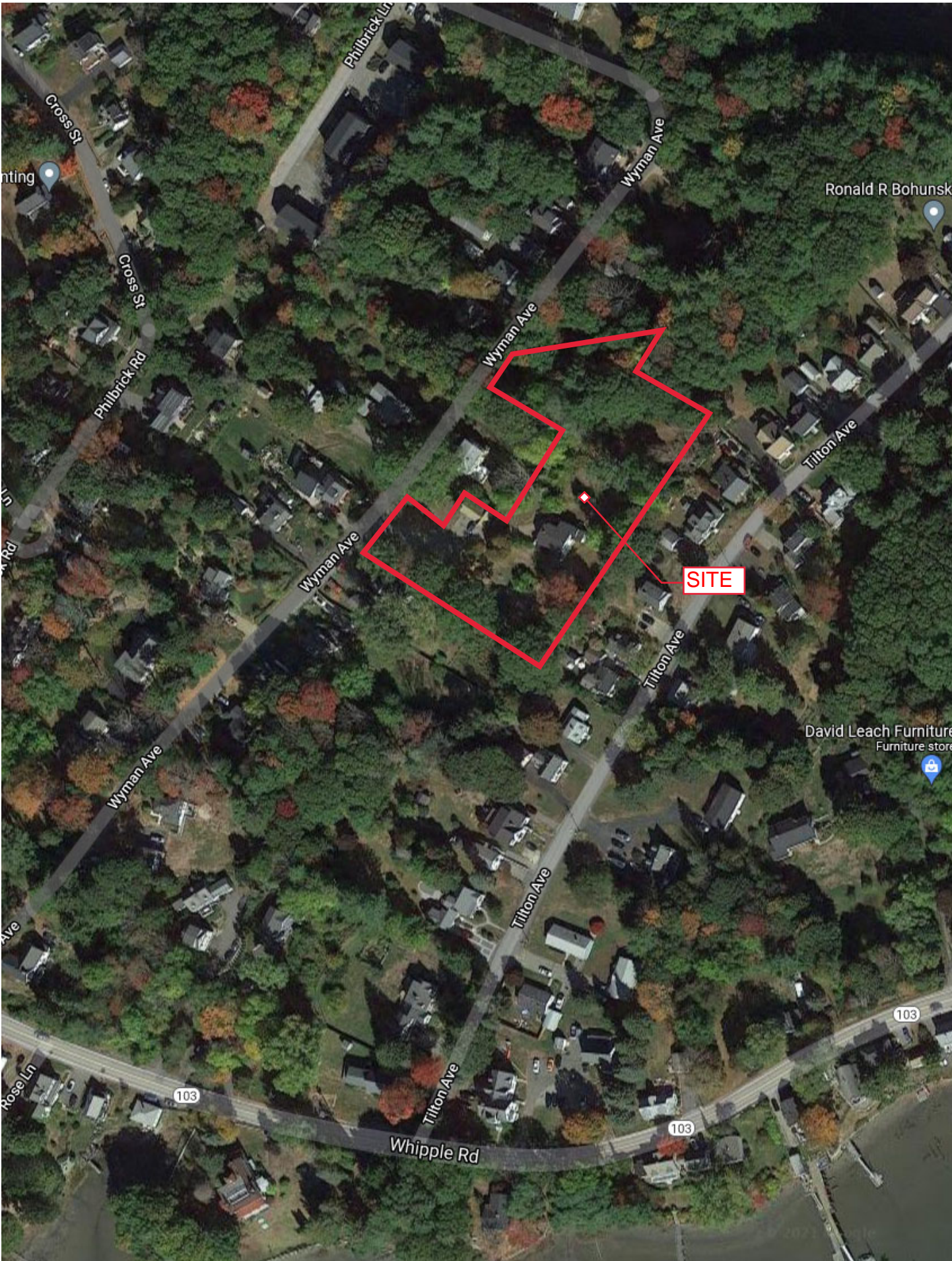
This proposed roadway and site development will have minimal adverse effect on abutting properties and infrastructure as a result of stormwater runoff or siltation. Post-construction peak rates of runoff from the site will be lower than the existing conditions for all analyzed storm events. The new stormwater management system will also provide appropriate treatment to runoff from 100% of the proposed impervious surfaces from the site. Appropriate steps will be taken to properly mitigate erosion and sedimentation using temporary and permanent Best Management Practices for sediment and erosion control, including a grassed underdrain soil filter and roofline drip strips.

## Section 2

# USGS Map and Aerial Photo







## Section 3

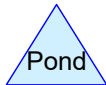
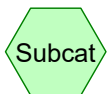
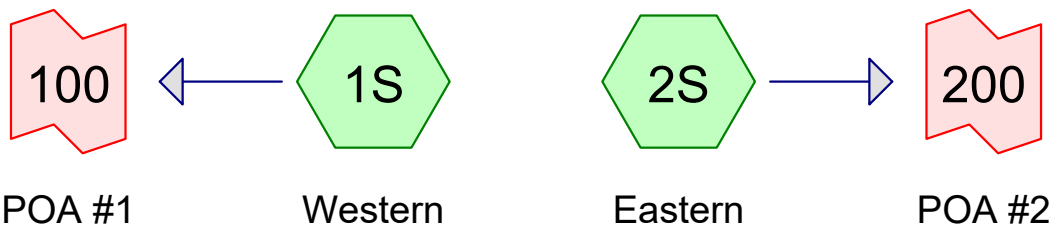
# Drainage Calculations

Pre-Development

2-Year, 24-Hour Summary

10-Year, 24-Hour Complete

25-Year, 24-Hour Summary



**5235-Pre-DS**

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

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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: Western**

Runoff Area=19,290 sf 8.52% Impervious Runoff Depth>1.62"  
Flow Length=115' Tc=6.0 min CN=82 Runoff=0.82 cfs 0.060 af

**Subcatchment 2S: Eastern**

Runoff Area=63,549 sf 12.10% Impervious Runoff Depth>1.55"  
Flow Length=340' Tc=8.1 min CN=81 Runoff=2.41 cfs 0.188 af

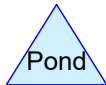
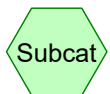
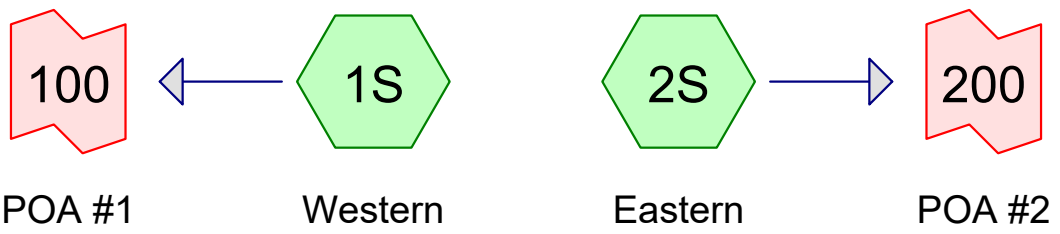
**Link 100: POA #1**

Inflow=0.82 cfs 0.060 af  
Primary=0.82 cfs 0.060 af

**Link 200: POA #2**

Inflow=2.41 cfs 0.188 af  
Primary=2.41 cfs 0.188 af

**Total Runoff Area = 1.902 ac Runoff Volume = 0.248 af Average Runoff Depth = 1.56"**  
**88.73% Pervious = 1.687 ac 11.27% Impervious = 0.214 ac**



**5235-Pre-DS**

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**Area Listing (all nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
1.022	80	>75% Grass cover, Good, HSG D (1S, 2S)
0.214	98	Paved parking, HSG D (1S, 2S)
0.666	77	Woods, Good, HSG D (2S)
<b>1.902</b>	<b>81</b>	<b>TOTAL AREA</b>

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**Soil Listing (all nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
1.902	HSG D	1S, 2S
0.000	Other	
<b>1.902</b>		<b>TOTAL AREA</b>



**5235-Pre-DS**

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

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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: Western**

Runoff Area=19,290 sf 8.52% Impervious Runoff Depth>2.99"  
Flow Length=115' Tc=6.0 min CN=82 Runoff=1.52 cfs 0.110 af

**Subcatchment 2S: Eastern**

Runoff Area=63,549 sf 12.10% Impervious Runoff Depth>2.89"  
Flow Length=340' Tc=8.1 min CN=81 Runoff=4.55 cfs 0.352 af

**Link 100: POA #1**

Inflow=1.52 cfs 0.110 af  
Primary=1.52 cfs 0.110 af

**Link 200: POA #2**

Inflow=4.55 cfs 0.352 af  
Primary=4.55 cfs 0.352 af

**Total Runoff Area = 1.902 ac Runoff Volume = 0.462 af Average Runoff Depth = 2.92"**  
**88.73% Pervious = 1.687 ac 11.27% Impervious = 0.214 ac**

**5235-Pre-DS**

Prepared by Altus Engineering, Inc.

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

Printed 8/16/2022

**Summary for Subcatchment 1S: Western**

Runoff = 1.52 cfs @ 12.09 hrs, Volume= 0.110 af, Depth> 2.99"

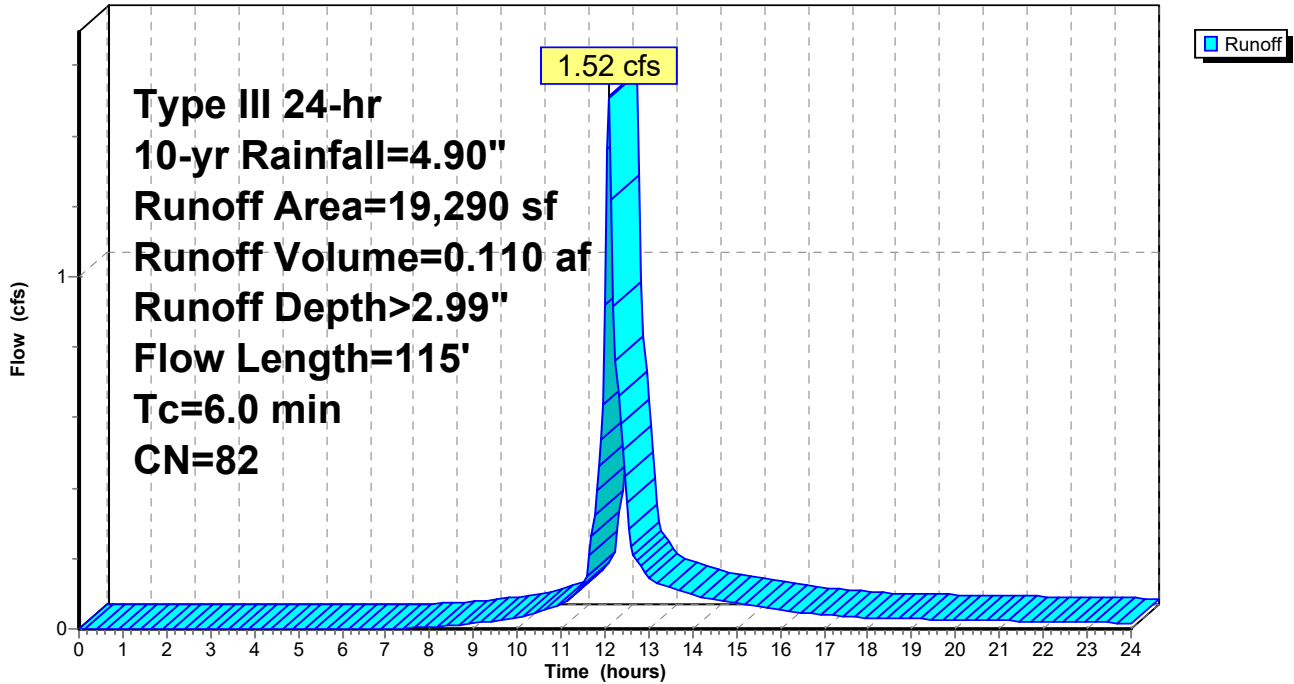
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
1,644	98	Paved parking, HSG D
17,646	80	>75% Grass cover, Good, HSG D
19,290	82	Weighted Average
17,646		91.48% Pervious Area
1,644		8.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	50	0.0500	0.21		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.21"
0.3	65	0.0600	3.67		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
4.2	115	Total, Increased to minimum Tc = 6.0 min			

**Subcatchment 1S: Western**

Hydrograph



**5235-Pre-DS**

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

Printed 8/16/2022

**Summary for Subcatchment 2S: Eastern**

Runoff = 4.55 cfs @ 12.12 hrs, Volume= 0.352 af, Depth> 2.89"

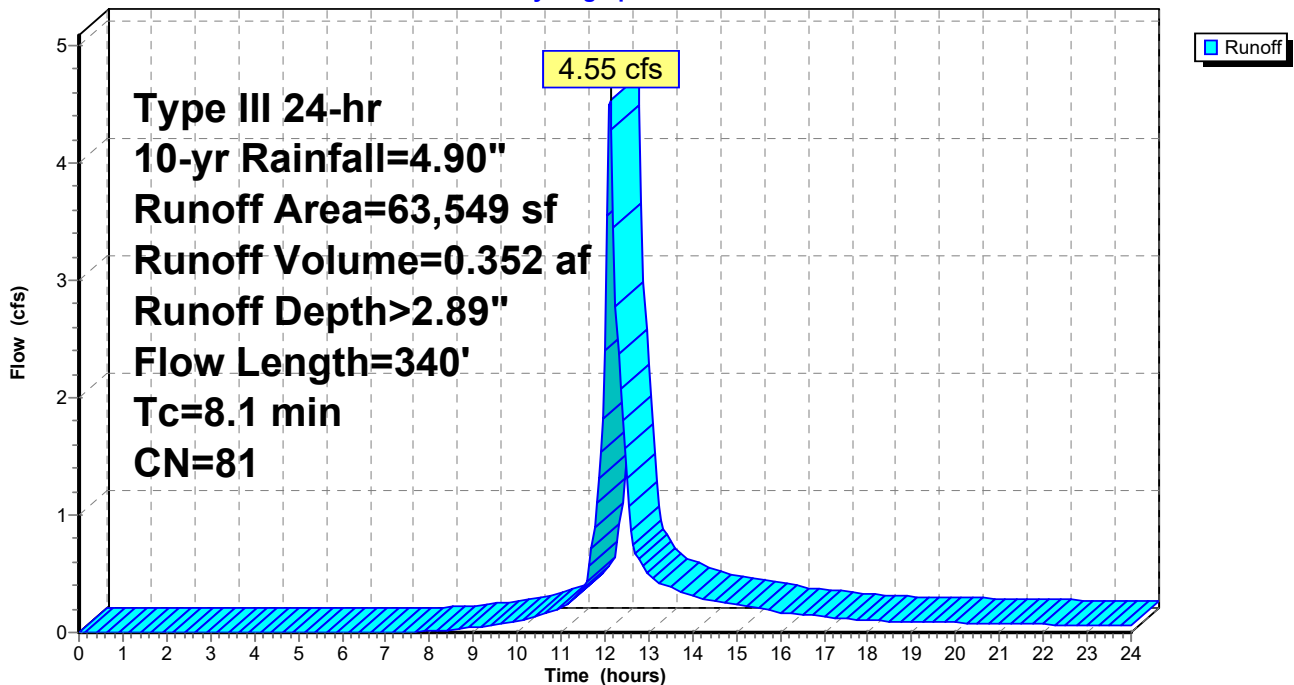
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
7,688	98	Paved parking, HSG D
26,861	80	>75% Grass cover, Good, HSG D
29,000	77	Woods, Good, HSG D
63,549	81	Weighted Average
55,861		87.90% Pervious Area
7,688		12.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	50	0.0300	0.17		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.21"
0.5	90	0.0450	3.18		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
2.8	200	0.0550	1.17		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
8.1	340	Total			

