



# TOWN OF EXETER, NEW HAMPSHIRE

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10 FRONT STREET • EXETER, NH • 03833-3792 • (603) 778-0591 • FAX 772-4709  
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## LEGAL NOTICE EXETER PLANNING BOARD AGENDA

The Exeter Planning Board will meet on Thursday, June 9, 2022 at 7:00 P.M. in the Nowak Room of the Exeter Town Office building located at 10 Front Street, Exeter, New Hampshire to consider the following:

**APPROVAL OF MINUTES:** May 26, 2022

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

The application of Willey Creek Co. for site plan review, lot line adjustment and Wetlands and Shoreland conditional use permits for the proposed relocation of Building D of the Ray Farm Condominium development and associated site improvements off of Ray Farmstead Road (Willey Creek Road). The subject properties are located in the C-3, Epping Road Highway Commercial zoning district and are identified as Tax Map Parcel #47-8-1 and #47-9. PB Case #22-3.

### **OTHER BUSINESS**

- Master Plan Discussion
- Field Modifications
- Bond and/or Letter of Credit Reductions and Releases

### **EXETER PLANNING BOARD**

*Langdon J. Plumer, Chairman*

*Posted 05/27/22: Exeter Town Office and Town of Exeter website*

1 **TOWN OF EXETER**  
2 **PLANNING BOARD**  
3 **NOWAK ROOM – TOWN OFFICE BUILDING**  
4 **10 FRONT STREET**  
5 **MAY 26, 2022**  
6 **DRAFT MINUTES**

7 **I. PRELIMINARIES:**

8  
9 **BOARD MEMBERS PRESENT BY ROLL CALL:** Chair Langdon Plumer, Pete Cameron, Clerk, John  
10 Grueter, Jennifer Martel, Nancy Belanger Select Board Representative, Gwen English (@7:19  
11 PM) and Robin Tyner, Alternate.

12  
13 **STAFF PRESENT:** Town Planner Dave Sharples

14  
15 **II. CALL TO ORDER:** Chair Plumer called the meeting to order at 7:00 PM, introduced the  
16 members and activated alternate Robin Tyner.

17  
18 **III. OLD BUSINESS**

19  
20 **APPROVAL OF MINUTES**

21  
22 May 12, 2022

23  
24 Ms. Belanger, Ms. Martel and Ms. Tyner recommend edits.

25  
26 ***Mr. Cameron motioned to approve the May 12, 2022 meeting minutes as amended. Ms.***  
27 ***Belanger seconded the motion. A vote was taken, all were in favor, the motion passed 6-0-0.***

28  
29 **IV. NEW BUSINESS**

30 **PUBLIC HEARINGS**

- 31 1. The application of Wiley Creek Co. for site plan review, lot line adjustment and wetlands and  
32 shoreland conditional use permits for the proposed relocation of Building D of the Ray Farm  
33 Condominium Development and associated site improvements off Ray Farmstead Road (Wiley Creek  
34 Road)  
35 C-3 Epping Road Highway Commercial zoning district  
36 Tax Map Parcel #47-8-1 and #47-9  
37 Planning Board Case #22-3

38  
39 Chair Plumer read out loud the Public Hearing Notice and noted the applicants are requesting a  
40 continuance to the Planning Board's June 9, 2022 meeting at 7:00 PM.

41 **Mr. Cameron motioned that the application of Wiley Creek Co. (PB Case #22-3) be continued to the**  
42 **Planning Board's June 9, 2022 meeting at 7:00 PM. Mr. Grueter seconded the motion. A vote was**  
43 **taken, all were in favor, the motion passed 6-0-0.**

44

45 2. The application of Rafferty Investment Group LLC for a minor subdivision of an existing 7.3-acre  
46 parcel located at 54 Drinkwater Road into two (2) residential lots.

47 R-1, Low Density Residential zoning district

48 Tax Map Parcel #106-1

49 Planning Board Case #22-4

50

51 Chair Plumer read out loud the Public Hearing Notice.

52

53 Mr. Sharples noted the case is complete for review purposes.

54

55 **Mr. Grueter motioned to open Planning Board Case #22-4. Mr. Cameron seconded the motion. A vote**  
56 **was taken, all were in favor, the motion passed 6-0-0.**

57

58 Mr. Sharples summarized that the hearing was continued to this evening from the May 12, 2022 hearing  
59 after the plan was looked at and the 75' well radius not identified. The applicant is seeking a minor  
60 subdivision of an existing 7.3-acre parcel at 54 Drinkwater Road into two (2) residential lots. The  
61 existing home will be demolished, and accessory structures and debris removed. The applicant  
62 submitted a minor subdivision plan and supporting documents dated April 4, 2022 (provided in the 5-12-  
63 22 meeting packet). The applicant provided a revised subdivision plan dated May 20, 2022 for the  
64 Board's review showing the septic and well location with radius contained within the parcel, and the  
65 Code Enforcement Officer stated that it meets zoning.

66

67 Scott Rafferty of Rafferty Investment Group presented the proposal for a minor subdivision for two  
68 single-family homes. He noted the leach field will be moved back 30.'

69

70 Mr. Grueter asked if the 75' well radius requirement was satisfied, and Mr. Rafferty indicated it was.

71

72 Chair Plumer opened the hearing to the public for comments and questions at 7:13 PM and being none  
73 closed the hearing to the public for deliberations.

