



# TOWN OF EXETER, NEW HAMPSHIRE

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## LEGAL NOTICE EXETER PLANNING BOARD AGENDA

The Exeter Planning Board will meet on Thursday, February 13, 2020 at 7:00 P.M. in the Nowak Room of the Town Office Building located at 10 Front Street, Exeter, New Hampshire, to consider the following:

**APPROVAL OF MINUTES:** January 23, 2020

### **NEW BUSINESS: PUBLIC HEARINGS**

Continued public hearing on the application of I. S. Realty Trust for the proposed subdivision of an existing 5.58-acre parcel located at 100 Linden Street into five (5) single-family lots and associated site improvements; and a Wetlands Conditional Use Permit for proposed impacts to the wetland buffer. The subject property is situated in the R-2, Single Family Residential zoning district. Tax Map Parcel #104-71. Case #19-13.

Continued public hearing on the application of Harbor Street Limited Partnership for two (2) lot line adjustments and subdivision of a 4.96-acre parcel into five (5) single-family residential lots. The subject property is located off of Brentwood Road and Spruce Street, in the R-2, Single Family Residential zoning district. Tax Map Parcel #63-93. Case #19-18.

### **OTHER BUSINESS**

- Master Plan discussion

### **EXETER PLANNING BOARD**

*Langdon J. Plumer, Chairman*

*Posted 01/31/20: Exeter Town Office, Exeter Public Library, Town of Exeter Website*



1 **TOWN OF EXETER**  
2 **PLANNING BOARD**  
3 **JANUARY 23, 2020**  
4 **DRAFT MINUTES**

5 **I. PRELIMINARIES:**  
6

7 **BOARD MEMBERS PRESENT:** Chair Langdon Plumer, Vice-Chair Aaron Brown, Pete Cameron, Clerk,  
8 Niko Papakonstantis, Select Board Representative, Gwen English, John Grueter, Kelly Bergeron, and Jen  
9 Martel, Alternate.

10  
11 **STAFF PRESENT:**  
12

13 **II. CALL TO ORDER:** Chair Plumer called the meeting to order at 6:59 PM.  
14

15 **III. OLD BUSINESS**  
16

17 **APPROVAL OF MINUTES**  
18

19 December 12, 2019  
20

21 *Mr. Cameron motioned to approve the December 12, 2019 minutes as amended. Mr. Papakonstantis*  
22 *seconded the motion. A vote was taken, Ms. Bergeron abstained, approved 6-0-1.*  
23

24 January 9, 2020  
25

26 *Mr. Papakonstantis motioned to approve the January 9, 2020 minutes, as amended. Ms. Bergeron*  
27 *seconded the motion. A vote was taken, Vice-Chair Brown abstained, approved 6-0-1.*  
28

29 **IV. NEW BUSINESS**  
30

31 **PUBLIC HEARINGS**

32 1. Public hearing on the proposed zoning amendments for 2020 Town Meeting warrant, if required.  
33 Copies of the full text of the proposed amendments are available in the Planning Office

34 Chair Plumer indicated this is the second public hearing for the proposed 2020 zoning amendments for  
35 2020 Town Meeting warrant.

36 Chair Plumer noted discussion will continue on the proposal of changing MUND in Lincoln Street from  
37 35' to 50.' Ms. Bergeron indicated the consensus of the committee was to keep 35.' Vice-Chair Brown  
38 noted this impacts more than Lincoln Street and recommends keeping 35.'

39

40 Andrew Rockwell expressed concerns about more traffic flow near the train and noted other  
41 communities have transitioned to higher density 50' tall, 50' from boundary. This would enable higher  
42 housing for the future and to reduce carbon emission by taking cars off the street.

43 Andrea Richards noted she didn't share those opinions and wants to stick with 35.' The scale is  
44 important from character perspective. A lot of those goals can be met other ways. Views along the  
45 tracks change a lot with 50' buildings.

46 Fred A expressed concerns with 50' and indicated workforce housing would be beneficial and  
47 recommends a focus group on various zones.

48 John (inaudible) was in favor of 35' for scale and expressed concerns about putting housing needs over  
49 commercial which could leave commercial land vacant rather than equal growth.

50 Vice-Chair Brown indicated he was in favor of 50' in other C-1 areas but in favor of limiting Lincoln Street  
51 to 35.'

52 Fred A referenced the downtown area where he did not think that would be much of a problem and  
53 already has some zero-lot line situation. How were the numbers established, based on a survey or site  
54 plan development with fill? Vice-Chair Brown responded street level.

55 Chair Plumer indicated there were a lot of neighborhood questions and is not comfortable making  
56 change to 50.'

57 Ms. Bergeron indicated she lives in the neighborhood and it will affect the area around Shooters. Most  
58 neighbors can see Mr. Rockwell's property. Ms. Bergeron recommended more research and does not  
59 think it should change after all the impact we have been given. If the change becomes warranted, we  
60 can do that.

61 ***Mr. Grueter motioned to place the amendment dated December 17<sup>th</sup> on the warrant to be adopted.***  
62 ***Ms. Bergeron seconded the motion. A vote was taken, and all were in favor, the motion passed***  
63 ***unanimously 7-0-0.***

64 2. Continued public hearing on the application of I. S. Realty Trust for the proposed subdivision of an  
65 existing 5.58-acre parcel located at 100 Linden Street into five (5) single-family lots and associated site  
66 improvements; and a Wetlands Conditional Use Permit for proposed impacts to the wetland buffer.

67 R-2, Single Family Residential zoning district

68 Tax Map Parcel #104-71

69 Case #19-13.

70

71 Chair Plumer read out loud the Town Planner's memorandum. Lots 1-4 will meet lot requirements with  
72 frontage on Patricia Ave. Lot 5 will have 85.' The applicant has been to the TRC (see comment letter  
73 dated October 7, 2019) and a review letter has been received from Underwood Engineering dated  
74 October 28, 2019. The applicant went before the Conservation Commission whose recommendations  
75 are attached. They will need a waiver from HISS. Proposed conditions of approval are attached. Vice-  
76 Chair Brown indicated there is a letter from Kristen Murphy concerning the proposed HISS waiver.'

77

78 Ian Winter noted he went before the Conservation Commission last week. Recommendations included  
79 the fertilization provision and maintenance on the detention pond. The conditions will be cited in the  
80 deed and homeowner's association agreement which the homeowners association will maintain.  
81  
82 Henry Boyd discussed Patricia Ave, the Right of Way, lot line, grading, drainage, sidewalks, water and  
83 sewer, trees, wetlands and landscaping.  
84  
85 Mr. Boyd noted Patricia Ave will be a narrowed extension with no access other than the right of way and  
86 will require site for fire apparatus. Mr. Boyd agreed the sidewalk will connect with Lot 4.  
87  
88 Mr. Boyd indicated the water quality will be treated and there is to be an easement across Lot 5 to get  
89 rid of the septic system.  
90  
91 Mr. Boyd noted the property will be staked. There will be a 75' center line radius with a curve as sharp  
92 as they feel safe. Drainage will be controlled by curbing. Lots 1-4 will have stormwater infiltration. Lot  
93 3 has poorer soils.  
94  
95 Ms. English asked about trees and landscaping and Mr. Winter indicated clearing was done by the prior  
96 owner. Ms. Martel noted there is a requirement for significant trees survey. Mr. Winter indicated he  
97 will leave anything close to the lot line. Ms. English indicated an abutter expressed concerns about  
98 screening. Ms. English and Ms. Martel would like to see trees with a minimum 3" caliper. Mr.  
99 Cameron expressed concerns about the stumps and Mr. Winter indicated they had equipment to take  
100 care of those. Mr. Boyd will work with Mr. Winter to address screening.  
101  
102 Ms. English noted she would like to see landscaping in the center of the cul-de-sac. Mr. Winter  
103 indicated the area used for snow storage would have low plantings in accordance with his discussions  
104 with Conservation. Ms. English referenced Eno Drive which was a good example.  
105  
106 Mr. Winter indicated he would like to keep the rain garden. Mr. Boyd noted it gives more ground water  
107 recharge. Mr. Steckler indicated the Board still did not have the full design of the rain garden.  
108  
109 Mr. Hipkus indicated he was okay with low-line shrubs and there are mature trees there now, but he  
110 would like to see some trees put back after development. Mr. Hipkus expressed concerns about runoff  
111 from Lot 1 and the trench freezing and Mr. Boyd indicated no runoff should come to his property. The  
112 trench is two feet deep so unless there is a significant rain event there shouldn't be a problem. Vice-  
113 Chair Brown indicated drainage is important and he would like to see more information on that.  
114  
115 Mr. Boyd indicated they are working in the wetland buffer zone. There are several wetlands. No fill is  
116 needed. There is an off-site wetland which encroaches a bit.  
117  
118 Mr. Winter indicated he would like to address the UEI comments and would like to know about the  
119 sidewalk and who would maintain it.  
120

121 Mr. Steckler asked if the application was ready to go to a vote and Vice-Chair Brown noted the  
122 application was not ready to be voted on. An update is needed on the rain garden, the drainage is a big  
123 deal, details on trees are needed. Plantings along the entries would be nice. Ms. Martel indicated there  
124 was no lighting plan.

125

126 **Ms. English motioned to continue Planning Board Case #19-13 to February 13, 2020 at 7:00 PM. Mr.**  
127 **Papakonstantis seconded the motion, with all in favor, the motion passed unanimously.**

128

129 3. The continued public hearing on the application of Harbor Street Limited Partnership for two (2) lot  
130 line adjustments and subdivision of a 4.96-acre parcel into five (5) single-family residential lots

131 Off Brentwood Road and Spruce Street

132 R-2, Single Family Residential zoning district

133 Tax Map Parcel #63-93

134 Case #19-18.

135

136 **Mr. Cameron motioned to continue PB Case #19-18 to February 13, 2020 at 7:00 PM. Mr.**  
137 **Papakonstantis seconded the motion. A vote was taken, all were in favor, motion passed**  
138 **unanimously.**

139

140 4. The application of Great Bridge Properties, LLC for a site plan review of a proposed multi-use  
141 development. The proposal will include the construction of a 4-story building with office space and non-  
142 residential uses on the first floor, multi-family residential use (28 units) on the upper floors, parking and  
143 associated site improvements. The subject property is located at 2 Meeting Place Drive

144 C-2, Epping Road Highway Commercial zoning district

145 Tax Map Parcel #55-75

146 PB Case #19-19.

147

148 Chair Plumer indicated the application for a multi-use building had its approval expire and the  
149 ownership has transferred. It went before the ZBA and required two special exceptions.

150

151 **Mr. Cameron motioned to open Planning Board Case #19-19. Mr. Papakonstantis seconded the**  
152 **motion. A vote was taken, all were in favor, the motion passed unanimously.**

153

154 Steve Haight of Civil Works, N.E. indicated the previous approval on this lapsed. The applicant has met  
155 with staff, ZBA, TRC and UEI has issued their ok letter. The utilities are all there with slight revisions to  
156 comply with the new stormwater rules. The Alteration of Terrain is valid until May 2020. Will file an  
157 amendment for new owner. Pavement has been reduced 7%, eliminating eight parking spaces and a  
158 loading zone. There will be a waiver request for the parking spaces which are one foot shorter than  
159 required which is supported by UEI. Filed for PTAPP. A traffic light study was done on Continental  
160 Drive. 15,000 cars are going down corridor and this will add 60 cars to that, six at peak. One light pole  
161 has been moved. There is a sidewalk along the road. Signage directing to trail head. The trail is  
162 unchanged. The lighting plan is included. Will require lighting 24/7 and reduce from 10 PM to 7 AM.  
163 The landscaping plan has been updated and there are infiltration ponds.

164

165 Ms. English indicated she liked the reduction of pavement and respects the Fire Department's decision.  
166  
167 Chair Plumer asked about occupants in separate parking area and Mr. Haight indicated no, parking is  
168 typically less than what ordinances require while still meeting zoning codes. Ms. English asked about  
169 considering underground parking and Mr. Haight stated he could not do that due to the way the site was  
170 remediated.  
171  
172 Ms. Martel asked about signage for the building itself and Mr. Davies indicated he had not thought  
173 about that but would like to. Mr. Davies indicated the project is affordable for younger workers and  
174 parking needs are rapidly dropping. Uber plays a large role.  
175  
176 Mr. Grueter asked how tall the building would be and Mr. Davies indicated it needs to be about 50.'  
177  
178 Mr. Grueter asked if they would all be rental units and Mr. Davies indicated yes.  
179  
180 Ms. Martel asked about trash and Mr. Haight indicated there is a shared system that already existed  
181 with privacy slats, set back a fair distance. Ms. English asked if the area north of the dumpster was  
182 already there and Mr. Davies indicated that it was.  
183  
184 Ms. English asked about equipment on the roof and Mr. Davies indicated it was on the last plan and was  
185 not sure about that now. If he could afford solar, he would do it.  
186  
187 Ms. Martel asked if the architecture changed and Mr. Davies indicated nothing changed. Ms. Martel  
188 commented on the west elevation and indicated it looked like the back of the building was against the  
189 main gateway road and recommended making that more welcoming. Mr. Davies indicated he could not  
190 make major changes like that but will speak to the architect about larger windows.  
191  
192 Mr. Haight indicated the parking stalls will be 9x18 rather than the 9x19 required. Mr. Steckler indicated  
193 there can be long trucks that would stick out a lot and wondered if there was any way to accommodate  
194 that at all and Mr. Haight indicated there is no issue and plenty of room.  
195  
196 Chair Plumer opened the hearing to the public at 9:39 PM for questions and comments and being none  
197 closed the hearing to the public at 9:39 PM for deliberations.  
198  
199 Mr. Grueter indicated the applicant was looking for affordable housing and 28 units were approved  
200 before.  
201  
202 Mr. Haight read out loud the waiver request from Section 5.6.3.A for the parking stalls to be 9x18 rather  
203 than 9x19 indicating this is a normal size for parking with adequate room for turning and backing. There  
204 is unique geometry and the surrounding topography created a hardship to make 19.' The parcel is  
205 constrained by wetlands and buffers. The request is not contrary to the ordinance. The language in  
206 zoning allows for leeway. Master plan mentions stormwater management which is addressed with  
207 these changes.

208 ***Vice-Chair Brown motioned after reviewing the criteria for granting waivers to grant the request for***  
209 ***Planning Board Case #19-19 for waiver from Section 9.13 of the Site Plan & Subdivision regulations***  
210 ***concerning off-street parking. Ms. Bergeron seconded the motion. A vote was taken, all were in***  
211 ***favor, the motion passed unanimously.***

212  
213 ***Mr. Cameron motioned to accept Planning Board Case #19-19 with the following conditions of***  
214 ***approval. Mr. Papakonstantis seconded the motion.***

215  
216 ***MOTION WITHDRAWN, SECOND WITHDRAWN.***

217  
218 Mr. Haight indicated he proved to UEI that they meet the requirements for separation to groundwater.  
219 Have 1.8' separation now asking for 100' treatment swale. Added basin creates greater treatment. The  
220 is unique geometry and the surroundings pose a hardship. The request dos not vary the provisions of  
221 the ordinance.

222  
223 ***Vice-Chair Brown motioned after reviewing the criteria for granting waivers to grant the request for***  
224 ***Planning Board Case #19-19 for waiver from Section 9.3 of the Site Plan & Subdivision regulations***  
225 ***concerning stormwater management. Ms. Bergeron seconded the motion. A vote was taken, all were***  
226 ***in favor, the motion passed unanimously.***

227  
228 Mr. Haight addressed the request for waiver for the 76' swale where 100' is required. Calculations show  
229 that treatment is adequate and is greater treatment than used today. The wetlands setbacks will be  
230 maintained. The surroundings pose a hardship.

231  
232 ***Vice-Chair Brown motioned after reviewing the criteria for granting waivers to grant the request for***  
233 ***Planning Board Case #19-19 for waiver from Section 9.3 of the Site Plan & Subdivision regulations***  
234 ***concerning treatment swale length. Mr. Papakonstantis seconded the motion. A vote was taken, Mr.***  
235 ***Cameron abstained, the motion was approved 6-0-1.***

236  
237 ***Mr. Cameron motioned to accept Planning Board Case #19-19 subject to the conditions of approval***  
238 ***stated below. Mr. Papakonstantis seconded the motion. A vote was taken, all were in favor, the***  
239 ***motion passed unanimously.***

240  
241 ***CONDITIONS:***

242  
243 ***1. An electronic As-Built-Plan of the entire property with details acceptable to the Town shall be***  
244 ***provided prior to the issuance of a Certificate of Occupancy (C/O). This plan must be in dwg or dxf file***  
245 ***format and in NAD 1983 State Plane New Hampshire FIPS 2800 Feet coordinates;***

246  
247 ***2. A preconstruction meeting shall be arranged by the applicant and his contractor with the Town***  
248 ***Engineer prior to any site work commencing. The following must be submitted to review and approval***  
249 ***prior to the preconstruction meeting:***

250



- 251 *i. The SWPPP (storm water pollution prevention plan) if applicable, be submitted to and*  
252 *reviewed for approval by DPW prior to preconstruction meeting; and*  
253 *ii. A project schedule and construction cost estimate;*  
254

255 **3. All appropriate fees to be paid including but not limited to: sewer/water connection fees, impact**  
256 **fees, and inspection fees (including third-party inspections) prior to the issuance of a building permit**  
257 **or a Certificate of Occupancy whichever is applicable as determined by the Town;**  
258

259 **4. All applicable State permit approval numbers shall be noted on the final plans;**  
260

261 **5. A Maintenance Lot and Inspection & Maintenance Checklist for all onsite stormwater management**  
262 **systems shall be provided to the satisfaction of the Town Planner prior to signing the final plans. A**  
263 **completed lot and checklist shall be submitted to the Town Engineer annually on or before January**  
264 **31<sup>st</sup>. This requirement shall be an on-going condition of approval.**  
265

266 **6. All outdoor lighting (including security lights) shall be down lit and shielded so no direct light is**  
267 **visible from adjacent properties and/or roadways;**  
268

269 **7. All landscaping shown on plans shall be maintained and any dead or dying vegetation shall be**  
270 **replaced, no later than the following growing season, as long as the site plan remains valid. This**  
271 **condition is not intended to circumvent the revocation procedures set forth in State statutes; and**  
272

273 **8. If determined applicable by the Exeter Department of Public Works, the applicant shall submit the**  
274 **land use and stormwater management information about the project using the PTAPP Online**  
275 **Municipal Tracking Tool (<https://ptapp.unh.edu/>). The PTAPP submittal must be accepted by the**  
276 **DPW prior to the pre-construction meeting;**  
277

278 **9. The limit of cut/disturbance shall be flagged in the field prior to any site work and these flags shall**  
279 **be maintained until a Certificate of Occupancy has been issued for all units; and**  
280

281 **10. The applicant shall contact the Code Enforcement Officer (CEO) and Deputy Fire Chief (DFC) to**  
282 **determine the addresses for the units.**  
283

## 284 **V. OTHER BUSINESS**

285

286 **Master Plan Discussion**  
287

## 288 **VI. TOWN PLANNER'S ITEMS**

289 **Field Modifications**

290 **Announcements**

## 291 **VII. CHAIRPERSON'S ITEMS**

292 **VIII. PB REPRESENTATIVE'S REPORT ON "OTHER COMMITTEE ACTIVITY"**

293 **IX. ADJOURN**

294 *Vice-Chair Brown moved to adjourn at 10:19 PM. Ms. Bergeron seconded the motion, with all in*  
295 *favor, the motion passed unanimously.*

296 Respectfully submitted,

297 Daniel Hoijer,  
298 Recording Secretary



# TOWN OF EXETER

## *Planning and Building Department*

10 FRONT STREET • EXETER, NH • 03833-3792 • (603) 778-0591 • FAX 772-4709

[www.exeternh.gov](http://www.exeternh.gov)

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**Date:** February 6, 2020  
**To:** Planning Board  
**From:** Dave Sharples, Town Planner  
**Re:** PB Case #19-13 I. S. Realty Trust

The Applicant has submitted a subdivision application and Wetlands Conditional Use Permit (CUP) application for the proposed subdivision of a 5.58-acre parcel located at 100 Linden Street into five (5) single-family residential lots. The subject property is located in the R-2, Single Family Residential zoning district and is identified as Tax Map Parcel #104-71.

The proposed subdivision plan depicts Lot #5 as having a lot area of 85,581 S.F. and will include the existing home; Lots #1 through #4 will meet all the dimensional lot requirements for the R-2 district and will have frontage on a proposed cul-de-sac off of Patricia Avenue. The applicant appeared before the Planning Board at the January 23<sup>rd</sup> meeting and the application was tabled for several items. The Board wanted additional information regarding the landscaping, rain garden detail, lighting detail and photometric plan, and sidewalk detail.

Revised plans were submitted on 2/6/20 and are currently being reviewed by Town staff and Underwood Engineers and are enclosed for your review. I will note that the plans show 3" deciduous trees with two in each front yard and one in the center island. Rain garden, sidewalk, and lighting details have also been included in the revised plan set.

The Applicant is requesting a waiver from Section 7.4.10 of the Board's Site Plan Review and Subdivision Regulations that requires a High Intensity Soil Survey. A waiver request letter dated January 20, 2020 is enclosed for your review,

In the event the Board decides to take action on the application, I will be prepared with suggested conditions of approval.

### **Waiver Motions:**

**High Intensity Soils Survey (HISS) waiver motion:** After reviewing the criteria for granting waivers, I move that the request of I. S. Realty Trust (PB Case #19-13) for a

waiver from Section 7.4.10 of the Site Plan Review and Subdivision Regulations to provide High Intensity Soil Survey information be APPROVED / APPROVED WITH THE FOLLOWING CONDITIONS / TABLED / DENIED.

**Planning Board Motions:**

**Conditional Use Permit (Wetlands) Motion:** After reviewing the criteria for a Wetlands Conditional Use permit, I move that the request of I.S. Realty Trust for a Conditional Use Permit (Case #19-13) be APPROVED / APPROVED WITH THE FOLLOWING CONDITIONS / TABLED / DENIED.

**Subdivision Motion:** I move that the request of I.S. Realty Trust for Subdivision approval (Case #19-13) be APPROVED / APPROVED WITH THE FOLLOWING CONDITIONS / TABLED / DENIED.

Thank you.

Enclosures



**MILLENNIUM ENGINEERING, INC.**  
*Land Surveyors and Civil Engineers*

February 4, 2020

**RECEIVED**

Town of Exeter Planning Department  
c/o Dave Sharples, Planner  
10 Front Street  
Exeter, New Hampshire 03833

FEB 6 2020

**EXETER PLANNING OFFICE**

Re: Subdivision Review TRC Comments  
PB Case #19-13  
100 Linden Street Tax Map Parcel #104-71

Mr. Sharples:

We have prepared the following information to address design review comments provided by Underwood Engineers, Inc. dated January 24<sup>th</sup>, 2020 and from Public Works dated February 3<sup>rd</sup>, 2020.

This submittal includes the following:

- 6 - Full size Plan-sets
- 15 - 11x17 Plan-sets
- 2 - Stormwater Management Reports
- 15 - Response to Design Review Comments
- 1 - Electronic disk containing the above documents in PDF format

**Public Works Comments**

1. *The long term Inspection and Maintenance manual should only include the permanent stormwater structures that the homeowner's association is responsible for maintaining.*  
**The O&M for post-construction BMPs should be a separate document than the construction BMPs to simplify it for the future HOA. It should also include a plan that labels the stormwater features.**

Response: The O&M's have been split up into a construction period O&M and a post-construction O&M. A plan has been included with the post-construction O&M.

19. *A sidewalk along 1 Patricia Avenue should be provided to connect to the existing sidewalk system.*  
**Show the full extent of the proposed sidewalk and grading.**

Response: The full extent of the proposed sidewalk has been added to the plans.

21. *Maintain separation between underground utilities for future maintenance. There are several shown too close together.*  
**The utilities in the area of Sta 2+00 are too close together. The tel/elec conduits will be a few feet wide so there would not be enough space between the conduits and catchbasin to access the sewer for potential maintenance. The sewer main is also too close to CB3 which is a 4-foot diameter structure. The water main on Patricia is too close to the existing utility pole.**





**MILLENNIUM ENGINEERING, INC.**  
*Land Surveyors and Civil Engineers*

Response: The underground utilities have been shifted across the street to allow more space to access the sewer. The sewer main near CB3 has been shifted slightly to the north to avoid any conflicts. The proposed drop pole has been shifted further away from the proposed water main on Patricia Avenue.

22. *Water:*

- a. *Show the hydrant and valve for the water main on Patricia Ave.*
- b. *The main should not go around the cul-de-sac. Continue the main from Station 2+50 straight to Sta 4+50 with a hydrant at the end.*

**The hydrant should be moved closer to the edge of the pavement, after all of the services. This would eliminate the blowoff.**

Response: The hydrant has been revised accordingly (see sheet 6).

29. *Show electric service to the light pole.*

Response: The electric line has been added connecting to the light pole (see sheet 6).

**Underwood Engineers Comments**

Cover Sheet (Sheet 1 of 10)

1. **Permits:** *The Applicant should clarify how the project's total area of disturbance is calculated. An Alteration of Terrain Permit is required for projects disturbing areas greater than or equal to 100,000 sf.*

*UE 1/24/20 Comment: UE calculated the area of disturbance for this development to be approximately 99,330 sf (based on the shown limits of disturbance and with the improvements on Patricia Ave and for sewer and water services to the house on Lot 5). With the total disturbance being close to 100,000 sf, it should be noted that an AOT permit may become necessary during construction if areas outside of the limits shown are disturbed. No further comment.*

Response: The easement area for Lot 5 has been added to the limits of disturbance. The areas on Patricia Avenue are included within the limits of disturbance. The area of disturbance is 98,000 s.f.

Grading Plan (Sheet 5 of 10)

6. **Detention Pond:** *The following comments pertain to the Detention Pond shown on the Grading Plan:*
  - **ESHWT:** *The estimated seasonal highwater table (El. = 44.5') is above the base elevation of the detention pond (El. = 44.0'). The detention pond should have no standing water between storms with the exception of the micropool. The base elevation should be raised higher than the ESHWT.*

*UE 1/24/20 Comment: Based on the test pit information on Sheet 10 of the Plan Set, the permanent pool elevation within the Detention Pond may actually be higher than the 44.5' elevation shown on the Drainage Details on Sheet 7. Standing water may still occur above of the micropool elevation between storm events and continually drain offsite. The floor of the detention pond should be higher than the ESHWT elevation of 44.9' at TP#4.*

Response: The pond design has been revised accordingly. The bottom of the basin is now at elevation 45.0.

Roadway and Utilities Profile (Sheet 6 of 10)







**MILLENNIUM ENGINEERING, INC.**  
*Land Surveyors and Civil Engineers*

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**15. Sewer and Water Crossing:** *The water and sewer crossings should be shown on the profile to confirm an installation conflict won't occur.*

*UE 1/24/20 Comment: The sleeve noted to be installed at all sewer and water main crossings should be shown on the plans.*

Response: The utility note #4 on sheet 4 specifies whenever water/sewer services cross they should be sleeved.

Drainage Details (Sheet 7 of 10)

**18. Detention Basin Profile View and Outlet Structure Detail:** *The following comments pertain to the Detention Basin Detail and the Outlet Structure Detail:*

- See Comment 6 above.
- The outlet structure detail should be shown to scale or at least visually consistent with the profile view.
- Construction notes should be added detailing how the Micropool and Outlet structure will be constructed and whether any slope stabilization (e.g. riprap, TRM, wetland plants, etc.) will be used below the water surface.
- Buoyancy/stabilization calculations for the Outlet Structure should be provided during the shop drawing review process. A large portion of the outlet structure will be exposed on the micropool side. The buoyancy/stabilization calcs should also demonstrate that the structure will withstand potential unbalanced soil loads during low ground water periods.

Response: The outlet structure detail has been updated. A list of plants has been added to the detail for planting in the micropool. We are agreeable to buoyancy calculations during the shop drawing process.

**20. Stone Gradation Table:** *The Stone Gradation Table does not provide a range of stone sizes. This should be corrected on the next submittal.*

*UE 1/24/20 Comment: A stone gradation should be provided that is an industry standard to facilitate construction.*

Response: The gradation table has been revised accordingly.

New Comments Dated 1/24/20

**26. Existing Well on Lot 5 (Sheet 3):** *It is our understanding that the well located on Lot 5 will remain active (please clarify). Deed requirements for Lot 3 will be necessary as a portion of the well protection area lies within Lot 3.*

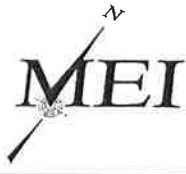
Response: The well on Lot 5 will be abandoned.

**27. Roadway Cross-Section STA. 0+00 to STA 2+75 (Sheet 4):** *The water and sewer mains locations shown on the cross-section do not match the stationing identified and should be noted as such. Underdrain locations should be shown on this cross-section as well.*

Response: The roadway cross-section has been updated accordingly.

**28. Limits of Disturbance (Sheet 5):** *The easement area where the water and sewer services for Lot 5 are to be constructed and the areas on Patricia Avenue should be included within the limits of disturbance.*





**MILLENNIUM ENGINEERING, INC.**  
*Land Surveyors and Civil Engineers*

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Response: The easement area for Lot 5 has been added to the limits of disturbance. The areas on Patricia Avenue are included within the limits of disturbance. As mentioned above, the area of disturbance is 98,000 s.f.

**23. Lot 5 Services (Sheet 6):** *The services for Lot 5 should be defined (i.e. size, material, and elevations).*

Response: The water service to Lot 5 will be the same as the services to the other lots (refer to detail on sheet 9). A sewer pump will need to be installed in the existing dwelling on Lot 5 (E-One or equivalent) with a 1.25" forcemain.

**24. Drain and Water Conflict (Sheet 6):** *The water and drain appear to be in conflict at STA 5+50. A crossing detail should be provided. Insulation should also be provided between the drain line and water main at the crossing to protect the water main from freezing temperatures.*

Response: I don't see an issue in this area. The water main crosses under the drain line coming out of CB3 but the top of the water main is about 18 inches below the drainpipe, a similar situation to where it crosses under the drain line coming out of CB2 and DMHA.

**25. Sewer and Catch Basin Conflict (Sheet 6):** *The proposed Catch Basin 3 and sewer main are in conflict. One of the utilities should be realigned. Insulation should be installed between the sewer and CB due their close proximity and a detail should also be provided.*

Response: The utilities have been updated accordingly. CB3 is now located at least 5 feet away from both water and sewer mains.

**26. Underdrain Inverts (Sheet 6):** *The inverts to the underdrains into CB1 and CB2 should be identified.*

Response: The underdrain inverts have been added to the profile.

**27. Sewer Cleanout (Sheet 6):** *The sewer service to Lot 5 should have a cleanout at the edge of the right of way. If the cleanout is installed within the sidewalk, a cast iron cover will be required.*

Response: The cleanout has been added to the plan.

**28. Precast Sewer Manhole (Sheet 9):** *The Applicant has provided a sewer manhole detail with an external drop inlet. However, no drop inlet is proposed for this site. The SMH detail should be revised to reflect the proposed plans.*

Response: The detail has been revised accordingly.

**35. Flexible Boot Coupling:** *The existing SMH 2 is shown to be cored for the new SMH 3 connection. The SMH detail should note that a flexible boot coupling (e.g. Kor-N-Seal), per Town Standards, is required for all SMHs.*

Response: The detail has been revised accordingly (see note 6).

**36. Drainage Analysis:** *The following comments pertain to the Drainage Analysis:*





**MILLENNIUM ENGINEERING, INC.**  
*Land Surveyors and Civil Engineers*

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- *The elevations noted for the Detention Basin should be adjusted per Comment 6 above.*
- *Device #5 of the Detention Basin notes an infiltration rate at an elevation below the ESHWT. Please clarify this reasoning.*

Response: The pond has been revised accordingly (see comment #6, above). The design has been revised to show infiltration only above the ESHWT (see revised HydroCAD calculations).

**37. Stormwater Pond Design Criteria:** *The NHDES Stormwater Manual notes that the permanent pool volume ( $V_{pp}$ ) for a micropool is to be 10% of the Water Quality Volume (WQV) of the detention basin which would be 172 cf. The proposed  $V_{pp}$  is 800 cf. Clarification is needed on the basis for oversizing the proposed  $V_{pp}$ .*

Response: The micropool volume has been revised accordingly. It is now approximately 200 c.f., which is about 12% of the WQV.

**38. Watershed Map:** *The Pre-Dev Watershed Map shows the sub-catchment (SC) boundaries are generally parallel to the site's contours. SC Boundaries are typically perpendicular to the contours. Clarification is needed to why the areas are shown this way.*

Response: I don't see any issues with the watershed delineations. The watershed maps extend to limit of the contours offsite. The Tc lines run perpendicular to the contours, as it typical.

We trust the above response to comments provides the necessary information to advance the technical review portion of the Site Plan process. If you have any questions or comments on the above information please feel free to contact our office at 603-778-0528.

Sincerely,

Millennium Engineering, Inc.