**Subcatchment 2S: Eastern**

Hydrograph



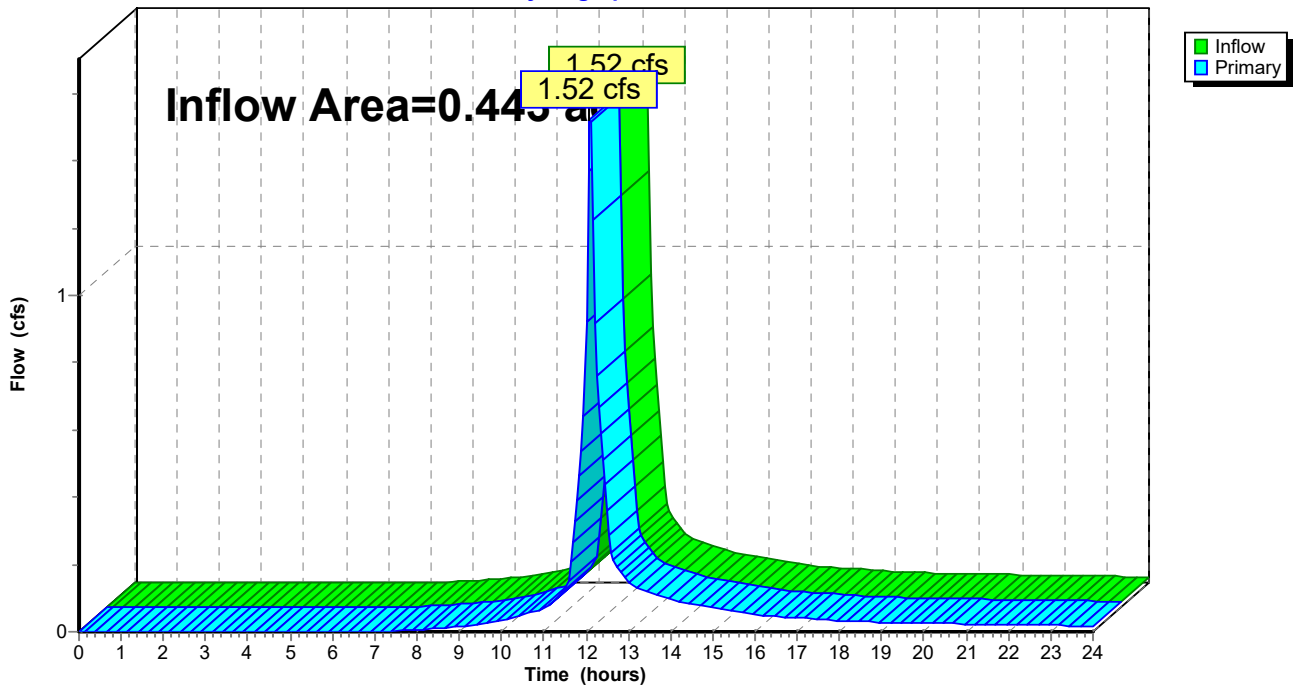
### Summary for Link 100: POA #1

Inflow Area = 0.443 ac, 8.52% Impervious, Inflow Depth > 2.99" for 10-yr event  
Inflow = 1.52 cfs @ 12.09 hrs, Volume= 0.110 af  
Primary = 1.52 cfs @ 12.09 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link 100: POA #1

Hydrograph



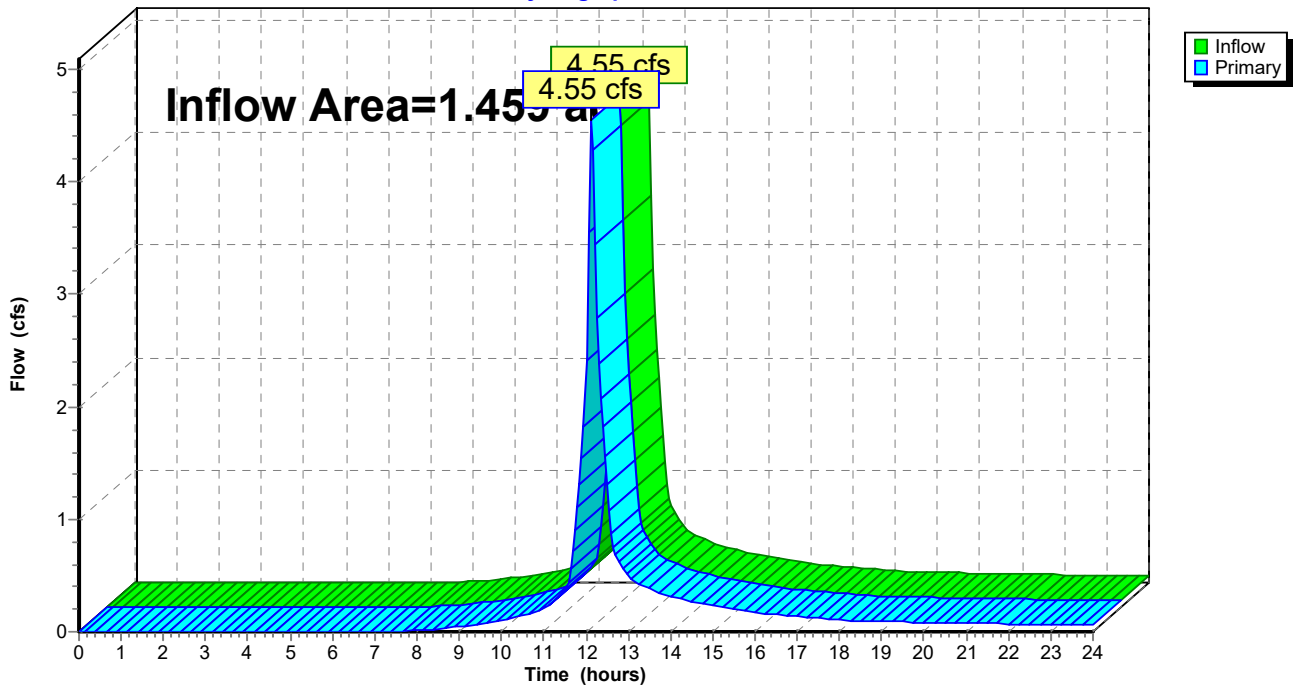
### Summary for Link 200: POA #2

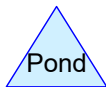
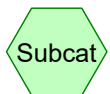
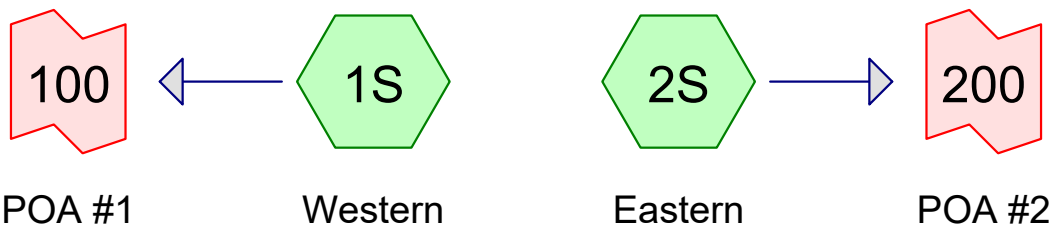
Inflow Area = 1.459 ac, 12.10% Impervious, Inflow Depth > 2.89" for 10-yr event  
Inflow = 4.55 cfs @ 12.12 hrs, Volume= 0.352 af  
Primary = 4.55 cfs @ 12.12 hrs, Volume= 0.352 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link 200: POA #2

Hydrograph





**5235-Pre-DS**

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

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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: Western**

Runoff Area=19,290 sf 8.52% Impervious Runoff Depth>4.17"  
Flow Length=115' Tc=6.0 min CN=82 Runoff=2.10 cfs 0.154 af

**Subcatchment 2S: Eastern**

Runoff Area=63,549 sf 12.10% Impervious Runoff Depth>4.06"  
Flow Length=340' Tc=8.1 min CN=81 Runoff=6.34 cfs 0.494 af

**Link 100: POA #1**

Inflow=2.10 cfs 0.154 af  
Primary=2.10 cfs 0.154 af

**Link 200: POA #2**

Inflow=6.34 cfs 0.494 af  
Primary=6.34 cfs 0.494 af

**Total Runoff Area = 1.902 ac Runoff Volume = 0.648 af Average Runoff Depth = 4.09"**  
**88.73% Pervious = 1.687 ac 11.27% Impervious = 0.214 ac**

## Section 4

# Drainage Calculations

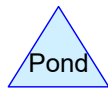
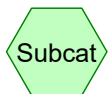
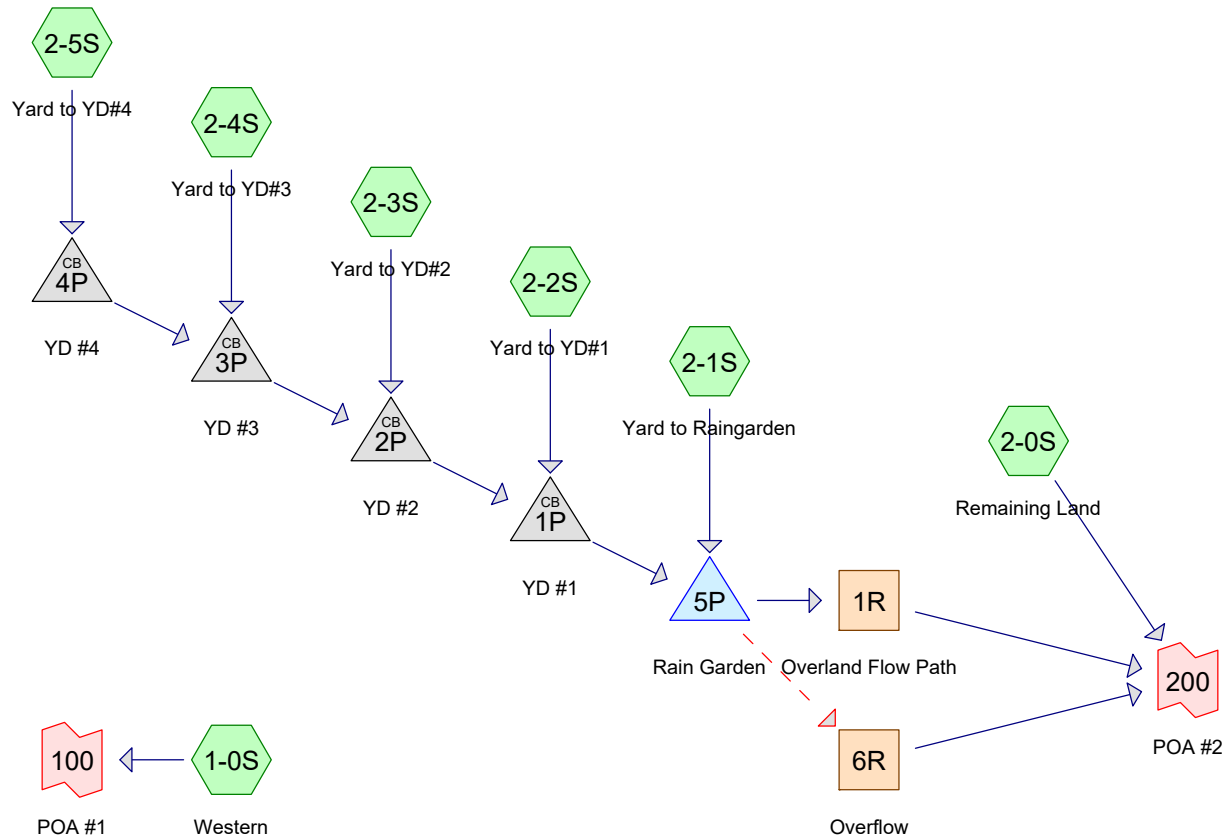
Post-Development

2-Year, 24-Hour Summary

10-Year, 24-Hour Complete

25-Year, 24-Hour Summary





**5235-Post-DS**

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

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment 1-0S: Western</b>	Runoff Area=14,744 sf 6.59% Impervious Runoff Depth>1.55" Flow Length=115' Tc=6.0 min CN=81 Runoff=0.61 cfs 0.044 af
<b>Subcatchment 2-0S: Remaining Land</b>	Runoff Area=40,195 sf 3.52% Impervious Runoff Depth>1.34" Flow Length=180' Tc=9.8 min CN=78 Runoff=1.26 cfs 0.103 af
<b>Subcatchment 2-1S: Yard to Raingarden</b>	Runoff Area=12,616 sf 23.27% Impervious Runoff Depth>1.76" Flow Length=150' Slope=0.0400 '/ Tc=6.0 min CN=84 Runoff=0.60 cfs 0.043 af
<b>Subcatchment 2-2S: Yard to YD#1</b>	Runoff Area=5,826 sf 41.43% Impervious Runoff Depth>2.00" Flow Length=80' Tc=6.0 min CN=87 Runoff=0.31 cfs 0.022 af
<b>Subcatchment 2-3S: Yard to YD#2</b>	Runoff Area=5,522 sf 32.43% Impervious Runoff Depth>1.92" Flow Length=50' Tc=6.0 min CN=86 Runoff=0.29 cfs 0.020 af
<b>Subcatchment 2-4S: Yard to YD#3</b>	Runoff Area=824 sf 37.01% Impervious Runoff Depth>2.00" Flow Length=50' Slope=0.0200 '/ Tc=6.0 min CN=87 Runoff=0.04 cfs 0.003 af
<b>Subcatchment 2-5S: Yard to YD#4</b>	Runoff Area=3,112 sf 70.89% Impervious Runoff Depth>2.54" Flow Length=50' Slope=0.0200 '/ Tc=6.0 min CN=93 Runoff=0.21 cfs 0.015 af
<b>Reach 1R: Overland Flow Path</b>	Avg. Flow Depth=0.20' Max Vel=2.63 fps Inflow=0.93 cfs 0.087 af n=0.035 L=120.0' S=0.0583 '/ Capacity=29.93 cfs Outflow=0.93 cfs 0.087 af
<b>Reach 6R: Overflow</b>	Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af n=0.035 L=175.0' S=0.0571 '/ Capacity=29.62 cfs Outflow=0.00 cfs 0.000 af
<b>Pond 1P: YD #1</b>	Peak Elev=92.29' Inflow=0.85 cfs 0.061 af 8.0" Round Culvert n=0.010 L=48.0' S=0.0146 '/ Outflow=0.85 cfs 0.061 af
<b>Pond 2P: YD #2</b>	Peak Elev=92.80' Inflow=0.54 cfs 0.039 af 8.0" Round Culvert n=0.010 L=94.0' S=0.0053 '/ Outflow=0.54 cfs 0.039 af
<b>Pond 3P: YD #3</b>	Peak Elev=93.05' Inflow=0.25 cfs 0.018 af 8.0" Round Culvert n=0.010 L=53.0' S=0.0057 '/ Outflow=0.25 cfs 0.018 af
<b>Pond 4P: YD #4</b>	Peak Elev=93.32' Inflow=0.21 cfs 0.015 af 8.0" Round Culvert n=0.010 L=38.0' S=0.0053 '/ Outflow=0.21 cfs 0.015 af
<b>Pond 5P: Rain Garden</b>	Peak Elev=90.37' Storage=1,402 cf Inflow=1.45 cfs 0.103 af Primary=0.93 cfs 0.087 af Secondary=0.00 cfs 0.000 af Outflow=0.93 cfs 0.087 af
<b>Link 100: POA #1</b>	Inflow=0.61 cfs 0.044 af Primary=0.61 cfs 0.044 af
<b>Link 200: POA #2</b>	Inflow=2.13 cfs 0.190 af Primary=2.13 cfs 0.190 af

**5235-Post-DS**

Prepared by Altus Engineering, Inc.

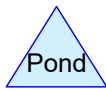
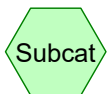
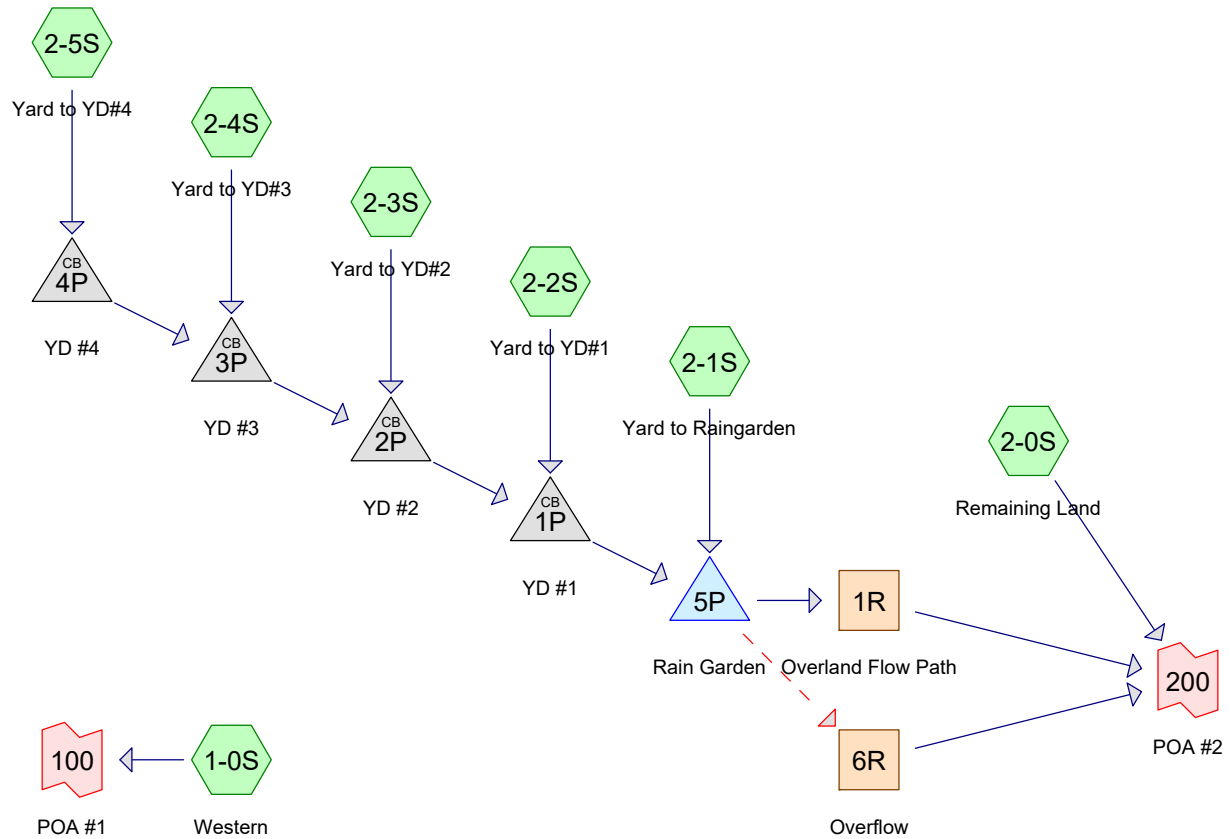
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*Type III 24-hr 2-yr Rainfall=3.30"*

Printed 8/16/2022

**Total Runoff Area = 1.902 ac   Runoff Volume = 0.250 af   Average Runoff Depth = 1.58"**  
**85.47% Pervious = 1.625 ac   14.53% Impervious = 0.276 ac**



**Routing Diagram for 5235-Post-DS**  
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## 5235-Post-DS

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Printed 8/16/2022

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### Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.960	80	>75% Grass cover, Good, HSG D (1-0S, 2-0S, 2-1S, 2-2S, 2-3S, 2-4S, 2-5S)
0.276	98	Paved parking, HSG D (1-0S, 2-0S, 2-1S, 2-2S, 2-3S, 2-4S, 2-5S)
0.666	77	Woods, Good, HSG D (2-0S)
<b>1.902</b>	<b>82</b>	<b>TOTAL AREA</b>

**5235-Post-DS**

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**Soil Listing (all nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
1.902	HSG D	1-0S, 2-0S, 2-1S, 2-2S, 2-3S, 2-4S, 2-5S
0.000	Other	
<b>1.902</b>		<b>TOTAL AREA</b>

**5235-Post-DS**

Prepared by Altus Engineering, Inc.