74

75 Mr. Cameron noted the proposal seemed straightforward.

76

77 Mr. Grueter read out loud the proposed conditions of approval:

78

79 **1. a dwg file of the plan shall be provided to the Town Planner showing all property lines and**  
80 **monumentation prior to signing the final plans. This plan must be in NAD 1983 State Plane New**  
81 **Hampshire FIPS 2800 feet coordinates;**

82 **2. The final plans shall have notes as required by Section 6.6.2.4m regarding wetlands; and**

83 **3. All monumentation shall be set in accordance with Section 9.25 of the Site Plan Review and**  
84 **Subdivision Regulations prior to signing the final plans.**

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**Mr. Grueter moved that the request of Rafferty Investment Group, LLC (PB Case #22-4) for Minor Subdivision approval be approved with the conditions he read out loud. Ms. Belanger seconded the motion. A vote was taken, all were in favor, the motion passed 6-0-0.**

- 3. The application of Exonian Properties, LLC for a minor site plan review of a proposed multi-family condominium development within the existing structure located at 43 Front Street (former First Baptist Church)  
R-2, Single-Family Residential zoning district  
Tax Map Parcel #72-198  
Planning Board Case #22-6

Chair Plumer read out loud the Public Hearing Notice.

Mr. Sharples noted the case was complete for review purposes and noted the application is for a minor site plan review of a proposed multi-family condominium with 11 residential units converted from the former Church building, which is a change in use. The applicants got a variance and will require off-street parking. The minutes and decision of the ZBA were provided to the Board. The Demolition Review Committee met with the applicant and determined the structure to be significant. The application was reviewed by the Heritage Commission and their letter and meeting minutes were also provided to the Board. A certificate of appropriateness dated February 17, 2020 was included. Mr. Sharples noted no exterior changes except for a black exterior fence and wall. There was no TRC review, but the proposal was reviewed by staff who had no issues. The applicant will be requesting a waiver from Section 9.13.1 of the Site Plan Review and Subdivision Regulations for off-street parking.

Board member Gwen English arrived at 7:19 PM.

Attorney Sharon Somers from DTC Lawyers presented the application and noted the principals, Florence Ruffner and David Cowie were present. There would be no new infrastructure, just renovating the interior of the existing building. She added that the proposal would change a non-tax generating property (tax-exempt) to a tax generating property. She noted Exhibit B was the architect’s proposal for the exterior and interior. The surface parking plan she noted had two spaces on site, possibly three and there is nothing else they can do. She referenced the minutes of the ZBA hearing on page three as to why they can’t provide onsite parking or demolish the existing structure. Underground parking is not viable due to the foundation supports and expense.

**Mr. Cameron motioned to open Planning Board Case #22-6. Ms. Martel seconded the motion. A vote was taken, all were in favor, the motion passed 6-0-0.**

Ms. Martel asked about the fence around the building and the black bar on the bottom step not shown on the site plan. Attorney Somers noted there was only a boundary plan and referenced the Front Terrace Design and the black aluminum railing depicted. Ms. Martel asked about opening of gates onto adjacent sidewalks. Attorney Somers noted she did not initially believe there to be gates proposed

129 opening onto the street. Mr. Cowie corrected that there would be two small gates at the front. Ms.  
130 Ruffner noted she was fine with getting rid of them.

131 Chair Plumer opened the hearing to comments and questions from the public at 7:33 PM and being  
132 none closed the hearing to the public for deliberations.

133  
134 Attorney Somers discussed the waiver request from Section 9.13.1 for off-site parking. She reviewed  
135 the first of the criteria and noted there would be ample on-street parking nearby for use of the residents  
136 and guests and referenced a memo from Jennifer Perry at the DPW concerning the process to increase  
137 the spaces if needed. Attorney Somers reviewed the second criteria and the uniqueness of the property  
138 which was previously the First Baptist Church with a small driveway and most of the property taken up  
139 by the structure. The property is unique and not similar to others. Attorney Somers reviewed the  
140 hardship versus a mere convenience if the regulations were strictly applied and referenced the footprint  
141 of the building and foundations. She noted the applicants exhausted all possibilities to find shared  
142 parking. She noted the building could not be torn down and only a single-family dwelling would satisfy  
143 the criteria and it would not be viable to convert the existing building into a single-family dwelling.  
144 Attorney Somers discussed the spirit of the regulations and not interfering with the parking needs of the  
145 neighborhood. She provided the Board with a handout of Ms. Perry's public parking off-site information  
146 and discussed parking for overnight and winter emergencies in the municipal lot and flexible outlook for  
147 future needs. Attorney Somers noted the request would not vary the provisions of zoning or the Master  
148 Plan. She noted the applicants were granted a variance by the ZBA so that they comply with zoning.  
149 She referenced the 2018 Parking Study done as a result of the Master Plan and the number of spaces  
150 available which were adequate for downtown. She noted 24 off-site spaces will not interfere with the  
151 2018 parking plan. She concluded that the proposal would preserve history and cultural features and  
152 keep the historic building intact.

153  
154 Ms. Belanger discussed the off-site parking requirements for the recently approved IOKA building and  
155 concerns that there was no process yet to issue permits to residents or to know the number of people  
156 utilizing public parking spaces available overnight on a first come, first serve basis.

157  
158 Mr. Cameron asked Mr. Sharples if he recalled the conditions of the IOKA approval. Mr. Sharples noted  
159 there were three, the as-built plan, preconstruction meeting and outdoor lighting, nothing for parking.