Christopher M. York, P.E.  
Project Engineer

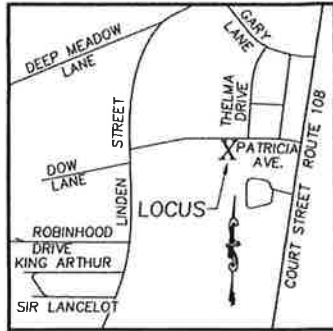


SUBDIVISION PLAN  
AT  
100 LINDEN STREET  
IN  
EXETER, NH  
FEBRUARY 2020

RECEIVED

FEB 6 2020

EXETER PLANNING OFFICE



LOCUS MAP  
NOT TO SCALE

(104/71)  
**RECORD OWNER**  
I S REALTY TRUST  
C/O S. MITCHELL WINTER, TRUSTEE  
3 VINTAGE DRIVE  
EXETER, NH 03833  
BK. 5961 PG. 2005  
243,255 S.F.  
5.58 ACRES  
AREA PRIOR TO SUBDIVISION

**ZONING DISTRICT**  
**R-2 RESIDENTIAL**  
MINIMUM REQUIREMENTS

AREA (NO SEWER)	1 ACRE
AREA (SEWER)	15,000 S.F.
LOT WIDTH	100'
LOT DEPTH	100'

**BUILDING SETBACKS**

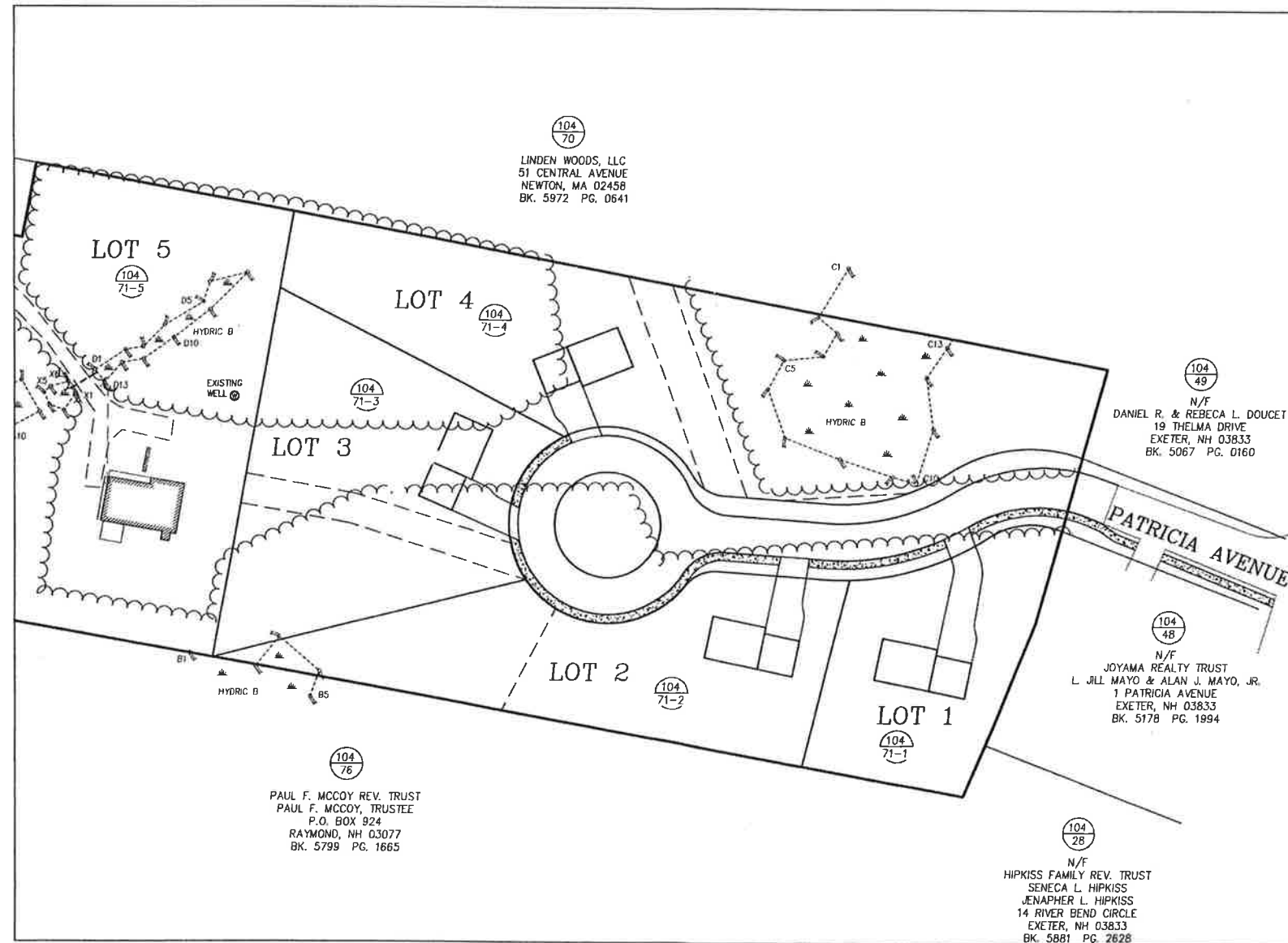
FRONT	25'
SIDE	15'
REAR	25'
HYDRIC B SOILS	40'

**BUILDING COVERAGE**

MAXIMUM	25%
---------	-----

**OPEN SPACE**

MINIMUM	40%
---------	-----



PLAN INDEX

SHEET NO.	TITLE
1	COVER SHEET
2	EXISTING CONDITIONS PLAN
3	LOT LAYOUT PLAN
4	TYPICAL SECTIONS/LEGEND/GENERAL NOTES
5	GRADING PLAN
6	UTILITY PLAN & PROFILE
7	DRAINAGE DETAILS
8	DRAINAGE DETAILS
9	UTILITY DETAILS
10	EROSION CONTROL DETAILS
E-1	LIGHTING PLAN

TOWN OF EXETER PLANNING BOARD

CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_

COVER SHEET

PLAT OF LAND  
IN  
EXETER, NH

SHOWING  
A SUBDIVISION AT  
100 LINDEN STREET AND PATRICIA AVENUE

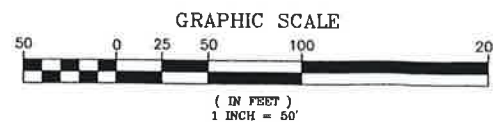
RECORD OWNER  
I S REALTY TRUST  
3 VINTAGE DRIVE EXETER, NH 03833

**MILLENNIUM ENGINEERING INC.**  
ENGINEERS AND LAND SURVEYORS  
P.O. BOX 745 13 HAMPTON ROAD EXETER, NH 03833  
PHONE: (603) 778-0528 FAX: (603) 772-0689

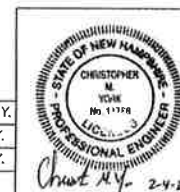
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DATE: AUG. 1, 2019	CHKD. BY: E.W.B.	SHEET: 1 OF 10

**WAIVERS**

SECTION	REGULATION	WAIVER REQUESTED
7.4.10	HISS MAPPING	NO HISS MAPPING PROVIDED.



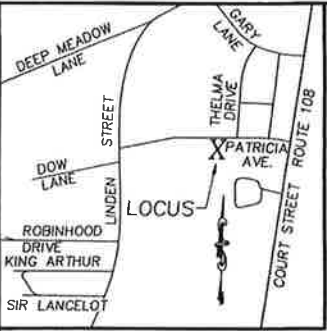
NO.	DATE	DESCRIPTION	BY
3	2/4/20	ADDRESS REVIEWER'S COMMENTS	C.M.Y.
2	11/9/19	ADDRESS TRC COMMENTS	C.M.Y.
1	9/10/19	UPDATE RECORD OWNER	C.M.Y.



*Christ M.Y. 2-4-20*







- NOTES:**
- 1) THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST. A REASONABLE AND DILIGENT ATTEMPT HAS BEEN MADE TO OBSERVE ANY APPARENT VISIBLE USES OF THE LAND; HOWEVER, THIS DOES NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.
  - 2) THIS PARCEL DOES NOT LIE WITHIN A FLOOD ZONE. SEE F.I.R.M. COMMUNITY PANEL 330130 0404 E EFFECTIVE DATE MAY 17, 2005.
  - 3) ELEVATIONS SHOWN HEREON ARE BASED ON THE N.A.V.D. 88.
  - 4) SURVEY COORDINATES SHALL BE ON NH STATE PLANE NAD83.

TOWN OF EXETER  
PLANNING BOARD APPROVAL

CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_

**PLAN REFERENCES**

- 1) "SUBDIVISION OF LAND FOR NELSON J. MORRISSETTE IN EXETER, NH" SCALE: 1"=50' DATE: AUG. 1976 BY: PARKER SURVEY ASSOC, INC. D-6229
- 2) "LOT LINE ADJUSTMENT PLAN FOR PAUL MORRISSETTE 100 LINDEN STREET EXETER, NH" SCALE: 1"=50' DATE: APRIL 2001 BY: LITTLE RIVER SURVEY COMPANY. D-29070
- 3) "PLAN OF LAND IN EXETER, NH SHOWING A PROPOSED SEWER EASEMENT AT 100 LINDEN STREET AND PATRICIA AVENUE RECORD OWNER I.S. WINTER REALTY TRUST 3 VINTAGE DRIVE EXETER, NH" SCALE: 1"=50' DATE: APRIL 26, 2019 BY: MILLENNIUM ENGINEERING, INC. D-41465



**RECORD OWNER**

1 S REALTY TRUST  
C/O S. MITCHELL WINTER, TRUSTEE  
3 VINTAGE DRIVE  
EXETER, NH 03833  
BK. 5961 PG. 2005

243,255 S.F.  
5.58 ACRES  
AREA PRIOR TO SUBDIVISION

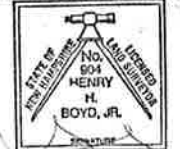
LOCUS MAP  
NOT TO SCALE

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70  
LINDEN WOODS, LLC  
51 CENTRAL AVENUE  
NEWTON, MA 02458  
BK. 5972 PG. 0641

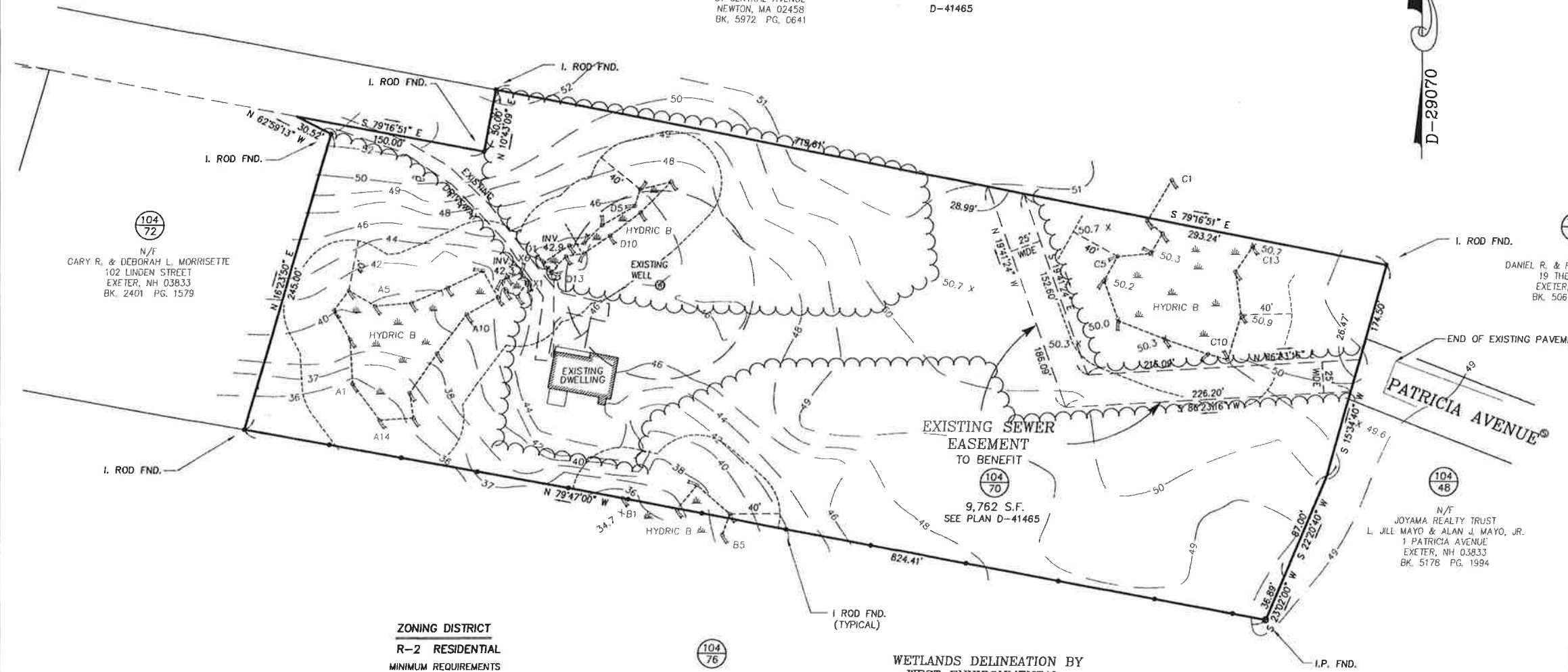
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72  
N/F  
CARY R. & DEBORAH L. MORRISSETTE  
102 LINDEN STREET  
EXETER, NH 03833  
BK. 2401 PG. 1579

104  
49  
N/F  
DANIEL R. & REBECA L. DOUCET  
19 THELMA DRIVE  
EXETER, NH 03833  
BK. 5067 PG. 0160

I CERTIFY:  
THAT THIS ACTUAL SURVEY WAS MADE ON THE GROUND BETWEEN DECEMBER OF 2018 AND MARCH OF 2019.  
THAT THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTER OF DEEDS.  
THAT THIS SURVEY CONFORMS TO THE REQUIREMENTS FOR ACCURACY FOR N.H. URBAN SURVEY.



02-04-2020  
DATE



EXISTING SEWER EASEMENT TO BENEFIT  
9,762 S.F.  
SEE PLAN D-41465

WETLANDS DELINEATION BY  
WEST ENVIRONMENTAL  
48 STEVENS HILL ROAD  
NOTTINGHAM, NH 03290  
IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, AS REQUIRED BY THE DES WETLANDS BUREAU

104  
76  
PAUL F. MCCOY REV. TRUST  
PAUL F. MCCOY, TRUSTEE  
P.O. BOX 924  
RAYMOND, NH 03077  
BK. 5799 PG. 1665

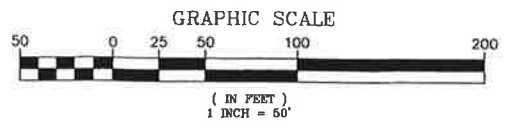
104  
28  
N/F  
HIPKISS FAMILY REV. TRUST  
SENECA L. HIPKISS  
JENAPHER L. HIPKISS  
14 RIVER BEND CIRCLE  
EXETER, NH 03833  
BK. 5881 PG. 2628

**ZONING DISTRICT**  
R-2 RESIDENTIAL  
MINIMUM REQUIREMENTS

AREA (NO SEWER)	1 ACRE
AREA (SEWER)	15,000 S.F.
LOT WIDTH	100'
LOT DEPTH	100'
<b>BUILDING SETBACKS</b>	
FRONT	25'
SIDE	15'
REAR	25'
HYDRIC B SOILS	40'
<b>BUILDING COVERAGE</b>	
MAXIMUM	25%
OPEN SPACE	40%

**LEGEND**

- I.P. IRON PIPE
- I. ROD IRON ROD
- FND. FOUND
- ASSESSORS MAP AND PARCEL
- WET FLAG
- WETLANDS
- SEWER MANHOLE



3	2/4/20	ADDRESS TRC COMMENTS	H.H.B.
2	12/19/19	ADDRESS TRC COMMENTS	H.H.B.
1	9/10/19	UPDATE RECORD OWNER	H.H.B.
NO.	DATE	DESCRIPTION	BY

PLANNING BOARD CASE NUMBER 19-13

**EXISTING CONDITIONS**

**PLAT OF LAND**  
IN  
**EXETER, NH**

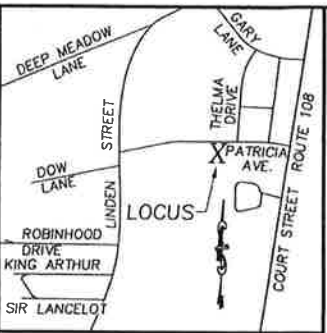
SHOWING  
**A SUBDIVISION AT  
100 LINDEN STREET AND PATRICIA AVENUE**

RECORD OWNER  
**1 S REALTY TRUST  
3 VINTAGE DRIVE EXETER, NH 03833**

**MILLENNIUM ENGINEERING INC.**  
ENGINEERS AND LAND SURVEYORS  
P.O. BOX 745 13 HAMPTON ROAD EXETER, NH 03833  
PHONE: (603) 778-0528 FAX: (603) 772-0689

SCALE: 1"=50' CALC. BY: H.H.B. PROJECT: E182237  
DATE: AUG. 1, 2019 CHKD. BY: R.S.G. SHEET: 2 OF 10





- NOTES:**
- 1) THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST. A REASONABLE AND DILIGENT ATTEMPT HAS BEEN MADE TO OBSERVE ANY APPARENT VISIBLE USES OF THE LAND; HOWEVER, THIS DOES NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.
  - 2) THIS PARCEL DOES NOT LIE WITHIN A FLOOD ZONE. SEE F.I.R.M. COMMUNITY PANEL 330130 0404 E EFFECTIVE DATE MAY 17, 2005.
  - 3) THE LANDOWNER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLANDS REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
  - 4) THE PROPOSED DRAINAGE EASEMENT ON LOTS 2 & 3 IS TO BENEFIT THE HOMEOWNER'S ASSOCIATION.

**PLAN REFERENCES**

- \*LOT LINE ADJUSTMENT PLAN FOR PAUL MORRISSETTE 100 LINDEN STREET EXETER, NH SCALE: 1"=50' DATE: APRIL 2001 BY: LITTLE RIVER SURVEY COMPANY. D-29070
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- \*PLAN OF LAND IN EXETER, NH SHOWING A PROPOSED SEWER EASEMENT AT 100 LINDEN STREET AND PATRICIA AVENUE RECORD OWNER I.S. WINTER REALTY TRUST 3 VINTAGE DRIVE EXETER, NH SCALE: 1"=50' DATE: APRIL 26, 2019 BY: MILLENNIUM ENGINEERING, INC. D-41465

**ZONING DISTRICT**

**R-2 RESIDENTIAL**

MINIMUM REQUIREMENTS

AREA (NO SEWER)	1 ACRE
AREA (SEWER)	15,000 S.F.
LOT WIDTH	100'
LOT DEPTH	100'

BUILDING SETBACKS

FRONT	25'
SIDE	15'
REAR	25'
HYDRIC B SOILS	40'

BUILDING COVERAGE

MAXIMUM	25%
MINIMUM	40%

TOWN OF EXETER PLANNING BOARD  
CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_

**RECORD OWNER**

1 S REALTY TRUST  
C/O S. MITCHELL WINTER, TRUSTEE  
3 VINTAGE DRIVE  
EXETER, NH 03833  
BK. 5961 PG. 2005

243,255 S.F.  
5.58 ACRES  
AREA PRIOR TO SUBDIVISION

LOCUS MAP  
NOT TO SCALE

104  
70  
LINDEN WOODS, LLC  
51 CENTRAL AVENUE  
NEWTON, MA 02458  
BK. 5972 PG. 0641

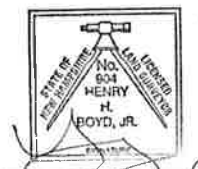
N/F  
GARY R. & DEBORAH L. MORRISSETTE  
102 LINDEN STREET  
EXETER, NH 03833  
BK. 5348 PG. 0249

104  
72  
N/F  
GARY R. & DEBORAH L. MORRISSETTE  
102 LINDEN STREET  
EXETER, NH 03833  
BK. 2401 PG. 1579

104  
49  
N/F  
DANIEL R. & REBECCA L. DOUCET  
19 THELMA DRIVE  
EXETER, NH 03833  
BK. 5067 PG. 0160

THE CERTIFICATIONS SHOWN HEREON ARE INTENDED TO MEET REGISTRY OF DEEDS REQUIREMENTS AND ARE NOT A CERTIFICATION TO TITLE OR OWNERSHIP OF PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE ACCORDING TO CURRENT TOWN/CITY ASSESSORS' RECORDS.

I CERTIFY:  
THAT THIS ACTUAL SURVEY WAS MADE TO MEET REGISTRY OF DEEDS REQUIREMENTS AND ON THE GROUND BETWEEN DECEMBER OF 2018 AND MARCH OF 2019.  
THAT THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTER OF DEEDS.  
THAT THIS SURVEY CONFORMS TO THE REQUIREMENTS FOR ACCURACY FOR N.H. URBAN SURVEY.

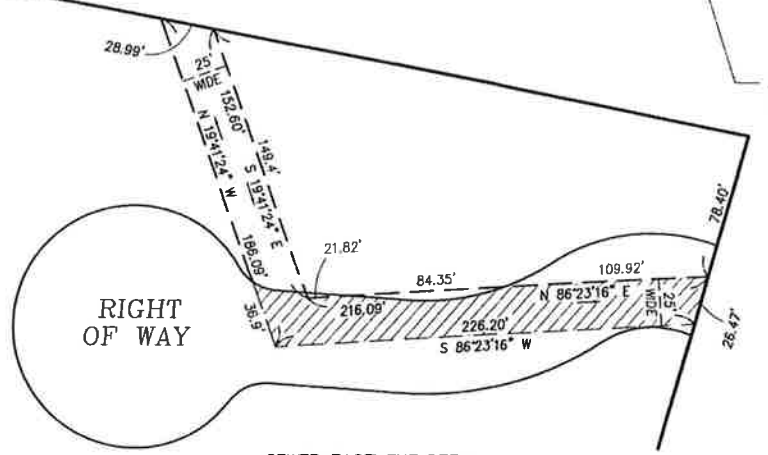


02-04-2020  
DATE

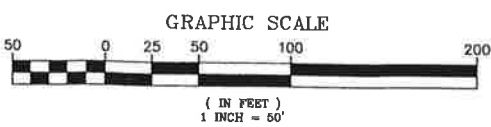
**WETLANDS DELINEATION BY WEST ENVIRONMENTAL**  
48 STEVENS HILL ROAD  
NOTTINGHAM, NH 03290  
IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL AS REQUIRED BY THE DES WETLANDS BUREAU

**LEGEND**

- I.P. IRON PIPE
- S.B. GRANITE BOUND TO BE SET UNLESS NOTED OTHERWISE
- D.H. DRILL HOLE
- I ROD IRON ROD TO BE SET UNLESS NOTED OTHERWISE
- FND. FOUND
- ASSESSORS MAP AND PARCEL
- WET FLAG WETLANDS
- ⊙ SEWER MANHOLE



**SEWER EASEMENT DETAIL**  
HATCHED PORTION OF SEWER EASEMENT (5,713 S.F.) SHALL BE EXTINGUISHED IF AND WHEN RIGHT OF WAY IS ACCEPTED BY THE TOWN OF EXETER.



104  
76  
PAUL F. MCCOY REV. TRUST  
PAUL F. MCCOY, TRUSTEE  
P.O. BOX 924  
RAYMOND, NH 03077  
BK. 5799 PG. 1665

104  
28  
N/F  
HIPKISS FAMILY REV. TRUST  
SENECA L. HIPKISS  
JENAPHER L. HIPKISS  
14 RIVER BEND CIRCLE  
EXETER, NH 03833  
BK. 5881 PG. 2628

NO.	DATE	DESCRIPTION	BY
3	2/4/20	ADDRESS TRC COMMENTS	H.H.B.
2	12/19/19	ADD SEWER ESMT DETAIL	H.H.B.
1	9/10/19	UPDATE RECORD OWNER	H.H.B.

PLANNING BOARD CASE NUMBER 19-13

**LOT LAYOUT SHEET**

**PLAT OF LAND**  
IN  
**EXETER, NH**

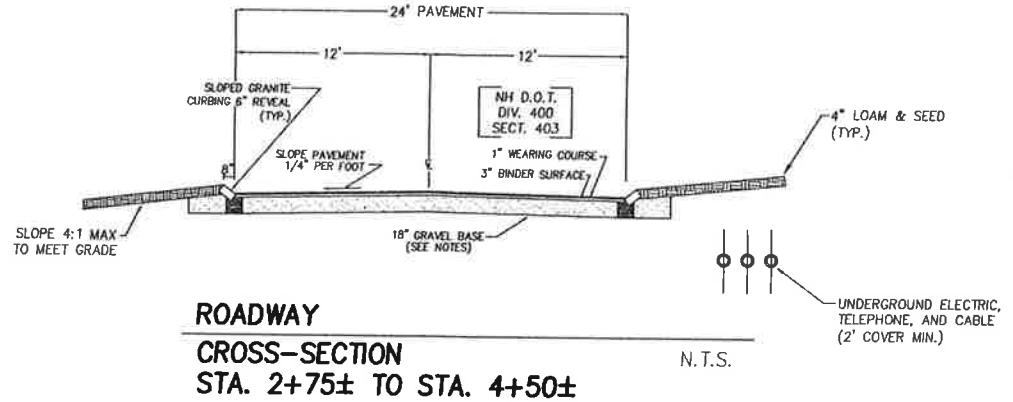
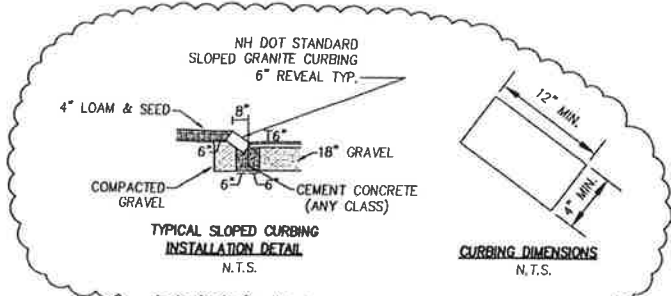
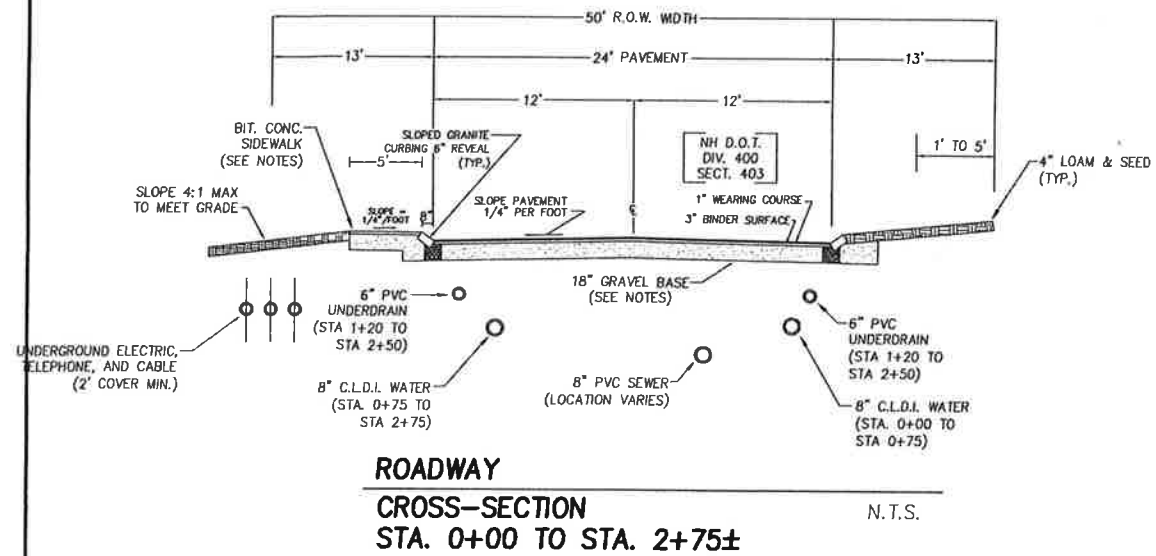
SHOWING  
**A SUBDIVISION AT**  
**100 LINDEN STREET AND PATRICIA AVENUE**

PREPARED FOR  
**I S REALTY TRUST**  
3 VINTAGE DRIVE EXETER, NH 03833

**MILLENNIUM ENGINEERING INC.**  
ENGINEERS AND LAND SURVEYORS  
P.O. BOX 745 13 HAMPTON ROAD EXETER, NH 03833  
PHONE: (603) 778-0528 FAX: (603) 772-0689

SCALE: 1"=50' CALC. BY: H.H.B. PROJECT: E182237  
DATE: AUG. 1, 2019 CHKD. BY: R.S.G. SHEET: 3 OF 10





**ROADWAY**  
**CROSS-SECTION**  
**STA. 2+75± TO STA. 4+50±**

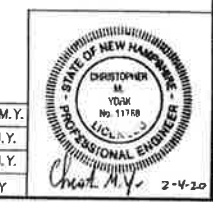
**PAVEMENT NOTES:**  
 WEARING COURSE: 1" BITUMINOUS CONCRETE  
 BINDER COURSE: 3" BITUMINOUS CONCRETE  
 GRAVEL BASE: 6" CRUSHED GRAVEL (ITEM #304.3) OVER 12" OF BANK-RUN GRAVEL (ITEM #304.2)

- ROADWAY NOTES:**
- 1.) ALL STUMPS, ROCKS AND LEDGE WITHIN THE LIMITS OF THE PROPOSED PAVEMENT SHALL BE REMOVED. ALL LEDGE SHALL BE REMOVED TO A DEPTH OF 2" BELOW FINISHED PAVEMENT GRADE.
  - 2.) THE BASE COURSE SHALL BE COMPOSED OF 1) BANK RUN GRAVEL WITH NO STONES LARGER THAN 3" IN DIAMETER, COMPACTED TO A MINIMUM DEPTH OF 12" AND TO 95% OF ITS MAXIMUM DENSITY, AND 2) CRUSHED GRAVEL COMPACTED TO A MINIMUM DEPTH OF 6", IN ACCORDANCE WITH THE STATE OF NEW HAMPSHIRE D.O.T. AND HIGHWAY SPECIFICATIONS.
  - 3.) BASE COURSE SHALL NOT BE CONSTRUCTED DURING FREEZING WEATHER OR ON WET OR FROZEN SUBGRADE.
  - 4.) GRADING AND ROLLING SHALL BE REQUIRED TO PROVIDE A SMOOTH, EVEN, AND UNIFORM COMPACTED BASE WHICH IS COMPACTED TO A MINIMUM DRY DENSITY OF 95 PERCENT. COMPACTION SHALL BE TESTED AT THE EXPENSE OF THE CONTRACTOR BY AN APPROVED LABORATORY DESIGNATED BY THE TOWN OF HAMPTON.
  - 5.) ALL UNSUITABLE MATERIAL SHALL BE EXCAVATED AND REPLACED WITH SUITABLE MATERIAL AND BROUGHT UP TO GRADE.
  - 6.) MATERIALS USED FOR GRAVEL SUB-BASE AND CRUSHED GRAVEL BASE SHALL MEET OR EXCEED STANDARDS DESCRIBED IN STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION - LATEST REVISION. GRADATION TESTS PERFORMED BY AN INDEPENDENT LABORATORY, APPROVED BY THE STATE OF NEW HAMPSHIRE TO PERFORM SUCH TESTS, WILL BE REQUIRED FOR EACH TYPE OF MATERIAL AND SHALL BE PAID FOR BY THE OWNER.
  - 7.) MATERIALS USED FOR THE CONSTRUCTION OF ROADWAY FILLS SHALL HAVE THE PHYSICAL CHARACTERISTICS OF SOILS DESIGNATED AS GROUP A-1-a, OR A-3 UNDER AASHTO M145.
  - 8.) A 1/4 INCH TOLERANCE IS ALLOWED FOR THE FINE GRADING OF THE CRUSHED GRAVEL AND PLACEMENT OF THE BITUMINOUS CONCRETE. HOWEVER, THE FINISHED PAVEMENT DEPTH MUST BE AT LEAST EQUAL TO OR GREATER THAN THE DEPTH SPECIFIED ON THE APPROVED PLAN.
  - 9.) MATERIAL SPECIFICATIONS AND/OR CONSTRUCTION METHODS MAY NOT BE WAIVED BY ANY AGENT OF THE PLANNING BOARD.
  - 10.) THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES BY CONTACTING "DIG-SAFE" (1-888-344-7233) AND EXETER DPW (1-603-773-6157) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION.
  - 11.) THE CONTRACTOR MUST OBTAIN A VALID UTILITY PIPE INSTALLER'S LICENSE AND THE JOB SUPERVISOR OR FOREMAN MUST BE CERTIFIED BY THE TOWN PRIOR TO WORKING ON ANY WATER, SEWER, OR DRAINAGE PIPES THAT ARE IN A TOWN STREET OR RIGHT OF WAY, OR THAT WILL CONNECT OR MAY BE CONNECTED TO A TOWN WATER, SEWER, OR DRAINAGE SYSTEM. A LICENSED SUPERVISOR OR FOREMAN MUST BE PRESENT AT THE JOB SITE AT ALL TIMES DURING THE CONSTRUCTION OF THESE UTILITIES.
  - 12.) THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING EROSION AND/OR SEDIMENT CONTROLS DURING CONSTRUCTION. HE/SHE SHALL INSPECT CONTROLS WEEKLY AND AFTER ALL STORM EVENTS. REPAIRS, IF REQUIRED, SHALL BE MADE IMMEDIATELY.
  - 13.) THE OWNER/DEVELOPER SHALL SUBMIT TWO HARD COPIES OF AS-BUILT DRAWINGS TO THE EXETER DPW PER THEIR REQUIREMENTS UPON COMPLETION OF THE PROJECT. DRAWINGS SHALL ALSO BE PROVIDED DIGITALLY IN PDF FILE FORMAT AND AUTOCAD FORMAT. AS-BUILTS SHALL INCLUDE ALL LANDBASE AND UTILITIES INFORMATION.

- UTILITY NOTES:**
- 1.) ALL SEWER MAINS SHALL BE INSTALLED AT LEAST 10 FEET HORIZONTALLY FROM PROPOSED WATER MAINS. IF 10 FOOT SEPARATION IS NOT POSSIBLE, AT LEAST 18" OF VERTICAL SEPARATION IS REQUIRED.
  - 2.) ALL SEWER MAINS SHALL MAINTAIN 6 FEET OF COVER OVER THE TOP OF THE PIPING, UNLESS OTHERWISE SHOWN OR APPROVED.
  - 3.) ALL WATER MAINS SHALL BE INSTALLED WITH A MINIMUM OF 5 FEET OF COVER OVER THE TOP OF THE PIPE, UNLESS OTHERWISE SHOWN OR APPROVED.
  - 4.) WHENEVER WATER AND SEWER SERVICE LINES MUST CROSS, THEY SHALL BE SLEEVED 4 FEET ON EACH SIDE.
  - 5.) WHENEVER SEWER MAINS MUST CROSS UNDER WATER MAINS, THE SEWER SHALL BE CONSTRUCTED AT LEAST 18" BELOW THE BOTTOM OF THE WATER MAIN.