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

Printed 8/16/2022

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment 1-0S: Western</b>	Runoff Area=14,744 sf 6.59% Impervious Runoff Depth>2.89" Flow Length=115' Tc=6.0 min CN=81 Runoff=1.15 cfs 0.082 af
<b>Subcatchment 2-0S: Remaining Land</b>	Runoff Area=40,195 sf 3.52% Impervious Runoff Depth>2.62" Flow Length=180' Tc=9.8 min CN=78 Runoff=2.50 cfs 0.202 af
<b>Subcatchment 2-1S: Yard to Raingarden</b>	Runoff Area=12,616 sf 23.27% Impervious Runoff Depth>3.18" Flow Length=150' Slope=0.0400 '/ Tc=6.0 min CN=84 Runoff=1.07 cfs 0.077 af
<b>Subcatchment 2-2S: Yard to YD#1</b>	Runoff Area=5,826 sf 41.43% Impervious Runoff Depth>3.47" Flow Length=80' Tc=6.0 min CN=87 Runoff=0.54 cfs 0.039 af
<b>Subcatchment 2-3S: Yard to YD#2</b>	Runoff Area=5,522 sf 32.43% Impervious Runoff Depth>3.37" Flow Length=50' Tc=6.0 min CN=86 Runoff=0.50 cfs 0.036 af
<b>Subcatchment 2-4S: Yard to YD#3</b>	Runoff Area=824 sf 37.01% Impervious Runoff Depth>3.47" Flow Length=50' Slope=0.0200 '/ Tc=6.0 min CN=87 Runoff=0.08 cfs 0.005 af
<b>Subcatchment 2-5S: Yard to YD#4</b>	Runoff Area=3,112 sf 70.89% Impervious Runoff Depth>4.10" Flow Length=50' Slope=0.0200 '/ Tc=6.0 min CN=93 Runoff=0.32 cfs 0.024 af
<b>Reach 1R: Overland Flow Path</b>	Avg. Flow Depth=0.24' Max Vel=2.96 fps Inflow=1.37 cfs 0.160 af n=0.035 L=120.0' S=0.0583 '/ Capacity=29.93 cfs Outflow=1.37 cfs 0.160 af
<b>Reach 6R: Overflow</b>	Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af n=0.035 L=175.0' S=0.0571 '/ Capacity=29.62 cfs Outflow=0.00 cfs 0.000 af
<b>Pond 1P: YD #1</b>	Peak Elev=92.76' Inflow=1.43 cfs 0.104 af 8.0" Round Culvert n=0.010 L=48.0' S=0.0146 '/ Outflow=1.43 cfs 0.104 af
<b>Pond 2P: YD #2</b>	Peak Elev=92.99' Inflow=0.89 cfs 0.065 af 8.0" Round Culvert n=0.010 L=94.0' S=0.0053 '/ Outflow=0.89 cfs 0.065 af
<b>Pond 3P: YD #3</b>	Peak Elev=93.14' Inflow=0.40 cfs 0.030 af 8.0" Round Culvert n=0.010 L=53.0' S=0.0057 '/ Outflow=0.40 cfs 0.030 af
<b>Pond 4P: YD #4</b>	Peak Elev=93.40' Inflow=0.32 cfs 0.024 af 8.0" Round Culvert n=0.010 L=38.0' S=0.0053 '/ Outflow=0.32 cfs 0.024 af
<b>Pond 5P: Rain Garden</b>	Peak Elev=90.69' Storage=2,013 cf Inflow=2.50 cfs 0.181 af Primary=1.37 cfs 0.160 af Secondary=0.00 cfs 0.000 af Outflow=1.37 cfs 0.160 af
<b>Link 100: POA #1</b>	Inflow=1.15 cfs 0.082 af Primary=1.15 cfs 0.082 af
<b>Link 200: POA #2</b>	Inflow=3.79 cfs 0.362 af Primary=3.79 cfs 0.362 af

**5235-Post-DS**

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

Printed 8/16/2022

**Total Runoff Area = 1.902 ac   Runoff Volume = 0.464 af   Average Runoff Depth = 2.93"**  
**85.47% Pervious = 1.625 ac   14.53% Impervious = 0.276 ac**



**5235-Post-DS**

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

Printed 8/16/2022

**Summary for Subcatchment 1-0S: Western**

Runoff = 1.15 cfs @ 12.09 hrs, Volume= 0.082 af, Depth> 2.89"

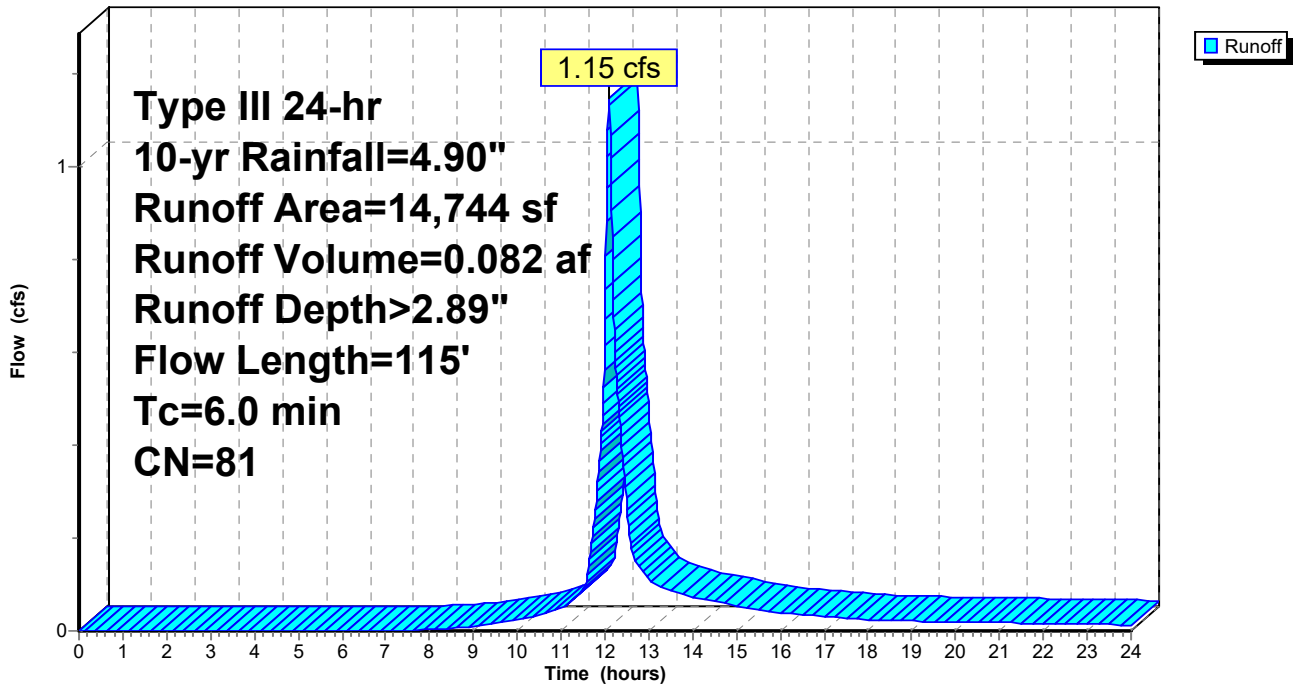
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
972	98	Paved parking, HSG D
13,772	80	>75% Grass cover, Good, HSG D
14,744	81	Weighted Average
13,772		93.41% Pervious Area
972		6.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	50	0.0500	0.21		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.21"
0.3	65	0.0600	3.67		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
4.2	115	Total, Increased to minimum Tc = 6.0 min			

**Subcatchment 1-0S: Western**

Hydrograph



**5235-Post-DS**

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

Printed 8/16/2022

**Summary for Subcatchment 2-0S: Remaining Land**

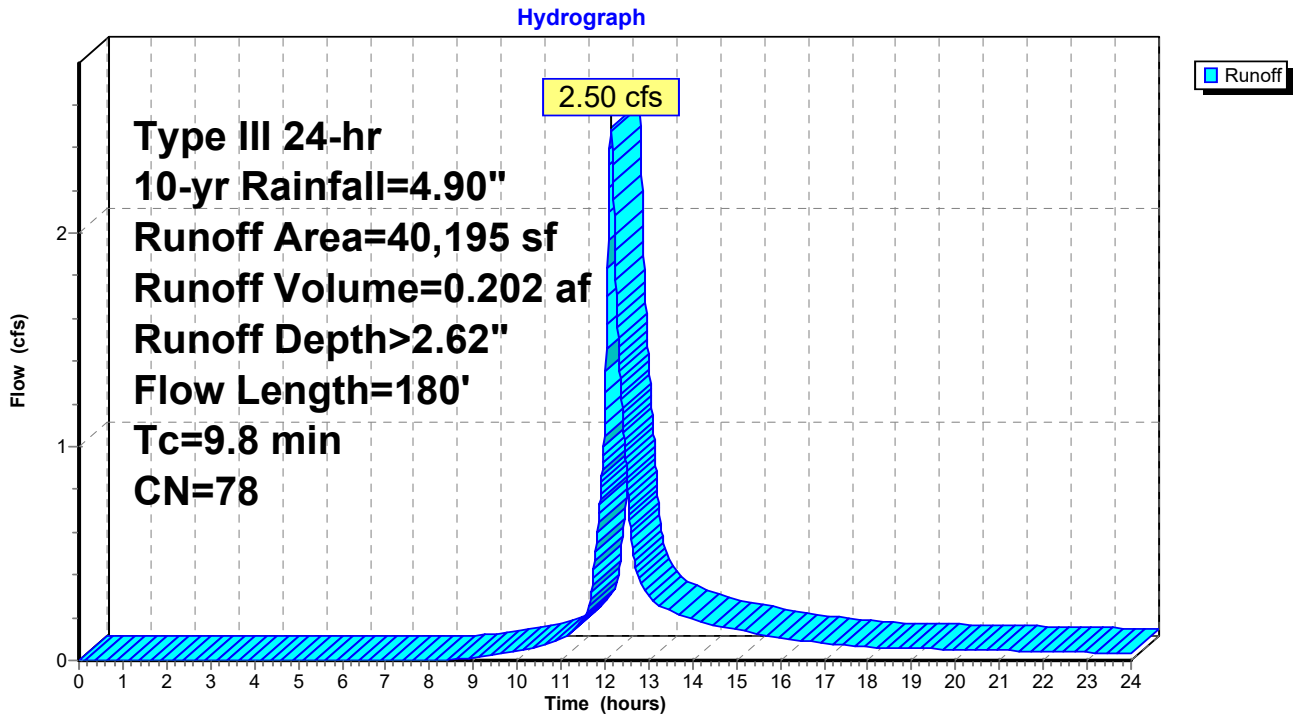
Runoff = 2.50 cfs @ 12.14 hrs, Volume= 0.202 af, Depth> 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
1,414	98	Paved parking, HSG D
9,781	80	>75% Grass cover, Good, HSG D
29,000	77	Woods, Good, HSG D
40,195	78	Weighted Average
38,781		96.48% Pervious Area
1,414		3.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	60	0.0800	0.12		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.21"
1.6	120	0.0630	1.25		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
9.8	180	Total			

**Subcatchment 2-0S: Remaining Land**



**5235-Post-DS**

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

Printed 8/16/2022

**Summary for Subcatchment 2-1S: Yard to Raingarden**

Runoff = 1.07 cfs @ 12.09 hrs, Volume= 0.077 af, Depth> 3.18"

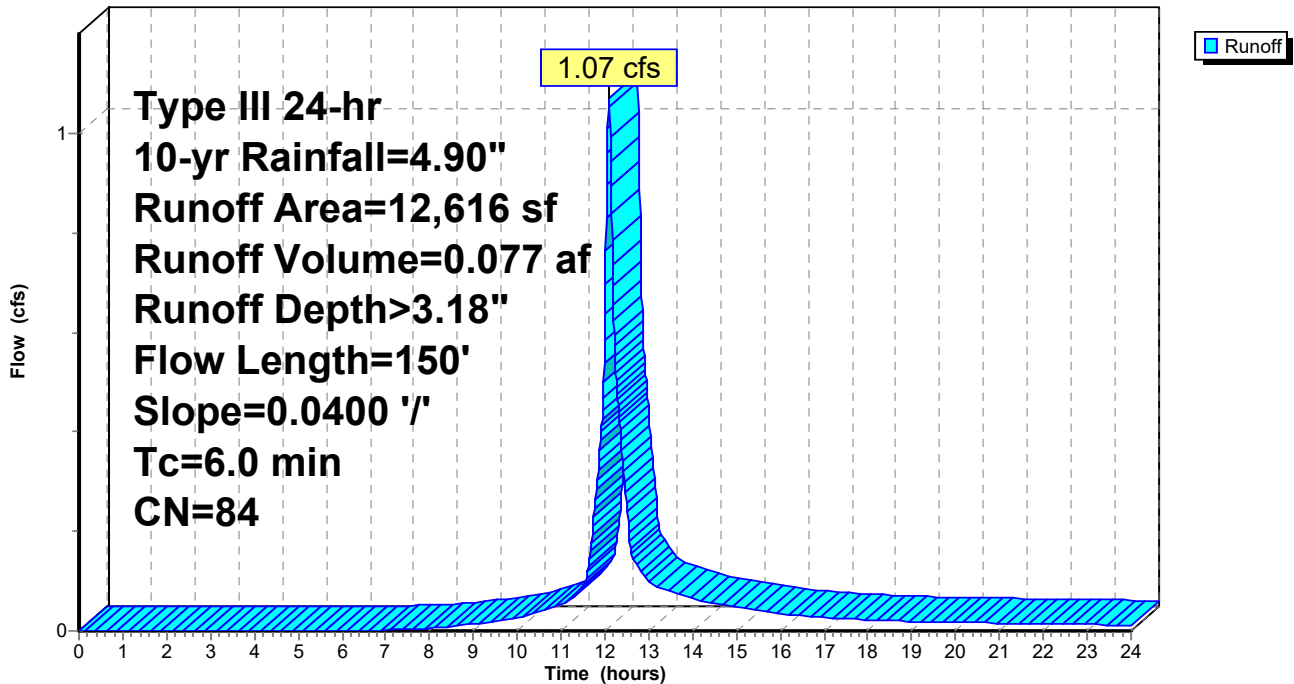
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
2,936	98	Paved parking, HSG D
9,680	80	>75% Grass cover, Good, HSG D
12,616	84	Weighted Average
9,680		76.73% Pervious Area
2,936		23.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	60	0.0400	3.00		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
0.5	90	0.0400	3.00		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
0.8	150	Total, Increased to minimum Tc = 6.0 min			

**Subcatchment 2-1S: Yard to Raingarden**

Hydrograph



**5235-Post-DS**

Prepared by Altus Engineering, Inc.