160  
161 Mr. Cameron noted the parking problem was not addressed and Mr. Sharples added or identified. Mr.  
162 Cameron asked about cumulative effect. Ms. English asked about the apartment building next door and  
163 Mr. Sharples noted all of their parking was provided on site. Mr. Sharples reviewed the parking overall  
164 in downtown comparing pre-COVID conditions to COVID conditions. He noted a lot of underutilized  
165 street parking downtown with Water Street the highest use. Mr. Sharples discussed the parking study  
166 on the CIP which will be hopefully next year or the year after. He noted right now there is plenty of  
167 parking on street, downtown, and the Town was working toward managing it. He noted the taxpayers  
168 would never be burdened with the cost of a parking garage because parking garages would charge for  
169 parking there.

170

171 Ms. Tyner and Chair Plumer agreed this was a separate conversation to have but Chair Plumer advised  
172 the buyers should be made aware and Ms. Ruffner stated she would make sure they are notified.  
173 Attorney Somers noted this would be in the condominium documents.

174

175 Ms. Martel asked about the trash pickup and driveway and noted two spots were by the dumpster. Mr.  
176 Cowie noted trash pickup would be at a scheduled time.

177

178 Ms. English asked if there were need for handicapped parking and Attorney Somers said no.

179

180 Mr. Cameron noted he would have concerns with the cumulative effect of the off-site parking and  
181 would not vote in favor of the waiver although he was not opposed to the project itself. Ms. English  
182 noted she was struggling with the waiver although she also liked the project.

183

184 Ms. Belanger noted she would discuss the need for the analysis in the CIP next year and while she also  
185 struggled with the waiver the DPW provided a plan b for now.

186

187 **Mr. Grueter motioned after reviewing the criteria for granting waivers to approve the request of**  
188 **Exonian Properties, LLC., (PB Case #22-6) for a waiver from Section 9.13.1 of the Site Plan Review and**  
189 **Subdivision Regulations to permit less onsite parking than required. Ms. Belanger seconded the**  
190 **motion. A roll call vote was taken: Belanger – aye, Martel – aye, Cameron – abstained, Plumer – aye,**  
191 **Grueter – aye, Tyner – aye and English – nay. The motion passed 5-1-1.**

192

193 Mr. Sharples read out loud the proposed conditions of the minor site plan:

194

- 195 **1. a dwg file of the plan shall be provided to the Town Planner showing all property lines and**  
196 **monumentation prior to signing the final plans. This plan must be in NAD 1983 State Plane**  
197 **New Hampshire FIPS 2800 feet coordinates;**
- 198 **2. A pre-construction meeting shall be arranged by the applicant and their contractor with the**  
199 **Town Engineer prior to any site work commencing;**
- 200 **3. All outdoor lighting (including security lights) shall be down lit and shielded so no direct light is**  
201 **visible from adjacent properties and/or roadways; and**
- 202 **4. The fencing at the bottom of the stairs on Front Street shall be removed.**

203

204 **Ms. Belanger motioned that the request of Exonian Properties, LLC (PB Case #22-6) for a minor site**  
205 **plan be approved with the conditions read by the Town Planner Dave Sharples. Mr. Grueter seconded**  
206 **the motion. A roll call vote was taken: English – aye, Tyner – aye, Grueter – aye, Plumer – aye,**  
207 **Cameron – aye, Martel – aye and Belanger – aye. The motion passed 7-0-0.**

208

- 209 4. The application of PSNH d/b/a Eversource Energy for a Wetland and Shoreland Conditional Use  
210 Permit for proposed maintenance/repair activities along the existing A126 Transmission Line; and  
211 the replacement of five (5) transmission structures within the limits of the existing ROW corridor  
212 between Route 101 eastbound and the Exeter/Brentwood town line; and approximately 1,500 feet  
213 west of Captain's Way (to the west of Newfields Road/NH Route 85)  
214 RU, Rural and R-1, Low Density Residential zoning districts

215 Tax Map Parcels #25-1, #20-8, #24-3, #30-9, #30-8  
216 Planning Board Case #22-7

217  
218 Chair Plumer read out loud the Public Hearing Notice.

219  
220 Mr. Cameron recused himself on the basis of prior employment with the applicant.  
221 Mr. Sharples indicated the case was ready to be heard.

222  
223 ***Ms. Martel motioned to open Planning Board Case #22-7. Ms. Tyner seconded the motion. A vote***  
224 ***was taken, all were in favor, the motion passed unanimously 6-0-0.***

225  
226 Mr. Sharples noted the applicant is requesting wetlands conditional use permit and shoreland  
227 conditional use permit for the maintenance and repair of structures and has submitted plans and  
228 supporting documents. The applicant went before the Conservation Commission at their May 10, 2022  
229 meeting and they had no objection and recommended approval with the condition that the trail closure  
230 and notification be coordinated with the Natural Resource Planner Kristen Murphy prior to work  
231 commencing. The Planning Board letter of Chair Andrew Koff dated May 18, 2022 was provided to the  
232 Board. There are no waivers being requested and no TRC review, but the staff reviewed the proposal  
233 and had no issues.

234  
235 Chris Wilkes of VHB presented the application on behalf of Eversource. He noted the project was similar  
236 to the work done last year when they replaced three structures and removed one on the westbound  
237 side of 101 and Route 27. He noted Eversource does inspections annually and identifies wood poles that  
238 need replacement due to weathering or Wood Pecker damage to prevent outages.