- MATERIAL NOTES**
- ALL MATERIALS AND CONSTRUCTION METHODS OF ALL THE ELEMENTS IN THE SITE PLAN MUST CONFORM TO THE FOLLOWING STANDARDS:
1. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
  2. AMERICAN WATER WORKS ASSOCIATION (AWWA)
  3. STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES
  4. AMERICANS WITH DISABILITIES ACT (ADA)
  5. STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER, NH
  6. SITE PLAN REVIEW AND SUBDIVISION REGULATIONS FOR THE TOWN OF EXETER, NH

NO.	DATE	DESCRIPTION	BY
3	2/4/20	ADDRESS REVIEWER'S COMMENTS	C.M.Y.
2	11/9/19	ADDRESS TRC COMMENTS	C.M.Y.
1	9/10/19	UPDATE RECORD OWNER	C.M.Y.



TYPICAL ROADWAY SECTIONS, NOTES, & DETAILS

**PLAT OF LAND**  
 IN  
**EXETER, NH**

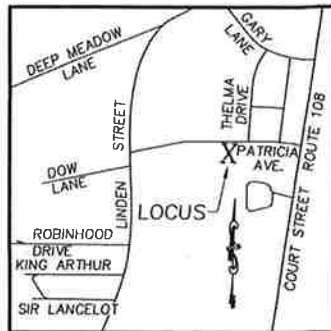
SHOWING  
 A SUBDIVISION AT  
**100 LUNDEN STREET AND PATRICIA AVENUE**

RECORD OWNER  
**I S REALTY TRUST**  
 3 VINTAGE DRIVE EXETER, NH 03833

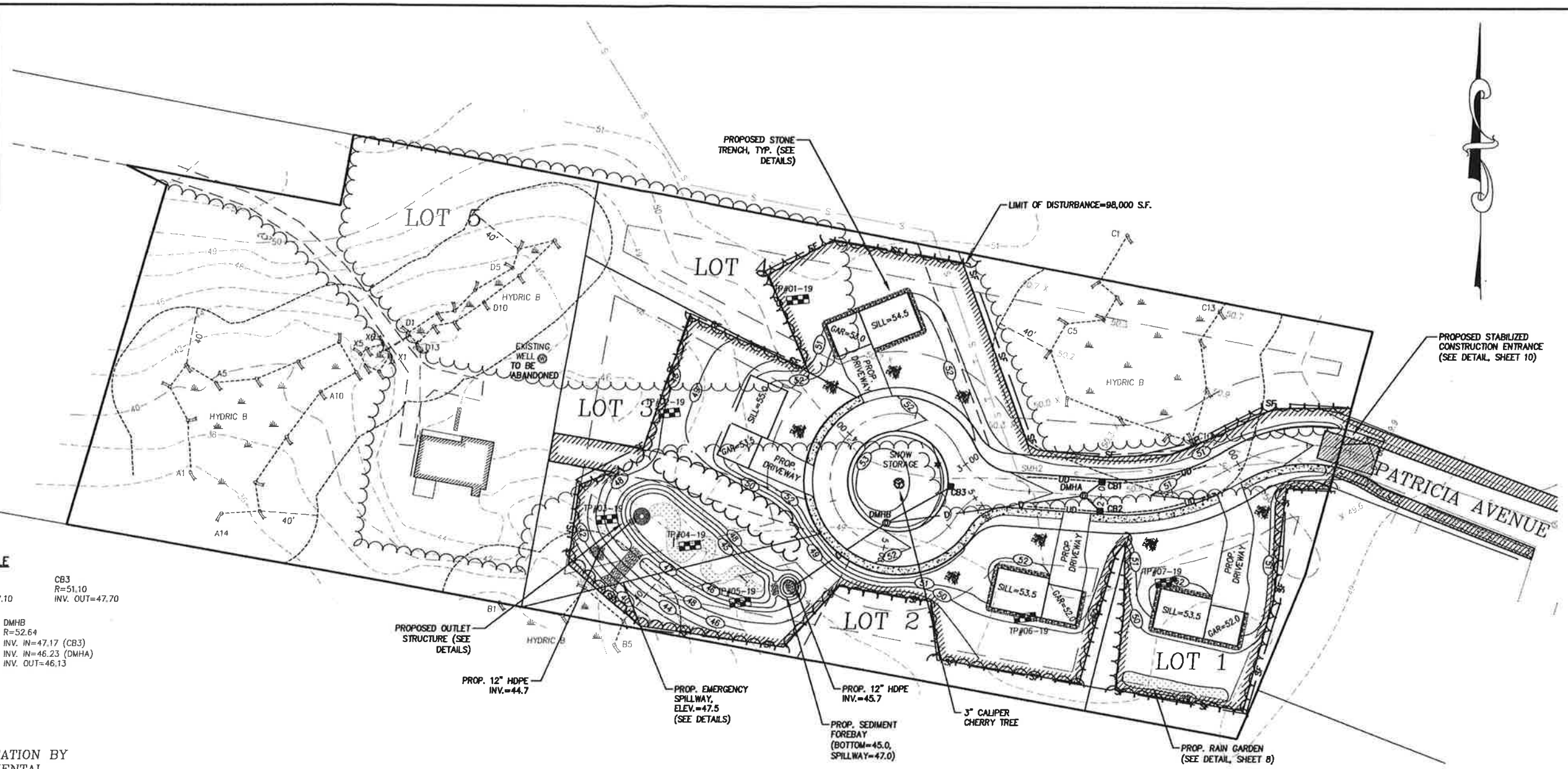
**MILLENNIUM ENGINEERING INC.**  
 ENGINEERS AND LAND SURVEYORS  
 P.O. BOX 745 13 HAMPTON ROAD EXETER, NH 03833  
 PHONE: (603) 778-0528 FAX: (603) 772-0689

SCALE: AS NOTED    DESG. BY: C.M.Y.    PROJECT: E182237  
 DATE: AUG. 1, 2019    CHKD. BY: E.W.B.    SHEET: 4 OF 10





LOCUS MAP  
NOT TO SCALE



**INVERT TABLE**

CB1 R=50.50 INV. OUT=47.10	CB2 R=50.50 INV. OUT=47.10	CB3 R=51.10 INV. OUT=47.70
DMHA R=50.89 INV. IN=47.02 (CB1) INV. IN=47.02 (CB2) INV. OUT=46.92	DMHB R=52.64 INV. IN=47.17 (CB3) INV. IN=46.23 (DMHA) INV. OUT=46.13	

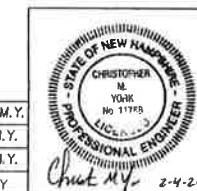
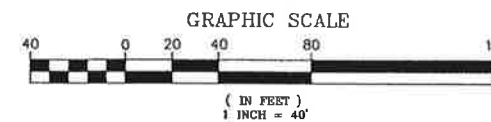
WETLANDS DELINEATION BY  
WEST ENVIRONMENTAL  
48 STEVENS HILL ROAD  
NOTTINGHAM, NH 03290  
AS REQUIRED BY THE DES WETLANDS BUREAU.

**GENERAL NOTES**

- ALL WORK SHALL CONFORM TO: THE EXETER SITE PLAN REVIEW AND SUBDIVISION REGULATIONS AND THESE PLANS.
- WATERSHED PLANS INCLUDED IN STORMWATER MANAGEMENT REPORT.
- PROPOSED DRIVEWAYS AS SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. ACTUAL SIZE AND LOCATION OF DRIVEWAYS SHALL BE DETERMINED AS PART OF THE BUILDING LAYOUT PROCESS.
- PROPOSED DWELLINGS AS SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. ACTUAL LOCATION, SIZE, SILL ELEVATION AND GRADING OF HOUSES SHALL BE DETERMINED AT TIME OF CONSTRUCTION. HOWEVER, DRAINAGE PATTERNS SHALL DIRECT RUNOFF AS INTENDED BY THIS PLAN.
- THE CONTRACTOR SHALL ENSURE THAT GRADING AROUND THE PROPOSED DWELLINGS ALLOWS FOR POSITIVE PITCH AWAY FROM THE STRUCTURE.
- ALL WATER, SEWER, ROAD AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 9.3 STORMWATER MANAGEMENT STANDARDS, STORMWATER MANAGEMENT PLAN, STORMWATER POLLUTION PREVENTION PLAN, AND EROSION AND SEDIMENT CONTROL STANDARDS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER, NH.
- YARD TREES SHALL HAVE A MINIMUM CALIPER OF 3 INCHES AND THE DEVELOPER CAN CHOOSE AMONG THE FOLLOWING CHOICES: RED MAPLE, ELM, DOGWOOD, RIVER BIRCH, PIN OAK, SWEETGUM, TULIPTREE, WASHINGTON HAWTHORN, OR PEAR.
- TOTAL SITE DISTURBANCE = 95,000 S.F. AN ALTERATION OF TERRAIN PERMIT IS NOT REQUIRED WITH THE NEW HAMPSHIRE DES.
- ONSITE BURIAL OF STUMPS OR ANY OTHER DEBRIS IS PROHIBITED.
- THIS PARCEL DOES NOT LIE WITHIN A FLOOD ZONE. SEE F.I.R.M. COMMUNITY PANEL J3015C 0404 E EFFECTIVE DATE MAY 17, 2005
- ELEVATIONS ARE BASED ON NAVD 1988 DATUM.

**LEGEND**

	EXIST. CONTOUR		EXIST. CATCH BASIN
	PROP. CONTOUR		EXIST. UTILITY POLE
	PROP. SILTATION BARRIER		WETLANDS
	PROP. TREELINE		EXIST. TEST PIT
	PROP. DRAIN LINE		
	PROP. BIT. CONC. SIDEWALK		
	PROP. CATCH BASIN		
	PROP. SPOT GRADE		
	PROP. OUTLET STRUCTURE		
	PROP. YARD TREE (SEE NOTE 7)		



NO.	DATE	DESCRIPTION	BY
3	2/4/20	ADDRESS REVIEWER'S COMMENTS	C.M.Y.
2	11/9/19	ADDRESS TRC COMMENTS	C.M.Y.
1	9/10/19	UPDATE RECORD OWNER	C.M.Y.

TOWN OF EXETER PLANNING BOARD

CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_

**GRADING PLAN**

**PLAT OF LAND**  
IN  
**EXETER, NH**

SHOWING  
**A SUBDIVISION AT**  
**100 LINDEN STREET AND PATRICIA AVENUE**

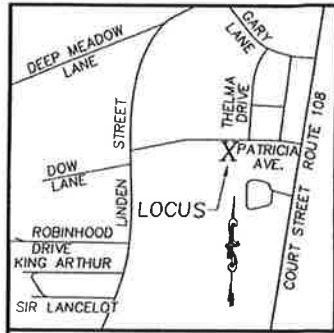
RECORD OWNER  
**I S REALTY TRUST**  
3 VINTAGE DRIVE EXETER, NH 03833

**MILLENNIUM ENGINEERING INC.**  
ENGINEERS AND LAND SURVEYORS  
P.O. BOX 745 13 HAMPTON ROAD EXETER, NH 03833  
PHONE: (603) 778-0528 FAX: (603) 772-0689

SCALE: 1"=40'	DESG. BY: C.M.Y.	PROJECT: E182237
DATE: AUG. 1, 2019	CHKD. BY: E.W.B.	SHEET: 5 OF 10



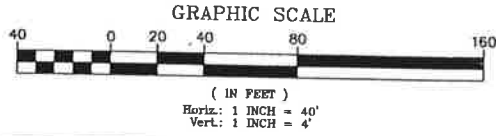
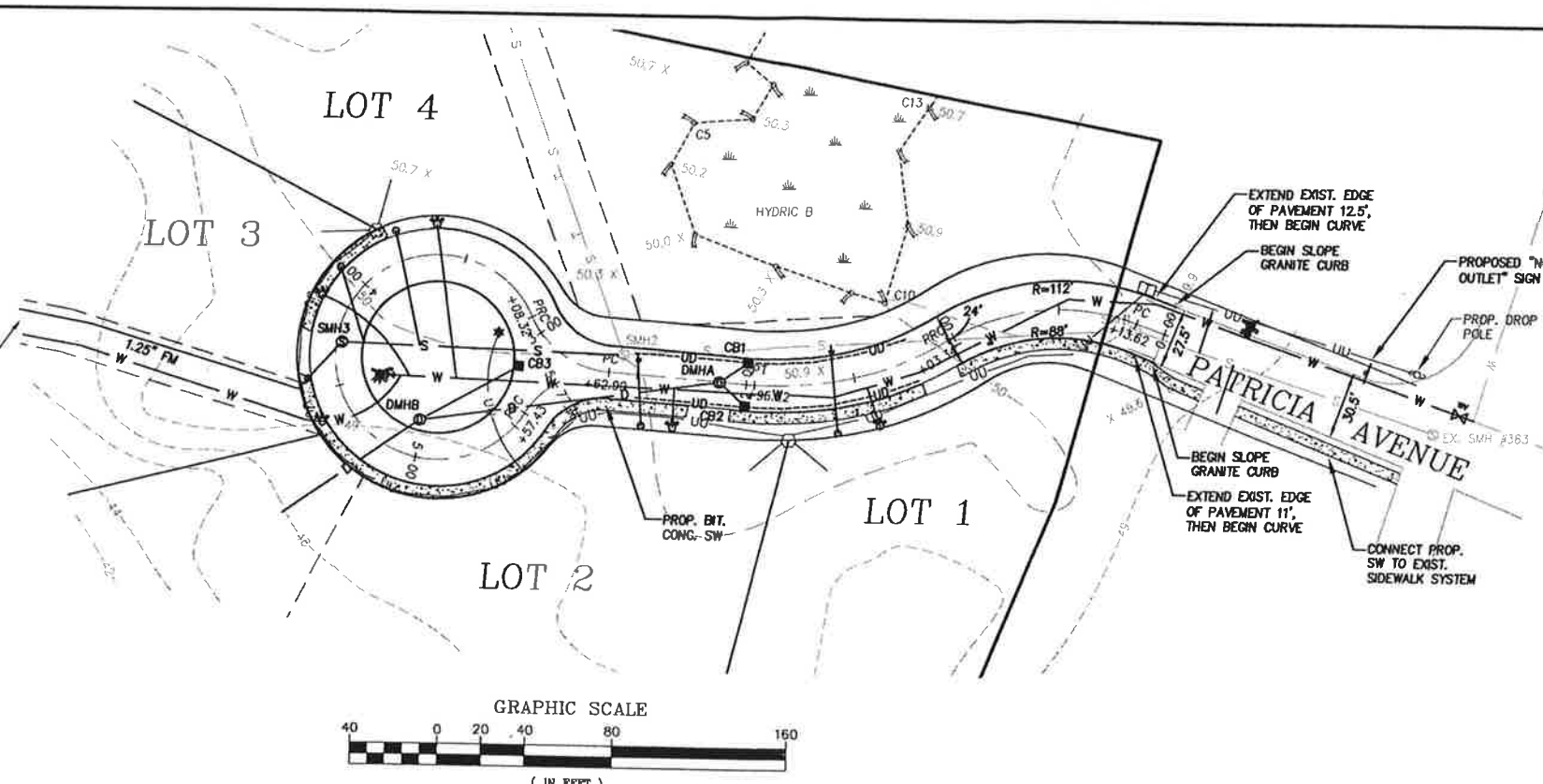




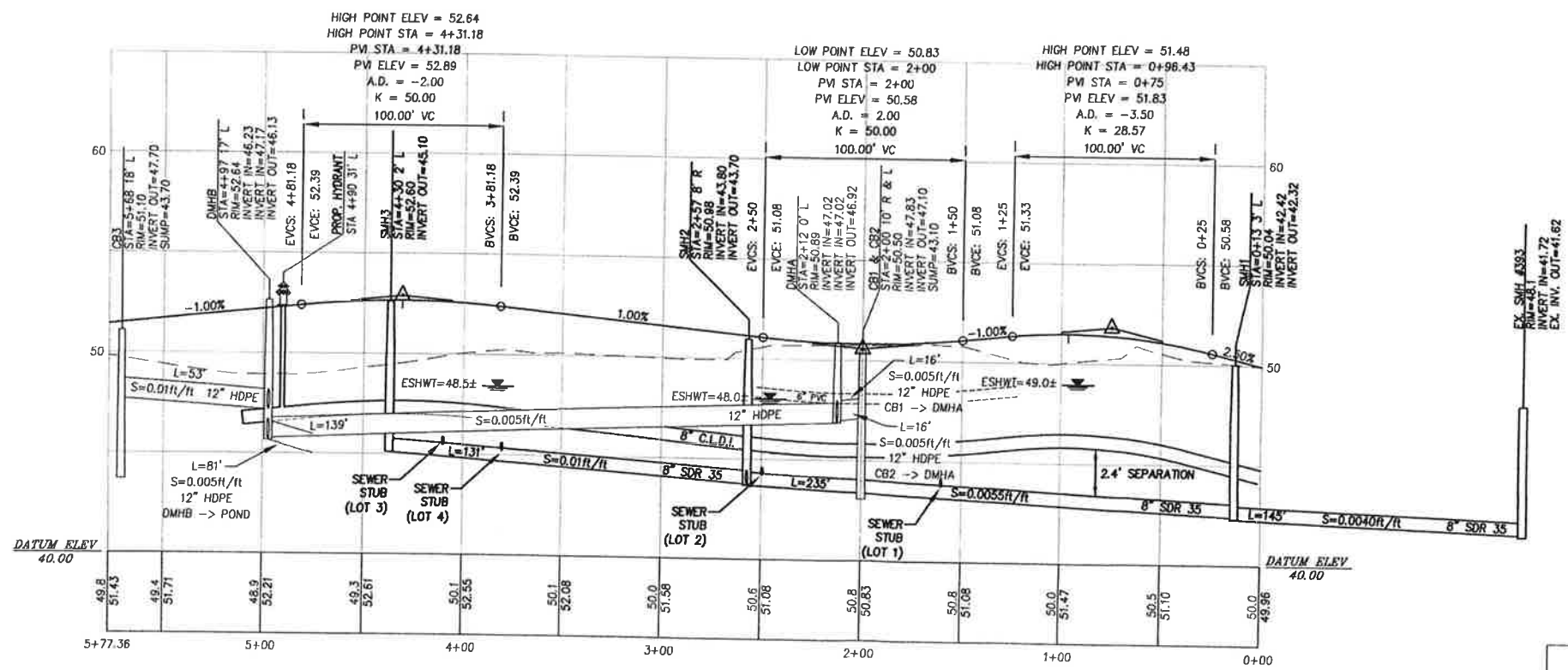
LOCUS MAP  
NOT TO SCALE



PROPOSED WATER &  
SEWER CONNECTIONS TO  
EXISTING HOUSE



LEGEND	
— W —	EXISTING WATER MAIN
— S —	EXISTING SEWER MAIN
— OHW —	EXISTING OVERHEAD WIRE
— D —	PROPOSED DRAIN LINE
— UD —	PROPOSED SUBDRAIN
— W —	PROPOSED WATER SERVICE
— SS —	PROPOSED SEWER SERVICE
— UU —	PROPOSED UNDERGROUND UTILITIES
⊠	PROPOSED WATER GATE
⊛	PROPOSED STREET LIGHT
⊞	PROPOSED TRANSFORMER
○	PROPOSED HAND HOLE
⊛	EXISTING FIRE HYDRANT
⊞	PROPOSED WATER SHUTOFF
○	PROPOSED SEWER CLEANOUT



TOWN OF EXETER PLANNING BOARD

CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_

ROADWAY & UTILITIES PROFILE

PLAT OF LAND

IN

EXETER, NH

SHOWING

A SUBDIVISION AT

100 LINDEN STREET AND PATRICIA AVENUE

RECORD OWNER

I S REALTY TRUST

3 VINTAGE DRIVE EXETER, NH 03833

MILLENNIUM ENGINEERING INC.

ENGINEERS AND LAND SURVEYORS

P.O. BOX 745 13 HAMPTON ROAD EXETER, NH 03833

PHONE: (603) 778-0528 FAX: (603) 772-0689

SCALE: 1"=40'

DATE: AUG. 1, 2019

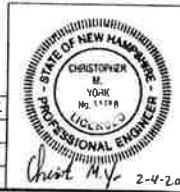
DESG. BY: C.M.Y.

CHKD. BY: E.W.B.

PROJECT: E182237

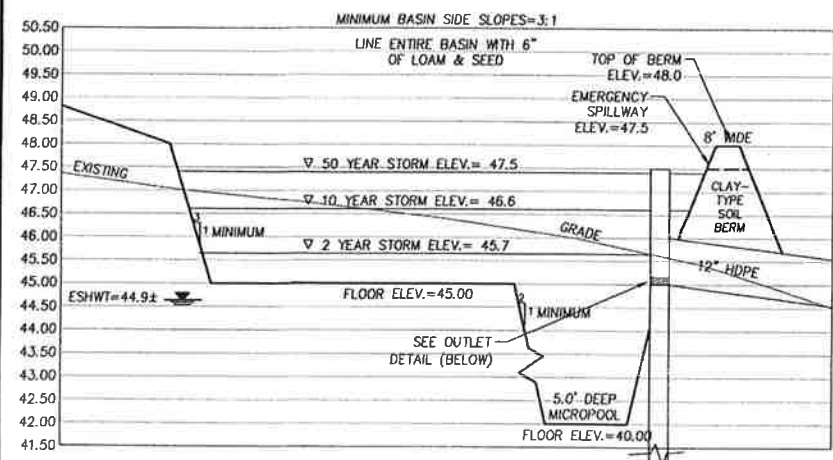
SHEET: 6 OF 10

NO.	DATE	DESCRIPTION	BY
3	2/4/20	ADDRESS REVIEWER'S COMMENTS	C.M.Y.
2	11/9/19	ADDRESS TRC COMMENTS	C.M.Y.
1	9/10/19	UPDATE RECORD OWNER	C.M.Y.



Christ M.Y. 2-4-20





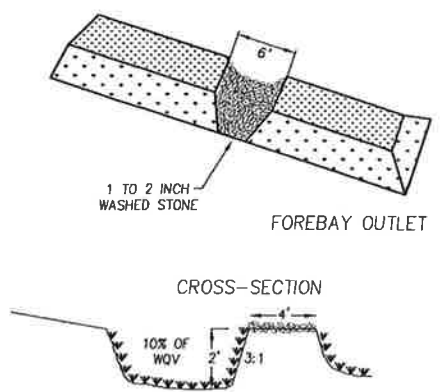
**DETENTION BASIN  
PROFILE VIEW**  
HORIZ. SCALE: N.T.S.  
VERT. SCALE: 1"=2'

**MAINTENANCE**

1. EMBANKMENT—THE EMBANKMENT SHALL BE INSPECTED ANNUALLY TO DETERMINE IF RODENT BURROWS, WET AREAS, OR EROSION OF THE FILL IS TAKING PLACE.
2. VEGETATION—THE VEGETATED AREAS OF THE STRUCTURE SHALL BE PROTECTED FROM DAMAGE BY GRAZING, TRAFFIC, AND DENSE WEED GROWTH. TREES AND SHRUBS SHALL BE KEPT OFF THE EMBANKMENT AND EMERGENCY SPILLWAY AREAS.
3. INLETS—PIPE INLETS AND SPILLWAY STRUCTURES SHALL BE INSPECTED ANNUALLY AND AFTER EVERY MAJOR STORM. ACCUMULATED DEBRIS AND SEDIMENT SHALL BE REMOVED. IF PIPES ARE COATED, THE COATING SHALL BE CHECKED AND REPAIRED AS NECESSARY.
4. OUTLETS—PIPE OUTLETS SHALL BE INSPECTED ANNUALLY AND AFTER EVERY MAJOR STORM. THE CONDITION OF THE PIPES SHALL BE NOTED AND REPAIRS MADE AS NECESSARY. IF EROSION IS TAKING PLACE THEN MEASURES SHALL BE TAKEN TO STABILIZE AND PROTECT THE AFFECTED AREA OF THE OUTLET.
5. SEDIMENT—SEDIMENT SHALL BE CONTINUALLY CHECKED IN THE BASIN. WHEN SEDIMENT ACCUMULATIONS REACH THE PREDETERMINED DESIGN ELEVATION, THEN THE SEDIMENT SHALL BE REMOVED AND DISPOSED OF PROPERLY.
6. SAFETY INSPECTIONS—ALL PERMANENT IMPOUNDMENTS SHALL BE INSPECTED BY A QUALIFIED PROFESSIONAL ENGINEER ON A PERIODIC BASIS. IF THERE IS POTENTIAL FOR SIGNIFICANT DAMAGE OR LOSS OF LIFE DOWNSTREAM, THEN THE INSPECTION SHOULD BE CARRIED OUT ANNUALLY. THE DESIGNATED INDIVIDUAL OR GROUP SHOULD ALSO MAKE INSPECTIONS AFTER EVERY MAJOR STORM EVENT.

**CONSTRUCTION SPECIFICATIONS**

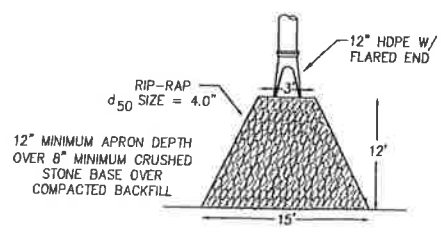
1. BASIN BERM SHALL BE CONSTRUCTED OF FILL MATERIAL FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE BERM SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CC, SC, CH, OR CL AND HAVE AT LEAST 30% PASSING THE #200 SIEVE. MATERIALS USED IN THE OUTER SHELL OF THE BERMS SHALL BE CAPABLE OF SUPPORTING VEGETATION.
2. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8-INCH LIFTS AND COMPACTED WITH A MINIMUM REQUIRED DENSITY OF NOT LESS THAN 95% OF MAXIMUM DRY DENSITY.
3. PRIOR TO FILL MATERIAL INSTALLATION, ALL TOPSOIL, SUBSOIL, AND UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL.



**FOREBAY OUTLET  
CROSS-SECTION**  
**SEDIMENT FOREBAY  
DETAIL**  
N.T.S.

**MICROPOOL PLANT LIST**

COMMON NAME	LATIN NAME	HEIGHT	NUMBER	ZONE
GREEN BULRUSH	SCIRPUS ATROVIRENS	2" PLUGS	10	MID/LOWER MICROPOOL SLOPE
CHAIRMAKER'S BULRUSH	SCHOENOPLECTUS (SCIRPUS) AMERICANUS	2" PLUGS	10	MID/LOWER MICROPOOL SLOPE
SWEETFLAG	ACORUS AMERICANUS	2" PLUGS	10	MID/LOWER MICROPOOL SLOPE



% OF WEIGHT SMALLER THAN THE GIVEN SIZE	SIZE OF STONE (INCHES)	
	FROM	TO
100	6	8
85	5	7
50	4	6
15	1	2

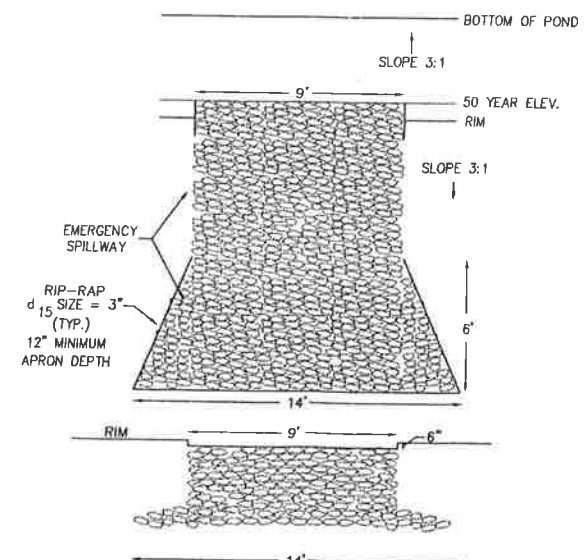
**NOTES**

1. THE SUBGRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIPRAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE ROCK OR GRAVEL USED FOR FILTER OR RIPRAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIPRAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIPRAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

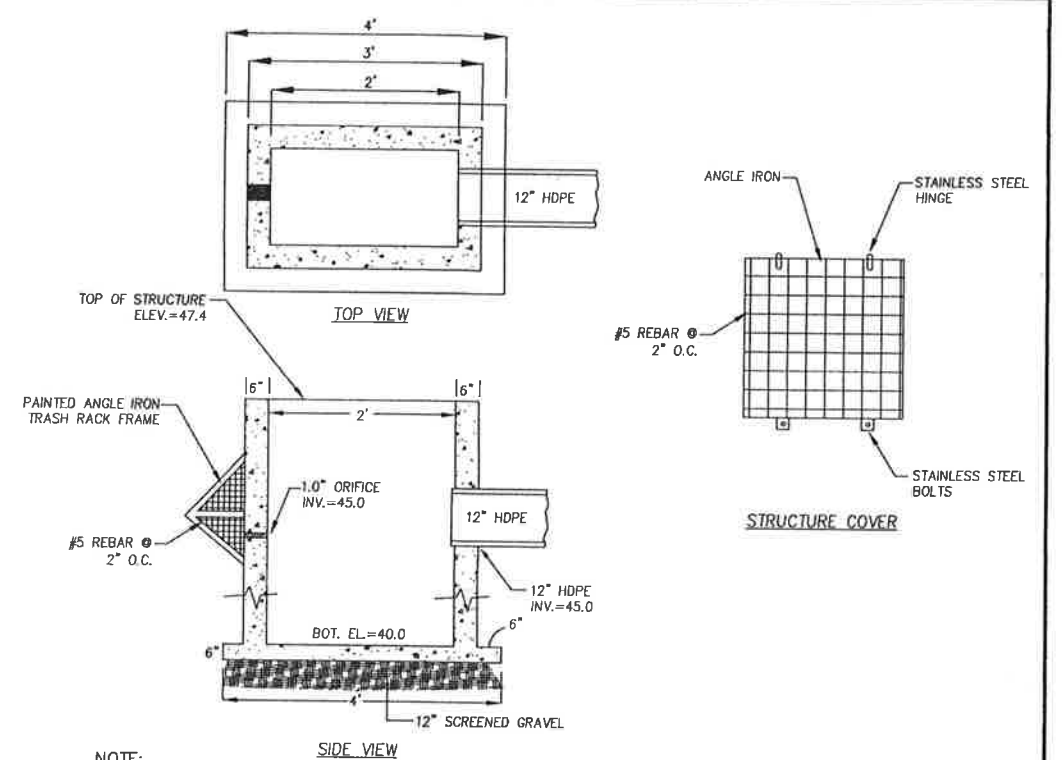
**MAINTENANCE**

1. THE OUTLET PROTECTION SHALL BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM.
2. IF THE RIPRAP HAS BEEN DISPLACED, UNDERMINED, OR DAMAGED, IT SHALL BE REPAIRED IMMEDIATELY.
3. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHALL BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHALL BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES.
4. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE OUTLET PROTECTION APRON.

**RIPRAP  
APRON DETAIL**  
N.T.S.

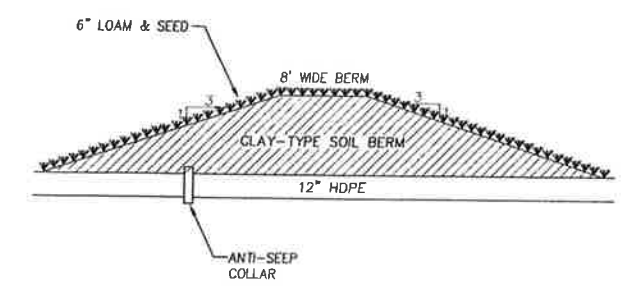


**TYPICAL SPILLWAY  
PLAN VIEW**  
N.T.S.



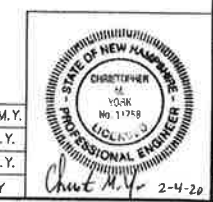
**OUTLET STRUCTURE  
DETAIL**  
N.T.S.

- NOTE:
1. ANY EXPOSED REBAR SHALL BE COATED WITH A RUST-RESISTANT PAINT.