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

Printed 8/16/2022

**Summary for Subcatchment 2-2S: Yard to YD#1**

Runoff = 0.54 cfs @ 12.09 hrs, Volume= 0.039 af, Depth> 3.47"

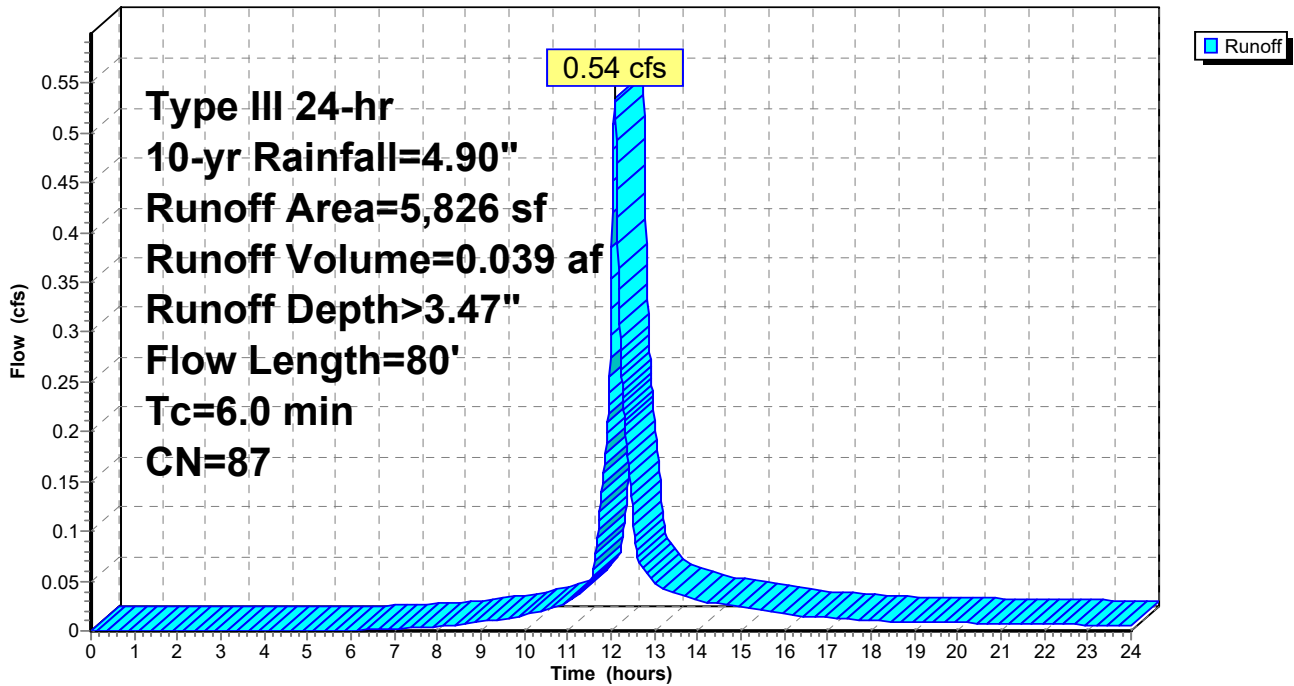
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
2,414	98	Paved parking, HSG D
3,412	80	>75% Grass cover, Good, HSG D
5,826	87	Weighted Average
3,412		58.57% Pervious Area
2,414		41.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	30	0.1600	0.31		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.21"
0.8	50	0.0050	1.06		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
2.4	80	Total, Increased to minimum Tc = 6.0 min			

**Subcatchment 2-2S: Yard to YD#1**

Hydrograph



# 5235-Post-DS

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

Printed 8/16/2022

## Summary for Subcatchment 2-3S: Yard to YD#2

Runoff = 0.50 cfs @ 12.09 hrs, Volume= 0.036 af, Depth> 3.37"

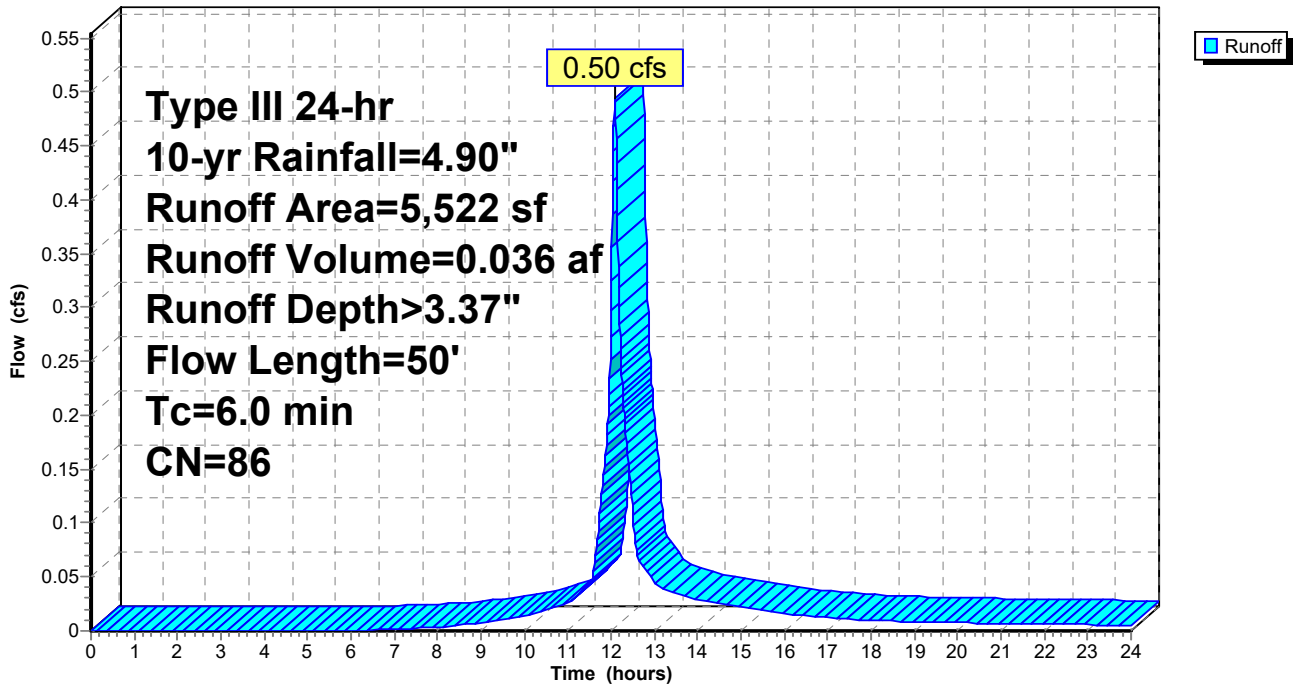
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
1,791	98	Paved parking, HSG D
3,731	80	>75% Grass cover, Good, HSG D
5,522	86	Weighted Average
3,731		67.57% Pervious Area
1,791		32.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	25	0.1500	0.29		Sheet Flow, Grass: Short n= 0.150 P2= 3.21"
0.4	25	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
1.8	50				Total, Increased to minimum Tc = 6.0 min

## Subcatchment 2-3S: Yard to YD#2

Hydrograph



**5235-Post-DS**

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

Printed 8/16/2022

**Summary for Subcatchment 2-4S: Yard to YD#3**

Runoff = 0.08 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 3.47"

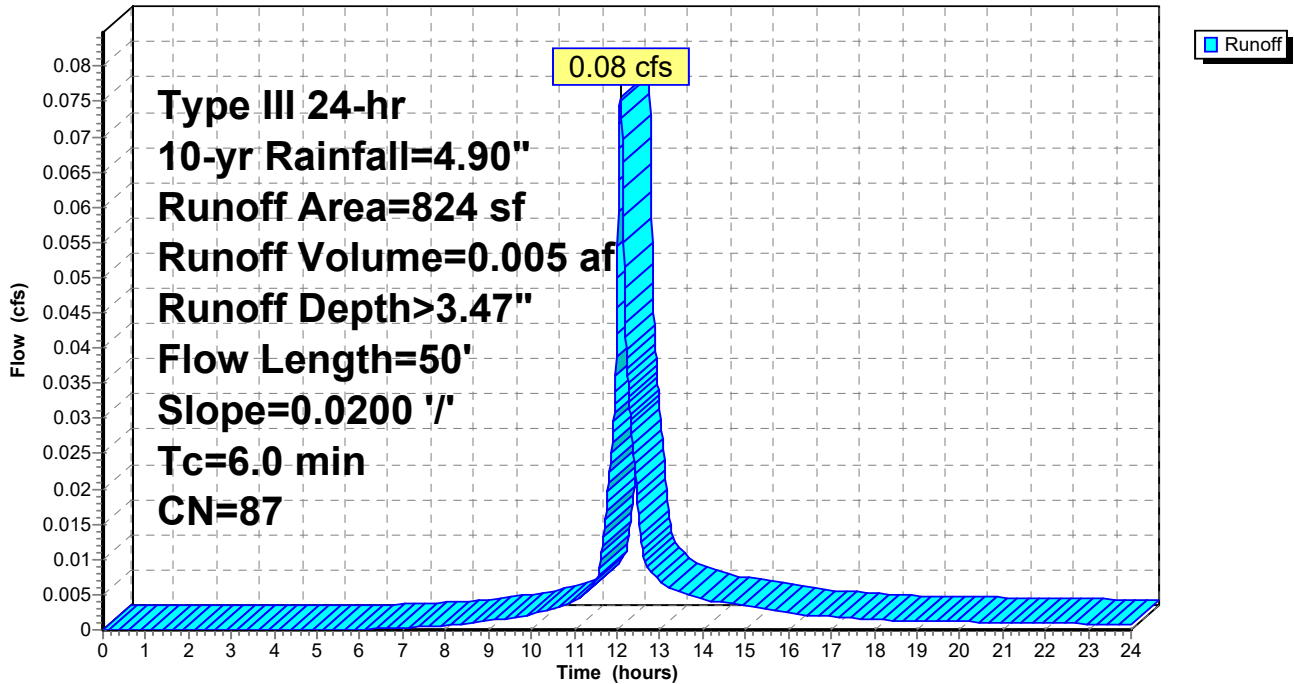
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
305	98	Paved parking, HSG D
519	80	>75% Grass cover, Good, HSG D
824	87	Weighted Average
519		62.99% Pervious Area
305		37.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.20		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.21"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

**Subcatchment 2-4S: Yard to YD#3**

Hydrograph



**5235-Post-DS**

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

Printed 8/16/2022

**Summary for Subcatchment 2-5S: Yard to YD#4**

Runoff = 0.32 cfs @ 12.08 hrs, Volume= 0.024 af, Depth> 4.10"

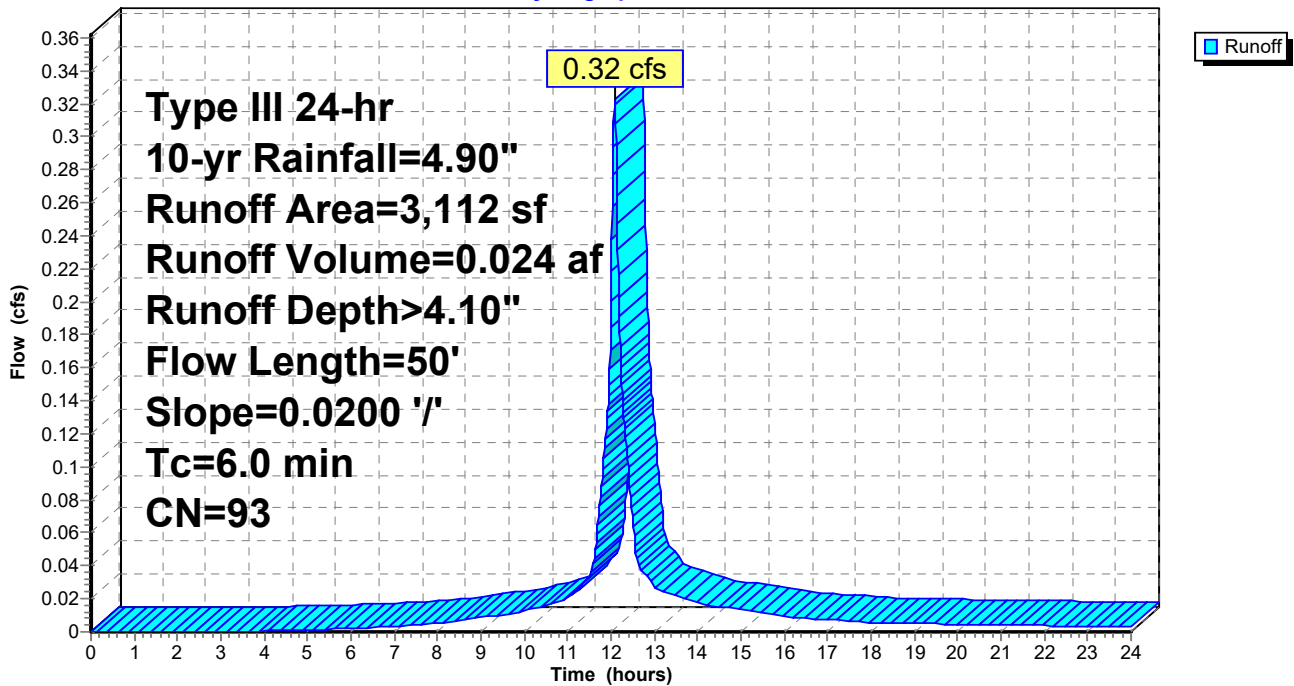
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-yr Rainfall=4.90"

Area (sf)	CN	Description
2,206	98	Paved parking, HSG D
906	80	>75% Grass cover, Good, HSG D
3,112	93	Weighted Average
906		29.11% Pervious Area
2,206		70.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.20		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.21"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

**Subcatchment 2-5S: Yard to YD#4**

Hydrograph



### Summary for Reach 1R: Overland Flow Path

Inflow Area = 0.640 ac, 34.59% Impervious, Inflow Depth > 3.01" for 10-yr event  
 Inflow = 1.37 cfs @ 12.21 hrs, Volume= 0.160 af  
 Outflow = 1.37 cfs @ 12.23 hrs, Volume= 0.160 af, Atten= 0%, Lag= 1.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Max. Velocity= 2.96 fps, Min. Travel Time= 0.7 min  
 Avg. Velocity = 1.24 fps, Avg. Travel Time= 1.6 min

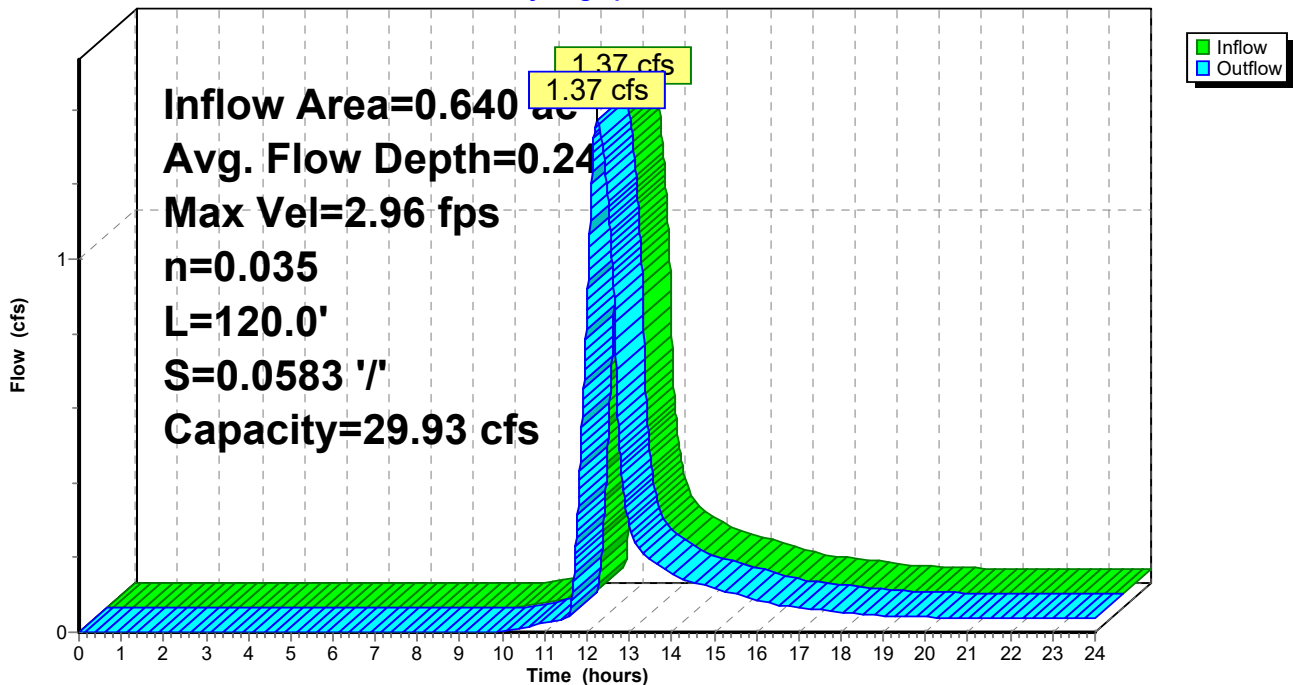
Peak Storage= 55 cf @ 12.22 hrs  
 Average Depth at Peak Storage= 0.24'  
 Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 29.93 cfs

6.00' x 1.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds  
 Length= 120.0' Slope= 0.0583 '/'  
 Inlet Invert= 87.00', Outlet Invert= 80.00'