239  
240 Mr. Wilkes noted this project would be to replace five structures (three in Exeter on the eastbound side  
241 of Route 101 and two of those in Brentwood). He noted access for the first part of the proposal was off  
242 Pine Road using the existing gated trail because there would be safety concerns accessing via Route 101,  
243 DOT permissions and a guardrail pushing the access further out into an unsafe highway. Eversource  
244 went to Brentwood already and got their approvals. Mr. Wilkes reviewed natural resource impacts, best  
245 management practices, timber matting and described the matting which would be pulled at the end of  
246 work. Vegetation would rebound on its own with no seeding or planting. Erosion controls would be in  
247 place and the work pad size is about a 100'x100' area. The wood poles would be replaced with  
248 weathered steel, two poles with H-frame support and cross brace with a brown coloration and no major  
249 excavation. The old material would be disposed of. The second part of the project is accessed to the  
250 west of Captain's Way for structures 166 and 167. There is one wetland near 166 but 167 is upland.  
251 There is a stream, not well defined. There are impacts in the WCD 40' buffers and temporary impacts to  
252 the wetlands. The stream system is the reason for impact within the 150' buffer for the shoreland  
253 district. They will be seeking state approvals prior to work starting via streamline Permit by Notification.

254  
255 Ms. English asked about the process to determine plant and animal species and Mr. Wilkes noted the  
256 Natural Heritage Bureau provides a report and turtles and Black Racer were identified as well as Pied  
257 Billed Grebe. He noted nearby is the Deer Hill Wildlife Management facility in Brentwood. He described  
258 training, identification and working with Fish & Game. Ms. English expressed concern with the timing of

259 the work in July and Mr. Wilkes noted the complexity of the work schedule given by regulators to deal  
260 with potential network outages.

261  
262 Ms. English asked about the additional height of the structures, 5-20' taller than existing and Mr. Wilkes  
263 noted the height clearance required to cross the highway and connect with the similar sized structure  
264 put in across the highway last year. 20' is over highway crossing for overland clearance to connect to  
265 the other side at matched height.

266  
267 Chair Plumer opened the hearing to the public for comments and questions at 8:37 PM and being none  
268 closed the hearing to the public for deliberations.

269  
270 Ms. Belanger noted she was at the Conservation Commission hearing and has no additional questions.

271  
272 ***Ms. Belanger motioned to approve the wetland conditional use permit for Eversource (PB Case #22-7)***  
273 ***with the condition stated in the May 18, 2022 memo of Andrew Koff of the Exeter Conservation***  
274 ***Commission that the trail closure and notification be coordinated with the Natural Resource Planner***  
275 ***Kristen Murphy prior to work commencing. Ms. Martel seconded the motion. A roll call vote was***  
276 ***taken: Belanger – aye, Martel – aye, Plumer – aye, Grueter – aye, Tyner – aye and English – aye. The***  
277 ***motion passed 6-0-0.***

278  
279 ***Ms. Belanger motioned to approve the shoreland conditional use permit for Eversource (PB Case #22-***  
280 ***7). Ms. English seconded the motion. A roll call vote was taken: English – aye, Tyner – aye, Grueter –***  
281 ***aye, Plumer – aye, Martel – aye and Belanger – aye. The motion passed 6-0-0.***

282  
283 Mr. Cameron requested of the Chair, to return to the meeting at 8:42 PM and Chair Plumer  
284 acknowledged Mr. Cameron's return to the meeting as a voting member.

285  
286 **V. OTHER BUSINESS**

- 287
- 288 • Master Plan Discussion
  - 289
  - 290 • Field Modifications
  - 291
  - 292 • Bond and/or Letter of Credit Reductions and Release
  - 293

294 **VIII. TOWN PLANNER'S ITEMS**

295 Coastal Waters Charter School – Two Holland Way

296 Mr. Sharples noted that Friends of Coastal Waters were present to discuss the educational facility at  
297 Two Holland Way which is a public charter school and as an agent of the state per RSA 674:54 exempt  
298 from local land use regulations. They provided 60 days' notice to the Town and at the last Planning  
299 Board meeting the Board opted to have them come in and discuss their opening while not accepting  
300 jurisdiction, to have only non-binding comments. There was no requirement to send abutter notices,



301 but the school agreed to reimburse the Town and notices were sent first class mail and posted at the  
302 Library and Town Hall. The Select Board will have the same procedure on Tuesday evening.

303 Attorney Francis Bruton of Bruton and Berube and Bill Libby the School Board Chair presented the  
304 proposal to convert the old Tyco Building to the Friends of Coastal Waters Charter School. Steve Haight  
305 the project engineer with Civil Works discussed the traffic turning at the intersection which he described  
306 as a right-hand turn coming in. He added there is extra room if needed off the travel way. He noted  
307 adequate parking for students with cars in the former manufacturing facility. Interior changes were  
308 described by Mr. Libby such as narrowing the wide hallways used by the former offices and the location  
309 of bathrooms. Students will bring their own lunches.

310 Ms. English asked about playground areas and athletic fields and Mr. Libby described the large open  
311 green space and old helicopter pad, woods, pond and trails. There are no plans to expand at this time.

312 Chair Plumer asked about the grade levels and Mr. Libby indicated K-12, with one class per grade.  
313 Kindergarten would have 20 and first through 12 would have 25 students per class.

314 Mr. Cameron expressed concerns with the intersection of Holland and Hampton Road heading east and  
315 the sharp right into the facility, and speeds traveled on those roads.

316 Mr. Grueter asked about buses and Mr. Libby noted there were no plans for now, but buses are being  
317 looked at. Pick up and drop off will be staggered at 8:15 and 8:30 with 50 or 60 cars at a time. Ms.  
318 English noted the Cooperative Middle School could have a different start time/flexibility. Mr. Libby  
319 noted that timing was something to consider. Ms. English noted 230 kids would be coming.

320 Ms. Tyner asked about a school zone sign and Mr. Sharples noted that would be up to the DPW and Mr.  
321 Libby stated he was happy to talk with them. Chair Plumer asked about the name of the school sign and  
322 Mr. Libby noted the school would have the name sign with *Coastal Waters Charter Public School*.