**DETENTION BASIN  
BERM DETAIL**  
N.T.S.

NO.	DATE	DESCRIPTION	BY
3	2/4/20	ADDRESS REVIEWER'S COMMENTS	C.M.Y.
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**DRAINAGE DETAILS**

**PLAT OF LAND**  
IN  
**EXETER, NH**

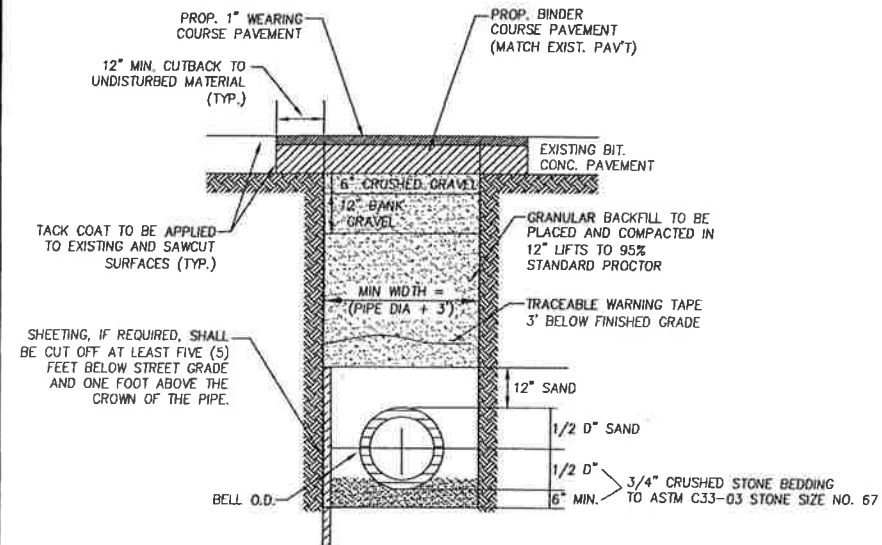
SHOWING  
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RECORD OWNER  
I S REALTY TRUST  
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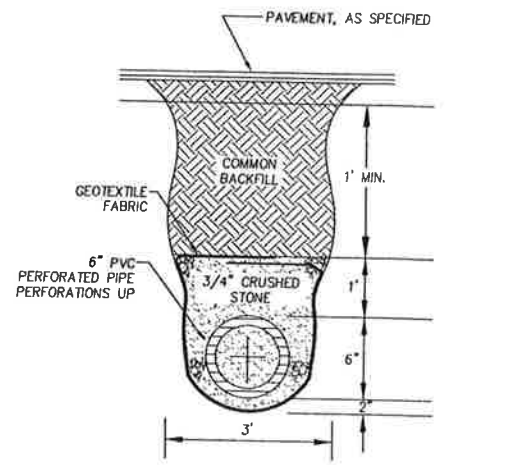
**MILLENNIUM ENGINEERING INC.**  
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SCALE: AS NOTED	DESG. BY: C.M.Y.	PROJECT: E182237
DATE: AUG. 1, 2019	CHKD. BY: E.W.B.	SHEET: 7 OF 10

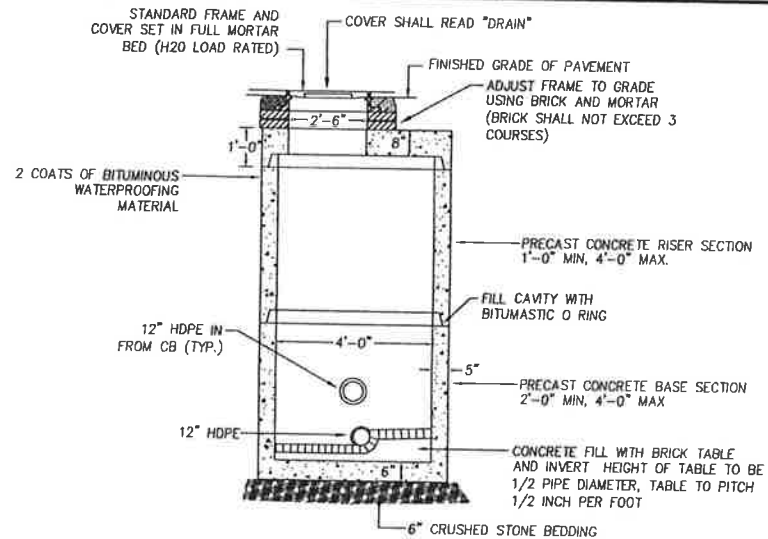




**TYPICAL TRENCH PATCH  
DETAIL WITHIN PAVEMENT** N.T.S.

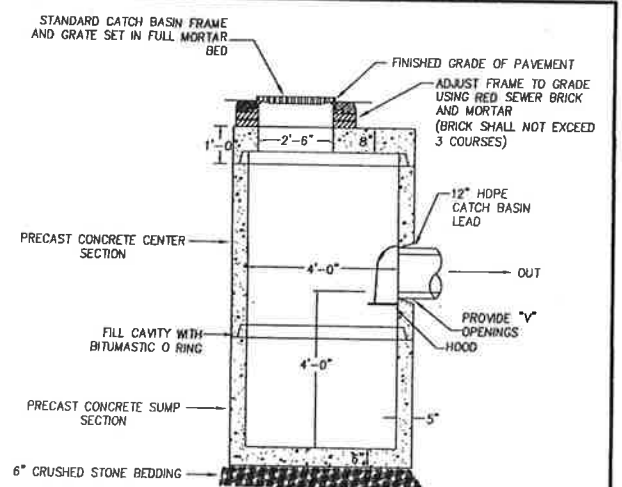


**SUBDRAIN  
DETAIL** N.T.S.



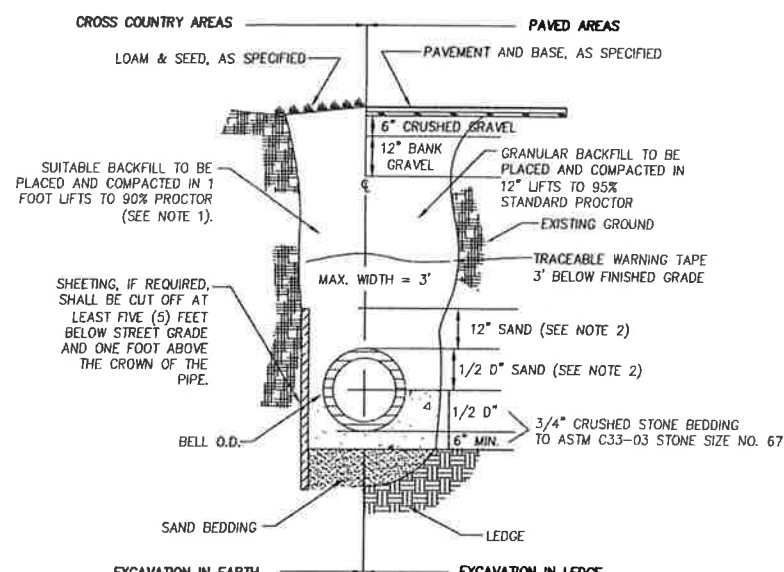
- NOTES: 1) DRAIN MANHOLES SHALL CONFORM TO ASTM C478 AND ASTM C185  
 2) FLAT TOP STRUCTURES SHALL BE PRECAST SECTIONS AND HAVE A 28 DAY COMPRESSIVE STRENGTH OF 5000 PSI REINFORCED FOR AASHTO H-20 LOADING.  
 3) CONICAL SECTIONS MAY BE SUBSTITUTED FOR FLAT-TOP STRUCTURES IN AREAS WHERE MORE THAN 4 FEET OF COVER IS PROVIDED FOR DRAIN PIPE.  
 4) MORTAR SHALL BE COMPOSED OF PORTLAND CEMENT, HYDRATED LIME AND SAND IN THE PROPORTIONS OF 4.5 PARTS SAND, 1.0 PART CEMENT AND 0.5 PART LIME. CEMENT SHALL BE TYPE II PORTLAND CEMENT CONFORMING TO ASTM C150-05. HYDRATED LIME SHALL BE TYPE S CONFORMING TO THE ASTM C207-06 "STANDARD SPECIFICATIONS FOR HYDRATED LIME FOR MASONRY PURPOSES". SAND SHALL CONSIST OF INERT NATURAL SAND CONFORMING TO THE ASTM C33-03 "STANDARD SPECIFICATIONS FOR CONCRETE, FINE AGGREGATES".

**PRECAST DRAIN  
MANHOLE DETAIL** N.T.S.



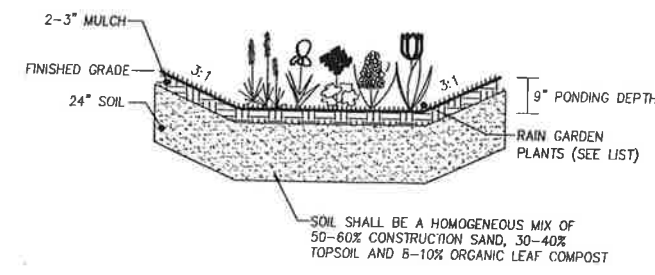
- NOTES: 1) CATCH BASINS SHALL CONFORM TO ASTM C478 AND ASTM C185  
 2) FLAT TOP STRUCTURES SHALL BE PRECAST SECTIONS AND HAVE A 28 DAY COMPRESSIVE STRENGTH OF 5000 PSI REINFORCED FOR AASHTO H-20 LOADING.  
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**PRECAST DEEP SUMP  
CATCH BASIN DETAIL** N.T.S.



- 1.) BACKFILL SHALL BE SCREENED GRAVEL TO ASTM C33-03 STONE SIZE NO. 67  
 2.) SAND BLANKET MATERIAL SHALL BE GRADED SAND FREE FROM ORGANIC MATERIALS, GRADED SUCH THAT 90-100% PASSES A 0.5" SIEVE AND A MAXIMUM OF 15 PERCENT PASSES A #200 SIEVE.

**TYPICAL  
TRENCH DETAIL** N.T.S.

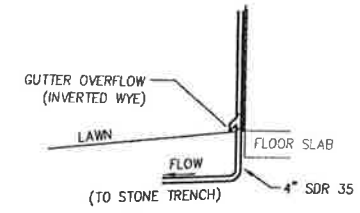


**PROFILE VIEW**

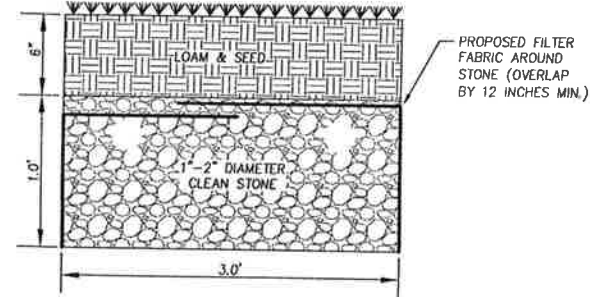
RAIN GARDEN PLANT LIST					
SYMBOL	SPECIES*	COMMON NAME	QUANTITY	HEIGHT	SPACING MINIMUM
A	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	6	1-2'	1'
B	HYPENICUM DENSIFLORUM	COMMON ST. JOHNSWORTH	3	1-2'	2'
C	IRIS VERSICOLOR	BLUE FLAG IRIS	5	1-2'	1'
D	JUNIPERUS HORIZONTALIS	CREeping JUNIPER	10	0-3'	1'
E	HEDERA HELIX	ENGLISH IVY	25	1-2'	6"
F	PHYSOCARPUS OPULIFOLIUS	NINEBARK	4	2-4'	1'
G	LINDERA BENZON	SPICEBUSH	10	2-4'	1'
H	ILEX VERTICILLATA	WINTERBERRY	2	2-5'	1'
J	FRAXINUS PENNSYLVANICA	GREEN ASH	1	8-12'	8'
K	VIBURNUM DENTATUM	ARROW-WOOD	9	2-4'	4'
L	ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	8	3-6'	1'
M	SCHIZACHYRIUM SCOPAIRUM	LITTLE BLUESTEM	15	1-2'	4'

PLANT WELL ROOTED PLANT PLUGS INCLUDING FOX SEDGE, RED TOP AND SWITCH GRASS THROUGHOUT  
 \* IF LISTED SPECIES IS NOT AVAILABLE, SIMILAR SPECIES MAY BE SUBSTITUTED AS APPROVED BY WETLAND SCIENTIST

**RAIN GARDEN  
DETAIL** N.T.S.



**GUTTER DOWN  
SPOUT DETAIL** N.T.S.



\*\* ANY FILL ENCOUNTERED DURING CONSTRUCTION OF TRENCH SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL (I.E. SAND)

**STONE TRENCH  
DETAIL** N.T.S.

**DRAINAGE DETAILS**

**PLAT OF LAND**  
IN  
**EXETER, NH**

SHOWING  
**A SUBDIVISION AT**  
**100 LINDEN STREET AND PATRICIA AVENUE**

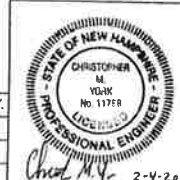
RECORD OWNER  
**I S REALTY TRUST**  
3 VINTAGE DRIVE EXETER, NH 03833

**MILLENNIUM ENGINEERING INC.**  
ENGINEERS AND LAND SURVEYORS  
P.O. BOX 745 13 HAMPTON ROAD EXETER, NH 03833  
PHONE: (603) 778-0528 FAX: (603) 772-0689

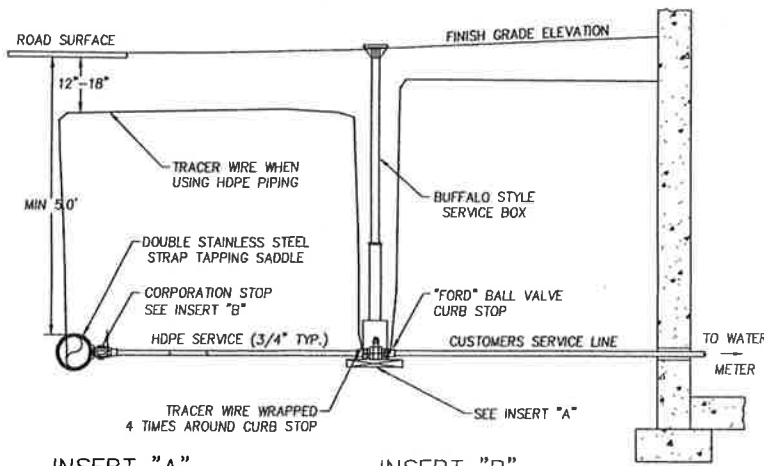
SCALE: AS NOTED	DESG. BY: C.M.Y.	PROJECT: E182237
DATE: AUG. 1, 2019	CHKD. BY: E.W.B.	SHEET: 8 OF 10

NO.	DATE	DESCRIPTION	BY
3	2/4/20	ADDRESS REVIEWER'S COMMENTS	C.M.Y.
2	11/9/19	ADDRESS TRC COMMENTS	C.M.Y.
1	9/10/19	UPDATE RECORD OWNER	C.M.Y.

2-V-20

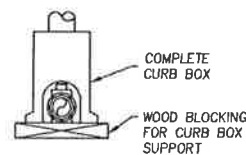




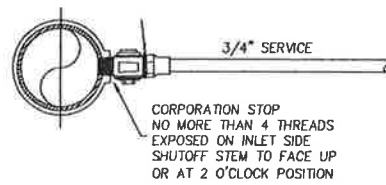


INSERT "A"

INSERT "B"



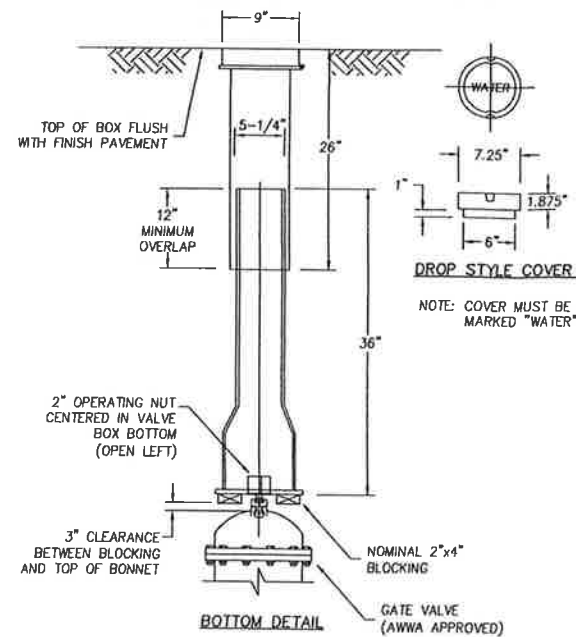
COMPLETE CURB BOX  
WOOD BLOCKING FOR CURB BOX SUPPORT



3/4" SERVICE  
CORPORATION STOP  
NO MORE THAN 4 THREADS  
EXPOSED ON INLET SIDE  
SHUTOFF STEM TO FACE UP  
OR AT 2 O'CLOCK POSITION

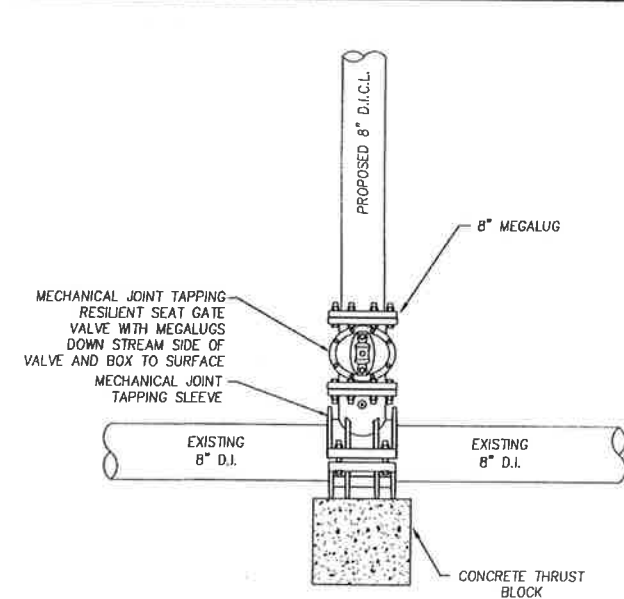
TYPICAL COPPER  
SERVICE CONNECTION

N.T.S.



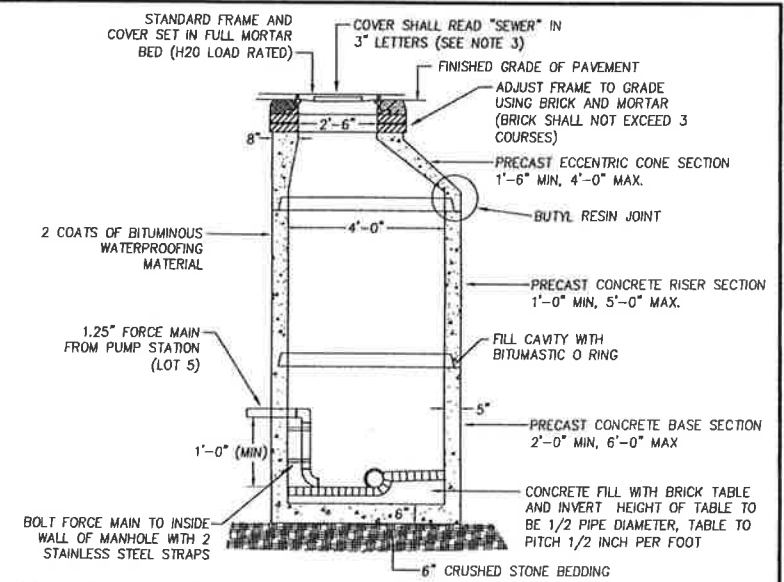
TYPICAL GATE VALVE  
BOX DETAIL

N.T.S.



PROPOSED TAPPING  
SLEEVE DETAIL

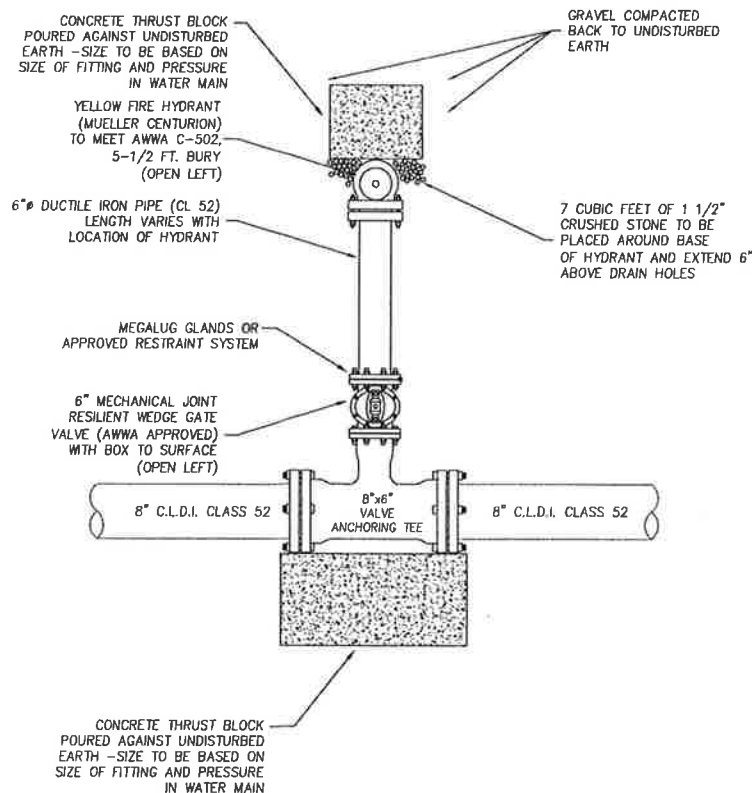
N.T.S.



- NOTES:
- 1) SEWER MANHOLES SHALL CONFORM TO ASTM C478 AND ASTM C185
  - 2) ALL MANHOLES SHALL BE TESTED FOR LEAKAGE IN ACCORDANCE WITH ENV-WQ 704.10 (X) THROUGH (OO).
  - 3) MORTAR SHALL BE COMPOSED OF PORTLAND CEMENT, HYDRATED LIME AND SAND IN THE PROPORTIONS OF 4.5 PARTS SAND, 1.0 PART CEMENT AND 0.5 PART LIME. CEMENT SHALL BE TYPE II PORTLAND CEMENT CONFORMING TO ASTM C150-05. HYDRATED LIME SHALL BE TYPE S CONFORMING TO THE ASTM C207-06 "STANDARD SPECIFICATIONS FOR HYDRATED LIME FOR MASONRY PURPOSES". SAND SHALL CONSIST OF INERT NATURAL SAND CONFORMING TO THE ASTM C33-03 "STANDARD SPECIFICATIONS FOR CONCRETE, FINE AGGREGATES".
  - 4) SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPED TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL IN ACCORDANCE WITH ENV-WQ 704.10(J).
  - 5) SEWER MANHOLE COVERS SHALL CONFORM TO ASTM A48 WITH A CASTING EQUAL TO CLASS 30 IN ACCORDANCE WITH ENV-WQ 704.10 (X).
  - 6) ALL PENETRATIONS IN THE MANHOLE FOR INSERTION OF PIPING SHALL BE SEALED WITH KOR-N-SEAL FLEXIBLE PIPE CONNECTION PER TOWN STANDARDS.

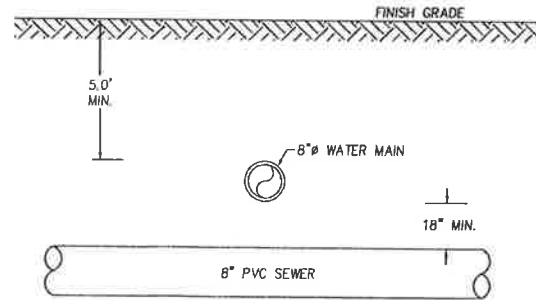
PRECAST SEWER  
MANHOLE DETAIL

N.T.S.



TYPICAL FIRE  
HYDRANT INSTALLATION

N.T.S.

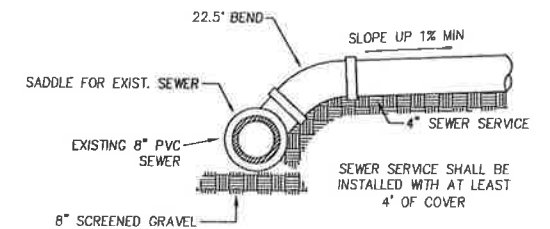


NOTES:

- 1.) ALL SEWER MAINS SHALL BE INSTALLED AT LEAST 10 FEET HORIZONTALLY FROM PROPOSED WATER MAINS. IF 10 FOOT SEPARATION IS NOT POSSIBLE, AT LEAST 18" OF VERTICAL SEPARATION IS REQUIRED.
- 2.) ALL SEWER MAINS SHALL MAINTAIN 6 FEET OF COVER OVER THE TOP OF THE PIPING, UNLESS OTHERWISE SHOWN OR APPROVED.
- 3.) ALL WATER MAINS SHALL BE INSTALLED WITH A MINIMUM OF 5 FEET OF COVER OVER THE TOP OF THE PIPE, UNLESS OTHERWISE SHOWN OR APPROVED.
- 4.) WHENEVER WATER AND SEWER SERVICE LINES MUST CROSS, THEY SHALL BE SLEEVED 4 FEET ON EACH SIDE.
- 5.) WHENEVER SEWER MAINS MUST CROSS UNDER WATER MAINS, THE SEWER SHALL BE CONSTRUCTED AT LEAST 18" BELOW THE BOTTOM OF THE WATER MAIN.

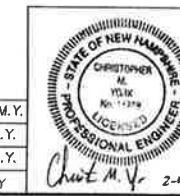
WATER/SEWER CROSSING  
DETAIL

N.T.S.



SEWER SERVICE  
DETAIL

N.T.S.



NO.	DATE	DESCRIPTION	BY
3	2/4/20	ADDRESS REVIEWER'S COMMENTS	C.M.Y.
2	11/9/19	ADDRESS TRC COMMENTS	C.M.Y.
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UTILITY DETAILS

PLAT OF LAND  
IN  
EXETER, NH

SHOWING  
A SUBDIVISION AT  
100 LINDEN STREET AND PATRICIA AVENUE

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MILLENNIUM ENGINEERING INC.  
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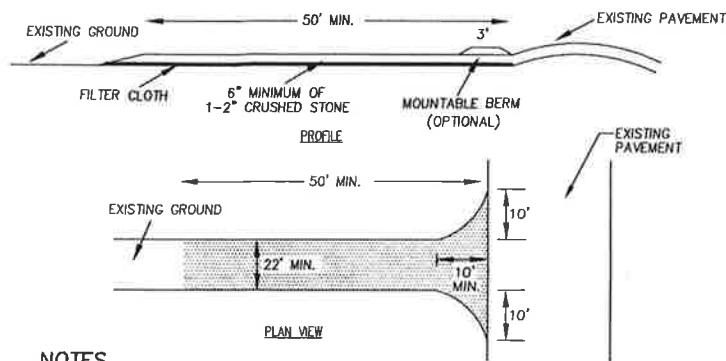
SCALE: AS NOTED  
DATE: AUG. 1, 2019

DESIG. BY: C.M.Y.  
CHKD. BY: E.W.B.

PROJECT: E182237  
SHEET: 9 OF 10



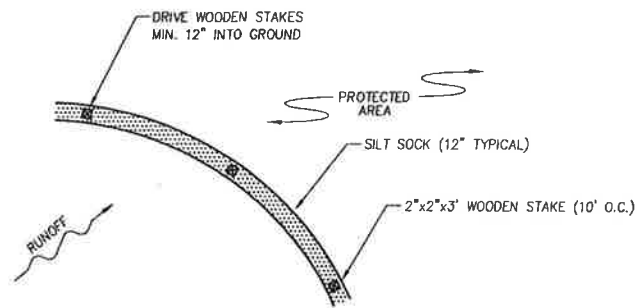




**NOTES**

- STONE SHALL BE 1-2" STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
- THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50'.
- THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6".
- GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE.
- 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 THAT CAN BE GROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP-DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED PROMPTLY.
- 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.

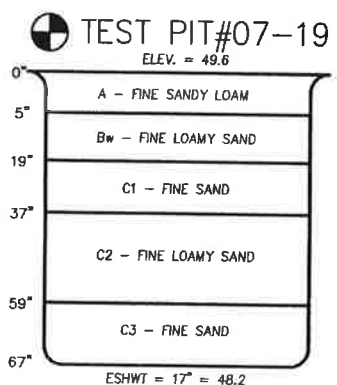
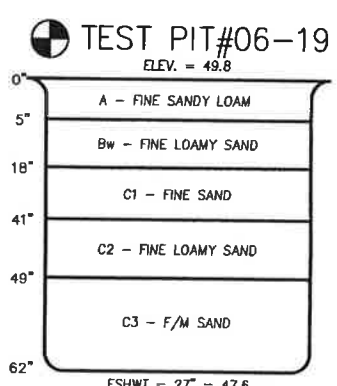
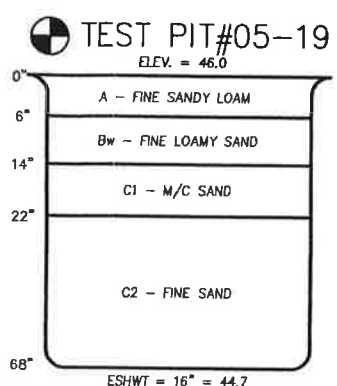
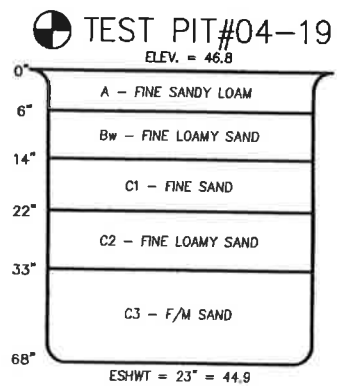
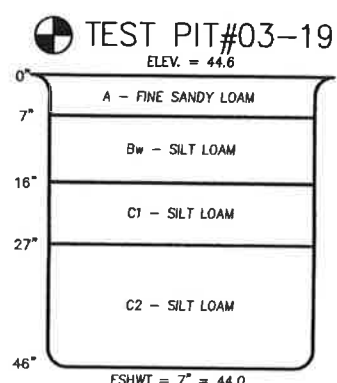
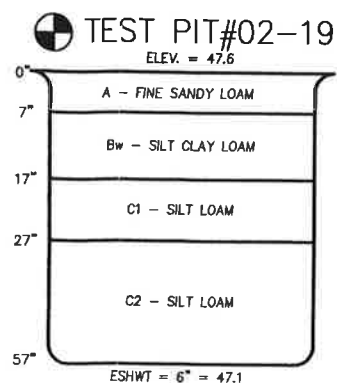
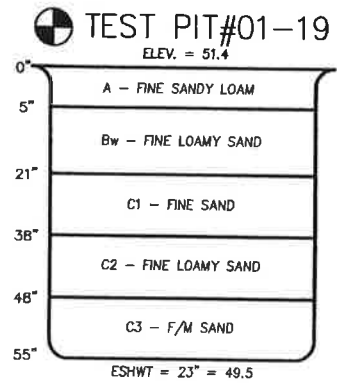
**STABILIZED CONSTRUCTION ENTRANCE** N.T.S.



**NOTES**

- ALL MATERIAL SHALL MEET SPECIFICATIONS BY FILTREXX OR APPROVED EQUAL.
- SILT SOCK SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE MADE IMMEDIATELY.
- THE CONTRACTOR SHALL REMOVE SEDIMENT AT THE BASE OF THE UPSLOPE SIDE OF THE SILT SOCK WHEN ACCUMULATION HAS REACHED 1/2 OF THE EFFECTIVE HEIGHT OF THE SILT SOCK.
- SILT SOCK SHALL BE MAINTAINED UNTIL DISTURBED AREA ABOVE THE DEVICE HAS BEEN PERMANENTLY STABILIZED AND CONSTRUCTION ACTIVITY HAS BEEN COMPLETED.
- SEDIMENT DEPOSITS THAT ARE REMOVED OR LEFT IN PLACE AFTER THE SOCK HAS BEEN REMOVED SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

**SILT SOCK INSTALLATION** N.T.S.



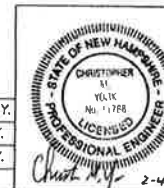
**CONSTRUCTION SEQUENCE**

- CUT TREES.
- INSTALL EROSION CONTROL AS SHOWN ON PLANS & STAKE OUT DETENTION BASIN.
- CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE AS DEPICTED.
- CLEAR AND GRUB DEBRIS AND DISPOSE OF PROPERLY.
- STRIP, SCREEN AND STOCKPILE TOPSOIL. TOPSOIL CAN BE TEMPORARILY STOCKPILED ON SITE PROVIDING THAT THE PERIMETER OF THE STOCKPILES ARE PROPERLY STAKED WITH SILT FENCE AT THE TOE OF SLOPE.
- CONSTRUCT DETENTION BASIN.
- GRADE ROADWAY TO TOP OF SUBGRADE ELEVATIONS. ALL ROADWAYS MUST BE STABILIZED IMMEDIATELY AFTER GRADING.
- INSTALL UTILITIES/DRAINAGE STRUCTURES.
- PLACE RIPRAP WHERE SHOWN ON PLANS. LOAM AND HYDROSEED SWALES, SIDESLOPES, AND ALL DISTURBED AREAS WITHIN 72 HOURS.
- SPREAD, SHAPE, AND COMPACT PAVEMENT SUBBASE AS PER TYPICAL ROADWAY SECTION TO ATTAIN FINAL DESIGN ELEVATIONS.
- COMPLETE PAVING.
- LOAM AND HYDROSEED ANY DISTURBED SURFACES ALONG EDGES OF PAVEMENT AS REQUIRED.
- CONSTRUCT INDIVIDUAL DRIVEWAYS.
- REMOVE EROSION CONTROL.

**GENERAL EROSION CONTROL NOTES**

- ALL SILT FENCE SHALL BE INSTALLED BEFORE THE START OF CONSTRUCTION. SILT FENCE SHALL BE REMOVED UPON COMPLETION OF THE PROJECT AND STABILIZATION OF ALL SOIL.
- ALL FILL SHALL BE FREE OF STUMPS AND LARGE STONES.
- ANY STANDING BODIES OF WATER CREATED DURING EXCAVATION SHALL BE ELIMINATED.
- THE PROJECT SHALL BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
- EROSION CONTROL BARRIERS SHALL BE INSPECTED WEEKLY AND AFTER EVERY 0.25" OF RAINFALL AND PROMPTLY REPAIRED OR REPLACED AS NECESSARY.
- ACCUMULATED SEDIMENT DEPOSITS UPSTREAM OF BARRIERS SHALL BE PROPERLY DISPOSED OF ON A REGULAR BASIS.
- PROVIDE SILTSACK (OR APPROVED EQUAL) SEDIMENT FILTER AT ALL CATCH BASINS.
- A MINIMUM OF 6" OF LOAM SHALL BE INSTALLED ON ALL DISTURBED UNPAVED SURFACES.
- TEMPORARY SEED MIX SHALL BE ANNUAL RYEGRASS (1 LB./1,000 S.F. OF LAND AREA) OR PERENNIAL RYEGRASS (0.7 LB./1,000 S.F. OF LAND AREA). TEMPORARY SEEDING SHOULD OCCUR BEFORE SEPT. 15TH.
- PERMANENT SEED MIX SHALL BE A MINIMUM OF 4 LBS./1,000 S.F. OF LAND AREA. SEED MIX SHALL CONSIST OF A MAXIMUM OF 10% RYE GRASS BY WEIGHT AND MINIMUM OF 90% OF PERMANENT BLUEGRASS AND/OR FESCUE GRASS BY WEIGHT.
- NO MORE THAN 5 ACRES SHALL BE DISTURBED AT ONE TIME. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
- WHERE PLACEMENT OF FILL IS REQUIRED FOR STORM WATER CONTROL, FILL SHALL BE PLACED IN AN UNFROZEN STATE UPON UNFROZEN GROUND. UNDER NO CIRCUMSTANCES SHALL FILL BE PLACED FROM NOVEMBER THROUGH JANUARY.
- DITCHES AND WATER QUALITY SWALES SHALL BE STABILIZED PRIOR TO DIRECTING FLOW TO THEM.
- DRAINAGE SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION. RUNOFF SHALL BE CONTROLLED AND CONVEYED INTO STORM SEWERS OR OTHER OUTLETS SO IT WILL NOT ERODE THE LAND OR CAUSE OFF-SITE DAMAGE.
- CRITICAL AREAS, INCLUDING EMBANKMENTS AND SLOPES, EXPOSED FOR LONGER THAN 30 DAYS SHALL BE PROTECTED DURING CONSTRUCTION WITH MULCH OR TEMPORARY CROP COVERS AND WITH MECHANICAL MEASURES SUCH AS DIVERSIONS AND PREPARED OUTLETS.
- SEDIMENT BASINS, TEMPORARY AND PERMANENT, SHALL BE CONSTRUCTED WHERE NECESSARY TO DETAIN RUNOFF AND TO TRAP SEDIMENT DURING CONSTRUCTION.
- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED: BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED; A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED; A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED; OR EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
- ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCT. 15TH, OR WHICH ARE DISTURBED AFTER OCT. 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
- ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCT. 15TH, OR WHICH ARE DISTURBED AFTER OCT. 15TH, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
- AFTER OCTOBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.
- STORMWATER PONDS, INFILTRATION BASINS, AND SWALES MUST BE INSTALLED BEFORE ROUGH GRADING THE SITE.
- DRIVEWAYS AND CUT AND FILL SLOPES MUST BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.