### Reach 1R: Overland Flow Path

Hydrograph





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

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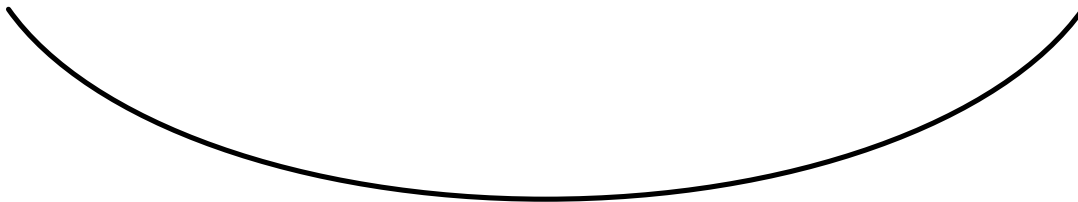
**Summary for Reach 6R: Overflow**

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min  
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

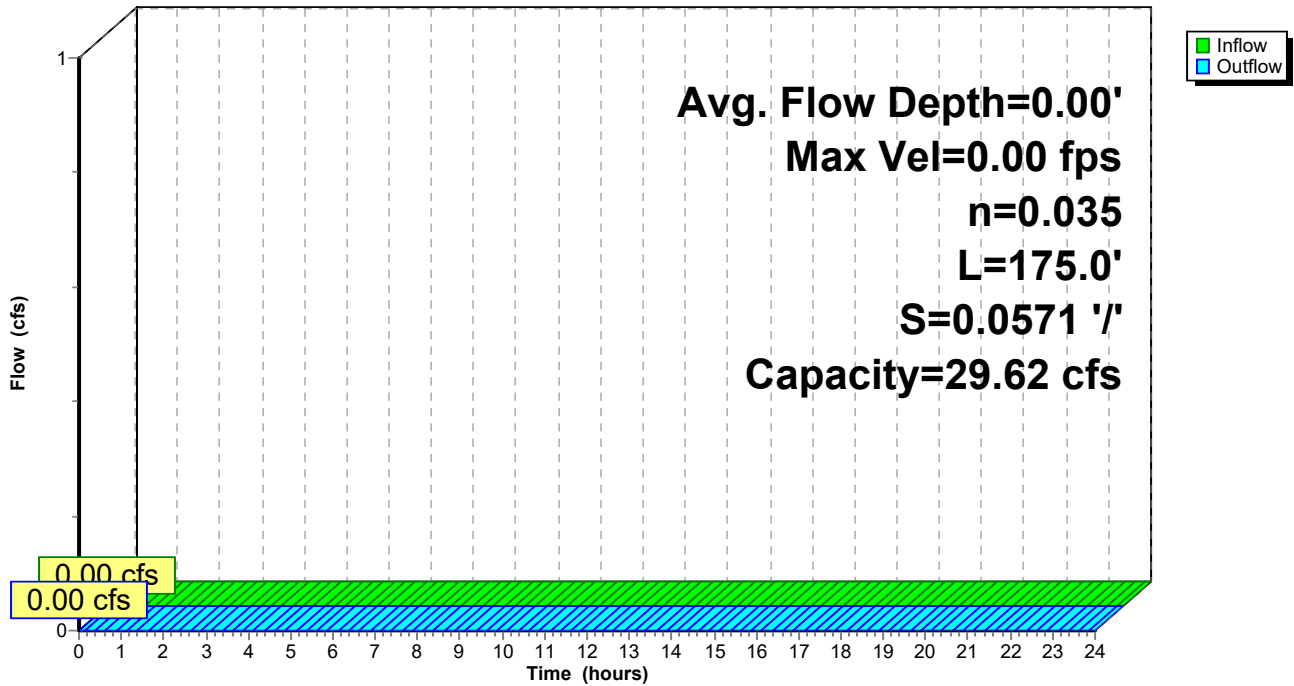
Peak Storage= 0 cf @ 0.00 hrs  
Average Depth at Peak Storage= 0.00'  
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 29.62 cfs

6.00' x 1.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds  
Length= 175.0' Slope= 0.0571 '/'  
Inlet Invert= 90.00', Outlet Invert= 80.00'



**Reach 6R: Overflow**

Hydrograph



**Summary for Pond 1P: YD #1**

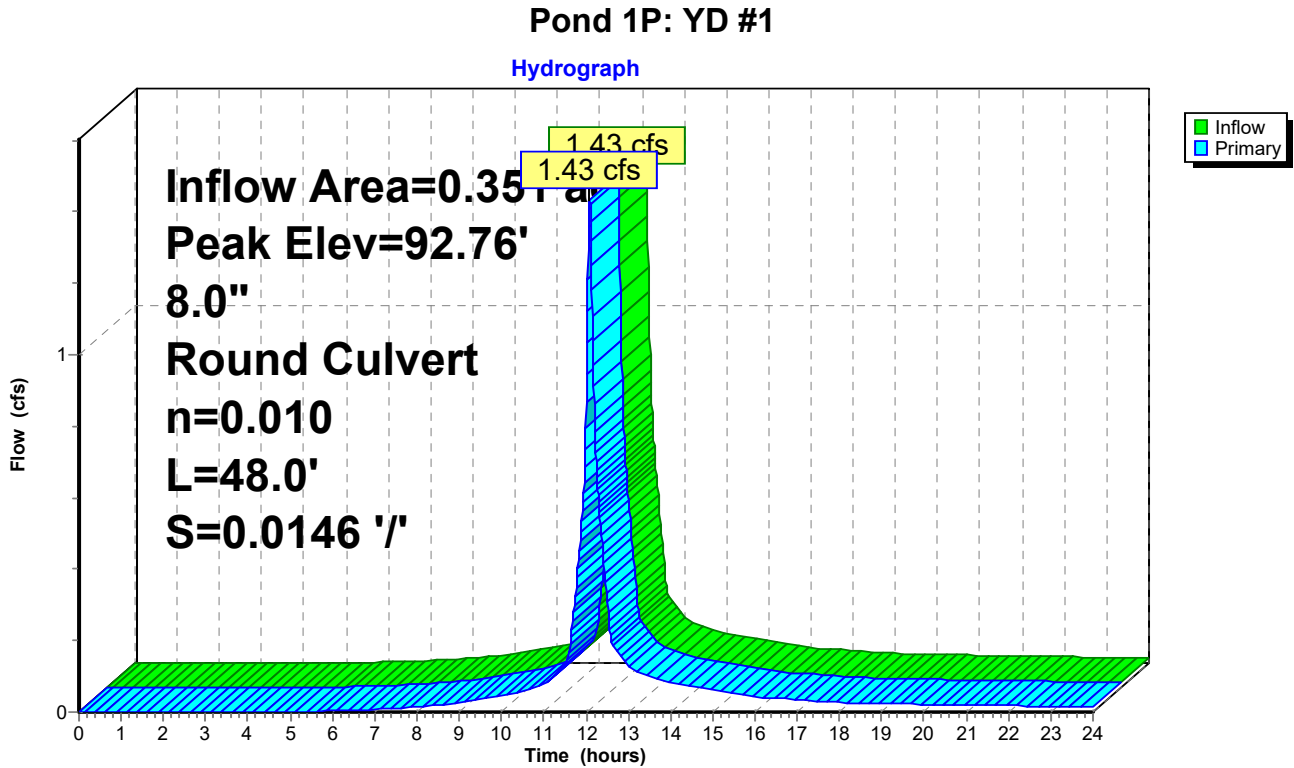
[79] Warning: Submerged Pond 2P Primary device # 1 INLET by 0.40'

Inflow Area = 0.351 ac, 43.94% Impervious, Inflow Depth > 3.56" for 10-yr event  
 Inflow = 1.43 cfs @ 12.09 hrs, Volume= 0.104 af  
 Outflow = 1.43 cfs @ 12.09 hrs, Volume= 0.104 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.43 cfs @ 12.09 hrs, Volume= 0.104 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 92.76' @ 12.09 hrs  
 Flood Elev= 94.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	91.70'	<b>8.0" Round Culvert</b> L= 48.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 91.70' / 91.00' S= 0.0146 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf

**Primary OutFlow** Max=1.43 cfs @ 12.09 hrs HW=92.75' (Free Discharge)  
 ←1=Culvert (Inlet Controls 1.43 cfs @ 4.09 fps)



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

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**Summary for Pond 2P: YD #2**

[79] Warning: Submerged Pond 3P Primary device # 1 INLET by 0.24'

Inflow Area = 0.217 ac, 45.49% Impervious, Inflow Depth > 3.62" for 10-yr event  
 Inflow = 0.89 cfs @ 12.09 hrs, Volume= 0.065 af  
 Outflow = 0.89 cfs @ 12.09 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.89 cfs @ 12.09 hrs, Volume= 0.065 af

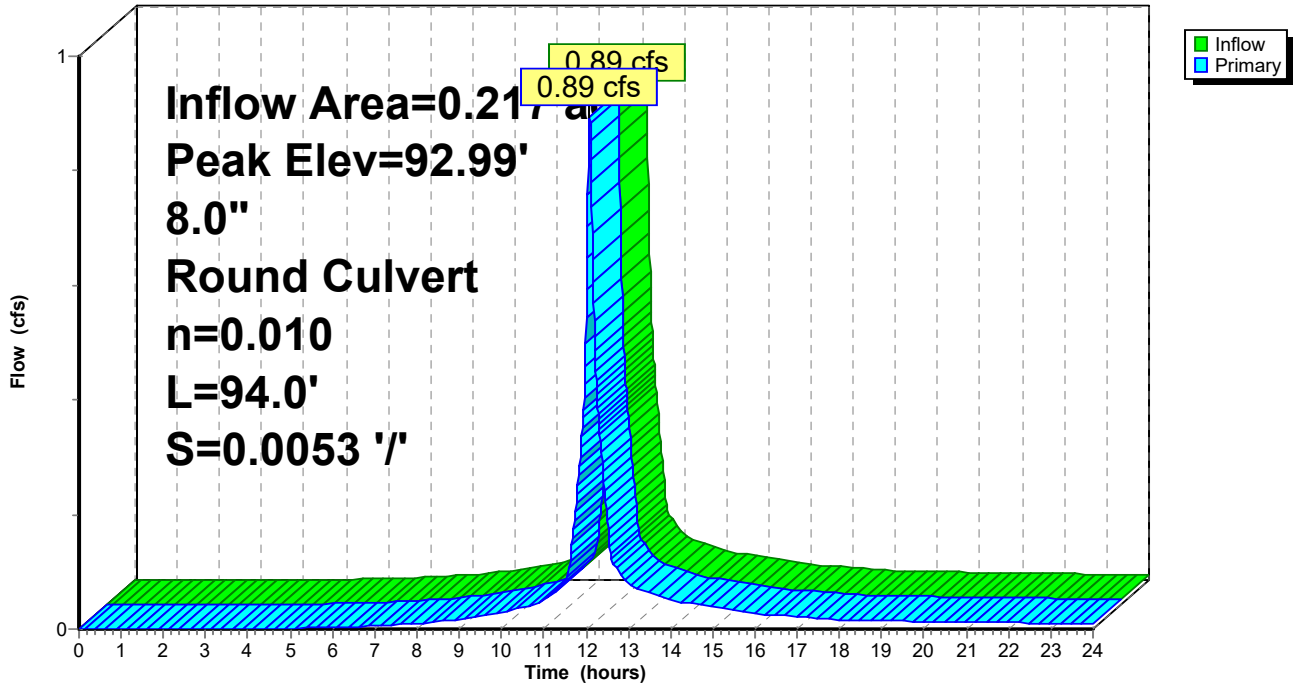
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 92.99' @ 12.09 hrs  
 Flood Elev= 95.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	92.35'	<b>8.0" Round Culvert</b> L= 94.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 92.35' / 91.85' S= 0.0053 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf

**Primary OutFlow** Max=0.89 cfs @ 12.09 hrs HW=92.99' (Free Discharge)  
 ←1=Culvert (Barrel Controls 0.89 cfs @ 3.32 fps)

**Pond 2P: YD #2**

Hydrograph



**Summary for Pond 3P: YD #3**

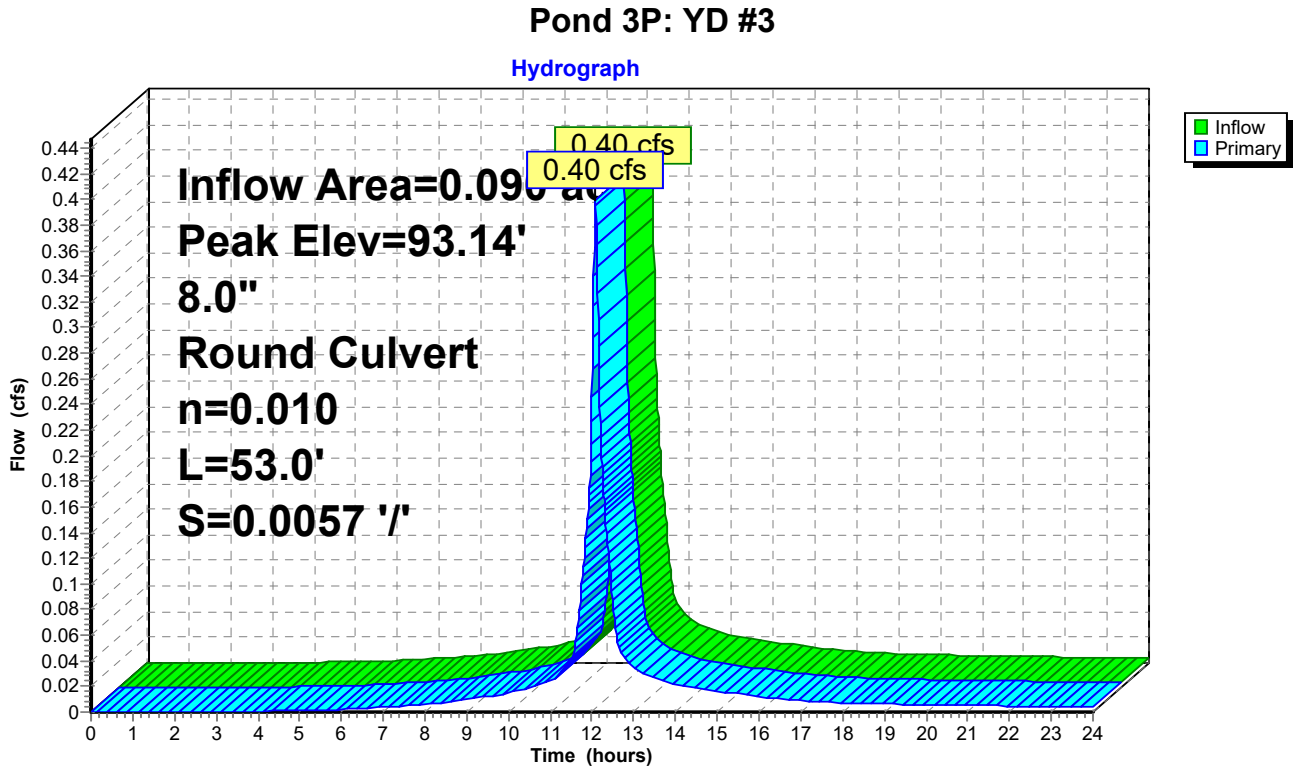
[79] Warning: Submerged Pond 4P Primary device # 1 INLET by 0.09'

Inflow Area = 0.090 ac, 63.80% Impervious, Inflow Depth > 3.96" for 10-yr event  
 Inflow = 0.40 cfs @ 12.08 hrs, Volume= 0.030 af  
 Outflow = 0.40 cfs @ 12.08 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.40 cfs @ 12.08 hrs, Volume= 0.030 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 93.14' @ 12.08 hrs  
 Flood Elev= 94.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	92.75'	<b>8.0" Round Culvert</b> L= 53.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 92.75' / 92.45' S= 0.0057 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf

**Primary OutFlow** Max=0.40 cfs @ 12.08 hrs HW=93.14' (Free Discharge)  
 ←1=Culvert (Barrel Controls 0.40 cfs @ 2.73 fps)



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

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## Summary for Pond 4P: YD #4

Inflow Area = 0.071 ac, 70.89% Impervious, Inflow Depth > 4.10" for 10-yr event  
Inflow = 0.32 cfs @ 12.08 hrs, Volume= 0.024 af  
Outflow = 0.32 cfs @ 12.08 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.32 cfs @ 12.08 hrs, Volume= 0.024 af