323 Ms. Belanger reiterated concerns with the intersection. Chair Plumer asked about safety inspections  
324 with the Fire Department and Mr. Libby explained they applied to the State Fire Marshall. Mr. Sharples  
325 added that the Charter School would be subject to life safety and building codes.

326 Chair Plumer opened the hearing to the public at 9 PM.

327 Paul Keenan of 61 Acadia Lane asked what the site plan looked like, and Mr. Sharples noted no exterior  
328 changes or stormwater, all were designed with prior use; setback requirements were met when the  
329 building was constructed. Mr. Sharples explained the exemption to local land use regulations and noted  
330 setbacks don't apply to the new occupant per RSA as a public school not charging tuition. Mr. Keenan  
331 noted there will be a traffic problem and asked if a traffic study could be needed but Mr. Sharples noted  
332 the Board had no authorization to require it. Mr. Keenan noted the tax impact and loss of tax revenue  
333 with the public-school exemption. He concluded that if there was ever a site plan, he would like to see  
334 it. Mr. Keenan asked about chemical labs in the building and Mr. Libby described the science projects  
335 and use of one building.

336 Donna Slaughter of 61 Acadia Road expressed concerns with traffic and noted the three accidents, rear  
337 end collisions, she knows of and speeding. She noted a stop light is needed there now.

338 Chair Plumer closed the hearing to the public at 9:07 PM.

339 Mr. Cameron recommended conveying the Board's comments to the school in writing and reviewed  
340 their concerns: the intersection; the school zone sign; and recommendation for staggering start and end  
341 time and coordination with Cooperative Middle School.

342 Mr. Sharples discussed prioritization of intersections to be upgraded in traffic studies in the CIP/Master  
343 plan process.

344 Parking Study Downtown

345 Ms. Tyner recommended Mr. Sharples urge the parking study be brought forward in the CIP and  
346 solutions to manage and perhaps issue resident parking permits.

347 **IX. CHAIRPERSON'S ITEMS**

348 Chair Plumer indicated the next Planning Board meeting is on June 9, 2022 at 7:00 PM.

349 **X. PB REPRESENTATIVE'S REPORT ON "OTHER COMMITTEE ACTIVITY"**

350 **XI. ADJOURN.**

351 *Mr. Grueter motioned to adjourn the meeting at 9:25 PM. Ms. Belanger seconded the motion. A vote*  
352 *was taken all were in favor, the motion passed 7-0-0.*

353

354 Respectfully submitted,

355 Daniel Hoijer,

356 Recording Secretary

357 Via Exeter TV



# 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:** May 19, 2022  
**To:** Planning Board  
**From:** Dave Sharples, Town Planner  
**Re:** Willey Creek Company PB Case #22-3

The Applicant has submitted applications and plans for site plan review, lot line adjustment and Wetlands and Shoreland Conditional Use Permits along with supporting documents, dated 3/29/22, for the proposed relocation of Building D of the Ray Farm Condominium development on Willey Creek Road (off of Ray Farmstead Road). The subject properties are located in the C-3, Epping Road Highway Commercial zoning district and are identified as Tax Map Parcel #47-8-1 and #47-9.

The Applicant is proposing to consolidate approximately 4.29-acres of upland area of the CKT property (Tax Map Parcel #47-8-1) and combine it with the Ray Farm property (Tax Map Parcel #47-8) to create the site for the proposed relocation of Building D. Building D will be constructed in the identical manner as Buildings A, B and C, inclusive of 32 units instead of the 20 units Building D was approved for in 2017.

The Wetlands and Shoreland Protection Conditional Use Permit applications address the proposed wetlands and buffer impacts resulting from the proposed grading, pavement and gravel areas related to the two proposed wetland area crossings, drainage and stormwater management infrastructure associated with the proposed relocation. As of the writing of this memo, the Applicant has not yet appeared before the Conservation Commission for review of their Wetlands and Shoreland Conditional Use permits. They were not prepared to submit for the May meeting, however, are expected to be filing for the June 14<sup>th</sup> Conservation Commission meeting. At this time, we have not received written comments from the Conservation Commission so I would recommend that the Board not take action on the CUP at this time until written comments are received.

The Applicant appeared before the Zoning Board of Adjustment at its November 17<sup>th</sup>, 2022 meeting and was granted a variance (ZBA Case #21-12) to permit the proposed multi-family residential use of the additional property area being added to the existing Ray Farm development parcel (Tax Map Parcel #47-8) to accommodate the proposed relocation of Building D and to increase the total number of units in the Ray Farm project from 116 to 128. A copy of the decision letter and minutes from that meeting are enclosed for your review.

The Applicant is requesting a waiver from Section 11.3.1.2 of the Board's Site Plan Review and Subdivision Regulations to allow less than a 25-foot setback between Building D and the driveway/parking area. A copy of the waiver request letter is enclosed with the supporting documents for review.

A Technical Review Committee (TRC) meeting was held on Thursday, April 21st, 2022. A copy of the TRC comment letter, dated 4/27/22 and the UEI comment letter, dated 4/25/22 are enclosed for your review. Revised plans and supporting documents were received on May 17<sup>th</sup>, 2022 and are enclosed for your review. Also enclosed is a letter from Russell Hilliard, Esq., dated May 16, 2022, on behalf of his client W. Scott Carlisle, III.

The applicant responded to the TRC letter but did not address the Natural Resource Planner comments nor was a written waiver request provided to exceed 1,200 feet in street length. A traffic memo was also not provided as requested by the TRC.