NO.	DATE	DESCRIPTION	BY
3	2/4/20	ADDRESS REVIEWER'S COMMENTS	C.M.Y.
2	11/9/19	ADDRESS TRC COMMENTS	C.M.Y.
1	9/10/19	UPDATE RECORD OWNER	C.M.Y.



**EROSION CONTROL DETAILS**

**PLAT OF LAND**  
IN  
**EXETER, NH**

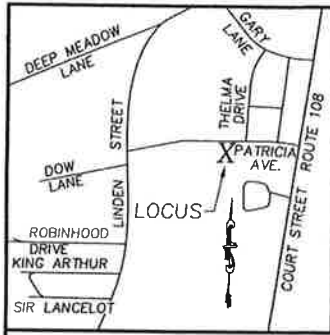
SHOWING  
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SCALE: AS NOTED	DESG. BY: C.M.Y.	PROJECT: E1B2237
DATE: AUG. 1, 2019	CHKD. BY: E.W.B.	SHEET: 10 OF 10





LOCUS MAP  
NOT TO SCALE



Site Lighting Layout  
At  
PATRICIA AVENUE

Designer  
Heidi G. Connors  
Visible Light, Inc.  
24 Stickney Terrace  
Suite 6  
Hampton, NH 03842

Date  
2/4/2020

Scale  
1"=40'

Drawing No.

Summary

### 1843LED CARSON CITY SERIES

LED

CLICK FOR P&G  
FAH

ETA  
3.75 (W)

LUMEN RANGE  
2150-12500

LIFE SPAN  
UP TO 100,000 HOURS

7 YEAR WARRANTY

JOE NAME

FUTURE TYPE

REMARK

**BUILD A PART NUMBER**

ORDERING EXAMPLE: 2A-1843LED-4ARC45T5-MDH03-CSA-PEC-FHD/4801MM/3610PFA/UIT

Quantity	Part No.	LED	CGT	Type	Color	Loss	Light Fixture	Optic	Optic Geometry	ARM	Fix	Finish
-	-	-	-	-	-	-	-	-	-	-	-	-

**Mounting Configuration**

(Click here to view mounting configuration sheet)

- RW - 2A90 - 3A5
- WF - 2A91 - 3A6
- 1A - 3A - 3A2
- LMP - 3A90 - 7AM
- 2A - 3A7 - 3A9

W-Wall Mount (H-Post Top APS - Post Top APS and Mount)  
A-Arm Mount (H-Post Top APS - Post Top APS and Mount)  
S-Surface Mount (H-Post Top APS - Post Top APS and Mount)

**Fixture**

- 1843LED - 1843LEDH - 1843LEDH

**LED**

- 1843LED - 1843LEDH - 1843LEDH

**CCT - Color Temperature (K)**

- 2700K - 3500K - 4500K

**Type**

- T2 - T3 - T4 - T5

**Driver**

- MDL03 (2700-2700, 3500K)

- MDL03 (3500-4500, 3500K)

**Lenses** (Click here to view lens options sheet)

- SW (Clear Sealed Acrylic Lens)
- SW (Clear Sealed Acrylic Lens)
- CA (Clear Sealed Acrylic)
- CA (Clear Sealed Acrylic)
- FA (Frosted Acrylic)
- FA (Frosted Acrylic)
- AA (Anodized Textured Acrylic)

**Options**

- PEC - Protected Entrance LED 277 Volt
- PEA - Protected Entrance LED 120V
- HOP - Dual Fuse and Holder - MDL03, MDL03
- HFC - Frosted Chimney

\*Not for use in the following states:

**Arm** (Click here to view arm options sheet)

See Arms & Wall Brackets specification sheet

- 478A - 62C - 379 - 1A50R - 8A
- 48C - 623B - 1A - 77A

**Pole** (Click here to view pole specification sheet)

See Pole specification sheet

**Finish** (Click here to view finish specification sheet)

Standard Finishes

- BKT Black Textured
- WHT White Textured
- PGT Park Green Textured
- ASZ Architectural Medium Bronze Textured
- DGT Dark Bronze Textured

Custom Finishes

- CM Custom Match
- GI Gold Iron
- BT Blue
- WDR Weathered Brown
- CD Cedar
- WDR Weathered Black
- TT Top Iron

Custom colors require matching

Stemberg Select Finishes

- VG Verde Green
- S Swedish Iron
- CWGT Old World Gray Textured

**Specifications**

**Fixture**

The 1843LED Carson City Series is a series of 18 1/2" wide and 40 1/2" tall. The luminaire shall be made of heavy wall cast aluminum alloy. The luminaire shall be provided with a cast aluminum mounting bracket with optimized beam aims to provide maximum life and performance for the LED light sources. The luminaire shall be UL listed in US and Canada.

**Filter - Standard**

The filter or base shall be heavy wall cast aluminum alloy for high tensile strength. The filter shall have an inside diameter opening to accept a 3" OD x 3" tall pole or riser.

**LEDs**

The luminaire shall use high output, high brightness LEDs. They shall be mounted in arrays, on printed circuit boards designed to maximize heat transfer to the heat sink surface. The arrays shall be roof mounted to maximize up-light. The LEDs and printed circuit boards shall be shielded environmentally friendly and 100% recyclable. They shall also be protected from moisture and corrosion by a conformal coating of 1 to 3 mils. They shall not contain lead, mercury or any other hazardous substances and shall be RoHS compliant. The LED life rating data shall be determined in accordance with IESNA LM-80. They shall operate in a 40°C (104°F) to -50°C (58°F) ambient air temperature range. The High Performance White LEDs will have a life expectancy of approximately 70,000 hours with a minimum CRI of 70. The luminaire shall have a minimum 100% of original brightness (lumens maintenance) rated at 25°C. The High Brightness, High Output LEDs shall be 4000K (4000K or 2700K option) color temperature with a minimum CRI of 70. The luminaire shall have a maximum 100% of original brightness (lumens maintenance) rated at 25°C. The luminaire shall be tested in accordance with IESNA LM-79.

**Optics**

The luminaire shall be provided with individual refractor type optics applied to each LED. The luminaire shall provide Type II, III, IIIA or S light distribution per the IESNA classifications. Testing shall be done in accordance with IESNA LM-79.

Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
□	A	1	Stemberg Lighting	1843LED-GARC45T5-MDL03-CSA	1843 LED CARSON CITY, 4-SIDED LANTERN, CLEAR SEEDED ACRYLIC LENS, TYPE 5, mounted at 14R	LED	1	1843LED-GARC45T5-MDL03-CSA.IES	7522	0.8	91.9

TOWN OF EXETER PLANNING BOARD

CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_





# TOWN OF EXETER

## Planning and Building Department

10 FRONT STREET • EXETER, NH • 03833-3792 • (603) 778-0591 • FAX 772-4709

[www.exeternh.gov](http://www.exeternh.gov)

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**Date:** February 6, 2020  
**To:** Planning Board  
**From:** Dave Sharples, Town Planner  
**Re:** Harbor Street Limited Partnership  
Brentwood Road and Spruce Street  
PB Case #19-18

The applicant has submitted an application for two (2) lot line adjustments and subdivision of a 4.96-acre parcel into five (5) single-family residential lots. The subject property is located off of Brentwood Road and Spruce Street, in the R-2, Single Family Residential zoning district and is identified as Tax Map Parcel #63-93.

The applicant appeared before the Planning Board at its December 19<sup>th</sup> meeting and the application was tabled to the January 9<sup>th</sup>, 2020 meeting. A site walk was held on December 27, 2019 and those minutes have been provided in a previous mailing. At the site walk, the applicant had requested to be continued until the January 23<sup>rd</sup> meeting as they would be unable to complete the drainage analysis in time for the January 9<sup>th</sup> meeting. Subsequently, the Applicant requested a continuance to the February 13<sup>th</sup> meeting in order to provide additional information requested by the abutter's engineer regarding the drainage analysis. The applicant has provided a drainage analysis and I've enclosed the narrative portion for your review.

The applicant is requesting one waiver from the Board's Site Plan Review and Subdivision Regulations for the requirement that the post development peak flow rate not exceed that of the pre-development condition. Waiver request letter, dated 2/5/20, is attached for your review.

In the event the Board decides to take action on the application, I will be prepared with suggested conditions of approval.

### **Waiver Motions:**

**Stormwater Management Standards for Post Construction waiver motion:** After reviewing the criteria for granting waivers, I move that the request of Harbor Street Limited Partnership (PB Case #19-18) for a waiver from Section 9.3.1.8. and Section 9.3.4 & 5. of the Site Plan Review and Subdivision Regulations regarding stormwater management requirements for post construction be APPROVED / APPROVED WITH THE FOLLOWING CONDITIONS / TABLED / DENIED.

**Planning Board Motions**

**Lot Line Adjustment Motion:** I move that the request of Harbor Street Limited Partnership (PB Case #19-18) for two Lot Line Adjustments approval be APPROVED / APPROVED WITH THE FOLLOWING CONDITIONS / TABLED / DENIED.

**Subdivision Motion:** I move that the request of Harbor Street Limited Partnership (PB Case #19-18) for Subdivision approval be APPROVED / APPROVED WITH THE FOLLOWING CONDITIONS / TABLED / DENIED.

Thank You.

70 Portsmouth Avenue  
3<sup>rd</sup> Floor, Unit 2  
Stratham, NH 03885  
Phone: (603)-583-4860  
Fax: (603)-583-4863

February 5, 2020

Chairman  
Town of Exeter Planning Board  
10 Front Street  
Exeter, NH 03833

**RECEIVED**

FEB 5 2020

EXETER PLANNING OFFICE

RE: Proposed Subdivision off Spruce Street & Brentwood Road  
Tax Map 0063 Lot #: 93

Dear Members of the Board:

This is written to formalize a request for waivers specific to the road design for the referenced subdivision application.

Your petitioner seeks the following relief:

1. We respectfully request a waiver to Subdivision Regulations Section 9.3.1.8 & 9.3.4 & .5 which require the post development peak flow rate not exceed that of the pre-development condition. We feel the waiver is justified as the 2-areas in question are the very small property ROW access areas into the parcel that front on Spruce Street & Brentwood Road respectively. Both areas flow into municipal drainage structures & there is physically no area to retain stormwater within near the intersections with the existing roads. Bioretention/dry swales are provided for each location for treatment, and the Brentwood Road swale is proposed with an underdrain that will convey infiltrated stormwater to the existing drain manhole just to the east of the entrance (which is not accounted for in the drainage model to yield a conservative result). The increases in peak flows are de minimis (0.82 cfs to Spruce St & 0.24 cfs to Brentwood Rd. under a 2-year storm event; 2.78 cfs to Spruce St. & 0.59 cfs to Brentwood Rd. under a 50-year storm event.), and stormwater volume increases are well below the maximum allowed 0.1 a.f. The increase to the CB at Spruce street entrance is largely due to conveyance of water away from the abutting parcel Tax Map 63, Lot 86 as requested by the abutters engineer. Finally, these minor increases do not pose an adverse impact to the existing municipal closed drainage system.

Thank you for your consideration.

Very truly yours,  
BEALS ASSOCIATES, PLLC

*Christian O. Smith*

Christian O. Smith, PE  
Principal





FEB 5 2020

**Spruce Road  
Exeter  
NH-1213**

EXETER PLANNING OFFICE

## **STORMWATER MANAGEMENT/BMP OPERATION & MAINTENANCE PLAN**

Proper construction, inspections, 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.

For the purpose of this Stormwater Management Program, a significant rainfall event is considered an event of three (3) inches in a 24-hour period or 0.5 inches in a one-hour period. During construction, inspections should be conducted every two weeks or after a 0.25" rainfall event in a 24-hour period per the Exeter SWPPP, until the entire disturbed area is fully restabilized. Upon full stabilization of the project, inspections need only be conducted after a significant rainfall event as described above or as described in the maintenance guidelines below.

During construction activities Harbor Street Limited Partnership of Stratham, NH, or its heirs and/or assigns, shall be responsible for inspections and maintenance activities. The Homeowners shall be responsible for ongoing inspection and maintenance of the common driveway and drainage treatment areas shall also be inspected and maintained by the private home owners. The owner is responsible to ensure that any subsequent owner or owners association has copies of the Log Form and Annual Report records and fully understands the responsibilities of this plan. The grantor owner will ensure this document is provided to the grantee owner by duplicating the Ownership Responsibility Sheet which is found toward the back of this document, which will be maintained with the Inspection & Maintenance Logs, provided to the Town of Exeter Inspector with upon request.

### **Documentation:**

A maintenance log will be kept (i.e. report) summarizing inspections, maintenance, and any corrective actions taken. The log will include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task (see Stormwater Construction Site Inspection Report attached). If a maintenance task requires the clean-out of any sediments or debris, the location where the sediment and debris was disposed after removal will be indicated.

### **BMP Maintenance Guidelines**

The following provides a list of recommendations and guidelines for managing the Stormwater facilities. The cited areas, facilities, and measures will be inspected and the identified deficiencies will be corrected. Clean-out must include the removal and legal disposal of any accumulated sediments and debris. The numbered drainage features

below correspond to the specific numbered drainage feature locations on the attached plan.

### **1. STABILIZED CONSTRUCTION ENTRANCE**

A temporary gravel construction entrance provides an area where mud can be dislodged from tires before the vehicle leaves the construction site to reduce the amount of mud and sediment transported onto paved municipal and state roads. The stone size for the pad should be between 1 and 2-inch coarse aggregate, and the pad itself constructed to a minimum length of 50' for the full width of the access drive. The aggregate should be placed at least six inches thick. A plan view and profile are shown on Sheet E1 - Sediment and Erosion Control Detail Plan.

#### **1a. ENVIRONMENTAL DUST CONTROL**

Dust will be controlled on the site by the use of multiple Best Management Practices. Mulching and temporary seeding will be the first line of protection to be utilized where problems occur. If dust problems are not solved by these applications, the use of water and calcium chloride can be applied. Calcium chloride will be applied at a rate that will keep the surface moist but not cause pollution.

#### **1b. TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES**

**Function** – Temporary erosion and sediment control devices are utilized during construction period to divert, store and filter stormwater from non-stabilized surfaces. These devices include, but are not limited to: silt fences, hay bales, filters, sediment traps, stone check dams, mulch and erosion control blankets.

**Maintenance** – Temporary erosion and sediment control devices shall be inspected and maintained on a weekly basis and following a significant storm event (>0.5-inch rain event) throughout the construction period to ensure that they still have integrity and are not allowing sediment to pass. Sediment build-up in swales will be removed if it is deeper than six inches. Sediment is to be removed from sumps in the catch basin semi-annually. Refer to the Site Plan drawings for the maintenance of temporary erosion and sediment control devices.

### **2. Culverts:**

Inspect existing culvert 2 times per year (preferably in spring and fall) to ensure that the culverts are working in their intended fashion and that they are free of debris. Remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit and to repair any erosion damage at the culvert's inlet and outlet.

### **3. Bioretention Swale Maintenance**

General inspection of the swale and any structural components must occur at least annually. The perimeter is mowed at least annually.

1. All structural components, which include, but are not limited to, level spreader, vegetation, pipes, orifice structures, and spillway structures, should be inspected and any deficiencies repaired. This includes a visual inspection of all storm water control structures for damage and/or accumulation of sediment.
2. All dead or dying vegetation within the extents of the basin should be removed, as well as all herbaceous vegetation rootstock when overcrowding is observed and any vegetation that has a negative impact on storm water flowage through the facility. Any invasive vegetation encroaching upon the perimeter of the facility should be pruned or removed.

#### **4. Drainage Swales/Stormwater Conveyances**

Drainage swales will be stabilized with vegetation for long term cover as outlined below, and on Sheet 6 using seed mixture C. As a general rule, velocities in the swale should not exceed 3.0 feet per second for a vegetated swale although velocities as high as 4.5 FPS are allowed under certain soil conditions.

##### **Maintenance**

- Inspect annually for erosion, sediment accumulation, vegetation loss and presence of invasive species.
- Perform periodic mowing; frequency depends on location and type of grass. Do not cut shorter than Water Quality Flow depth (maximum 4 inches)
- Remove debris and accumulated sediment, based on inspection.
- Repair eroded areas, remove invasive species and dead vegetation, and reseed With applicable grass mix as warranted by inspection.

#### **5. Stone Drip Edges**

General inspection of the area must occur at least twice annually and following any rainfall event exceeding 2.5 inches in a 24 period.

1. If infiltration does not drain within a 72 hours following a rain event, then a qualified professional should assess the condition of the facility to determine measures required to restore the infiltration function, including but not limited to removal of the accumulated sediments of reconstruction of the drip edge trench.

#### **6. Vegetated Areas:**

Inspect slopes and embankments early in the growing season to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows. The facilities will be inspected after major storms and any identified deficiencies will be corrected.

#### **7. Invasive Species:**

In the event that invasive species are noticed growing in any of the stormwater management practices, the invasive vegetation shall be removed completely to include root matter and disposed of properly. Prior to disposal, the vegetation shall be placed on and completely cover with a plastic tarp for a period of two – three weeks until plants are completely dead. If necessary or to expedite the process, spray only the invasive

vegetation and roots with a systemic nonselective herbicide after placement on the tarp (to prevent chemical migration) and then cover as described above.

**Annual Report:**

Description: The owner is responsible to keep an **I & M** Activity Log that documents inspection, maintenance and repairs to the storm water management system. The original owner is responsible to ensure that any subsequent owner(s) have copies of the Stormwater System Operation and Maintenance Plan & Inspection and Maintenance Manual, copies of past logs and check lists. This includes any owner association for potential condominium conversion of the property. The Annual Report will be prepared and submitted to the Exeter DPW upon request.

## STORMWATER CONSTRUCTION SITE INSPECTION REPORT

### Inspection & Maintenance Manual Checklist

**Spruce Street  
Exeter, NH**

<b>BMP / System</b>	<b>Minimum Inspection Frequency</b>	<b>Minimum Inspection Requirements</b>	<b>Maintenance / Cleanout Threshold</b>
Pavement Sweeping	Twice Per Year	N/A	N/A
Litter/Trash Removal	Routinely	Inspect swale areas.	Site will be free of litter/trash.
Deicing Agents	N/A	N/A	Use salt as the primary agent for roadway safety during winter.
Drainage Pipes	1 time per 2 years	Check for sediment accumulation & clogging.	Less than 2" sediment depth
Drip Edge / Infiltration Trench	2 times per year	Check for system drainage drawdown within 72 hours.	Greater than 72 hours drain time requires professional assessment
Bioretention Swale system	Twice Annually After every 2.5" or rain or greater.	72-Hour drawdown time evaluation and vegetation evaluation.	Remove dead & diseased vegetation along with all debris; take corrective measures of filtration

			media if required.
Annual Report	1 time per year	Submit Annual Report to Town of Exeter Inspector upon request	

Inspection Notes:



Bioretention Swale Design Assessment Checklist				
<b>Bioretention location:</b>				
<b>Hydraulics</b>		Minor Flood: (m <sup>3</sup> /s)	Major Flood: (m <sup>3</sup> /s)	
<b>Area</b>		Catchment Area (ha):	Bioretention Area (ha)	
<b>Treatment</b>			<b>Y</b>	<b>N</b>
Treatment performance verified from curves?				
<b>Inlet zone/hydraulics</b>			<b>Y</b>	<b>N</b>
Station selected for IFD appropriate for location?				
Longitudinal slope of invert > 1% and < 4%?				
Mannings 'n' selected appropriate for proposed vegetation type?				
Overall flow conveyance system sufficient for design flood event?				
Maximum flood conveyance width does not impact on traffic amenity?				
Overflow pits provided where flow capacity exceeded?				
Inlet flows appropriately distributed?				
Energy dissipation provided at inlet?				
Velocities within bioretention cells will not cause scour?				
Set down of at least 50mm below kerb invert incorporated?				
<b>Collection System</b>			<b>Y</b>	<b>N</b>
Slotted pipe capacity > infiltration capacity of filter media?				
Transition layer/geofabric barrier provided to prevent clogging of drainage layer?				
<b>Cells</b>			<b>Y</b>	<b>N</b>
Maximum ponding depth and velocity will not impact on public safety ( $v \times d < 0.4$ )?				
Selected filter media hydraulic conductivity > 10x hydraulic conductivity of surrounding soil?				
Maintenance access provided to invert of conveyance channel?				
Protection from gross pollutants provided (for larger systems)?				
<b>Vegetation</b>			<b>Y</b>	<b>N</b>
Plant species selected can tolerate periodic inundation and design velocities?				
Plant species selected integrate with surrounding landscape design?				
Detailed soil specification included in design?				

#### 4.4.2 Construction advice

This section provides general advice for the construction of bioretention basins. It is based on observations from construction projects around Australia.

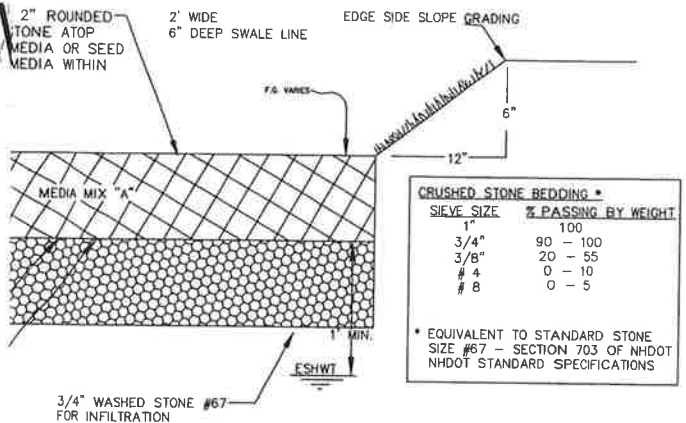


PREPARED FOR:

HARBOR STREET LIMITED  
PARTNERSHIP  
7B EMERY LANE  
STRATHAM N.H. 03885

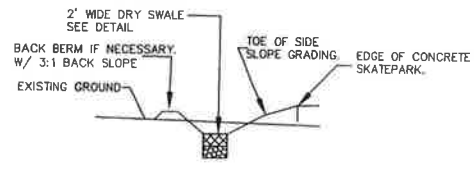
**BEALS ASSOCIATES PLLC**

70 PORTSMOUTH AVE, STRATHAM, N.H. 03885  
PHONE: 603-583-4860, FAX: 603-583-4863



FILTER MEDIA MIXTURES			
Component Material	Percent of Mixture by Volume	Gradation of material	
		Sieve No.	Percent by Weight Passing Standard Sieve
Filter Media Option A			
ASTM C-33 concrete sand	50 to 55		
Loomy 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

SWALE TO SCALE



CROSS SECTION NOTES

1. ALL FILL TO BRING SWALE BOTTOM TO SUBGRADE SHALL BE INSTALLED IN NO GREATER THAN 24" LIFTS
2. ALL FILL SHALL BE LOOSELY COMPACTED.
3. UNDERDRAIN IS NOT REQUIRED AS PART OF THE PLAN. IF THE CONTRACTOR FINDS EXCESSIVE GROUNDWATER THE DESIGN ENGINEER IS TO BE NOTIFIED.
4. SUBGRADE - CONTRACTOR SHALL REMOVE FILL MATERIAL & PROVIDE GRANULAR BACKFILL UNDER SWALE WASHED STONE LAYER. SCARIFY SUBGRADE PRIOR TO PLACEMENT OF STONE LAYER. ALL STONES GREATER THAN 6" IN DIAMETER SHALL BE REMOVED FROM THE SCARIFIED LAYER. ANY IMPORTED FILL SHALL BE FREE OF ORGANICS AND FROST AND SHALL HAVE NO ROCKS LARGER THAN 6" IN DIAMETER. FILL MATERIAL SHALL BE APPROVED BY THE DESIGN ENGINEER.

TYPICAL DRY SWALE CROSS-SECTION NOT TO SCALE

KEY TO SOIL TYPES

HIGH INTENSITY SOIL SURVEYS UTILIZE A FIVE-PART CLASSIFICATION TO IDENTIFY SOIL TYPES. SYMBOLS A-E READ FROM LEFT TO RIGHT IN THE CLASSIFICATION.

- SYMBOL A : DRAINAGE CLASS
- 1- EXCESSIVELY DRAINED
  - 2- WELL DRAINED
  - 3- MODERATELY WELL DRAINED
  - 4- SOMEWHAT POORLY DRAINED
  - 5- POORLY DRAINED
  - 6- VERY POORLY DRAINED

- SYMBOL B: PARENT MATERIAL
- 1- GLACIOFLUVIAL DEPOSITS (OUTWASH/TERRACES)
  - 2- GLACIAL TILL
  - 3- VERY FINE SAND AND SILT DEPOSITS
  - 4- LOAMY/SANDY OVER SILT/CLAY DEPOSITS
  - 5- SILT AND CLAY DEPOSITS
  - 6- EXCAVATED, REGRADED, OR FILLED
  - 7- ALLUVIAL DEPOSITS
  - 8- ORGANIC MATERIALS - FRESHWATER
  - 9- ORGANIC MATERIALS - TIDAL MARSH

- SYMBOL C: RESTRICTIVE FEATURES
- 1- NONE
  - 2- BOULDERY
  - 3- MINERAL RESTRICTIVE LAYER WITHIN 40 INCHES OF SOIL SURFACE
  - 4- BEDROCK PRESENT WITHIN 20 INCHES OF SOIL SURFACE
  - 5- SUBJECT TO FLOODING (FLOODPLAIN)
  - 6- DOES NOT MEET FILL STANDARDS (SEE PUBLICATION)
  - 7- BEDROCK PRESENT 20-40 INCHES BELOW SOIL SURFACE
  - 8- BEDROCK DEPTH VARIABLE (GENERALLY WITHIN 40 INCHES OF SOIL SURFACE)

- SYMBOL D: SLOPE CLASS
- B- 0% TO 8%
  - C- 8% TO 15%
  - D- 15% TO 25%
  - E- 15% TO 25%
  - F- 35%+



- SYMBOL E: HIGH INTENSITY SOIL MAP IDENTIFIER
- H- MAP MEETS HIGH INTENSITY SOIL MAPPING STANDARDS
  - P- MAP IS FOR PRELIMINARY PLANNING ONLY AND DOES NOT MEET STANDARDS

THIS SOIL MAP WAS PREPARED BY A PROFESSIONAL SOIL SCIENTIST AND MEETS THE TECHNICAL STANDARDS OF THE SSSNNE PUBLICATION NO. 1, HIGH INTENSITY SOIL MAPS FOR NH, DECEMBER 2017. SOILS WERE IDENTIFIED USING THE KEY TO SOIL TYPES.

SOIL MAPPING WAS PERFORMED BY JAMES GOVE, CSS # 004 IN AUGUST, 2019.

REVISED PER ENGINEER REVIEW	1-4-20
REVISIONS:	DATE:

BMP LOCATION PLAN

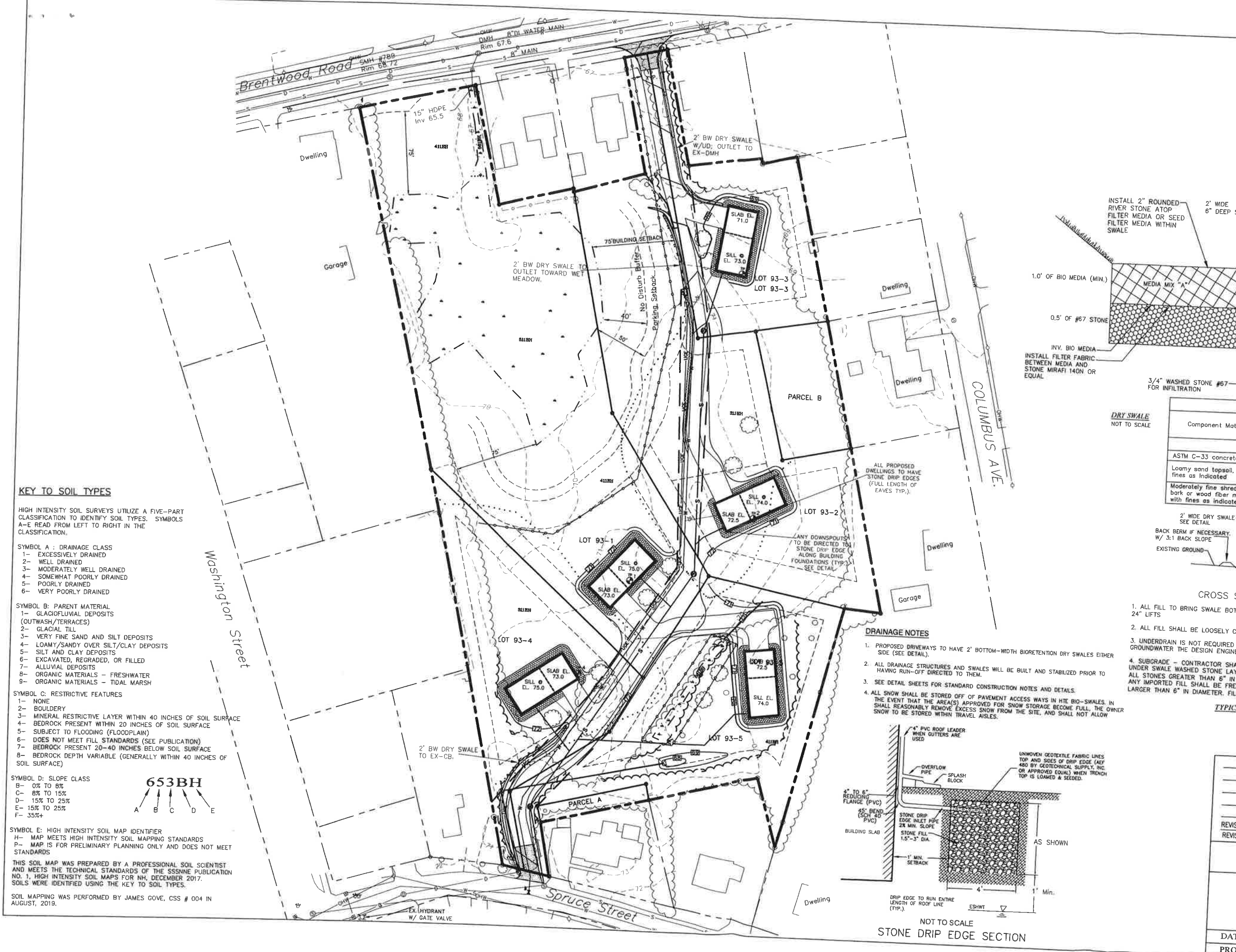
PLAN FOR:  
RESIDENTIAL DEVELOPMENT  
BRENTWOOD ROAD  
EXETER, NH

DATE:	NOV., 2019	SCALE:	1"=80'
PROJ. NO:	NH-1213	SHEET NO.	1 OF 1



PREPARED FOR:  
**HARBOR STREET LIMITED PARTNERSHIP**  
 7B EMERY LANE  
 STRATHAM N.H. 03885

**BEALS ASSOCIATES PLLC**  
 70 PORTSMOUTH AVE, STRATHAM, N.H. 03885  
 PHONE: 603-583-4860, FAX: 603-583-4863



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 6- VERY POORLY DRAINED

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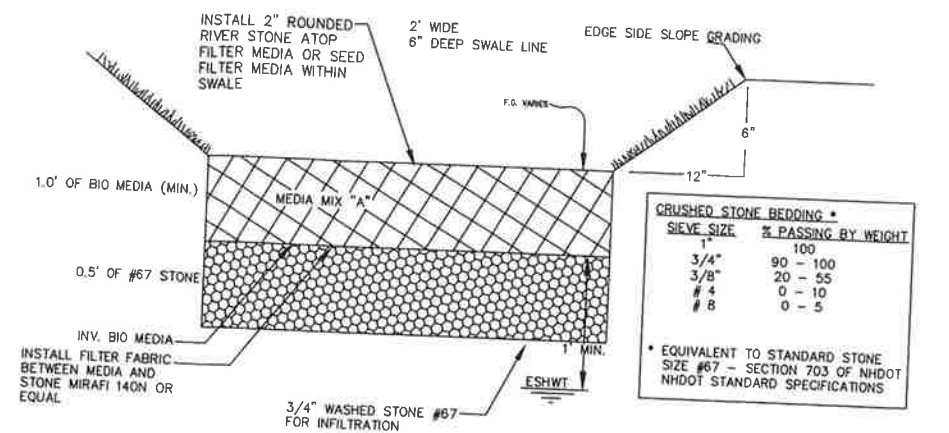
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 E- 15% TO 25%  
 F- 35%+

**SYMBOL E: HIGH INTENSITY SOIL MAP IDENTIFIER**  
 H- MAP MEETS HIGH INTENSITY SOIL MAPPING STANDARDS  
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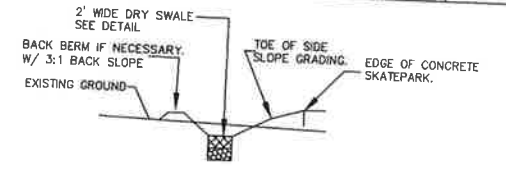
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SOIL MAPPING WAS PERFORMED BY JAMES GOVE, CSS # 004 IN AUGUST, 2019.