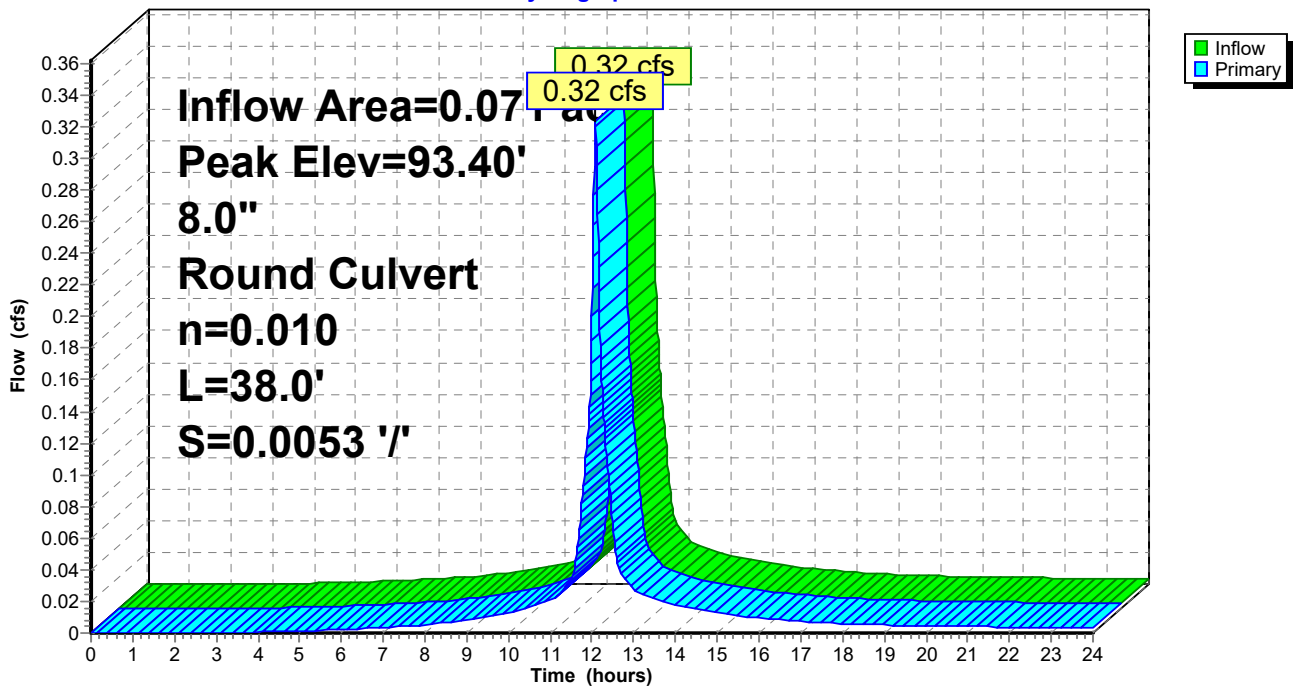
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Peak Elev= 93.40' @ 12.08 hrs  
Flood Elev= 94.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	93.05'	<b>8.0" Round Culvert</b> L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 93.05' / 92.85' S= 0.0053 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf

**Primary OutFlow** Max=0.32 cfs @ 12.08 hrs HW=93.40' (Free Discharge)  
↑**1=Culvert** (Barrel Controls 0.32 cfs @ 2.49 fps)

### Pond 4P: YD #4

Hydrograph



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

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**Summary for Pond 5P: Rain Garden**

[92] Warning: Device #5 is above defined storage

Inflow Area = 0.640 ac, 34.59% Impervious, Inflow Depth > 3.39" for 10-yr event  
 Inflow = 2.50 cfs @ 12.09 hrs, Volume= 0.181 af  
 Outflow = 1.37 cfs @ 12.21 hrs, Volume= 0.160 af, Atten= 45%, Lag= 7.5 min  
 Primary = 1.37 cfs @ 12.21 hrs, Volume= 0.160 af  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 90.69' @ 12.21 hrs Surf.Area= 2,042 sf Storage= 2,013 cf

Plug-Flow detention time= 95.4 min calculated for 0.160 af (89% of inflow)  
 Center-of-Mass det. time= 43.1 min ( 845.9 - 802.8 )

Volume	Invert	Avail.Storage	Storage Description	
#1	87.50'	2,682 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
87.50	751	0.0	0	0
88.17	751	40.0	201	201
88.42	751	40.0	75	276
89.50	751	5.0	41	317
90.00	1,317	100.0	517	834
90.30	1,670	100.0	448	1,282
91.00	2,330	100.0	1,400	2,682

Device	Routing	Invert	Outlet Devices
#1	Primary	87.50'	<b>8.0" Round Culvert</b> L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 87.50' / 87.25' S= 0.0050 1/1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#2	Device 1	87.50'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 2	89.50'	<b>2.500 in/hr Exfiltration over Surface area above 89.50'</b> Excluded Surface area = 751 sf Phase-In= 0.01'
#4	Device 1	90.10'	<b>8.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Secondary	91.00'	<b>90.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

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

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**Primary OutFlow** Max=1.37 cfs @ 12.21 hrs HW=90.69' (Free Discharge)

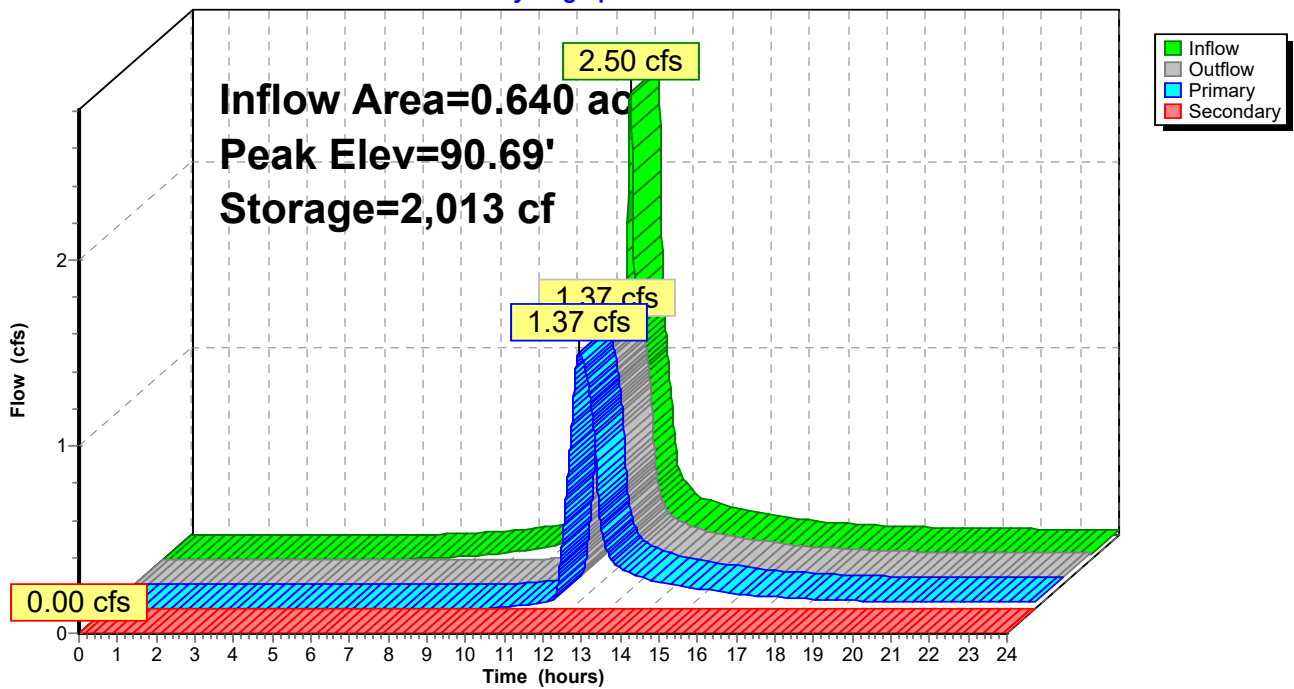
- 1=Culvert (Passes 1.37 cfs of 2.65 cfs potential flow)
- 2=Orifice/Grate (Passes 0.07 cfs of 0.73 cfs potential flow)
- 3=Exfiltration (Exfiltration Controls 0.07 cfs)
- 4=Orifice/Grate (Orifice Controls 1.30 cfs @ 3.71 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=87.50' (Free Discharge)

- 5=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

**Pond 5P: Rain Garden**

Hydrograph



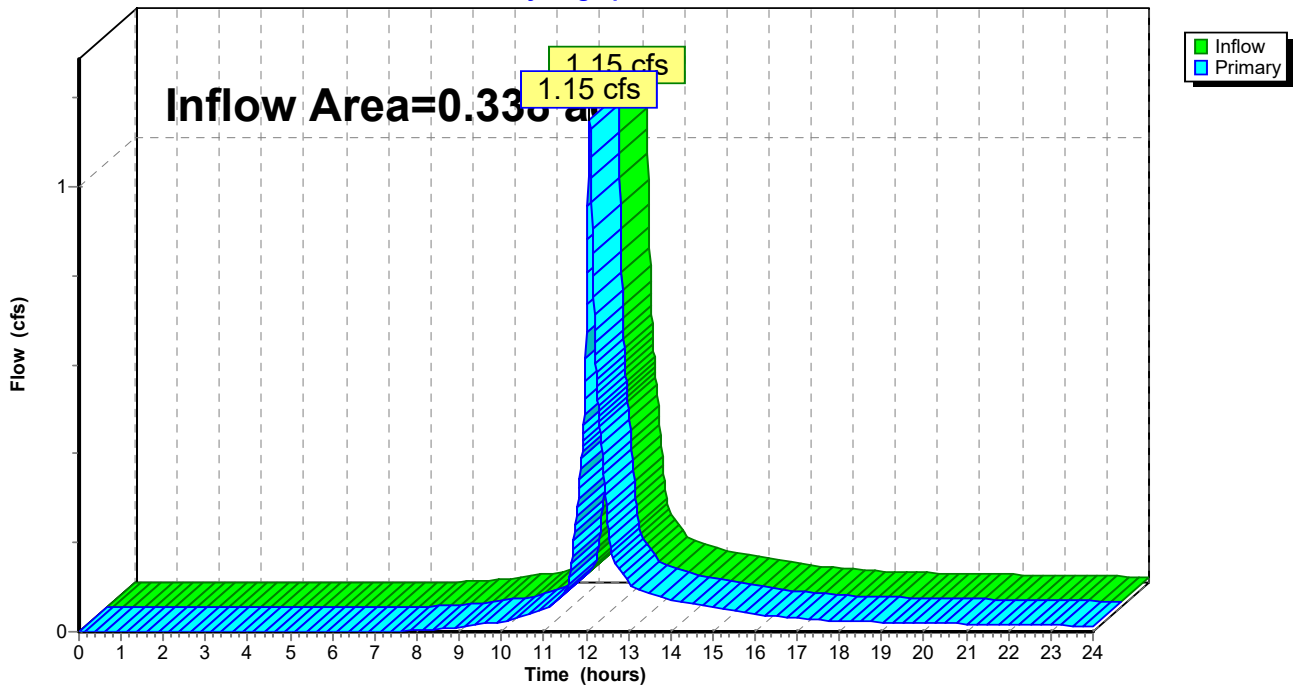
### Summary for Link 100: POA #1

Inflow Area = 0.338 ac, 6.59% Impervious, Inflow Depth > 2.89" for 10-yr event  
Inflow = 1.15 cfs @ 12.09 hrs, Volume= 0.082 af  
Primary = 1.15 cfs @ 12.09 hrs, Volume= 0.082 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

### Link 100: POA #1

Hydrograph





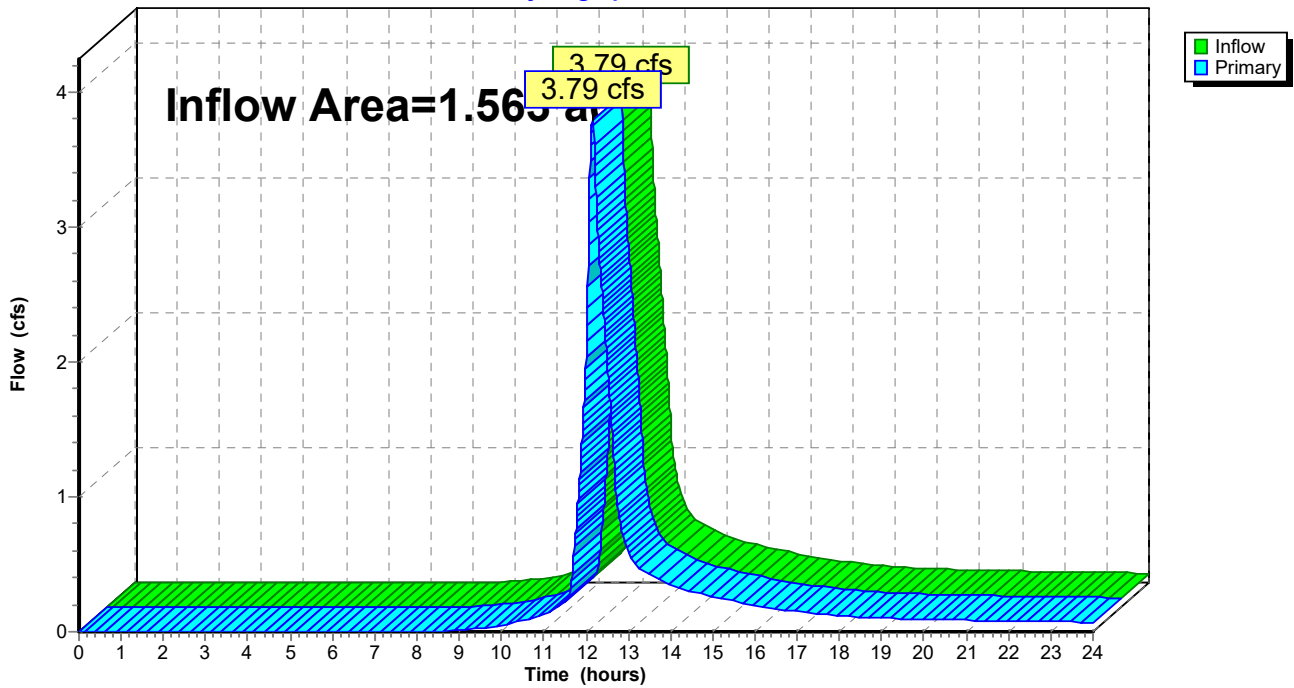
### Summary for Link 200: POA #2

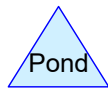
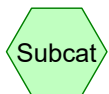
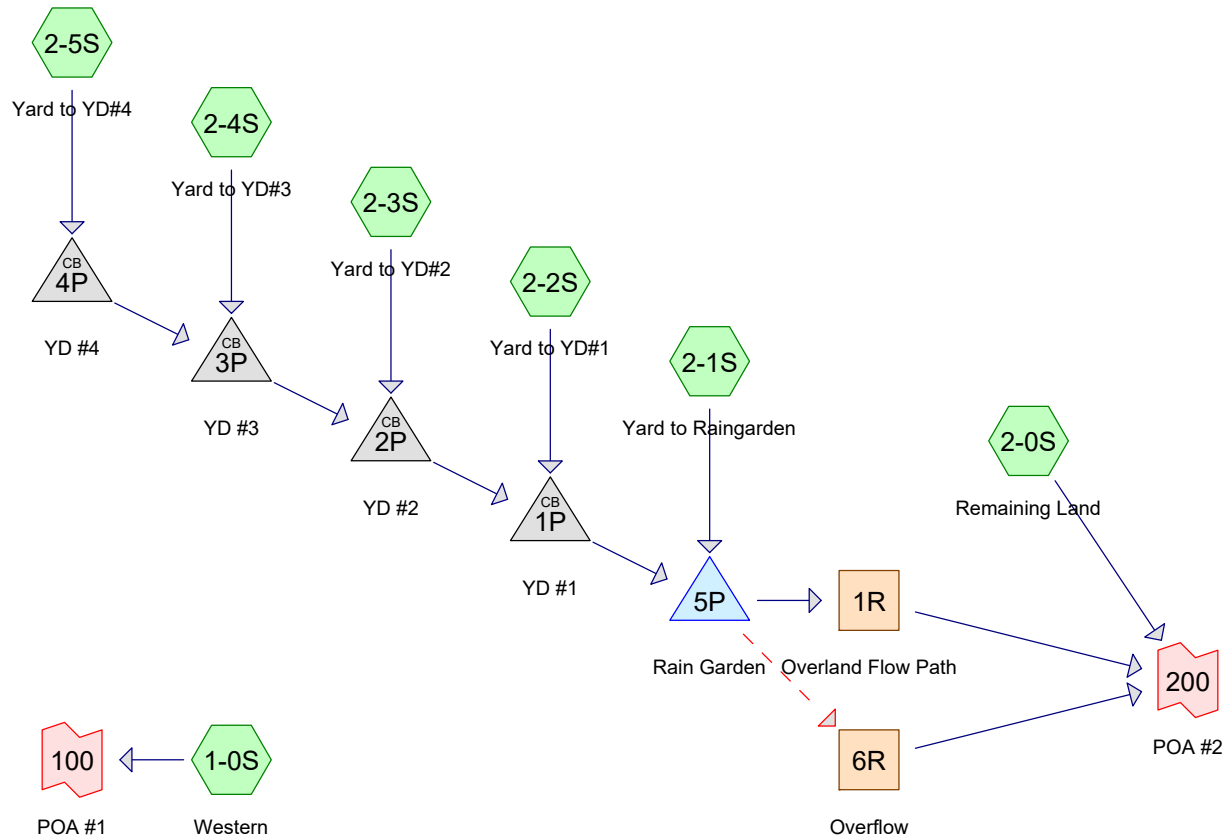
Inflow Area = 1.563 ac, 16.25% Impervious, Inflow Depth > 2.78" for 10-yr event  
Inflow = 3.79 cfs @ 12.15 hrs, Volume= 0.362 af  
Primary = 3.79 cfs @ 12.15 hrs, Volume= 0.362 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