Regarding the waiver request, Section 13.7 states:

**“All requests for waivers shall be submitted in writing by the applicant at the time when the application is filed for consideration. The petition shall fully state the grounds for the waiver and all the facts relied upon by the applicant.”**

The applicant clearly acknowledges the need to submit the waiver request as evidenced by the response in Denis Hamel's May 17, 2022 letter (see response to Town Planner Comments # 13 on page 3 and Mr. Pasay's letter where he states: "The applicant anticipates filing at a future date updated Conditional Use Permit Applications and corresponding analyses which address the Town's Natural Resource Planner's TRC comments as well Waiver requests which the applicant will request at a future hearing". However, the applicant has failed to provide a written request as required by the regulations. It is worth noting that this is an important part of this application as the waiver is to exceed the 1,200-foot maximum street length per Section 9.17.2 and could significantly impact the current design of the project.

The TRC also requested a traffic memo addressing the additional units. The applicant responded by stating one will be provided. The TRC requested this memo under the authority of Section 7.14. This memo has not been received.

As also stated above, the applicant has not responded to any of the Natural Resource Planner comments except to state that they anticipate "filing at a future date". The TRC determined that this information is needed for the Planning Board to properly evaluate the proposal. The TRC comment letter also states: "In order to be heard at the May 26<sup>th</sup>,

2022 Planning Board meeting, please submit any revised plans along with a letter responding to these comments (and other review comments, if applicable) no later than May 17<sup>th</sup>, 2022.

I am pointing this information out as the Board routinely asks me if the plans are complete for review purposes prior to making a motion to accept jurisdiction on the application and start the 65-day statutory timeframe. I am not in a position to state definitively that this application is complete due to the outstanding items detailed above. However, it is ultimately the Board's decision to determine if the application is complete and I would advise the Board to consider the information provided here to help make that determination.

Thank You.

Enclosures



TOWN OF EXETER, NEW HAMPSHIRE  
10 FRONT STREET • EXETER, NH • 03833-3792 • (603) 778-0591 • FAX  
772-4709  
[www.exeternh.gov](http://www.exeternh.gov)

November 22, 2021

Justin L. Pasay, Esquire  
Donahue, Tucker & Ciandella PLLC  
16 Acadia Lane  
POB 630  
Exeter, New Hampshire 03833-4924

Re: Zoning Board of Adjustment Case #20-8  
Variance Request – CKT Associates  
Ray Farmstead Road, Exeter, N. H.  
Tax Map Parcel #47-8, #47-8.1 and #47-9

Dear Attorney Pasay:

This letter will serve as official confirmation that the Zoning Board of Adjustment, at its November 17<sup>th</sup>, 2021 meeting, voted to grant your request for a variance from Article 4, Section 4.2 Schedule I: Permitted Uses to permit an age-restricted residential use (for the proposed relocation of Building D in the Ray Farm Active Adult Community) to be located on Ray Farmstead Road, as presented, including the increase in the number of residential units from 116 units to 128 units.

Please be advised that in accordance with Article 12, Section 12.4 of the Town of Exeter Zoning Ordinance entitled "Limits of Approval" that all approvals granted by the Board of Adjustment shall only be valid for a period of three (3) years from the date such approval was granted; therefore, should substantial completion of the improvements, modifications, alterations or changes in the property not occur in this period of time, this approval will expire.

If you should have any questions, please do not hesitate to contact the Building Department office at (603) 773-6112.

Sincerely,

Robert V. Prior  
Vice Chairman  
Exeter Zoning Board of Adjustment

cc: Jonathan Shafmaster, CKT Associates  
Ray Farm LLC  
Denis Hamel, P.E. GM2 Associates  
Douglas Eastman, Building Inspector/Code Enforcement Officer  
Janet Whitten, Deputy Assessor  
Dave Sharples, Town Planner

RVP:bsm

Town of Exeter  
Zoning Board of Adjustment  
November 17, 2021, 7 PM  
Town Offices, Nowak Room  
Final Minutes

**Preliminaries**

**Members Present:** Vice-Chair Robert Prior, Clerk Esther Olson-Murphy, Rick Thielbar, Laura Davies, Martha Pennell - Alternate, Christopher Merrill - Alternate, Anne Surman - Alternate

**Members Absent:** Chair Kevin Baum

**Call to Order:** Acting Chair Robert Prior called the meeting to order at 7 PM.

**I. New Business**

- A. The application of CKT Associates for a variance from Article 4, Section 4.2 Schedule I: Permitted Uses to permit an age-restricted residential use (for the proposed relocation of Building D in the Ray Farm Active Adult Community) to be located on Ray Farmstead Road. The subject property is located in the C-3, Epping Road Highway Commercial zoning district. Tax Map Parcel #47-8.1 and #47-9. ZBA Case #21-12.

Attorney Justin Pasay of DTC Lawyers; John Shafmaster and Bill Blackett, the owners; and Dennis Hamill from DM2 Engineering were present to discuss the application. Attorney Pasay said the application involves relocating Building D, the fourth building in the Ray Farm project. The original variance was issued in 2014 to a different entity, and the Willey Creek group took it over in 2017. There were to be four buildings total, three with 32 units and one, Building D, with 20 units, because the area was constrained. Buildings A and B and a clubhouse are completed, and we anticipate Building C's completion in 2022. We would like to move it away from Epping Road and the Mobil Station to the opposite edge of the site. Building D would be identical to the other three buildings. The proposal would take four acres of an upland area and combine it with the existing area. The overall development will be enlarged from 11.5 acres to 15 acres, and the density will decrease.