Component Material	Percent of Mixture by Volume	Gradation of material	
		Sieve No.	Percent by Weight Passing Standard Sieve
Filter Media Option A			
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

**DRY SWALE**  
 NOT TO SCALE



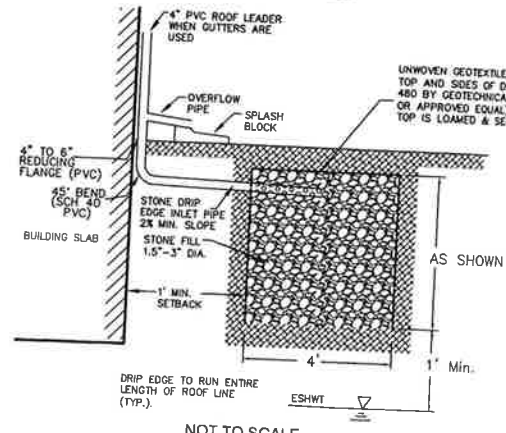
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**TYPICAL DRY SWALE CROSS-SECTION**  
 NOT TO SCALE

**DRAINAGE NOTES**

1. PROPOSED DRIVEWAYS TO HAVE 2' BOTTOM-WIDTH BIORETENTION DRY SWALES EITHER SIDE (SEE DETAIL).
2. ALL DRAINAGE STRUCTURES AND SWALES WILL BE BUILT AND STABILIZED PRIOR TO HAVING RUN-OFF DIRECTED TO THEM.
3. SEE DETAIL SHEETS FOR STANDARD CONSTRUCTION NOTES AND DETAILS.
4. ALL SNOW SHALL BE STORED OFF OF PAVEMENT ACCESS WAYS IN HTE BIO-SWALES. IN THE EVENT THAT THE AREA(S) APPROVED FOR SNOW STORAGE BECOME FULL, THE OWNER SHALL REASONABLY REMOVE EXCESS SNOW FROM THE SITE, AND SHALL NOT ALLOW SNOW TO BE STORED WITHIN TRAVEL AISLES.



**STONE DRIP EDGE SECTION**  
 NOT TO SCALE

REVISIONS:		DATE:
REVISOR:		DATE:
<b>BMP LOCATION PLAN</b>		
PLAN FOR: RESIDENTIAL DEVELOPMENT BRENTWOOD ROAD EXETER, NH		
DATE:	NOV., 2019	SCALE: 1"=80'
PROJ. NO.:	NH-1213	SHEET NO. 1 OF 1



**DRAINAGE ANALYSIS  
&  
SEDIMENT AND EROSION  
CONTROL PLAN**

Prepared for:  
**JOSEPH FALZONE  
FRONTAGE SUBDIVISION**

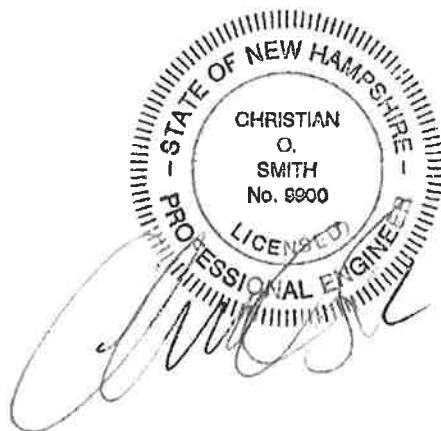
Prepared by:

**BEALS ASSOCIATES, *PLLC*  
70 PORTSMOUTH AVE.  
STRATHAM, NH 03885**

Project Number:  
NH-1213

Spruce St. & Brentwood Rd.  
Exeter, New Hampshire

**January 17, 2020  
Revised 2-4-2020**



## DESIGN METHOD OBJECTIVES

Mr. Falzone proposes a 5-lot frontage subdivision off Brentwood Rd. & Spruce St. on approximately 4.96-acres of land located off of Tamarind Lane & Cullen Way in Exeter, NH. The existing property is located on a parcel (Tax Map 63, Lot 93 consisting of woods, an upland field and a wet meadow. The proposal (as stated above) includes a 5-lot subdivision accessed by 2 common drives off both Brentwood Rd. & Spruce St.. The development will include: underground gas, electric, telephone & cable; municipal sewer and water; and Low Impact Development/BMP storm water management and treatment. Proper erosion controls will be proposed where construction could result in sediment transport for the development. A drainage analysis of the proposed development was conducted for the purpose of estimating the peak rate of stormwater run-off and to subsequently design adequate drainage structures. Two models were compiled, one for the area in its existing (pre-construction) condition, and a second for its proposed (post-construction) condition. The analysis was conducted using data for the 2, 10 and 50 Yr – 24 Hr storm events based on the Cornell University Extreme Precipitation tables, using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment. As Exeter is within the designated “coastal region” by NHDES, all 24-Hr rainfall data was increased by 15% as required. The purpose of this analysis is to estimate the peak rates of run-off from the site for swale adequacy purposes, and to compare the peak rate of run-off between the existing and proposed conditions.

### ANALYSIS COMPONENT PEAK RATE of DISCHARGE (CFS)

	2 YR		10 YR		50 YR	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
Reach #100	0.25	1.07	0.62	2.23	1.26	4.04
Reach #200	1.19	0.74	2.95	1.85	6.11	4.32
Reach #300	2.04	1.92	4.83	4.65	9.74	9.55
Reach #400	0.18	0.04	0.58	0.20	1.37	0.61
Reach #500	0.06	0.30	0.21	0.60	0.51	1.10

#### Channel protection requirements:

Under the 2-year frequency storm event the stormwater volumes are slightly reduced or not increased by more than 0.1 af as shown below.

Analysis Point	2-YR Stormwater Volume	
	Existing	Proposed
Reach 100	0.026 af	0.094 af
Reach 200	0.167 af	0.108 af
Reach 300	0.234 af	0.223 af
Reach 300	0.017 af	0.005 af
Reach 300	0.007 af	0.023 af

The existing property is located on a parcel consisting of woods, an upland field and a wet meadow. The existing topography is such that the site analysis is divided into five subcatchments. Reach 300 flows into an existing culvert that ties into the municipal closed drainage system on Brentwood Road, Reach 500 flows directly to the curb gutter on Brentwood Rd. and into a catch basin just NE of the curb cut, Reach 4 flows off site to the NE, Reach 200 flows offsite to the east & Reach 100 flows to an existing CB on Spruce St..

The proposed 5-lot development includes 2-common driveways one intersects Brentwood Rd. and the other intersects Spruce St.. These drives provide the required access for the residential lots. The proposed layout will divide the parcel into nine different subcatchments. The peak rate of run-off from the proposed development is slightly decreased from that of the existing conditions aside from the subcatchments to both Spruce St. and Brentwood rd. which have minor increases. It should be noted that no credit was taken in the model for the infiltration which will occur from the flow in the bioretention swales to both of those locations. In addition, there is a significant decrease to Reach 400 which also flows to Brentwood Road. The dry-swale to Brentwood Road is proposed with an underdrain tying into an existing drainage manhole just east of the curb cut. The addition of dry swales (bioretention swales) provide treatment for the run off. Each home is equipped with 4' or 6' wide stone drip edges that function as infiltration trenches and infiltrate stormwater back to the groundwater matrix. In addition, the potential for increased erosion and sedimentation will be handled by silt fence or erosion control berm perimeter protection. A culvert system and drain manhole has added to lot 5 to alleviate cited existing drainage issues with the abutting neighbor (Tax Map 63, Lot 86). This is the primary reason for the increase to the existing catch basin on Spruce Street. The use of Best Management Practices per the NH Stormwater Manual have been applied to the design of these structures and will be observed during all stages of construction. All land disturbed during construction of individual lots will be permanently stabilized within 60-75 days of groundbreaking, and the existing wetlands and abutters will suffer no adverse impact resulting from this development.

## Table of Contents

### Design Method Objectives

1.0	Rainfall Characteristics	Page 1
2.0	Existing Conditions Analysis	Page 1
3.0	Proposed Subdivision Analysis	Pages 1-2
4.0	Sediment & Erosion Control, BMP's	Pages 2-5
5.0	Conclusion	Page 6

### Appendix I - Existing Conditions Analysis

Summary 2 YR - 24 HR rainfall = 3.69"  
Complete 10 YR - 24 HR rainfall = 5.62"  
Summary 50 YR - 24 HR rainfall = 8.60"

### Sheet W-1 Existing Conditions Watershed Plan

### Appendix II - Proposed Conditions Analysis

Summary 2 YR - 24 HR rainfall = 3.69"  
Complete 10 YR - 24 HR rainfall = 5.62"  
Summary 50 YR - 24 HR rainfall = 8.60"

### Sheet W-2 Proposed Conditions Watershed Plan

### Appendix III - Charts, Graphs, and Calculations



1.0 RAINFALL CHARACTERISTICS

A drainage analysis of the proposed development was conducted for the purpose of estimating the peak rate of stormwater run-off and to subsequently design adequate drainage structures. Two models were compiled, one for the area in its existing (pre-construction) condition, and a second for its proposed (post-construction) condition. The analysis was conducted using data for the 2, 10 and 50 Yr – 24 Hr storm events based on the Cornell University Extreme Precipitation tables, using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment. As Exeter is within the designated “coastal region” by NHDES, all 24-Hr rainfall data was increased by 15% as required. Infiltration rates were taken from Ksat values published by SSSNNE and divided by 2 per NHDES AoT requirement. The infiltration rate for the somewhat poorly drained Deerfield soil is modeled at 1/3 that of the HSG “B” soil series of the same name. this was confirmed as appropriate by the soil scientist. The purpose of this analysis is to estimate the peak rates of run-off from the site for swale adequacy purposes, and to compare the peak rate of run-off between the existing and proposed conditions. Tc paths that resulted in <6-minutes have been directly entered at 6-minutes to depict a more realistic result.

ANALYSIS COMPONENT PEAK RATE of DISCHARGE (CFS)

	2 YR		10 YR		50 YR	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
Reach #100	0.25	1.07	0.62	2.23	1.26	4.04
Reach #200	1.19	0.74	2.95	1.85	6.11	4.32
Reach #300	2.04	1.92	4.83	4.65	9.74	9.55
Reach #400	0.18	0.04	0.58	0.20	1.37	0.61
Reach #500	0.06	0.30	0.21	0.60	0.51	1.10

Channel protection requirements:

Under the 2-year frequency storm event the stormwater volumes are slightly reduced or not increased by more than 0.1 af as shown below.

Analysis Point	2-YR Stormwater Volume	
	Existing	Proposed
Reach 100	0.026 af	0.094 af
Reach 200	0.167 af	0.108 af
Reach 300	0.234 af	0.223 af
Reach 300	0.017 af	0.005 af
Reach 300	0.007 af	0.023 af

2.0 EXISTING CONDITIONS

Reference: Sheet W-1, Existing Conditions Watershed Plan (Enclosed)  
 Existing Conditions Plans

The existing property is located on a parcel consisting of woods, an upland field and a wet meadow. The existing topography is such that the site analysis is divided into five subcatchments. Reach 300 flows into an existing culvert that ties into the municipal closed drainage system on Brentwood Road, Reach 500 flows directly to the curb gutter on Brentwood Rd. and into a catch basin just NE of the curb cut, Reach 4 flows off site to the NE, Reach 200 flows offsite to the east & Reach 100 flows to an existing CB on Spruce St..

Classified by HISS Mapping & SSS mapping, the land within the drainage analysis is composed of slopes ranging from 0% to 8%, and soils categorized into the Hydrologic Soil Groups (HSG) B & C.

### 3.0 PROPOSED CONDITIONS

Reference: W-Sheets Proposed Conditions Watershed Plan (Enclosed)  
C Sheets Proposed Conditions Plans

The addition of the impervious area from the paved roadway, and the 5 proposed dwellings cause an increase in the curve number (Cn) and a decrease in the time of concentration (Tc), the net result being a potential increase in peak rates of run-off from the site. The proposed facility divides the site into nine different post-construction subcatchments. The run-off is directed to the wetlands through HydroCAD "reaches" and "ponds". These consist of dry swales and stone drip edges for roof eaves.

The proposed 5-lot development includes 2-common driveways one intersects Brentwood Rd. and the other intersects Spruce St.. These drives provide the required access for the residential lots. The proposed layout will divide the parcel into nine different subcatchments. The peak rate of run-off from the proposed development is slightly decreased from that of the existing conditions aside from the subcatchments to both Spruce St. and Brentwood rd. which have very minor increases. It should be noted that no credit was taken in the model for the infiltration which will occur from the flow in the bioretention swales to both of those locations. In addition, there is a significant decrease to Reach 400 which also flows to Brentwood Road. The dry-swale to Brentwood Road is proposed with an underdrain tying into an existing drainage manhole just east of the curb cut. The addition of dry swales (bioretention swales) provide treatment for the run off. Each home is equipped with 4' or 6' wide stone drip edges that function as infiltration trenches and infiltrate stormwater back to the groundwater matrix. In addition, the potential for increased erosion and sedimentation will be handled by silt fence or erosion control berm perimeter protection. The use of Best Management Practices per the NH Stormwater Manual have been applied to the design of these structures and will be observed during all stages of construction. All land disturbed during construction of individual lots will be permanently stabilized within 60-75 days of groundbreaking, and the existing wetlands and abutters will suffer no adverse impact resulting from this development.

During construction, appropriate BMP's will be applied so as to negate the potential for sediment-laden run-off to discharge into wetlands prior to the final stabilization of the proposed grading. The structures outlined in this proposal provide for adequate treatment of stormwater run-off and for sediment control. The dry swales provide similar pollutant removals as bioretention ponds (based on the NH Stormwater Manual 90% removal of total suspended solids, 65% removal of total nitrogen & 65% removal of total phosphorous).

Finally, the parcel is not located within the FEMA 100-YR flood plain.

#### 4.0 SEDIMENT & EROSION CONTROL PLANS BEST MANAGEMENT PRACTICES (BMP's)

Reference: C Sheets Proposed Conditions Plan  
E Sheet Erosion & Sediment Control Details

The proposed site development is protected from erosion and the roadways and abutting properties are protected from sediment by the use of Best Management Practices as outlined in the NH Stormwater Manual. Any area disturbed by construction will be permanently re-stabilized within 60 days and abutting properties and wetlands will not be adversely affected by this development. All swales and drainage structures will be constructed and stabilized prior to having run-off directed to them.

#### 4.1 Silt Fence / Construction Fence

The plan set demonstrates the location of silt fence for sediment control. In areas where the limits of construction need to be emphasized to operators, construction fence for added visibility will be installed. Sheet E-1, Erosion and Sediment Control Details, has the specifications for installation and maintenance of the silt fence. Orange construction fence will be VISI Perimeter Fence by Conwed Plastic Fencing, or equal. The four-foot fencing to be installed using six-foot posts at least two feet in the ground with spacing of six to eight feet.

#### 4.2 Drainage Swales / Stormwater Conveyance Channels

Drainage swales will be stabilized with vegetation for long term cover as outlined below, and on Sheet E-1 using seed mixture C. As a general rule, velocities in the swale should not exceed 3.0 feet per second for a vegetated swale although velocities as high as 4.5 FPS are allowed under certain soil conditions.

#### 4.3 Vegetated Stabilization

All areas that are disturbed during construction will be stabilized with vegetated material within 30 days of breaking ground. Construction will be managed in such a manner that erosion is prevented and that no abutter's property will be subjected to any siltation, unless otherwise permitted. All areas to be planted with grass for long-term cover will follow the specification and on Sheet E-1 using seeding mixture C, as follows:

Mixture	Pounds per Acre	Pounds per 1,000 Sq. Ft.
Tall Fescue	20	0.45
<u>Creeping Red Fescue</u>	<u>28</u>	<u>0.65</u>
Total	48	1.10

#### 4.4 Stabilized Construction Entrance

A temporary gravel construction entrance provides an area where mud can be dislodged from tires before the vehicle leaves the construction site to reduce the amount of mud and sediment transported onto paved municipal and state roads. The stone size for the pad should be between 1 and 2-inch coarse aggregate, and the pad itself constructed to a minimum length of 50' for the full width of the access road. The aggregate should be placed at least six inches thick. A plan view and profile are shown on Sheet E1 - Sediment and Erosion Control Detail Plan.

#### 4.5 Level Spreaders

As mentioned above, the proposed site plan includes level spreaders above the filter strip. Level spreaders must be more than six feet in width per the "Best Management Practices for Urban Stormwater Runoff." Level spreaders enable any run-off directed towards them to be spread evenly into sheet flow prior to discharge into wetlands or treatment by a filter strip, thus allowing for better filter strip efficiency and a lesser potential for erosion.

#### 4.6 Filter Strips

Filter strips are areas of land with natural or planted vegetation designed to receive sheet run-off from upgradient development. These natural areas, preferably wooded, are effective in removing sediment and sediment-laden pollutants from such run-off, although their effectiveness is severely diminished when forced to deal with concentrated flow and must therefore be equipped with a level-spreading device. Filter strips should not have a slope exceeding fifteen percent and have a minimum length of seventy-five feet.

#### 4.7 Environmental Dust Control

Dust will be controlled on the site by the use of multiple Best Management Practices. Mulching and temporary seeding will be the first line of protection to be utilized where problems occur. If dust problems are not solved by these applications, the use of water and calcium chloride can be applied. Calcium chloride will be applied at a rate that will keep the surface moist but not cause pollution.

#### 4.8 Construction Sequence

1. Construct and/or install temporary and permanent sediment erosion and detention control facilities (silt fence, vegetated swales, level spreaders, and constructed filter strips), as required. Erosion, sediment and facilities shall be installed and stabilized prior to any earth moving operation, and prior to directing run-off to them.
2. Clear, cut, grub, and dispose of debris in approved facilities.

3. Excavate and stockpile topsoil / loam. All disturbed areas shall be stabilized immediately after grading.
4. Construct the roadway and its associated drainage structures.
5. Begin permanent and temporary seeding and mulching. All cut and fill slopes and disturbed areas shall be seeded and mulched as required, or directed.
6. Daily, or as required, construct temporary berms, drainage ditches, sediment traps, etc. to prevent erosion on the site and prevent any siltation of abutting waters or property.
7. Inspect and maintain all erosion and sediment control measures during construction every two weeks and after every storm event with 0.5" or more rain.
9. Complete permanent seeding and landscaping.
9. Remove temporary erosion control measures after seeding areas have established themselves and site improvements are complete. Smooth and re-vegetate all disturbed areas.
10. All swales and drainage structures will be constructed and stabilized prior to having run-off being directed to them.
11. Finish graveling all roadways/parking.

#### 4.9 Temporary Erosion Control Measures

1. The smallest practical area of land shall be exposed at any one time.
2. Erosion, sediment control measures shall be installed as shown on the plans and at locations as required, or directed by the engineer.
3. All disturbed areas shall be returned to original grades and elevations. Disturbed areas shall be loamed with a minimum of 4" of loam and seeded with not less than 1.10 pound of seed per 1,000 square feet (48 pounds per acre) of area.
4. Silt fences and other barriers shall be inspected periodically and after every rainstorm during the life of the project. All damaged areas shall be repaired; sediment deposits shall periodically be removed and properly disposed of.
5. After all disturbed areas have been stabilized, the temporary erosion control measures are to be removed and the area disturbed by the removal smoothed and revegetated.

6. Areas must be seeded and mulched within 5 days of final grading, permanently stabilized within 15 days of final grading, or temporarily stabilized within 30 days of initial disturbance of soil.

#### 4.11 Inspection and Maintenance Schedule

Fencing will be inspected during and after storm events to ensure that the fence still has integrity and is not allowing sediment to pass. Sediment build-up in ponds and CB's. shall be removed if it is deeper than six inches.

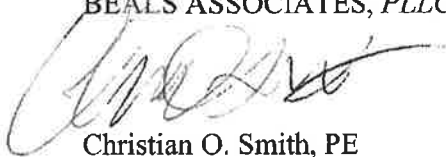
#### 5.0 CONCLUSION

This proposed development off Spruce Street and Brentwood Road in Exeter, NH will have no adverse effect on the abutting property owners by way of storm water run-off or siltation. The post-construction peak rate of run-off for the site has been decreased from that of the existing conditions or flow to the municipal system. Driveway run-off will receive treatment by either constructed or natural methods. Appropriate steps will be taken to eliminate erosion and sedimentation; these will be accomplished through the construction of a drainage system consisting of dry swales and stone drip edges. The Best Management Practices developed by the State of New Hampshire have been utilized in the design of this system and these applications will be enforced throughout the construction process.

A Site Specific, Terrain Alteration Permit (RSA 485: A-17) is not required for this project due to the area of disturbance being less than 100,000 square feet.

Respectfully Submitted,

BEALS ASSOCIATES, *PLLC.*



Christian O. Smith, PE  
Principal

# PROPOSED SUBDIVISION & LLA PLAN BRENTWOOD ROAD/SPRUCE STREET TAX MAP 63, LOTS 93, 88 & 81

NOT FOR CONSTRUCTION

RECEIVED

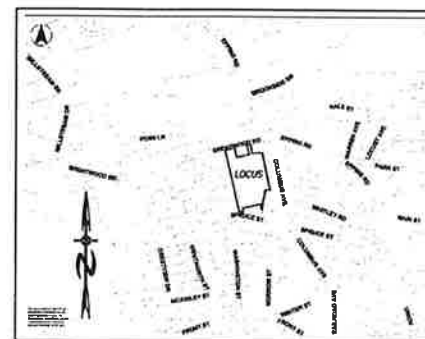
FEB 5 2020

EXETER PLANNING OFFICE

CIVIL ENGINEERS:



LOCATION MAP



INDEX

TITLE SHEET

- 1 EXISTING CONDITIONS PLAN
- 2 SUBDIVISION PLAN
- 3 SUBDIVISION SITE PLAN
- 4 UTILITY & DRAINAGE PLAN
- 5 CONSTRUCTION DETAILS SHEET
- 6 EROSION CONTROL DETAILS

LAND SURVEYORS:

DAVID W. VINCENT, LLS  
LAND SURVEYING SERVICES  
PO BOX 1622  
DOVER, NH 03821  
TEL/FAX (603) 664-5786

RECORD OWNER

ESTELLA & KENNETH ELLISON  
REV LIVING TRUST  
3240 HAWKINS RIDGE ROAD  
GOODE, VA 24556

APPLICANT:

HARBOR STREET LIMITED  
PARTNERSHIP  
7B EMERY LANE  
STRATHAM N.H. 03885

WETLAND / SOIL  
CONSULTANT:

GOVE ENVIRONMENTAL SERVICES INC.  
8 CONTINENTAL DRIVE,  
BLDG 2 UNIT H  
EXETER, NH 03833  
1-603-778-0644

PLAN SET LEGEND

1/2" REBAR EXISTING	○	OVERHEAD ELEC. LINE	— — — — —
1/2" REBAR PROPOSED	●	FENCING	— — — — —
DRILL HOLE	○	DRAINAGE LINE	— — — — —
CONC. BOUND	□	SEWER LINE	— — — — —
UTILITY POLE	○	GAS LINE	— — — — —
DRAIN MANHOLE	○	WATER LINE	— — — — —
SEWER MANHOLE	○	STONE WALL	— — — — —
EXISTING LIGHT POLE	○	TREE LINE	— — — — —
EXISTING CATCH BASIN	○	ABUT. PROPERTY LINES	— — — — —
PROPOSED CATCH BASIN	○	EXIST. PROPERTY LINES	— — — — —
WATER GATE	○	BUILDING SETBACK LINES	— — — — —
WATER SHUT OFF	○	EXIST. CONTOUR	— — — — —
HYDRANT	○	PROP. CONTOUR	— — — — —
PINES, ETC.	○	SOIL LINES	— — — — —
MAPLES, ETC.	○		
EXIST. SPOT GRADE	○		
PROP. SPOT GRADE	○		
DOUBLE POST SIGN	○		
SINGLE POST SIGN	○		

REQUIRED STATE AND FEDERAL PERMITS  
NHDES SEWER EXTENSION

	REVISIONS:	DATE:
1	REVISED PER TRC REVIEW	1-4-20
2	REVISED PER ENGINEER REVIEW	12-4-19
3		
4		
5		

PB CASE #19-18  
CHAIRMAN SIGNATURE:

NH-1213 PROPOSED SUBDIVISION PLAN ISSUED NOVEMBER, 2019





**Legend:**

- L1 See Length Table
- RCRD Rockingham County Registry of Deeds
- Iron Pipe Found
- Drill Hole Found
- ⊙ Iron Rod to be Set
- ⊕ Utility Pole
- Building Setback
- Wetlands Buffer
- Wetland Boundary
- Approx. Drain Pipes
- Approx. Sewer Main
- Approx. Water Main

**Abutters:**

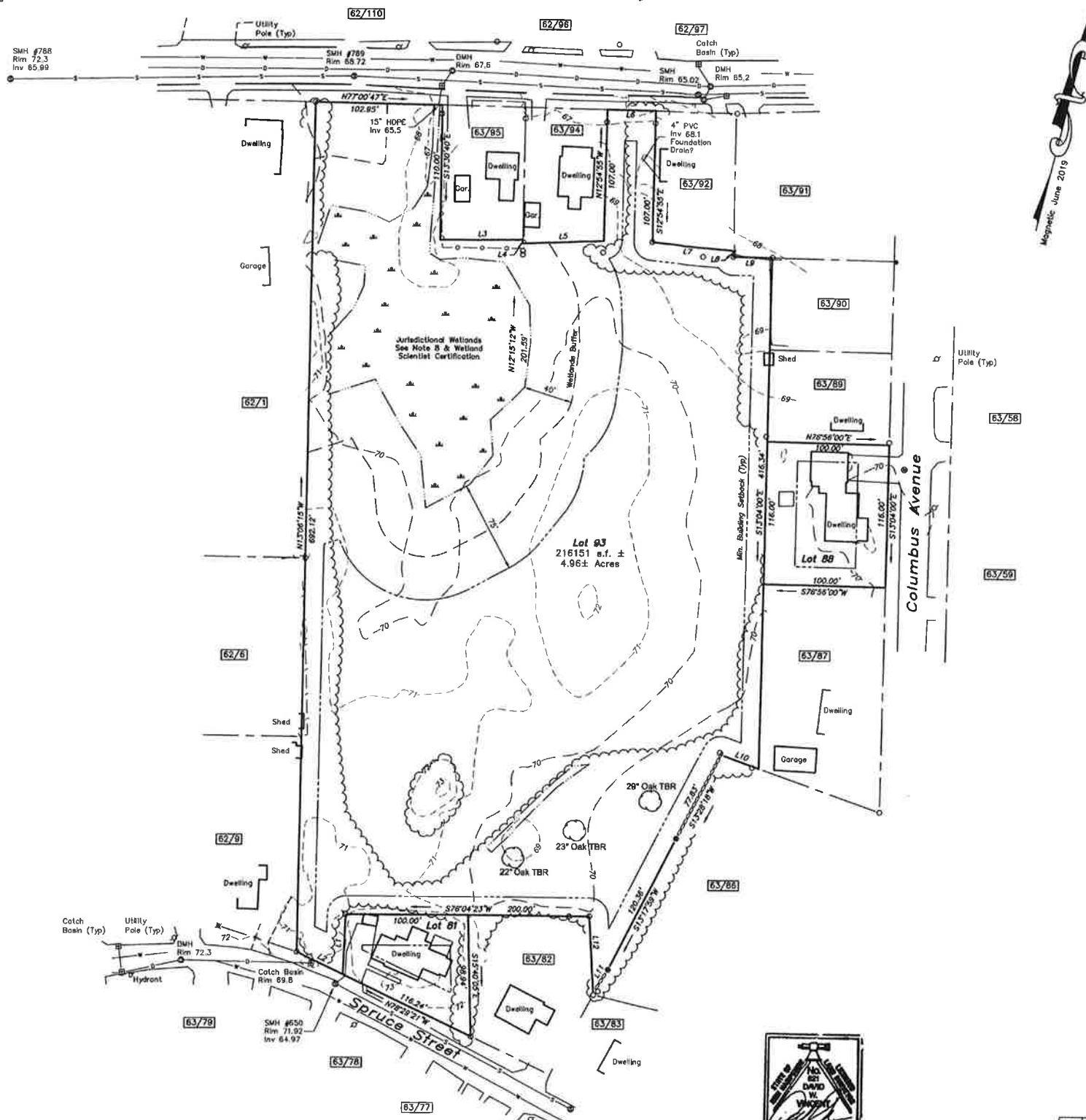
- |   |   |   |
|---|---|---|
| 062-001<br>PATRICK & SONIA<br>ROBICHEAU<br>12 BRENTWOOD RD.<br>EXETER, NH 03833     | 63-078<br>MEREDITH THIBODEAU<br>22 SPRUCE ST.<br>EXETER, NH 03833                       | 063-090<br>JENNIFER HAGGETT<br>88 COLUMBUS AVE.<br>EXETER, NH 03833                           |
| 062-006<br>DAVID MAKOS<br>88 WASHINGTON ST.<br>EXETER, NH 03833                     | 63-079<br>JERREY HOLT<br>87 OAK HILL RD.<br>CONCORD, NH 03301                           | 063-091<br>FRANK SHERIDAN<br>2 BRENTWOOD RD.<br>EXETER, NH 03833                              |
| 062-009<br>BRUCE WHITE<br>126 LINDEN ST.<br>EXETER, NH 03833                        | 063-082<br>DAVID & NICOLE<br>HASKELL<br>21 SPRUCE ST.<br>EXETER, NH 03833               | 063-092<br>JAMES &<br>ALEXANDRA ALLEN<br>2A BRENTWOOD RD.<br>EXETER, NH 03833                 |
| 062-111<br>PATRICIA WASHBURN<br>REVOCABLE TRUST<br>PO BOX 38<br>MIDDLETON, NH 03887 | 063-083<br>PEDRO PEREZ-ANDREU<br>& ELLEN GLASSNER<br>20 MAIN ST.<br>EXETER, NH 03833    | 063-094<br>KATIE MARIE<br>LAMONTAGNE<br>4 BRENTWOOD RD.<br>EXETER, NH 03833                   |
| 063-058<br>KO & EM WHITE<br>REVOCABLE TRUST<br>83 COLUMBUS AVE.<br>EXETER, NH 03833 | 63-086<br>HUMMEL DIXIE<br>LIVINGSTON TRUST 1997<br>54 COLUMBUS AVE.<br>EXETER, NH 03833 | 063-095<br>LISA A. REYNOLDS<br>2015 REVOCABLE<br>TRUST<br>8 BRENTWOOD RD.<br>EXETER, NH 03833 |
| 063-059<br>GREGORY W. HENRY<br>81 MAIN ST.<br>EXETER, NH 03833                      | 063-087<br>ELIZABETH CANADA<br>& AMALI COHAN<br>58 COLUMBUS AVE.<br>EXETER, NH 03833    | 063-096<br>MARY & JOOY<br>UNDERWOOD<br>3A BRENTWOOD RD.<br>EXETER, NH 03833                   |
| 063-077<br>DEBRA ANN<br>VASCONCELOS<br>22 SPRUCE ST.<br>EXETER, NH 03833            | 063-089<br>ANDREA PUDDU &<br>SHEENA SIMPSON<br>86 COLUMBUS AVE.<br>EXETER, NH 03833     | 063-097<br>IOIA FAMILY<br>REVOCABLE TRUST<br>3 BRENTWOOD RD.<br>EXETER, NH 03833              |

**Length Table:**

LINE	BEARING	DISTANCE
L1	N111°37'52"W	49.00'
L2	N78°22'21"W	42.52'
L3	N75°19'51"E	68.00'
L4	S17°14'24"E	1.00'
L5	N73°52'21"E	66.00'
L6	N77°02'42"E	40.00'
L7	N81°28'20"E	66.50'
L8	S72°51'53"E	4.91'
L9	N72°49'00"E	13.18'
L10	N84°46'23"W	33.28'
L11	S15°19'51"W	23.35'
L12	N17°20'22"W	64.00'

- ZONING REQUIREMENTS**
- |                   |                  |
|-------------------|------------------|
| ZONE              | RESIDENTIAL (R2) |
| MIN. LOT AREA     | 15,000 SF.       |
| MIN. LOT FRONTAGE | 100 FT.          |
| MIN. LOT WIDTH    | 100 FT.          |
| MIN. LOT DEPTH    | 100 FT.          |
- BUILDING SETBACKS:**
- |                        |        |
|------------------------|--------|
| FRONT YARD             | 25 FT. |
| SIDE YARD              | 15 FT. |
| REAR YARD              | 25 FT. |
| MAX. BUILDING COVERAGE | 25%    |
- WETLAND SETBACKS/BUFFER:**
- |                       |        |
|-----------------------|--------|
| STRUCTURES            | 25 FT. |
| PAVEMENT & DRIVEWAYS  | 50 FT. |
| BUFFER/NO-DISTURBANCE | 40 FT. |

**Brentwood Road (NH ROUTE 111A)**



**Notes:**

- The purpose of this plan is to depict the existing conditions of the subject tracts.
- Field Procedure: Topcon (DM-105) Electronic Total Station Instrument & Carlson Surveyor Plus Data Collector, Adjusted Closed Traverse Performed June/October 2019, Least Squares Balance.
- Error of Closure Better Than 1:15,000.
- Parcels are shown as Lots 81, 88 & 93 on the Exeter Assessor's Map 63.
- Parcel is located in the Residential Zoning District R2.
- This plan does not show any unrecorded or unwritten assessments which may exist. A reasonable and diligent attempt has been made to observe any apparent, visible uses of the land; however this does not constitute that no such assessments exist.
- Parcels are not located in a Flood Hazard Zone A as depicted on Flood Insurance Rate Map, No. 33015C0402E, Rockingham County, NH, (All Jurisdictions), Effective Date: May 17, 2005.
- The wetland area shown hereon was field delineated by Dove Environmental Services, Inc., of 8 Continental Drive, Building #2, Unit H, Exeter, NH, see wetland scientist certification.
- The location of all underground utilities shown are approximate and are based upon above ground visual observations during the field survey and the locations of underground utilities and information provided by the municipality. The surveyor/engineer does not warrant nor guarantee the location, type or depth of all utilities depicted or not depicted. The contractor or design engineer, prior to the commencement of any construction, shall verify the location of all utilities and contact ENGSAFE at 1-888-344-7233 or old 811.
- Existing Lot 93 Area: 216,151 S.F. or 4.96 Acres  
Existing Lot 81 Area: 7,563 S.F. or 0.17 Acres  
Existing Lot 88 Area: 11,600 S.F. or 0.27 Acres
- Vertical Datum Town of Exeter sewer manholes.