### Link 200: POA #2

Hydrograph





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

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment 1-0S: Western</b>	Runoff Area=14,744 sf 6.59% Impervious Runoff Depth>4.06" Flow Length=115' Tc=6.0 min CN=81 Runoff=1.60 cfs 0.115 af
<b>Subcatchment 2-0S: Remaining Land</b>	Runoff Area=40,195 sf 3.52% Impervious Runoff Depth>3.75" Flow Length=180' Tc=9.8 min CN=78 Runoff=3.57 cfs 0.288 af
<b>Subcatchment 2-1S: Yard to Raingarden</b>	Runoff Area=12,616 sf 23.27% Impervious Runoff Depth>4.38" Flow Length=150' Slope=0.0400 '/ Tc=6.0 min CN=84 Runoff=1.46 cfs 0.106 af
<b>Subcatchment 2-2S: Yard to YD#1</b>	Runoff Area=5,826 sf 41.43% Impervious Runoff Depth>4.70" Flow Length=80' Tc=6.0 min CN=87 Runoff=0.72 cfs 0.052 af
<b>Subcatchment 2-3S: Yard to YD#2</b>	Runoff Area=5,522 sf 32.43% Impervious Runoff Depth>4.60" Flow Length=50' Tc=6.0 min CN=86 Runoff=0.67 cfs 0.049 af
<b>Subcatchment 2-4S: Yard to YD#3</b>	Runoff Area=824 sf 37.01% Impervious Runoff Depth>4.70" Flow Length=50' Slope=0.0200 '/ Tc=6.0 min CN=87 Runoff=0.10 cfs 0.007 af
<b>Subcatchment 2-5S: Yard to YD#4</b>	Runoff Area=3,112 sf 70.89% Impervious Runoff Depth>5.38" Flow Length=50' Slope=0.0200 '/ Tc=6.0 min CN=93 Runoff=0.42 cfs 0.032 af
<b>Reach 1R: Overland Flow Path</b>	Avg. Flow Depth=0.26' Max Vel=3.13 fps Inflow=1.64 cfs 0.224 af n=0.035 L=120.0' S=0.0583 '/ Capacity=29.93 cfs Outflow=1.64 cfs 0.224 af
<b>Reach 6R: Overflow</b>	Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af n=0.035 L=175.0' S=0.0571 '/ Capacity=29.62 cfs Outflow=0.00 cfs 0.000 af
<b>Pond 1P: YD #1</b>	Peak Elev=93.31' Inflow=1.90 cfs 0.140 af 8.0" Round Culvert n=0.010 L=48.0' S=0.0146 '/ Outflow=1.90 cfs 0.140 af
<b>Pond 2P: YD #2</b>	Peak Elev=93.32' Inflow=1.19 cfs 0.088 af 8.0" Round Culvert n=0.010 L=94.0' S=0.0053 '/ Outflow=1.19 cfs 0.088 af
<b>Pond 3P: YD #3</b>	Peak Elev=93.20' Inflow=0.52 cfs 0.039 af 8.0" Round Culvert n=0.010 L=53.0' S=0.0057 '/ Outflow=0.52 cfs 0.039 af
<b>Pond 4P: YD #4</b>	Peak Elev=93.46' Inflow=0.42 cfs 0.032 af 8.0" Round Culvert n=0.010 L=38.0' S=0.0053 '/ Outflow=0.42 cfs 0.032 af
<b>Pond 5P: Rain Garden</b>	Peak Elev=90.95' Storage=2,567 cf Inflow=3.36 cfs 0.246 af Primary=1.64 cfs 0.224 af Secondary=0.00 cfs 0.000 af Outflow=1.64 cfs 0.224 af
<b>Link 100: POA #1</b>	Inflow=1.60 cfs 0.115 af Primary=1.60 cfs 0.115 af
<b>Link 200: POA #2</b>	Inflow=5.09 cfs 0.512 af Primary=5.09 cfs 0.512 af

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

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**Total Runoff Area = 1.902 ac   Runoff Volume = 0.649 af   Average Runoff Depth = 4.10"**  
**85.47% Pervious = 1.625 ac   14.53% Impervious = 0.276 ac**

## Section 5

# Maine DEP Precipitation Table

**APPENDIX H. 24-hour duration rainfalls for various return periods**

COUNTY	Storm Type	1-YR	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR	500-YR
ANDROSCOGGIN	III	2.5	3.0	3.7	4.3	5.4	6.4	7.6	11.1
AROOSTOOK C (Presque Isle Area)	II	1.9	2.3	2.8	3.2	3.9	4.6	5.3	7.6
AROOSTOOK N (Fort Kent Area)	II	1.9	2.2	2.7	3.1	3.7	4.3	5.0	7.0
AROOSTOOK S (Houlton Area)	II	2.1	2.5	3.0	3.4	4.1	4.7	5.4	7.5
CUMBERLAND NW (Bridgton Area)	III	2.5	3.0	3.7	4.3	5.4	6.3	7.5	10.9
CUMBERLAND SE (N Windham Area)	III	2.6	3.1	3.9	4.6	5.8	6.9	8.1	12.1
FRANKLIN	II	2.0	2.4	2.9	3.4	4.2	4.9	5.7	8.2
HANCOCK	III	2.5	2.9	3.6	4.2	5.2	6.1	7.2	10.5
KENNEBEC	III	2.4	2.8	3.5	4.2	5.2	6.1	7.2	10.6
KNOX	III	2.6	3.2	3.9	4.6	5.7	6.7	7.9	11.5
LINCOLN	III	2.5	3.1	3.8	4.5	5.5	6.5	7.6	11.1
OXFORD E (Rumford Area)	II <sup>1</sup>	2.3	2.7	3.3	3.9	4.8	5.7	6.7	9.7
OXFORD W (Gilead Area)	II	2.2	2.7	3.4	4.0	4.9	5.8	6.9	10.1
PENOBSCOT N (Millinocket Area)	II	2.2	2.6	3.2	3.8	4.7	5.6	6.5	9.5
PENOBSCOT S (Hudson Area)	II	2.3	2.7	3.4	3.9	4.9	5.7	6.7	9.7
PISCATAQUIS N (Chesuncook Area)	II	2.0	2.4	2.9	3.4	4.2	5.0	5.8	8.5
PISCATAQUIS S (Monson Area)	II	2.2	2.7	3.3	3.9	4.8	5.7	6.8	10.0
SAGADAHOC	III	2.6	3.2	3.9	4.6	5.7	6.7	7.8	11.4
SOMERSET N (Pittston Farm Area)	II	2.0	2.3	2.8	3.3	4.0	4.7	5.4	7.8
SOMERSET S (Solon Area)	II	2.3	2.7	3.4	3.9	4.9	5.7	6.7	9.8
WALDO	III	2.4	2.9	3.6	4.2	5.2	6.1	7.2	10.5
WASHINGTON	III	2.5	2.8	3.4	3.9	4.8	5.5	6.4	9.0
YORK	III	2.6	3.3	4.1	4.9	6.2	7.3	8.7	13.2

<sup>1</sup> Use Type III rainfall for the towns of Brownfield, Buckfield, Denmark, Hartford, Hebron, Hiram, Oxford, and Porter.

Source: Data extracted by the Maine Department of Environmental Protection from the Northeast Regional Climate Center website (<http://precip.eas.cornell.edu>), Extreme Precipitation Tables. Data from this website was obtained from the National Oceanic and Atmospheric Administration's Regional Climate Center Program.  
June 2014

# Section 6

## NRCS Soil Survey

# Custom Soil Resource Report for York County, Maine





# Preface

---

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# Soil Map

---

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

# Custom Soil Resource Report Soil Map



Map Scale: 1:1,400 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84



## MAP LEGEND

- Area of Interest (AOI)**
  - Area of Interest (AOI)
- Soils**
  - Soil Map Unit Polygons
  - Soil Map Unit Lines
  - Soil Map Unit Points
- Special Point Features**
  - Blowout
  - Borrow Pit
  - Clay Spot
  - Closed Depression
  - Gravel Pit
  - Gravelly Spot
  - Landfill
  - Lava Flow
  - Marsh or swamp
  - Mine or Quarry
  - Miscellaneous Water
  - Perennial Water
  - Rock Outcrop
  - Saline Spot
  - Sandy Spot
  - Severely Eroded Spot
  - Sinkhole
  - Slide or Slip
  - Sodic Spot
- Water Features**
  - Streams and Canals
- Transportation**
  - Rails
  - Interstate Highways
  - US Routes
  - Major Roads
  - Local Roads
- Background**
  - Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: York County, Maine  
 Survey Area Data: Version 19, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Sep 9, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
LnB	Lyman loam, 3 to 8 percent slopes, rocky	1.5	20.2%
LnC	Lyman loam, 8 to 15 percent slopes, rocky	5.8	79.8%
<b>Totals for Area of Interest</b>		<b>7.2</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

## Custom Soil Resource Report

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.



## York County, Maine

### LnB—Lyman loam, 3 to 8 percent slopes, rocky

#### Map Unit Setting

*National map unit symbol:* 2trq7

*Elevation:* 0 to 520 feet

*Mean annual precipitation:* 36 to 65 inches

*Mean annual air temperature:* 36 to 52 degrees F

*Frost-free period:* 60 to 160 days

*Farmland classification:* Farmland of statewide importance

#### Map Unit Composition

*Lyman, rocky, and similar soils:* 86 percent

*Minor components:* 14 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Lyman, Rocky

##### Setting

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Shoulder, summit, backslope

*Landform position (three-dimensional):* Mountaintop, mountainbase, crest, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

##### Typical profile

*Oe - 0 to 1 inches:* moderately decomposed plant material

*A - 1 to 3 inches:* loam

*E - 3 to 5 inches:* fine sandy loam

*Bhs - 5 to 7 inches:* loam

*Bs1 - 7 to 11 inches:* loam

*Bs2 - 11 to 18 inches:* channery loam

*R - 18 to 28 inches:* bedrock

##### Properties and qualities

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* 11 to 24 inches to lithic bedrock

*Drainage class:* Somewhat excessively drained

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to high (0.00 to 14.03 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2s

*Hydrologic Soil Group:* D

*Hydric soil rating:* No

**Minor Components**

**Tunbridge, rocky**

*Percent of map unit:* 6 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Backslope, summit, shoulder

*Landform position (three-dimensional):* Mountaintop, mountainbase, side slope, crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

**Skerry, rocky**

*Percent of map unit:* 5 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Footslope, backslope

*Landform position (three-dimensional):* Mountaintop, mountainbase, crest, side slope

*Microfeatures of landform position:* Closed depressions, closed depressions

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* No

**Hermon, rocky**

*Percent of map unit:* 2 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Backslope, summit, shoulder

*Landform position (three-dimensional):* Mountaintop, mountainbase, side slope, crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

**Brayton, rocky**

*Percent of map unit:* 1 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Toeslope, footslope

*Landform position (three-dimensional):* Mountaintop, mountainbase, crest, side slope

*Microfeatures of landform position:* Closed depressions, closed depressions

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* Yes

**LnC—Lyman loam, 8 to 15 percent slopes, rocky**

**Map Unit Setting**

*National map unit symbol:* 2trq9

*Elevation:* 0 to 690 feet

*Mean annual precipitation:* 36 to 65 inches

## Custom Soil Resource Report

*Mean annual air temperature:* 36 to 52 degrees F  
*Frost-free period:* 60 to 160 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Lyman, rocky, and similar soils:* 86 percent  
*Minor components:* 14 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Lyman, Rocky

#### Setting

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Shoulder, summit, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainbase, mountainflank, crest, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

#### Typical profile

*Oe - 0 to 1 inches:* moderately decomposed plant material  
*A - 1 to 3 inches:* loam  
*E - 3 to 5 inches:* fine sandy loam  
*Bhs - 5 to 7 inches:* loam  
*Bs1 - 7 to 11 inches:* loam  
*Bs2 - 11 to 18 inches:* channery loam  
*R - 18 to 28 inches:* bedrock

#### Properties and qualities

*Slope:* 8 to 15 percent  
*Depth to restrictive feature:* 11 to 24 inches to lithic bedrock  
*Drainage class:* Somewhat excessively drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to high (0.00 to 14.03 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3e  
*Hydrologic Soil Group:* D  
*Hydric soil rating:* No

### Minor Components

#### Tunbridge, rocky

*Percent of map unit:* 6 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Backslope, summit, shoulder  
*Landform position (three-dimensional):* Mountaintop, mountainbase, mountainflank, side slope, crest  
*Down-slope shape:* Convex

## Custom Soil Resource Report

*Across-slope shape:* Convex  
*Hydric soil rating:* No

### **Skerry, rocky**

*Percent of map unit:* 5 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Foothlope, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainbase, mountainflank, crest, side slope  
*Microfeatures of landform position:* Closed depressions, closed depressions, open depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

### **Hermon, rocky**

*Percent of map unit:* 2 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainbase, mountainflank, side slope, crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

### **Brayton, rocky**

*Percent of map unit:* 1 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Toeslope, foothlope  
*Landform position (three-dimensional):* Mountaintop, mountainbase, mountainflank, crest, side slope  
*Microfeatures of landform position:* Open depressions, open depressions, closed depressions, closed depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

## Section 7

# Stormwater Operations & Maintenance Plan

# STORMWATER INSPECTION AND MAINTENANCE MANUAL

## Wyman Hill Kittery Assessor's Map 16, Lot 148

### OWNER AT TIME OF APPROVAL:

Lusitano, LLC  
119 King's Highway North  
Elliot, Maine 03903

Proper inspection, maintenance, and repair are key elements in maintaining a successful stormwater management program on a developed property. Routine inspections ensure permit compliance and reduce the potential for deterioration of infrastructure or reduced water quality. Inspections should also be carried out after any rainfall of 1" or more. Qualified inspectors shall be Professional Engineers licensed in the State of Maine or Certified Professionals in Erosion and Sediment Control. The following responsible parties shall be in charge of managing the stormwater facilities:

### **RESPONSIBLE PARTIES:**

**Owner:** Lusitano, LLC (617) 501-6149  
Name Company Phone

**Inspection:** Lusitano, LLC (617) 501-6149  
Name Company Phone

**Maintenance:** Lusitano, LLC (617) 501-6149  
Name Company Phone

### **NOTES:**

***Inspection and maintenance responsibilities shall transfer to any future property owner(s).***

***This manual shall be updated as needed to reflect any changes related to any transfer of ownership and/or any delegation of inspection and maintenance responsibilities to any entity other than those listed above.***

## **GRASSED UNDERDRAINED SOIL FILTERS**

---

Underdrain soil filters control stormwater quality by capturing and retaining runoff and passing it through a filter bed comprised of a specific media. The basin shall be inspected semi-annually and following major storm events for evidence of erosion, clogging or of bypass conditions.

### *Maintenance*

- *Drainage:* The filter should within 24 to 48 hours following a one-inch storm or greater. If the system drains too fast, adjust the outlet release valve opening to regulate the outflow.
- *Sediment Removal:* Sediment and plant debris should be removed from the pretreatment structure at least annually.
- *Mowing:* If mowing is desired, only hand-held string trimmers or push-mowers are allowed on the filter (no tractor) and the grass bed should be mowed no more than 2 times per growing season to maintain grass heights of no less than 6 inches.
- *Fertilization:* Fertilization of the underdrained filter area should be avoided unless absolutely necessary to establish vegetation.
- *Weeding:* Weeding to control unwanted or invasive plants if necessary.
- *Grass cover:* Maintaining a healthy cover of grass will minimize clogging with fine sediments. If ponding exceeds 48 hours, the top of the filter bed should be rototilled to reestablish the soil's filtration capacity.
- *Soil Filter Replacement:* The top several inches of the filter can be replaced with fresh material if water is ponding for more than 72 hours, or the basin can be rototilled, seeded and mulched. Once the filter is mature, adding new material (a 1-inch to 2-inch cover of mature compost) can compensate for subsidence.

## **CULVERTS AND DRAINAGE PIPES**

---

*Function* – Culverts and drainage pipes convey stormwater away from buildings, walkways, and parking areas and to surface waters or closed drainage systems.

### *Maintenance*

- Culverts and drainage pipes shall be inspected semi-annually, or more often as needed, for accumulation of debris and structural integrity. Leaves and other debris shall be removed from the inlet and outlet to insure the functionality of drainage structures. Debris shall be disposed of on site where it will not concentrate back at the drainage structures or at a solid waste disposal facility.
- Riprap Areas - Culvert outlets and inlets shall be inspected during annual maintenance and operations for erosion and scour. If scour or erosion is identified, the owner shall take appropriate means to prevent further erosion.

## **YARD DRAINS**

---

*Function* – Yard drains collect stormwater, primarily from paved surfaces, landscape areas and roofs.

### *Maintenance*

- Remove leaves and debris from structure grates on an as-needed basis.
- Sumps shall be inspected and cleaned annually and any removed sediment and debris shall be disposed of at a solid waste disposal facility.

## **LANDSCAPED AREAS - FERTILIZER MANAGEMENT**

---

*Function* – Fertilizer management involves controlling the rate, timing and method of fertilizer application so that the nutrients are taken up by the plants thereby reducing the chance of polluting the surface and ground waters. Fertilizer management can be effective in reducing the amounts of phosphorus and nitrogen in runoff from landscaped areas, particularly lawns.