Mr. Prior said the parcel was approved for 116 units, and the reason the applicant is here is that they're taking property from other zoning districts and appending them, so the variance approval does not cover the new parcel. Mr. Prior asked if the 2014 decision referenced a specific number of units, and Mr. Pasay said yes, it was only 116 units.

Mr. Hamill discussed the original property line and the parcel being added for the new building. Access to it is from Building C, which avoids a larger area of wetland impact. It's 350 feet from Building A, where Building A to the original Building D was 380 feet. The original Building D required a wetland setback waiver, but the new Building D

45 does not. This building can connect to town water and sewer. It will look exactly like the  
46 other buildings, and will not be visible from Epping Road.

47 Ms. Davies asked about the easement. Mr. Pasay said the owner of the back  
48 parcel, Mr. Carlisle, has an easement for a private right of way, so he can use that and  
49 improve it to access his lot, but there's no requirement for Mr. Shafmaster to convey the  
50 fee interest of the land underneath the easement. Mr. Carlisle would have to obtain the  
51 relief necessary for frontage and wetlands and could improve his property.

52 Ms. Davies asked if the Fire Department has reviewed the circuitous access to  
53 Building D, and Mr. Hamill said they haven't yet gone to the FD, but they will be adding a  
54 turnaround for larger vehicles such as fire trucks. Mr. Prior asked about the length of the  
55 road. Mr. Hamill said 1,820 feet. Ms. Davies asked about the typical length of a cul de  
56 sac, and Mr. Prior said the Planning Board wants a max of around 1,250 feet. Mr.  
57 Thielbar asked whether it's possible to add a second access road. Mr. Hamill said it's  
58 physically possible, but there are sensitive wetland areas we'd have to cross. Mr.  
59 Thielbar said it's a long drive, and the extra people of Building D will add to the traffic  
60 along that route. They should consider having a circular access road instead. Mr. Prior  
61 said that's not the plan before us.

62 Mr. Shafmaster said Building D was not in a good building location, and required  
63 a waiver for setbacks from wetland. This new proposal would have a net increase of 12  
64 units and the wetland area would never be used for development. He would like to put in  
65 an enclosed dog area in this location for residents of the community. The first building  
66 and clubhouse were overbudget and he's been clawing his way back. This new building  
67 would be in keeping with what he's done before.

68 Mr. Pasay said these are unique properties and the use is reasonable. They  
69 have frontage on Epping Road and Ray Farmstead Road, awkwardly sized, and  
70 constrained by the wetlands. The remnant parcel, lot 9, is located in the C3 and viable  
71 for future commercial use, and this would avoid the impact of going through the  
72 wetlands. Attorney Pasay went through the variance criteria. 1) The variance will not be  
73 contrary to the public interest and 2) the spirit of the ordinance will be observed; yes, the  
74 proposal does not conflict to a marked degree with the ordinance, will not alter the  
75 essential character of the neighborhood, and will not threaten the public health, safety or  
76 welfare. The C3 district is intended to promote reasonable development. The relocation  
77 of Building D will accomplish better light and air for Building D, lessen the density of the  
78 overall project, and prevent overcrowding of land and undue concentration. It's good for  
79 the environment in that it avoids wetlands impact. It will make the remnant parcels  
80 available to be used consistently with the C3 District. This does not alter the essential  
81 character of the neighborhood, as it's identical to the other buildings on the property. It  
82 will protect public health and safety by avoiding impacts of direct access from Epping  
83 Road. 3) Substantial justice is done; yes, there is no gain to the general public from  
84 denying the variance. Granting the variance is in the public interest because we're  
85 promoting reasonable development of an upland area without the negative impacts of  
86 going through the wetland. 4) The proposal will not diminish surrounding property  
87 values; yes, the price of these units has gone considerably up (30-40%) since their  
88 purchase in 2018/2019. The condo declaration reserves the right to use this area in



89 future development, so any buyers were on notice that this would happen. There is a  
90 350 foot site distance, which is consistent with where Building D was supposed to be.  
91 The use is consistent with what was expected on the site. 5) Literal enforcement of  
92 zoning ordinance will result in an undue hardship; yes, it doesn't make sense to apply  
93 this zoning ordinance to this unique property. Lots 8.1 and 9 can accommodate the  
94 proposal, and are burdened by significant wetlands in the area of direct access. 8.1 is  
95 small and awkwardly shaped. The topography is a challenge. The purpose of the  
96 ordinance is being advanced because this will lessen congestion, increase light and air,  
97 and avoid undue concentration of population. They will also be preserving the areas of  
98 the parcel that are most suitable for commercial development. Special conditions mean  
99 that there's no reasonable use without relief given, and the only way to get to this  
100 property without wetlands impact is the means proposed.

101 Mr. Prior asked if they are prevented from putting Building D where it's currently  
102 located. Mr. Pasay said no.

103 Mr. Prior opened the meeting to public comment. He cautioned that the only thing  
104 under consideration is the residential use in this zone, not the location of the building or  
105 the access road.

106 Anthony Laburdi of 7 Willey Creek Road, Unit 202, Building A, said he and his  
107 wife moved to the development in 2019. He is a member of the Board of Directors of  
108 Ray Farm Associates, but he's only speaking for himself. The developer has been  
109 responsive to the residents. He met with us three weeks ago on why he's moving the  
110 building, and satisfied most of our questions. Mr. Laburdi said he and his wife are in  
111 favor of the petition to change the zoning. In two years his property has appreciated  
112 36%.