**WETLAND SCIENTIST CERTIFICATION**

- US Army Corps of Engineers Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northeast and North-Central Region, Technical Report ERDC/EL TR-09-16 (Oct 2009).
- Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils, Version 7.0, United States Department of Agriculture (2010).
- North American Digital Flora: National Wetland Plant List, Version 2.2.1 (2009).
- Classification of Wetlands and Deepwater Habitats of the United States, USFWS Manual FWS/065-79/31 (1979).

**EXISTING CONDITIONS PLAN  
PREPARED FOR  
JONATHAN A. & ALYSA B. FRANCK,  
CHRISTINE E. FRANK and  
ESTELLA B. ELLISON REVOCABLE LIVING  
LIVING TRUST & KENNETH R. ELLISON  
REVOCABLE LIVING TRUST  
SHOWN AS  
TAX MAP 63/ LOTS 81, 88 & 93  
LOCATED AT  
SPRUCE STREET, COLUMBUS AVENUE &  
BRENTWOOD ROAD (NH ROUTE 111A)  
COUNTY OF ROCKINGHAM  
EXETER, NH**

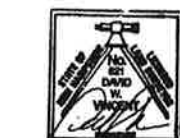
**OWNERS OF RECORD:**

- Map 93 Lot 81  
Jonathan A. & Alysa B. Franck  
23 Spruce Street  
Exeter, NH 03833
- Map 93 Lot 88  
Christine E. Frank  
64 Columbus Avenue  
Exeter, NH 03833
- Map 83 Lot 93  
Estella B. Ellison Revocable Living Trust  
Kenneth R. Ellison Revocable Living Trust  
3240 Hawkins Ridge Road  
Goode, VA 24558  
RCRD Bk 4589, Pg 957



SCALE: 1" = 50' DATE: NOVEMBER 11, 2019

**DAVID W. VINCENT, LLS**  
**LAND SURVEYING SERVICES**  
PO BOX 1622  
DOVER, NH 03821  
TEL/FAX (603) 664-5786  
www.landsurveyingservices.net



David W. Vincent, LLS No. 821

11/11/2019

Date

NO.	DATE	DESCRIPTION	BY
4			
3			
2			
1			



**Legend:**

- L1 See Length Table
- RCRD Rockingham County Registry of Deeds
- Iron Pipe Found
- Drill Hole Found
- ⊙ Iron Rod to be Set
- ⊕ Utility Pole
- Building Setback
- Wetlands Buffer
- Wetland Boundary
- Driveway Easement

**Length Table: Lot Table:**

LINE	BEARING	DISTANCE	Lot Description	Sq. Feet	Acres	Frontage
L1	N11°37'32"W	42.00'	LOT 93-1	75,796	1.74	102.95'
L2	N13°53'00"W	15.00'	LOT 93-2	51,172	1.17	20.00'
L3	S13°53'10"E	15.00'	LOT 93-3	20,255	0.46	20.00'
L4	S77°46'35"W	62.63'	LOT 93-4	26,117	0.60	20.07'
L5	S89°06'23"E	65.70'	LOT 93-5	33,790	0.78	22.45'
L6	N77°00'47"E	30.00'	NEW LOT 81	9,063	0.21	116.24'
L7	N81°28'20"E	66.50'	NEW LOT 88	19,122	0.44	116.00'
L8	S17°51'53"E	4.91'				
L9	N76°58'00"E	32.18'				
L10	N78°29'21"W	20.00'				
L11	S30°25'13"W	57.27'				
L12	S13°03'01"E	71.89'				
L13	N78°29'21"W	22.45'				
L14	S12°19'51"W	23.52'				
L15	N17°20'22"W	64.00'				
L16	N77°00'47"E	30.00'				
L17	N89°06'23"E	65.70'				
L18	N64°46'23"W	33.28'				
L19	N73°32'21"E	66.00'				
L20	N75°19'51"E	68.00'				
L21	S13°14'24"E	3.00'				

**Driveway Easement Table:**

LINE	BEARING	DISTANCE
D1	S77°12'25"W	3.46'
D2	N77°54'03"W	22.63'
D3	N36°43'11"W	33.39'
D4	S09°53'37"E	154.47'
D5	S89°06'23"E	11.87'
D6	N13°06'15"W	57.26'
D7	N39°50'28"E	174.33'
D8	S48°10'50"E	26.11'
D9	N41°32'54"E	91.86'

**Abutters:**

- 062-001 PATRICK & SONIA RORICHAU 12 BRENTWOOD RD. EXETER, NH 03833
- 062-006 DAVID MAKOS 88 WASHINGTON ST. EXETER, NH 03833
- 062-009 BRUCE WHITE 128 LINDEN ST. EXETER, NH 03833
- 062-111 PATRICIA WASHBURN REVOCABLE TRUST PO BOX 38 MIDDLETON, NH 03887
- 063-056 KC & EM WHITE REVOCABLE TRUST 83 COLUMBUS AVE. EXETER, NH 03833
- 063-059 GREGORY W. HENRY 81 MAIN ST. EXETER, NH 03833
- 063-077 DEBRA ANN VASCONCELLOS 22 SPRUCE ST. EXETER, NH 03833
- 063-078 MEREDITH THIBODEAU 22 SPRUCE ST. EXETER, NH 03833
- 063-079 JEFFREY HOLT 87 OAK HILL RD. CONCORD, NH 03301
- 063-082 DAVID & NICOLE HASKELL 21 SPRUCE ST. EXETER, NH 03833
- 063-083 PEDRO PEREZ-ANDREU & ELLIEN GLASSNER 20 MAIN ST. EXETER, NH 03833
- 063-086 HUMMEL DIXE LIVINGSTON TRUST 1997 54 COLUMBUS AVE. EXETER, NH 03833
- 063-087 ELIZABETH CANADA & AMALI CORAN 98 COLUMBUS AVE. EXETER, NH 03833
- 063-089 ANDREA PUDDU & SHEENA SIMPSON REVOCABLE TRUST 3 BRENTWOOD RD. EXETER, NH 03833
- 063-090 JENNIFER HAGGETT 88 COLUMBUS AVE. EXETER, NH 03833
- 063-081 FRANK SHERIDAN 2 BRENTWOOD RD. EXETER, NH 03833
- 063-092 JAMES & ALEXANDRA ALLEN 2A BRENTWOOD RD. EXETER, NH 03833
- 063-094 KATIE MARIE LAMONTAGNE 4 BRENTWOOD RD. EXETER, NH 03833
- 063-095 LISA A. REYNOLDS 2015 REVOCABLE TRUST 8 BRENTWOOD RD. EXETER, NH 03833
- 063-098 MARY & JOEY UNDERWOOD 3A BRENTWOOD RD. EXETER, NH 03833
- 063-097 BOA FAMILY REVOCABLE TRUST 3 BRENTWOOD RD. EXETER, NH 03833



**APPROVED**  
APPROVED BY THE TOWN OF EXETER PLANNING BOARD

DATE \_\_\_\_\_

CHAIRMAN: \_\_\_\_\_

**ZONING REQUIREMENTS**

ZONE	RESIDENTIAL (R2)
MIN. LOT AREA	15,000 SF.
MIN. LOT FRONTAGE	100 FT.
MIN. LOT WIDTH	100 FT.
MIN. LOT DEPTH	100 FT.

**BUILDING SETBACKS:**

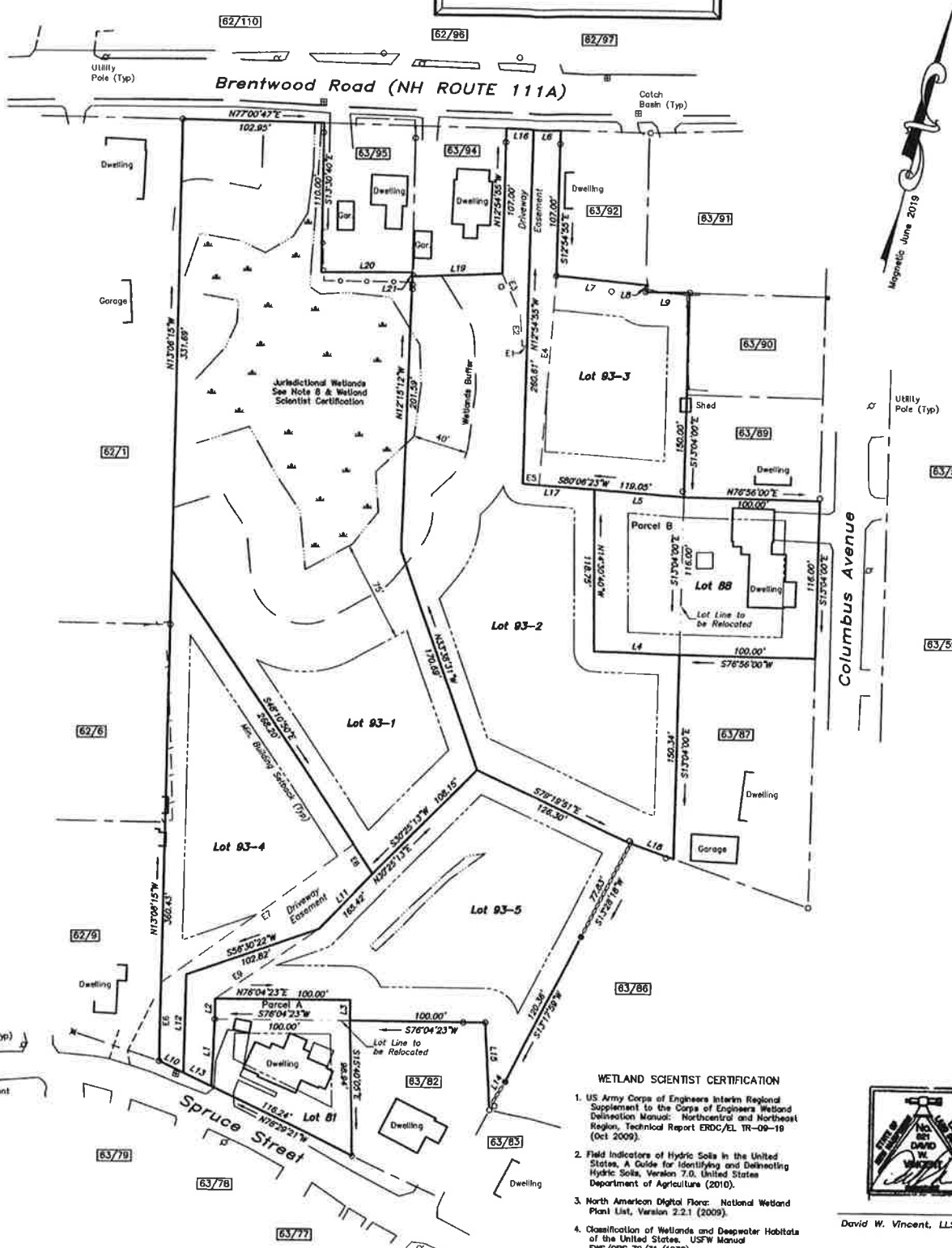
FRONT YARD	25 FT.
SIDE YARD	15 FT.
REAR YARD	25 FT.
MAX. BUILDING COVERAGE	25%

**WETLAND SETBACKS/BUFFER:**

STRUCTURES	75 FT.
PAVEMENT & DRIVEWAYS	50 FT.
BUFFER/NO-DISTURBANCE	40 FT.

The subdivision regulations of the Town of Exeter, New Hampshire, are part of this plan and approval of this plan is contingent upon compliance of said requirements of said subdivision regulations, excepting only any waivers/variances or modifications made in writing by the board and attached hereto.

DWG NAME: 021aub FB: 56/47-54



**Plan References:**

- "Plot of Land for LHM Realty Trust, Exeter, NH," dated May 2000, prepared by Parker Survey Assoc., Inc., RCRD Plan No. D-28069.
- "Plot of Land for Kenneth R. & Estella B. Ellison, Exeter, NH," dated May 2000, prepared by Parker Survey Assoc., Inc., not recorded.



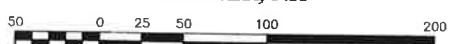
**Notes:**

- The purpose of this plan is to subdivide the subject parcel into five residential lots, each lot is to be served by municipal water & sewer services and to relocate the common boundary between the parcel 63 Lot 93 and Map 63 Lots 81 & 88.
- Field Procedure: Topcon (GM-100) Electronic Total Station Instrument & Carlson Surveyor Plus Data Collector, Adjusted Closed Traverse Performed June/October 2019, Least Squares Balance.
- Error of Closure Better Than 1:15,000.
- Parcels are shown as Lots 81, 88 & 93 on the Exeter Assessor's Map 63.
- Parcel is located in the Residential Zoning District R2.
- This plan does not show any unrecorded or unwritten easements which may exist. A reasonable and diligent attempt has been made to observe any apparent, visible uses of the land; however this does not constitute that no such easements exist.
- Parcels are not located in a Flood Hazard Zone A as depicted on Flood Insurance Rate Map, No. 33015C0402E, Rockingham County, NH, (All Jurisdictions), Effective Date: May 17, 2005.
- The wetland area shown hereon was field delineated by Gove Environmental Services, Inc., of 8 Continental Drive, Building #2, Unit H, Exeter, NH, see wetland scientist certification.
- The location of all underground utilities shown are approximates and are based upon above ground visual observations during the field survey and the locations of underground utilities. The surveyor/engineer does not warrant or guarantee the location, type or depth of all utilities depicted or not depicted. The contractor or design engineer, prior to the commencement of any construction, shall verify the location of all utilities and contact ONECALL at 1-888-344-7233 or dial 811.
- On October 15, 2019 the Town of Exeter Zoning Board of Adjustment granted a variance from Article 4.3 Schedule B: Density and Dimensional Regulations to permit the proposed subdivision of Map 63 Lot 63 into five (5) single family residential lots.
- Existing Lot 93 Area: 216,151 S.F. or 4.95 Acres  
Existing Lot 81 Area: 7,563 S.F. or 0.17 Acres  
Proposed Lot 81 Area: 9,063 S.F. or 0.21 Acres  
Existing Lot 88 Area: 11,600 S.F. or 0.27 Acres  
Proposed Lot 88 Area: 19,122 S.F. or 0.44 Acres
- Parcel A is not to be considered separate tract of land and is to be merged from Lot 93 to Lot 81. Parcel B is not to be considered separate tract of land and is to be merged from Lot 93 to Lot 88.

**OWNERS OF RECORD**

- Map 63 Lot 81 Jonathan A. & Alysa B. Franck 23 Spruce Street Exeter, NH 03833
- Map 63 Lot 88 Christine E. Frank 84 Columbus Avenue Exeter, NH 03833
- Map 63 Lot 93 Estella B. Ellison Revocable Living Trust Kenneth R. Ellison Revocable Living Trust 3240 Hawkins Ridge Road Goode, VA 24558 RCRD Bk 4569, Pg 827

**LOT LINE ADJUSTMENT & SUBDIVISION PLAN**  
PREPARED FOR  
**JONATHAN A. & ALYSA B. FRANCK, CHRISTINE E. FRANK and ESTELLA B. ELLISON REVOCABLE LIVING TRUST & KENNETH R. ELLISON REVOCABLE LIVING TRUST**  
SHOWN AS  
**TAX MAP 63 / LOTS 81, 88 & 93**  
LOCATED AT  
**SPRUCE STREET, COLUMBUS AVENUE & BRENTWOOD ROAD (NH ROUTE 111A)**  
COUNTY OF ROCKINGHAM  
EXETER, NH



11/11/2019 SCALE: 1" = 50' DATE: NOVEMBER 11, 2019

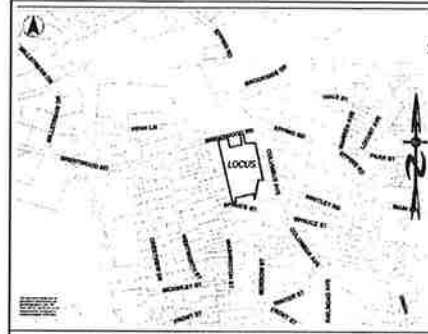
**DAVID W. VINCENT, LLS**  
**LAND SURVEYING SERVICES**  
PO BOX 1622  
DOVER, NH 03821  
TEL/FAX (603) 664-5786  
www.landsurveyingservices.net



David W. Vincent, LLS No. 821 Date

NO.	DATE	DESCRIPTION	BY
1			
2			
3			
4			





LOCATION MAP



UNDERGROUND FACILITIES, UTILITIES,  
1-888-DIG-SAFE (1-888-344-7233),  
AND EXETER DPW (603) 773-6157

KEY TO SOIL TYPES

HIGH INTENSITY SOIL SURVEYS UTILIZE A FIVE-PART CLASSIFICATION TO IDENTIFY SOIL TYPES. SYMBOLS A-E READ FROM LEFT TO RIGHT IN THE CLASSIFICATION.

SYMBOL A : DRAINAGE CLASS

- 1- EXCESSIVELY DRAINED
- 2- WELL DRAINED
- 3- MODERATELY WELL DRAINED
- 4- SOMEWHAT POORLY DRAINED
- 5- POORLY DRAINED
- 6- VERY POORLY DRAINED

SYMBOL B: PARENT MATERIAL

- 1- GLACIOFLUVIAL DEPOSITS (OUTWASH/TERRACES)
- 2- GLACIAL TILL
- 3- VERY FINE SAND AND SILT DEPOSITS
- 4- LOAMY/SANDY OVER SILT/CLAY DEPOSITS
- 5- SILT AND CLAY DEPOSITS
- 6- EXCAVATED, REGRADED, OR FILLED
- 7- ALLUVIAL DEPOSITS
- 8- ORGANIC MATERIALS - FRESHWATER
- 9- ORGANIC MATERIALS - TIDAL MARSH

SYMBOL C: RESTRICTIVE FEATURES

- 1- NONE
- 2- BOULDER
- 3- MINERAL RESTRICTIVE LAYER WITHIN 40 INCHES OF SOIL SURFACE
- 4- BEDROCK PRESENT WITHIN 20 INCHES OF SOIL SURFACE
- 5- SUBJECT TO FLOODING (FLOODPLAIN)
- 6- DOES NOT MEET FILL STANDARDS (SEE PUBLICATION)
- 7- BEDROCK PRESENT 20-40 INCHES BELOW SOIL SURFACE
- 8- BEDROCK DEPTH VARIABLE (GENERALLY WITHIN 40 INCHES OF SOIL SURFACE)

SYMBOL D: SLOPE CLASS

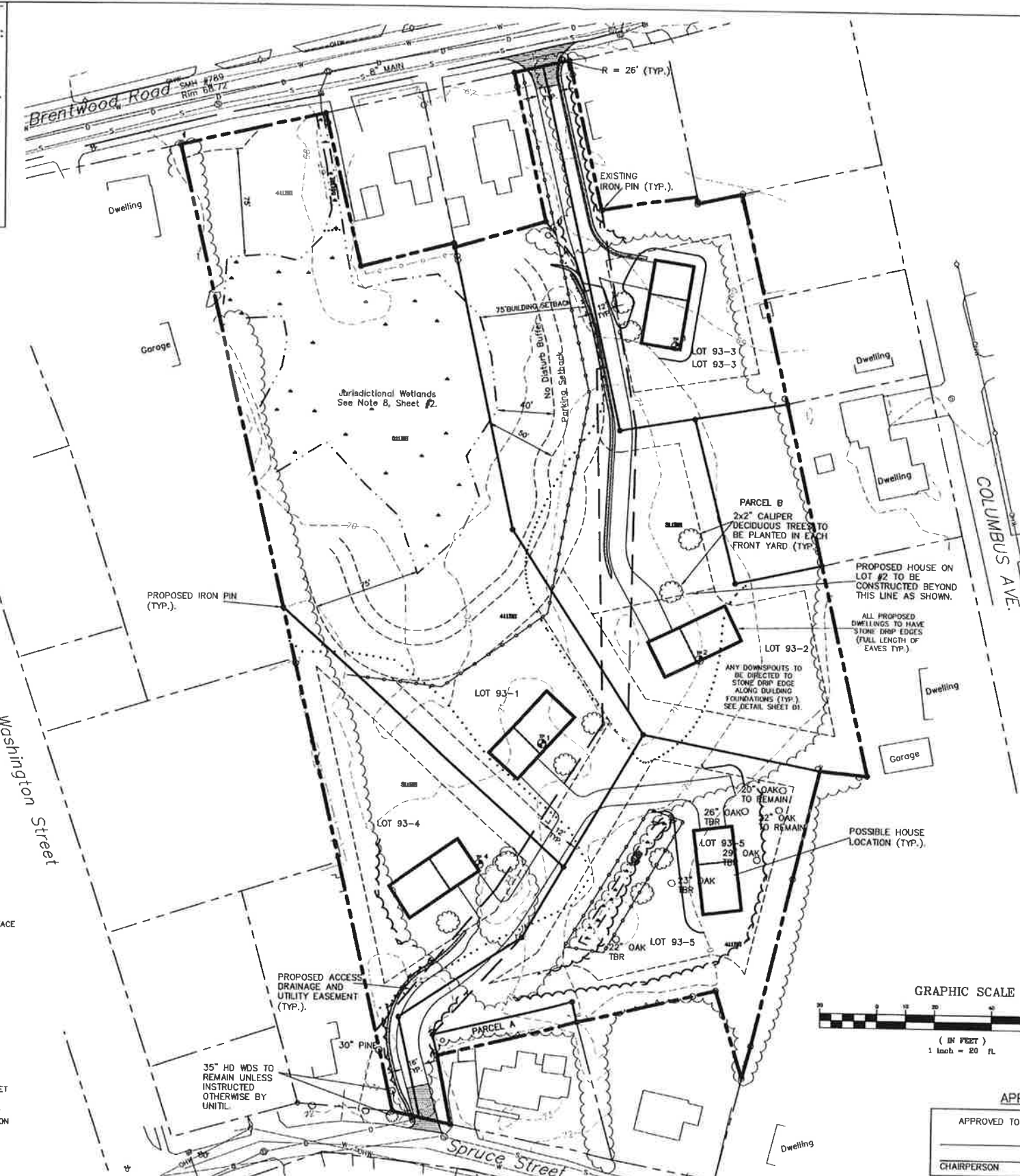
- B- 0% TO 8%
- C- 8% TO 15%
- D- 15% TO 25%
- E- 15% TO 25%
- F- 35%+



SYMBOL E: HIGH INTENSITY SOIL MAP IDENTIFIER  
H- MAP MEETS HIGH INTENSITY SOIL MAPPING STANDARDS  
P- MAP IS FOR PRELIMINARY PLANNING ONLY AND DOES NOT MEET STANDARDS

THIS SOIL MAP WAS PREPARED BY A PROFESSIONAL SOIL SCIENTIST AND MEETS THE TECHNICAL STANDARDS OF THE SSSNNE PUBLICATION NO. 1, HIGH INTENSITY SOIL MAPS FOR NH, DECEMBER 2017. SOILS WERE IDENTIFIED USING THE KEY TO SOIL TYPES.

SOIL MAPPING WAS PERFORMED BY JAMES GOVE, CSS # 004 IN AUGUST, 2019.



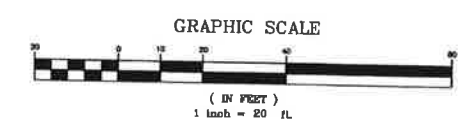
**ZONING REQUIREMENTS:**  
ZONING DISTRICT - RES 2 (R2)  
MINIMUM LOT SIZE - 15,000 S.F.  
MINIMUM LOT WIDTH - 100 FT.  
MINIMUM LOT DEPTH - 100 FT.  
MINIMUM FRONTAGE - 100'  
**BUILDING SETBACKS**  
FRONT - 25 FT.  
SIDE - 15 FT.  
REAR - 25 FT.  
BUILDING HEIGHT - 35 FT.  
MAXIMUM BUILDING COVERAGE - 25%  
**WETLAND SETBACKS**  
NO-DISTURBANCE - 40'  
PARKING SETBACK - 50'  
BUILDING SETBACK - 75'

PREPARED FOR:  
**HARBOR STREET LIMITED PARTNERSHIP**  
7B EMERY LANE  
STRATHAM N.H. 03885  
**BEALS ASSOCIATES PLLC**  
70 PORTSMOUTH AVE, STRATHAM, N.H. 03885  
PHONE: 603-583-4860, FAX: 603-583-4863

- NOTES**
- UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN LOCATED FROM FIELD OBSERVATIONS AND THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. BEALS ASSOCIATES OR ANY OF THEIR EMPLOYEES TAKE NO RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES OR UTILITIES NOT SHOWN, THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND UTILITIES OR STRUCTURES LOCATED PRIOR TO EXCAVATION WORK, BY CALLING 1-888-DIG-SAFE, AND TOWN OF EXETER DPW.
  - THIS PLAN HAS BEEN PREPARED FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
  - ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
  - Parcels are not located in a Flood Hazard Zone A as depicted on Flood Insurance Rate Map, No. 3301500402E, Rockingham County, NH, (All Jurisdictions), Effective Date: May 17, 2005.
  - PROJECT IS BASED ON USGS DATUM NAVD 1988.
  - THE LANDOWNER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
  - ALL CONSTRUCTION SHALL CONFORM TO TOWN OF EXETER STANDARDS AND REGULATIONS.
  - ALL WATER, SEWER, ROAD, AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 9.5 GRADING, DRAINAGE, AND EROSION AND SEDIMENT CONTROL, AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER, NEW HAMPSHIRE. SEE SECTION 9.14 ROADWAYS, ACCESS POINTS, AND FIRE LANES AND SECTION 9.13 PARKING AREAS FOR EXCEPTIONS.
  - IN ACCORDANCE WITH SITE PLAN REVIEW & SUBDIVISION REGULATIONS SECTIONS 7.15.10 AND 9.3.4 THE APPLICANT SHALL PROVIDE THE TOWN WITH THREE COPIES OF THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND ALSO ENSURE THAT ONE COPY REMAINS ON SITE.
  - DISTURBANCE UNDER 100,000 SQ. FT. (68,000 S.F. +/- PROPOSED DISTURBANCE) HIDES ALTERATION OF TERRAIN PERMIT NOT REQUIRED.
  - WETLAND BUFFER PLAZARDS (4" ROUND) SHALL BE NAILED TO TREES AS AVAILABLE OR SET ON STAKES ALONG WETLAND BUFFER LIMITS AT AN INTERVAL OF APPROXIMATELY 50 FEET. HOUSES WILL BE BUILT OUTSIDE OF THE WETLAND BUFFER.

**WETLAND NOTES**  
THE LIMITS OF JURISDICTIONAL WETLANDS AS SHOWN ON THIS PLAN WERE DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC., IN JUNE OF 2019 IN ACCORDANCE WITH:  
1. US ARMY CORPS OF ENGINEERS REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL - NORTH-CENTRAL AND NORTH-EAST REGION, TECHNICAL REPORT EROD/EL TR-12-1, JANUARY 2012, VERSION 2.0  
2. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 7.0, UNITED STATES DEPARTMENT OF AGRICULTURE (2010).  
3. NORTH AMERICAN DIGITAL FLORA: NATIONAL WETLAND PLANT LIST, VERSION 2.2.1 (2008).  
4. HIGH INTENSITY SOIL MAPPING WAS PERFORMED BY G.E.S. USING THE STANDARDS OF THE SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND SPECIAL PUBLICATION NUMBER 1, HIGH INTENSITY SOIL MAPS FOR NEW HAMPSHIRE STANDARDS, JAN 1994  
2019 ZONING ORDINANCE ARTICLE 9. NATURAL RESOURCE PROTECTION  
9.1 WETLANDS CONSERVATION DISTRICT  
9.1.3. BOUNDARIES  
D. MAN-MADE DRAINAGE STRUCTURES INCLUDING BUT NOT LIMITED TO DETENTION PONDS, RETENTION PONDS, AND DRAINAGE SWALES SHALL NOT BE CONSIDERED PART OF THE WETLANDS PROTECTION OVERLAY DISTRICT  
THE AREA IDENTIFIED ON THE PLAN BY G.E.S. INC. AS A MAN-MADE DRAINAGE STRUCTURE IS NOT CONSIDERED PART OF THE WETLANDS PROTECTION OVERLAY DISTRICT, AND SHALL NOT HAVE A BUFFER.

**TOWN NOTES**  
ALL SNOW SHALL BE STORED OFF OF PAVEMENT ACCESS WAYS. IN THE EVENT THAT THE AREA(S) APPROVED FOR SNOW STORAGE BECOME FULL, THE OWNER SHALL REASONABLY REMOVE EXCESS SNOW FROM THE SITE, AND SHALL NOT ALLOW SNOW TO BE STORED WITHIN TRAVEL AISLES.  
ALL WASTE MATERIALS AND RECYCLABLE SHALL BE CONTAINED WITHIN THE BUILDING(S) OR APPROVED STORAGE FACILITIES AND SHALL NOT BE OTHERWISE STORED ON THE PROPERTY. REFUSE COLLECTION WILL BE BY CURBSIDE PICK-UP.