### *Maintenance*

- Have the soil tested by your landscaper or local Soil Conservation Service for nutrient requirements and follow the recommendations.
- Do not apply fertilizer to frozen ground.
- Clean up any fertilizer spills.
- Do not allow fertilizer to be broadcast into water bodies.
- When fertilizing a lawn, water thoroughly, but do not create a situation where water runs off the surface of the lawn.

## **LANDSCAPED AREAS - LITTER CONTROL**

---

*Function* – Landscaped areas tend to filter debris and contaminants that may block drainage systems and pollute the surface and ground waters.

### *Maintenance*

- Litter Control and lawn maintenance involves removing litter such as trash, leaves, lawn clippings, pet wastes, oil and chemicals from streets, parking lots, and lawns before materials are transported into surface waters.
- Litter control shall be implemented as part of the grounds maintenance program.

## **VEGETATIVE SWALES**

---

*Function* – Vegetative swales filter sediment from stormwater, promote infiltration, and the uptake of contaminants. They are designed to treat runoff and dispose of it safely into the natural drainage system.

### *Maintenance*

- Timely maintenance is important to keep a swale in good working condition. Mowing of grassed swales shall be monthly to keep the vegetation in vigorous condition. The cut vegetation shall be removed to prevent the decaying organic litter from adding pollutants to the discharge from the swale.
- Fertilizing shall be bi-annual or as recommended from soil testing.
- Inspect swales following significant rainfall events.
- Woody vegetation shall not be allowed to become established in the swales or rock riprap outlet protection and if present shall be removed.
- Accumulated debris disrupts flow and leads to clogging and erosion. Remove debris and litter as necessary.
- Inspect for eroded areas. Determine cause of erosion and correct deficiency as required. Monitor repaired areas.



## **RIP RAP OUTLETS, PLUNGE POOLS, SWALES, LEVEL SPREADERS AND BUFFERS**

*Function* – Rip rap outlets and plunge pools slow the velocity of runoff, minimizing erosion and maximizing the treatment capabilities of associated buffers. Vegetated buffers, either forested or meadow, slow runoff which promotes and reduces peak rates of runoff. The reduced velocities and the presence of vegetation encourage the filtration of sediment and the limited bio-uptake of nutrients.

### *Maintenance*

- Inspect riprap, level spreaders and buffers at least annually for signs of erosion, sediment buildup, or vegetation loss.
- Inspect level for signs of condensed flows. Level spreader and rip rap shall be maintained to disperse flows evenly over level spreader.
- If a meadow buffer, provide periodic mowing as needed to maintain a healthy stand of herbaceous vegetation.
- If a forested buffer, then the buffer should be maintained in an undisturbed condition, unless erosion occurs.
- If erosion of the buffer (forested or meadow) occurs, eroded areas should be repaired and replanted with vegetation similar to the remaining buffer. Corrective action should include eliminating the source of the erosion problem and may require retrofit or reconstruction of the level spreader.
- Remove debris and accumulated sediment and dispose of properly.

## **GENERAL CLEAN UP**

- Upon completion of the project, the contractor shall remove all temporary stormwater structures (i.e., temporary stone check dams, silt fence, temporary diversion swales, catch basin inlet filter, etc.). Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform to the existing grade, prepared, and seeded. Remove any sediment in catch basins and clean drain pipes that may have accumulated during construction.
- Once in operation, all paved areas of the site should be swept at least once annually at the end of winter/early spring prior to significant spring rains.

## **MUNICIPAL REPORTING**

The Owner shall retain a qualified post-construction stormwater inspector to inspect the site's stormwater infrastructure. By July 1 of each year, said inspector shall provide a completed and signed certification to the Town's Code Enforcement Officer that the inspection has been completed. The notification shall include a determination of the ongoing maintenance and functionality of the infrastructure, describe any deficiencies, and outline any necessary corrective action taken or recommended to the Owner.

## **APPENDIX**

- A. Stormwater System Operations and Maintenance Report
- B. Site Grading and Drainage Plan

## STORM WATER SYSTEM OPERATION AND MAINTENANCE REPORT

General Information		
<b>Project Name</b>		
<b>Owner</b>		
<b>Inspector's Name(s)</b>		
<b>Inspector's Contact Information</b>		
<b>Date of Inspection</b>	<b>Start Time:</b>	<b>End Time:</b>
<b>Type of Inspection:</b> <input type="checkbox"/> Annual Report <input type="checkbox"/> Post-storm event <input type="checkbox"/> Due to a discharge of significant amounts of sediment		
<b>Notes:</b>		

General Site Questions and Discharges of Significant Amounts of Sediment			
Subject	Status	Notes	
<i>A discharge of significant amounts of sediment may be indicated by (but is not limited to) observations of the following. Note whether any are observed during this inspection:</i>			
<i>Notes/ Action taken:</i>			
1	Do the current site conditions reflect the attached site plan?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2	Is the site permanently stabilized, temporary erosion and sediment controls are removed, and stormwater discharges from construction activity are eliminated?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3	Is there evidence of the discharge of significant amounts of sediment to surface waters, or conveyance systems leading to surface waters?	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Permit Coverage and Plans				
#	BMP/Facility	Inspected	Corrective Action Needed and Notes	Date Corrected
	Grassed Underdrained Soil Filter	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	Yard Drains	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	Drainage Pipes	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	Plunge Pool	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	Vegetated Areas	<input type="checkbox"/> Yes <input type="checkbox"/> No		
		<input type="checkbox"/> Yes <input type="checkbox"/> No		
		<input type="checkbox"/> Yes <input type="checkbox"/> No		



**THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION ISSUED FOR:**

**ISSUE DATE:**  
 AUGUST 11, 2022

**REVISIONS:**

NO.	DESCRIPTION	BY	DATE
1	REV PER PLANNING BOARD	ERS	08/17/22
2	ADD TURN AROUND	ERS	08/16/22

**DRAWN BY:** RMB  
**APPROVED BY:** ERS  
**DRAWING FILE:** 525CONDOJLDG

**SCALE:** (24" x 36") 1" = 20'  
 (11" x 17") N.T.S.

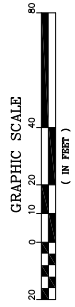
**OWNER/CLIENT:**  
 LUSTANO, LLC  
 JIM HIGGINS  
 119 KINGS HIGHWAY NO.  
 ELIOT, MAINE 03903

**PROJECT:**  
 WYMAN HILL  
 TAX MAP 16, LOT 148  
 28 WYMAN AVENUE  
 KITTERY, MAINE

**TITLE:**  
 GRADING &  
 STORMWATER  
 MANAGEMENT PLAN  
**SHEET NUMBER:**  
 C - 3

- GRADING AND DRAINAGE NOTES**
- ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE TOWN OF KITTERY AND SHALL BE IN ACCORDANCE WITH THE ROAD AND BRIDGE CONSTRUCTION LATEST EDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING TEMPORARY BENCHMARKS (TBM) AND PERFORMING ALL CONSTRUCTION SURVEY WORK.
  - UNLESS OTHERWISE AGREED IN WRITING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING TEMPORARY BENCHMARKS (TBM) AND PERFORMING ALL CONSTRUCTION SURVEY WORK.
  - PRIOR TO CONSTRUCTION, FIELD VERIFY JUNCTIONS, LOCATIONS AND ELEVATIONS/VERTICES OF ALL EXISTING STORMWATER AND UTILITY LINES. PRESERVE AND PROTECT LINES TO BE RETAINED.
  - CONSTRUCTION AND TOPOGRAPHY SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO INITIATING CONSTRUCTION.
  - ALL CATCH BASIN, MANHOLE AND OTHER DRAINAGE RISES SHALL BE SET FLUSH WITH OR NO LESS THAN 6" BELOW FINISH GRADE. ANY RISE ABOVE SURROUNDING FINISH GRADE SHALL NOT BE ACCEPTED.
  - ALL SPOT GRADES ARE AT FINISH GRADE AND BOTTOM OF CURB WHERE APPLICABLE.
  - NOT BE HELD TO HOLD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER SETTING AND MAINTENANCE OF ALL BENCHMARKS AND CONTROL POINTS THROUGHOUT CONSTRUCTION.
  - EXISTING IMPERVIOUS SURFACES SHALL BE DIRECTED TO RESOLVE ANY POTENTIAL DISCREPANCY WITH THE EXISTING SURFACE.
  - GRADE OF EXISTING IMPERVIOUS SURFACES SHALL BE AS SHOWN ON SHEET 525CONDOJLDG-3.

- EROSION AND SEDIMENT CONTROL NOTES**
- EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY EXCAVATION OR EARTHWORK.
  - PERIMETER SEDIMENT CONTROLS SHALL BE INSTALLED AFTER TREE CLEARING OPERATIONS HAVE CEASED AND BEFORE ANY STUMPING, GRUBBING OR OTHER EARTH DISTURBANCE.
  - ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE BEST MANAGEMENT PRACTICES (BMP) MANUAL, 3RD EDITION, AS PUBLISHED BY THE NEW HAMPSHIRE DEPARTMENT OF ENVIROMENTAL SERVICES.
  - ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE BEST MANAGEMENT PRACTICES (BMP) MANUAL, 3RD EDITION, AS PUBLISHED BY THE NEW HAMPSHIRE DEPARTMENT OF ENVIROMENTAL SERVICES.
  - THE CONTRACTOR SHALL TAKE WHATEVER MEANS NECESSARY TO PREVENT EROSION, PREVENT SEDIMENT FROM LEAVING THE SITE AND/OR PREVENTING WEEDS AND INJURIOUS PESTS FROM SPREADING OFF SITE.
  - ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION AND SHALL BE REMOVED UPON COMPLETION OF CONSTRUCTION.
  - ALL EROSION CONTROL BARRIERS SHALL BE BY NORTH AMERICAN GREEN (NAG) OR EQUAL AS SPECIFIED BY THE CONTRACT DOCUMENTS.
  - ALL SLOPES, STORMWATER DROPS AND THEIR CONTRIBUTING AREAS SHALL BE STABILIZED PRIOR TO ANY CONSTRUCTION.
  - ALL DISTURBED AREAS NOT TO BE PAID OR OTHERWISE TREATED SHALL BE REVEGETATED WITH PLANTS OF THE SAME SPECIES AND VARIETY AS THE ORIGINAL VEGETATION. SEE DETAILS FOR ADDITIONAL INFORMATION.
  - EROSION CONTROL MEASURES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION AND SHALL BE REMOVED UPON COMPLETION OF CONSTRUCTION.
  - UPON COMPLETION OF CONSTRUCTION, ALL BARRIAGE INFRASTRUCTURE SHALL BE CLEANED OF ALL DEBRIS AND SEDIMENT.
  - EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION AND SHALL BE REMOVED UPON COMPLETION OF CONSTRUCTION.

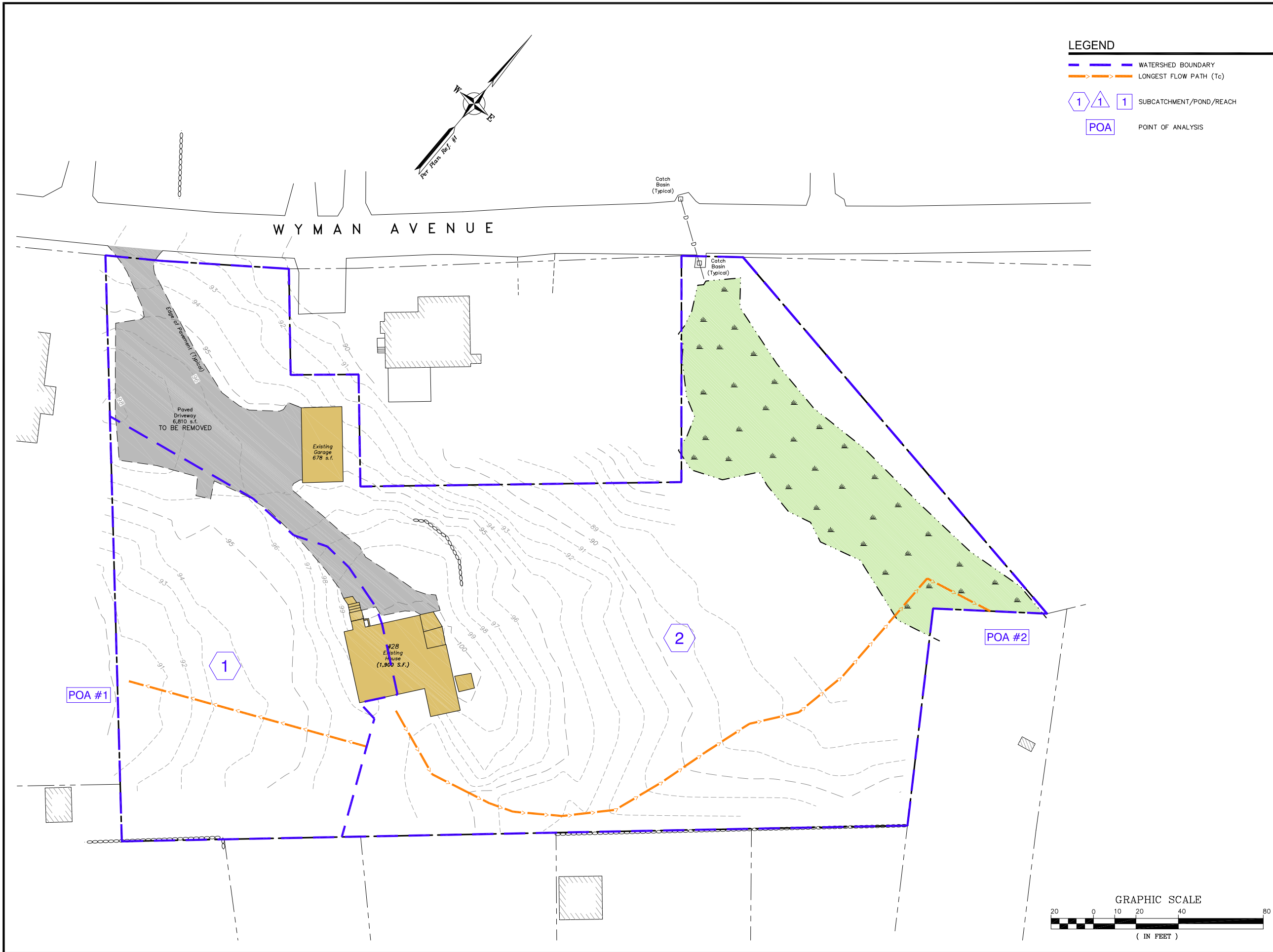


# Section 8

## Watershed Plans

Pre-Development Drainage Area Plan

Post-Development Drainage Area Plan



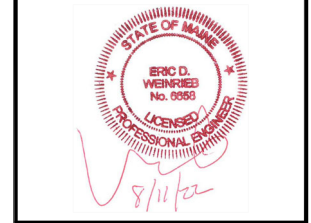
**LEGEND**

- WATERSHED BOUNDARY
- LONGEST FLOW PATH (Tc)
- 1 SUBCATCHMENT/POND/REACH
- POA POINT OF ANALYSIS

ENGINEER:

**ALTUS**  
ENGINEERING, INC.

133 Court Street Portsmouth, NH 03801  
(603) 433-2335 www.altus-eng.com



THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: REVIEW

ISSUE DATE: AUGUST 11, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EBS	08/11/22

DRAWN BY: RMB  
APPROVED BY: EBS  
DRAWING FILE: 5235CONDO.DWG

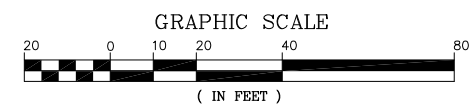
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(24"x36") 1" = 20'  
(11"x17") N.T.S.

OWNER/APPLICANT:  
LUSITANO, LLC  
JIM HIGGINS  
119 KINGS HIGHWAY NO.  
ELIOT, MAINE 03903

PROJECT:  
**WYMAN HILL**  
TAX MAP 16, LOT 148  
28 WYMAN AVENUE  
KITTERY, MAINE

TITLE:  
**PRE-DEVELOPMENT WATERSHED PLAN**

SHEET NUMBER:  
**DS - 1**



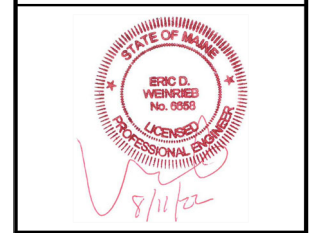
P5235



**LEGEND**

- WATERSHED BOUNDARY
- LONGEST FLOW PATH (Tc)
- REACH
- 1 1 1 SUBCATCHMENT/POND/REACH
- POA POINT OF ANALYSIS

ENGINEER:  
**ALTUS**  
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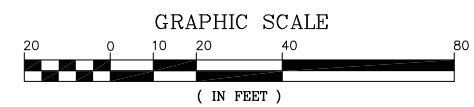
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PROJECT:  
**WYMAN HILL**  
 TAX MAP 16, LOT 148  
 28 WYMAN AVENUE  
 KITTERY, MAINE

TITLE:  
**POST-DEVELOPMENT WATERSHED PLAN**

SHEET NUMBER:  
**DS - 2**



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