**APPROVAL BLOCK**  
APPROVED TOWN OF EXETER PLANNING BOARD  
CHAIRPERSON \_\_\_\_\_ DATE \_\_\_\_\_

REVISED PER ENGINEER REVIEW	1-4-20
REVISED PER TRC REVIEW	12-3-19
REVISIONS:	DATE:
<b>SUBDIVISION SITE PLAN</b>	
PLAN FOR: RESIDENTIAL DEVELOPMENT BRENTWOOD ROAD EXETER, NH	
DATE: NOV., 2019	SCALE: 1"=40'
PROJ. NO: NH-1213	SHEET NO. 3 OF 6

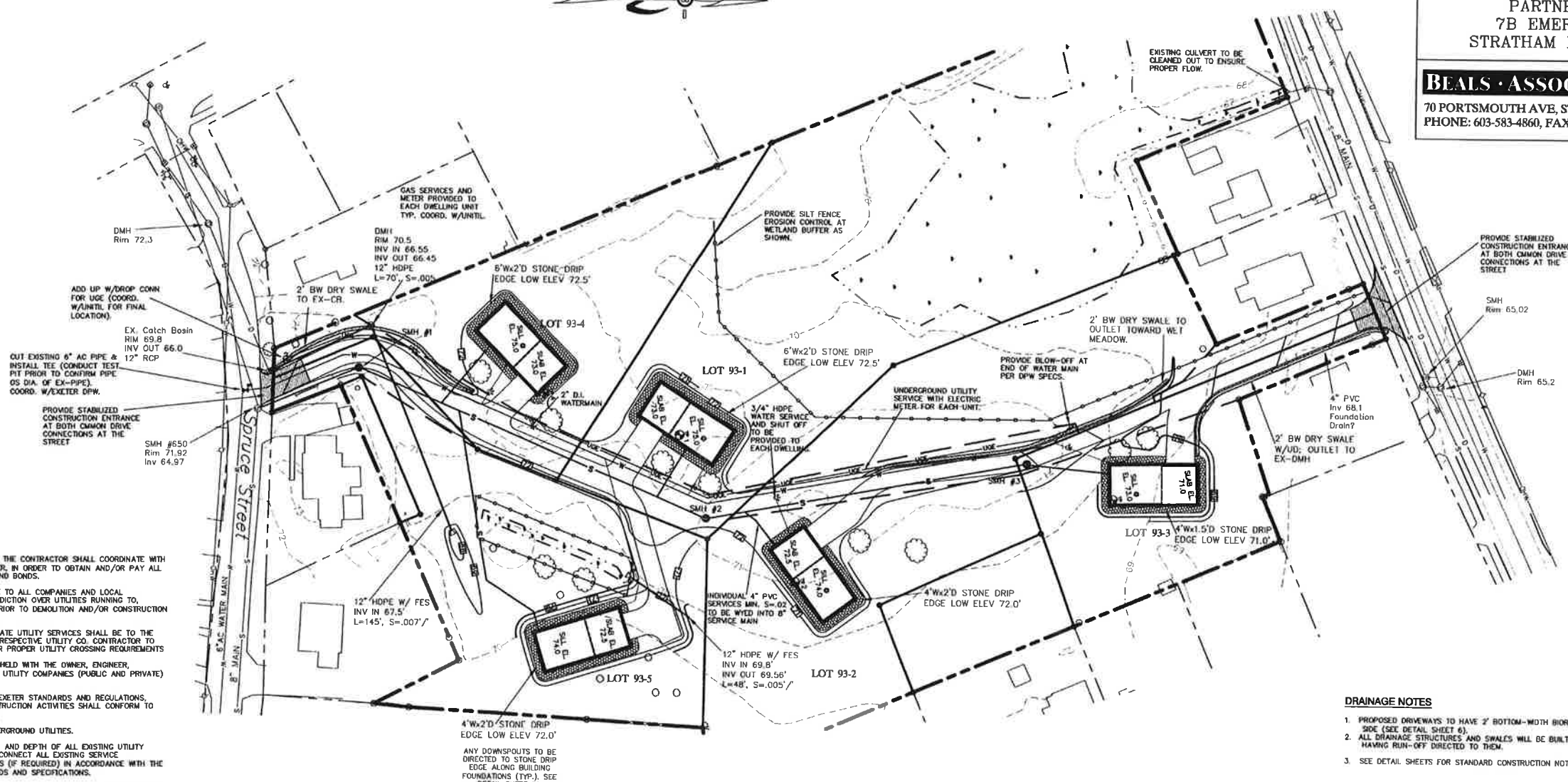






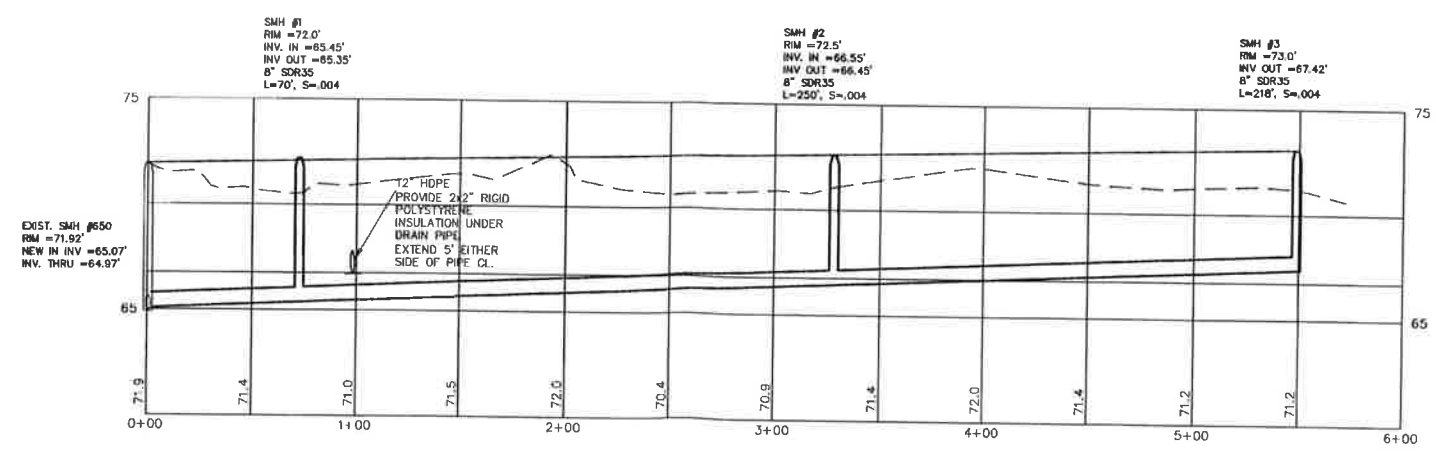
PREPARED FOR:  
**HARBOR STREET LIMITED PARTNERSHIP**  
 7B EMERY LANE  
 STRATHAM N.H. 03885

**BEALS ASSOCIATES PLLC**  
 70 PORTSMOUTH AVE, STRATHAM, N.H. 03885  
 PHONE: 603-583-4860, FAX: 603-583-4863



- UTILITY NOTES**
1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, FEES AND BONDS.
  2. THE CONTRACTOR SHALL PROVIDE NOTICE TO ALL COMPANIES AND LOCAL AUTHORITIES OWNING OR HAVING A JURISDICTION OVER UTILITIES RUNNING TO, THROUGH OR ACROSS PROJECT AREAS PRIOR TO DEMOLITION AND/OR CONSTRUCTION ACTIVITIES.
  3. THE SPECIFICATIONS FOR PROPOSED PRIVATE UTILITY SERVICES SHALL BE TO THE STANDARDS AND REQUIREMENTS OF THE RESPECTIVE UTILITY CO. CONTRACTOR TO COORDINATE WITH UTILITY COMPANIES FOR PROPER UTILITY CROSSING REQUIREMENTS.
  4. A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE OWNER, ENGINEER, CONTRACTOR, LOCAL OFFICIALS, AND ALL UTILITY COMPANIES (PUBLIC AND PRIVATE) PRIOR TO START OF CONSTRUCTION.
  5. ALL CONSTRUCTION SHALL CONFORM TO EXETER STANDARDS AND REGULATIONS, UNLESS OTHERWISE SPECIFIED. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR (OSHA) RULES AND REGULATIONS.
  6. BUILDINGS ARE TO BE SERVICED BY UNDERGROUND UTILITIES.
  7. THE CONTRACTOR IS TO VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITY STUBS PRIOR TO CONSTRUCTION AND DISCONNECT ALL EXISTING SERVICE CONNECTIONS AT THEIR RESPECTIVE MAINS (IF REQUIRED) IN ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANY'S STANDARDS AND SPECIFICATIONS.
  8. SEWER AND WATER INFRASTRUCTURE ON PRIVATE PROPERTY SHALL REMAIN PRIVATE, HOWEVER, THE TOWN RESERVES THE RIGHT TO ENTER THE PROPERTY IN ORDER TO INSPECT, REPAIR AND/OR TERMINATE INDIVIDUAL SEWER OR WATER SERVICES (AT OWNER'S EXPENSE). THIS RIGHT IS TO BE CONVEYED TO THE TOWN IN THE SITE'S DECLARATION OF CONDOMINIUM DOCUMENTS, AND IN ALL INDIVIDUAL DEEDS.
  9. THE CONTRACTOR IS RESPONSIBLE FOR PAYMENT OF ALL CONNECTION FEES.
  10. SANITARY SEWER FLOW CALCULATIONS:  
 5 HOMES AT 3 BEDROOMS EACH = 15 BEDROOMS  
 ESTIMATED FLOW AT 150 GPD/BEDROOM = 2,250 GPD.
  11. FOR WATER MAIN AND SEWER LINE CROSSINGS REFER TO THE DETAIL ON SHEET 7 FOR MINIMUM VERTICAL AND HORIZONTAL SEPARATION.
  12. ALL WATER AND SANITARY LEADS TO BUILDING SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY CAP AND WITNESS AT END.
  13. THRUST BLOCKS SHALL BE PROVIDED AT ALL BENDS, TEES AND MECHANICAL JOINTS.
  14. CONTRACTOR SHALL MINIMIZE DISRUPTIONS TO EXISTING WATER SERVICES AND ALL REQUIREMENTS OF EXETER WATER DEPARTMENT SHALL BE FOLLOWED REGARDING NOTIFICATION OF INTERRUPTION OF SERVICE (MIN 48 HOURS). TEE INSTALLATION MAY NEED TO BE CONDUCTED AT NIGHT AS DIRECTED BY EXETER WATER DEPT.
  15. WATER VALVES ARE TO BE OPERATED ONLY BY MUNICIPAL STAFF.
  16. THE INSTALLATION OF SMOKE, HEAT, FIRE, OR CARBON MONOXIDE ALARMS OR SYSTEMS SHALL COMPLY WITH NFPA 72 REQUIREMENTS.
  17. NO GRADING IS ALLOWED IN THE 40' BUFFER WHICH SHALL BE MARKED OUT PRIOR TO CLEARING AND CONSTRUCTION.
  18. PROPOSED GRADING SHALL MAINTAIN EXISTING STORM WATER FLOW PATTERNS & MAINTENANCE OF SWALES. NO ADDITIONAL RUNOFF SHALL BE DIRECTED TOWARD ADJUTING PROPERTIES.
  19. THE CONTRACTOR MUST OBTAIN A VALID UTILITY PIPE INSTALLER'S LICENSE AND THE JOB SUPERVISOR OR FOREMAN MUST BE CERTIFIED BY THE TOWN PRIOR TO WORKING ON ANY WATER, SEWER, OR DRAINAGE PIPES THAT ARE IN A TOWN STREET OR RIGHT OF WAY, OR THAT WILL CONNECT OR MAY BE CONNECTED TO A TOWN WATER, SEWER, OR DRAINAGE SYSTEM. A LICENSED SUPERVISOR OR FOREMAN MUST BE PRESENT AT THE JOB SITE AT ALL TIMES DURING CONSTRUCTION OF THESE UTILITIES.

- DRAINAGE NOTES**
1. PROPOSED DRIVEWAYS TO HAVE 2" BOTTOM-WIDTH BIORIENTATION DRY SWALES EITHER SIDE (SEE DETAIL SHEET 6).
  2. ALL DRAINAGE STRUCTURES AND SWALES WILL BE BUILT AND STABILIZED PRIOR TO HAVING RUN-OFF DIRECTED TO THEM.
  3. SEE DETAIL SHEETS FOR STANDARD CONSTRUCTION NOTES AND DETAILS.



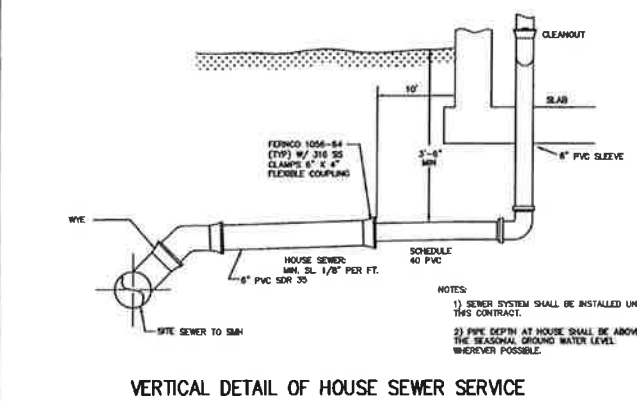
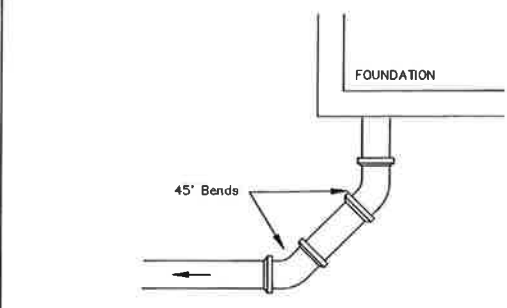
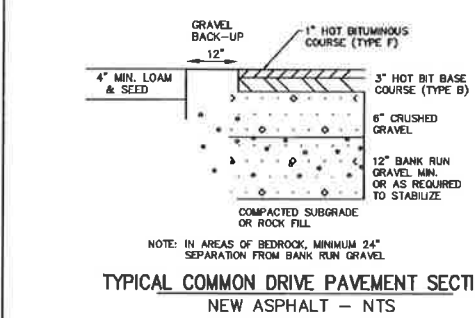
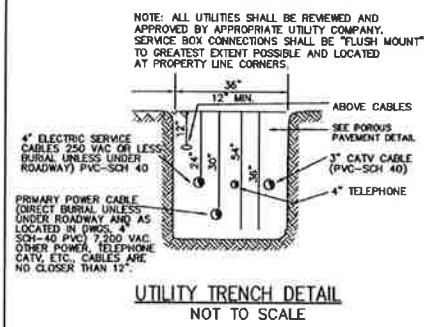
REVISED PER ENGINEER REVIEW		1-4-20
REVISED PER TRC REVIEW		12-3-19
REVISIONS:		DATE:
<b>UTILITY &amp; DRAINAGE PLAN</b>		
PLAN FOR: RESIDENTIAL DEVELOPMENT BRENTWOOD ROAD EXETER, NH		
DATE:	NOV., 2019	SCALE: 1"=40'
PROJ. NO:	NH-1213	SHEET NO. 4 OF 6



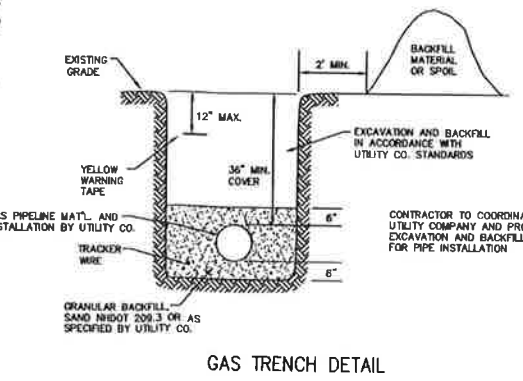
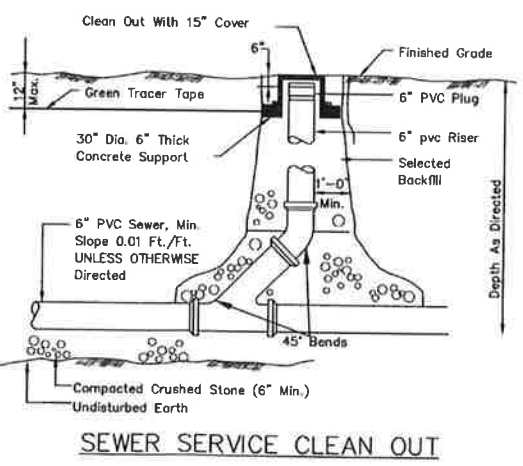
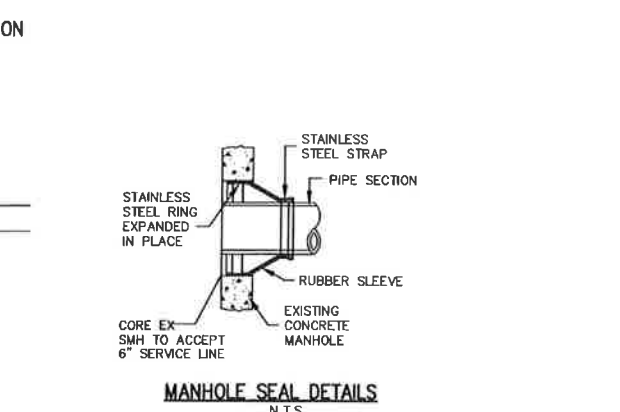
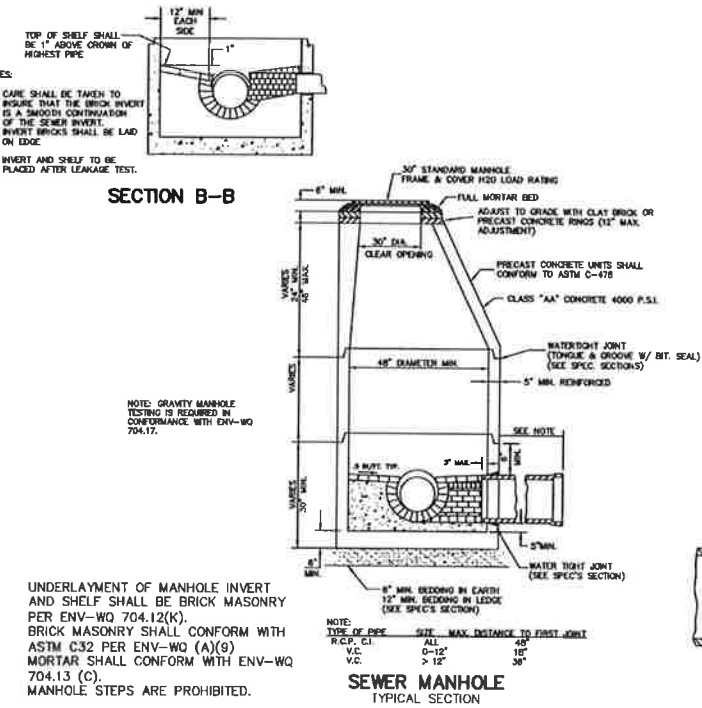


PREPARED FOR:  
**HARBOR STREET LIMITED PARTNERSHIP**  
 7B EMERY LANE  
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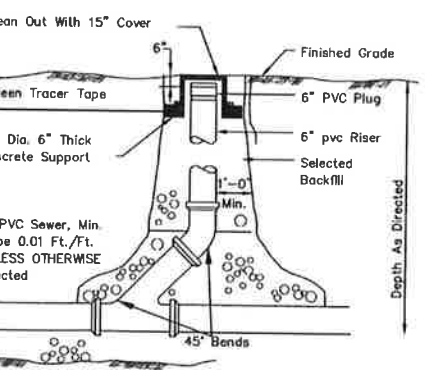
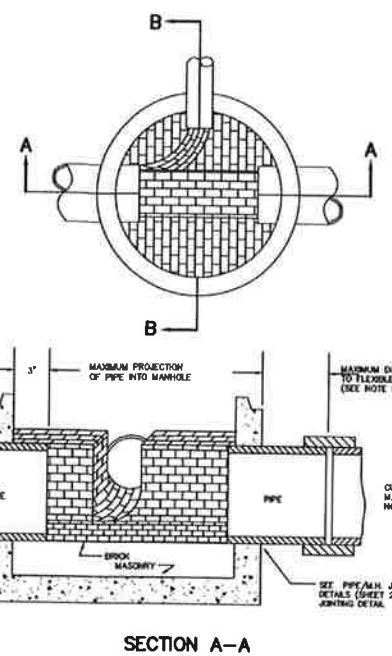
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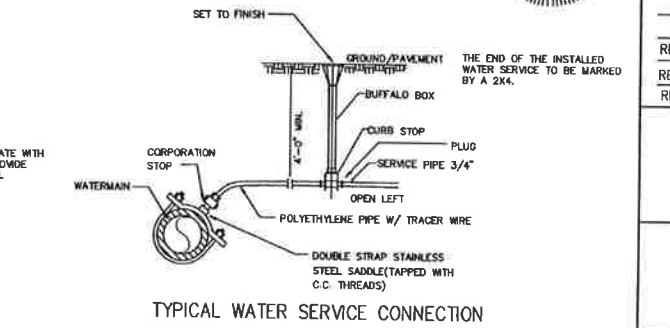
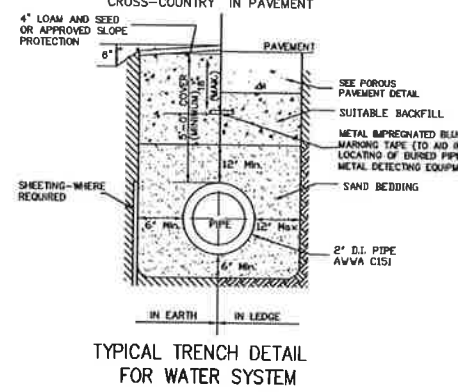
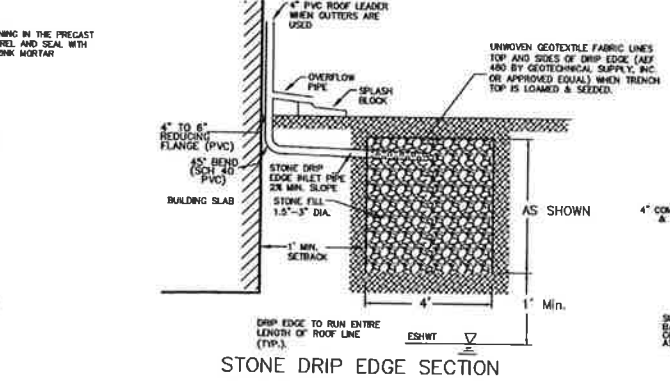
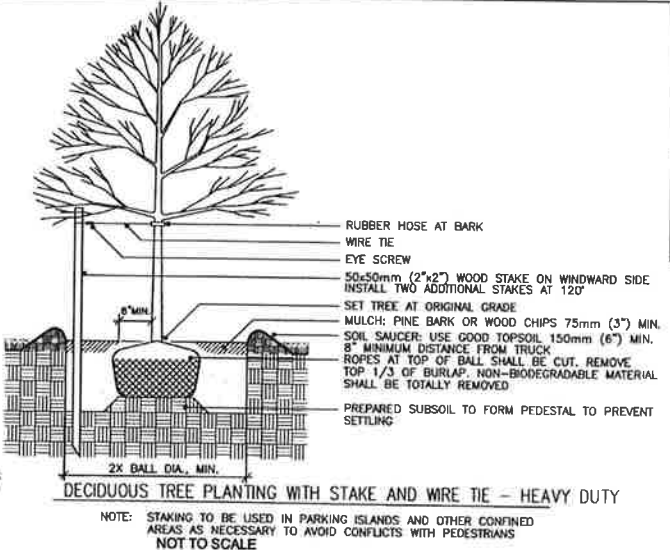
TYPICAL SEWER TRENCH DETAIL NOT TO SCALE



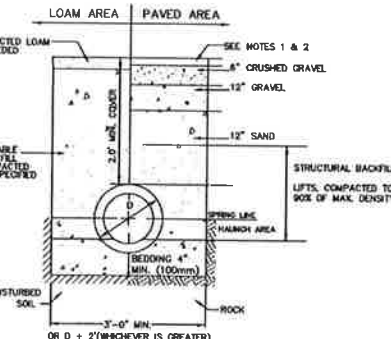
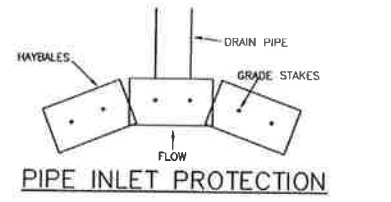
GAS TRENCH DETAIL



SECTION A-A



TYPICAL WATER SERVICE CONNECTION



TYPICAL DRAINAGE TRENCH DETAIL NOT TO SCALE



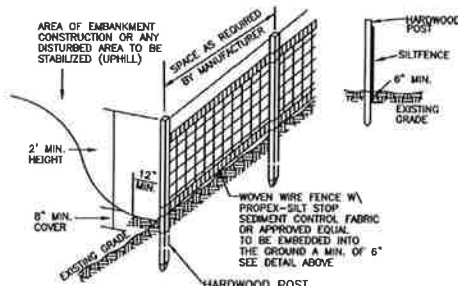
REVISED PER ENGINEER REVIEW	1-4-20
REVISED PER TRC REVIEW	12-3-19
REVISIONS:	DATE:

<b>CONSTRUCTION DETAILS</b>	
PLAN FOR: RESIDENTIAL DEVELOPMENT BRENTWOOD ROAD EXETER, NH	
DATE: NOV, 2019	SCALE: NTS
PROJ. NO: NH-1213	SHEET NO. 5 OF 6



### CONSTRUCTION SEQUENCE

- CUT AND REMOVE TREES IN CONSTRUCTION AREAS AS REQUIRED OR DIRECTED.
- CONSTRUCT AND/OR INSTALL TEMPORARY AND PERMANENT SEDIMENT EROSION AND DETENTION CONTROL FACILITIES AS REQUIRED. EROSION, SEDIMENT AND DETENTION CONTROL FACILITIES SHALL BE INSTALLED AND STABILIZED PRIOR TO ANY EARTH MOVING OPERATION AND PRIOR TO DIRECTING RUNOFF TO THEM.
- CLEAR, CUT, GRUB AND DISPOSE OF DEBRIS IN APPROVED FACILITIES. STUMPS AND DEBRIS ARE TO BE REMOVED FROM SITE AND DISPOSED OF PER STATE AND LOCAL REGULATIONS.
- EXCAVATE AND STOCKPILE TOPSOIL /LOAM. ALL AREAS SHALL BE STABILIZED IMMEDIATELY AFTER GRADING.
- CONSTRUCT TEMPORARY CULVERTS AS REQUIRED OR DIRECTED.
- CONSTRUCT THE ROADWAY AND ITS ASSOCIATED DRAINAGE STRUCTURES.
- INSTALL PIPE AND CONSTRUCTION ASSOCIATED APPURTENANCES AS REQUIRED OR DIRECTED. ALL DISTURBED AREAS SHALL STABILIZED IMMEDIATELY AFTER GRADING.
- BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES AND DISTURBED AREAS SHALL BE SEEDED OR MULCHED AS REQUIRED, OR DIRECTED.
- DAILY OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINAGE CHECK DAMS, DITCHES, SEDIMENT TRAPS, ETC. TO PREVENT EROSION ON THE SITE AND PREVENT ANY SILTATION OF ABUTTING WATERS OR PROPERTY.
- INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION.
- COMPLETE PERMANENT SEEDING AND LANDSCAPING.
- REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE ESTABLISHED THEMSELVES AND SITE IMPROVEMENTS ARE COMPLETE. SMOOTH AND REVEGETATE ALL DISTURBED AREAS.
- ALL SWALES AND DRAINAGE STRUCTURES WILL BE CONSTRUCTED AND STABILIZED PRIOR TO HAVING RUNOFF DIRECTED TO THEM.
- FINISH PAVING ALL DRIVEWAYS.



#### SILT FENCE CONSTRUCTION SPECIFICATIONS

- WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES AND FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP MID AND BOTTOM SECTIONS AND BE EMBEDDED INTO GROUND A MINIMUM OF 8" THE FENCE POSTS SHALL BE A MINIMUM 48" LONG, SPACED A
- MAXIMUM 10' APART, AND DRIVEN A MINIMUM OF 16" INTO THE GROUND WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER.
- THE ENDS OF THE FABRIC SHALL BE OVERLAPPED BY SIX INCHES, FOLDED AND STAPLED TO PREVENT SEDIMENT FROM BY-PASSING MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT
- REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE AND PROPERLY DISPOSED OF PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE
- FOR SEDIMENT STORAGE SILT FENCES SHALL BE REMOVED WHEN NO LONGER NEEDED AND
- THE SEDIMENT COLLECTED SHALL BE DISPOSED AS DIRECTED BY THE ENGINEER. THE AREA DISTURBED BY THE REMOVAL SHALL BE SMOOTHED AND RE-VEGETATED

#### SILT FENCE MAINTENANCE

- SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE MADE IMMEDIATELY IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME
- INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY. SEDIMENT DEPOSITS SHOULD BE INSPECTED AFTER EVERY STORM EVENT.
- THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT DEPOSITS THAT ARE REMOVED OR LEFT IN PLACE AFTER THE
- FABRIC HAS BEEN REMOVED SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

### SEEDING SPECIFICATIONS

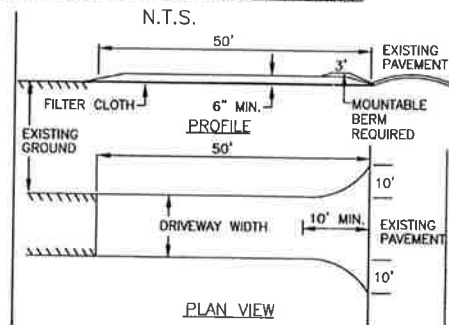
- GRADING AND SHAPING
  - SLOPES SHALL NOT BE STEEPER THAN 2:1; 3:1 SLOPES OR FLATTER ARE PREFERRED. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
- SEEDBED PREPARATION
  - SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
  - STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND MIX FERTILIZER AND LIME INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
- ESTABLISHING A STAND
  - LIME AND FERTILIZER SHOULD BE APPLIED 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. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:
    - AGRICULTURAL LIMESTONE, 2 TONS PER ACRE OR 100 LBS PER 1,000 SQ. FT.
    - NITROGEN(N), 50 LBS PER ACRE OR 1.1 LBS PER 1,000 SQ.FT.
    - PHOSPHATE(P2O5), 100 LBS PER ACRE OR 2.2 LBS PER 1,000 SQ.FT.
    - POTASH(K2O), 100 LBS PER ACRE OR 2.2 LBS PER 1,000 SQ.FT.
 (NOTE: THIS IS THE EQUIVALENT OF 500 LBS PER ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS PER ACRE OF 5-10-10.)

### SEEDING RATES

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 SQ. FT.
A. TALL FESCUE	20	0.45
CREeping RED FESCUE	20	0.45
RED TOP	2	0.05
TOTAL	42	0.95
B. TALL FESCUE	15	0.36
CREeping RED FESCUE	10	0.25
CROWN VETCH	15	0.36
OR		
FLAT PEA	30	0.75
TOTAL	40 OR 55	0.85 OR 1.35
C. TALL FESCUE	20	0.45
CREeping RED FESCUE	20	0.45
BIRDS FOOT TREFLOIL	8	0.20
TOTAL	48	1.10
D. TALL FESCUE	20	0.45
FLAT PEA	50	1.25
TOTAL	70	1.70
E. CREeping RED FESCUE 1/2	50	1.15
KENTUCKY BLUEGRASS 1/2	50	1.15
TOTAL	100	2.30
F. TALL FESCUE 1	150	3.60

DRY SWALE  
NOT TO SCALE

### STABILIZED CONSTRUCTION ENTRANCE



- STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
- THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET.
- THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
- THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICH EVER IS GREATER.
- GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE.
- 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 THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.

- SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
- REFER TO TABLE(G-E1 THIS SHEET) FOR APPROPRIATE SEED MIXTURES AND TABLE(H-1 THIS SHEET) FOR RATES OF SEEDING. ALL LEGUMES (CROWN VETCH, BIRDS FOOT TREFLOIL, AND FLAT PEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT.
- WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 10 TO SEPTEMBER 1.
- MULCH
  - HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
  - MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90 LBS PER 1000 SQ. FT.
- MAINTENANCE TO ESTABLISH A STAND
  - PLANTED AREA SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
  - FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIAL STAKE 2 TO 3 YEARS TO BECOME ESTABLISHED.
  - IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, OCCASIONAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

### SEEDING GUIDE

USE	SEEDING MIXTURE 1/	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	GOOD	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	FAIR	EXCELLENT	EXCELLENT
	E	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER	A	GOOD	GOOD	GOOD	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
	D	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, SOO AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR
	C	GOOD	GOOD	EXCELLENT	EXCELLENT
	D	FAIR	GOOD	GOOD	EXCELLENT
PLAY AREAS AND ATHLETIC FIELDS. TOPSOIL IS ESSENTIAL FOR GOOD TURF.	F	FAIR	EXCELLENT	EXCELLENT	1/2
	G	FAIR	EXCELLENT	EXCELLENT	1/2

NOTE: Temporary seed mix for stabilization of turf shall be winter rye or oats at a rate of 2.5 lbs. per 1000 sq. ft. and shall be placed prior to OCT. 15, if permanent seeding not yet complete.



REVISIONS:

REVISED PER TRC REVIEW	12-3-19
REVISIONS:	DATE:

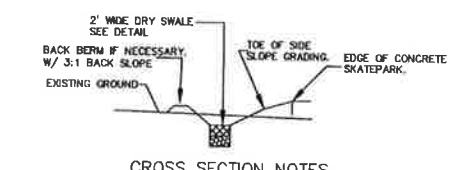
**DRAINAGE/EROSION & SEDIMENT CONTROL DETAILS - E1**

PLAN FOR:  
RESIDENTIAL DEVELOPMENT  
BRENTWOOD ROAD  
EXETER, NH

DATE: NOV., 2019	SCALE: NTS
PROJ. NO: NH-1213	SHEET NO. 6 OF 6

PREPARED FOR:  
HARBOR STREET LIMITED  
PARTNERSHIP  
7B EMERY LANE  
STRATHAM N.H. 03885

**BEALS ASSOCIATES PLLC**  
70 PORTSMOUTH AVE, STRATHAM, N.H. 03885  
PHONE: 603-583-4860, FAX: 603-583-4863



- ALL FILL TO BRING SWALE BOTTOM TO SUBGRADE SHALL BE INSTALLED IN NO GREATER THAN 24" LIFTS
  - ALL FILL SHALL BE LOOSELY COMPACTED.
  - UNDERDRAIN IS NOT REQUIRED AS PART OF THE PLAN. IF THE CONTRACTOR FINDS EXCESSIVE GROUNDWATER THE DESIGN ENGINEER IS TO BE NOTIFIED.
  - SUBGRADE - CONTRACTOR SHALL REMOVE FILL MATERIAL & PROVIDE GRANULAR BACKFILL UNDER SWALE WASHED STONE LAYER. SCARIFY SUBGRADE PRIOR TO PLACEMENT OF STONE LAYER. ALL STONES GREATER THAN 6" IN DIAMETER SHALL BE REMOVED FROM THE SCARIFIED LAYER. ANY IMPORTED FILL SHALL BE FREE OF ORGANICS AND FROST AND SHALL HAVE NO ROCKS LARGER THAN 6" IN DIAMETER. FILL MATERIAL SHALL BE APPROVED BY THE DESIGN ENGINEER.
- TYPICAL DRY SWALE CROSS-SECTION  
NOT TO SCALE

### TEMPORARY EROSION CONTROL MEASURES

- NO MORE THAN 1.58 ACRES OF LAND SHALL BE EXPOSED AT ANY ONE TIME.
- EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED OR DIRECTED BY THE ENGINEER ALL DISTURBED AREAS SHALL BE RETURNED TO ORIGINAL GRADES AND ELEVATIONS.
- DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 4" OF LOAM AND SEEDED WITH NOT LESS THAN 1.10 POUNDS OF SEED PER 1000 SQUARE FEET OF AREA. (48 POUNDS PER ACRE) SEE SEED SPECIFICATIONS THIS SHEET.
- SILT FENCES AND OTHER EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY RAIN EVENT GREATER THAN 0.25" DURING THE LIFE OF THE PROJECT. ALL DAMAGED AREAS SHALL BE REPAIRED, SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
- AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION CONTROL MEASURES ARE TO BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND RE-VEGETATED.
- AREAS MUST BE SEEDED AND MULCHED WITHIN 3 DAYS OF FINAL GRADING, PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF SOIL.

### WINTER MAINTENANCE

- All disturbed areas that do not have at least 85% vegetative coverage prior to October 15th, shall be stabilized by applying mulch at a rate of 3-4 tons per acre. All side slopes, steeper than 4:1, that are not directed to swales or detention basins, shall be lined with biodegradable/photodegradable "jute matting" (Excelsior's Curlex II or equal). All other slopes shall be mulched and tacked at a rate of 3-4 tons per acre. The application of mulch and/or jute matting shall not occur over existing snow cover. If the site is active after October 15th, any snow that accumulates on disturbed areas shall be removed. Prior to spring thaw all areas will be stabilized, as directed above.
- All swales that do not have fully established vegetation shall be either lined with temporary jute matting or temporary stone check dams (appropriately spaced). Stone check dams will be maintained throughout the winter months. If the swales are to be matted with permanent liners or riprap with engineering fabric, this shall be completed prior to winter shutdown or as soon as they are properly graded and shaped.
- Prior to Oct. 15th all roadway and parking areas shall be brought up to and through the bank run gravel application. If these areas' elevations are proposed to remain below the proposed subgrade elevation, the subgrade material shall be roughly crowned and a 3" layer of crushed gravel shall be placed and compacted. This will allow the subgrade to shed runoff and will reduce roadway erosion. This crushed gravel does not have to conform to NH DOT 304.3, but shall have between 15-25% passing the #200 sieve and the largest stone size shall be 2". If the site is active after OCTOBER 15th, any accumulated snow shall be removed from all roadway and parking areas.
- After October 15th, the end of New Hampshire's average growing season, no additional loam shall be spread on side slopes and swales. The stockpiles that will be left undisturbed until spring shall be seeded by this date. After October 15th, any new or disturbed piles shall be mulched at a rate of 3-4 tons per acre. All stockpiles that will remain throughout the winter shall be surrounded with silt fencing.