113 Marty Kennedy of 7 Willey Creek Road, Building A, said his concern with the  
114 original proposal was that the parking lot and access to Building C were on a disputed  
115 50 foot wide easement. This revised plan shows the lot pushed back off the easement,  
116 but it doesn't fully address his concerns. Mr. Carlisle, the owner of the lot in the back,  
117 plans to develop that property with access through the easement. The town views the  
118 easement as having access through that lot, but Mr. Shafmaster says that's probably not  
119 going to happen. The residents of Ray Farm are more than just abutters, we will own the  
120 lot after the last unit is sold. If the access to the rear parcel will be through the easement,  
121 the residents need to be aware of that. Why does there need to be a road between  
122 Building C and D? Building D could have access by extending Ray Farmstead Road. We  
123 need to consider pedestrian safety and mobility. The applicant should not be allowed to  
124 build anything on the original site of Building D in the future.

125 Mr. Prior said the right of way is not disputed. The Carlisle property is accessed  
126 only through this right of way, so in order to be developed, it will be through this right of  
127 way. Willey Creek Road is a private road and would not see an increase of traffic from  
128 any development of the Carlisle property; the access would be from Ray Farmstead  
129 Road.

130 Doug Minott of 7 Willey Creek Road said the residents will take over the new  
131 parcel. The right of way is Mr. Carlisle's to do with as he sees fit, and the residents  
132 shouldn't be absorbing that. He read a letter that he had submitted to the Board

133 regarding his view and the vegetated buffer they currently have. He is opposed to the  
134 application because he does think it will diminish surrounding property values and  
135 compromise their right to the undisturbed use of their property through the disturbance of  
136 the construction.

137 Rosemary Demarco of 24 Willey Creek, Building B, said she approves of the  
138 plans that Mr. Shafmaster has for Building D.

139 Adriana Christopher of 7 Willey Creek, Building A, said they're in favor of the  
140 proposal. The new location would be better than the original location. The development  
141 is wonderful to live in and the builder has done a fantastic job.

142 Mr. Pasay said some of the comments were Planning Board concerns. We have  
143 been transparent with the negotiations with Mr. Carlisle. Concerns about property  
144 values, but this area of the property is zoned C3, this use is the best possible use. The  
145 building will be 350 feet away from Building A, about the same as what was proposed for  
146 Building D. In every deed, there's a reference to the public document of the condo  
147 declaration which says that this property could be added to the condominium. The  
148 market analysis doesn't support the conclusion that it will diminish market value.

149 Bill Blackett, the CFO for Mr. Shafmaster, said he has data that says the value of  
150 the real estate is going up and will not be diminished. There's been a 26% increase from  
151 Building A to Building C. Putting in Building D, units there would be \$700,000, where  
152 Building A was originally \$490,000. Unit 301 in Building A was a recent resale, it was  
153 bought for \$466,000 and sold for \$605,000.

154 Mr. Shafmaster said he's had two meetings with 30-40 residents about his plans,  
155 and he addressed their concerns by moving Building D away. Regarding Mr. Minott's  
156 concerns about noise and blasting, during the second meeting he had his sitework guy  
157 give him a bid to do any work on this building coming in off Commerce Way and doing  
158 the construction work from behind, which would eliminate dust, noise, road issues, etc.  
159 so his concerns were addressed. Regarding value, where Building D was originally,  
160 there is a Mobil Station there that is lit nearly 24 hours a day. The original Building D  
161 would have had lesser value units because of this proximity, which would create  
162 confusion in the market.

163 Mr. Prior closed the public session.

164 Mr. Prior said this will require technical review and Planning Board approval. The  
165 only thing the ZBA is considering is whether residential use can be allowed on this C3  
166 parcel.

167 Ms. Surman said it goes against the grain to continue to make C3 properties on  
168 Epping Road residential. Folks have concerns about mixing residential and commercial  
169 and it's a slippery slope. However, now it's there and Mr. Shafmaster has done a  
170 fabulous job. The area is tough with a lot of wetlands. Going forward this area should be  
171 commercial, but this location for the new building is far superior to where it was. Mr. Prior  
172 said the original vote for allowing residential on this property was 3-2. In 2014 Epping  
173 Road was a different road than now. We are considering the residential use on this  
174 parcel and the increase in the number of units by 12, since the original application  
175 specified a certain number of units.

176 Mr. Thielbar went through the variance criteria. 1) The variance will not be  
177 contrary to the public interest and 2) The spirit of the ordinance will be observed; yes,  
178 there does not seem to be much negative side. The land in question is basically an  
179 island, and is difficult to access in any other way. It's not negative to the public interest  
180 and the spirit of the ordinance is observed. Mr. Prior said if not developed with Building  
181 D, that parcel, while difficult to access, could be developed commercially. It would be  
182 better for residents of buildings A, B, and C to abut another residential property rather  
183 than a commercial property. Mr. Thielbar continued with the variance criteria: 3)  
184 Substantial justice is done; yes, he can't see a downside to the proposal. It clearly  
185 benefits the applicant. An additional section of land will stay as it is now, and it's the part  
186 we all drive by, which is a benefit to the rest of the community. Mr. Prior said "harm to  
187 the general public" includes those who own condos there. People who live in Buildings  
188 A, B, and C will own in common the land underlying the property. This will increase the  
189 amount owned by 3.9 acres, which increases the value of the units. Mr. Thielbar  
190 continued with the criteria: 4) The proposal will not diminish surrounding property values;  
191 yes, there's no sufficient evidence that there will be a significant loss in value. It was  
192 unrealistic to think that the land in question was going to stay undeveloped. Mr. Prior  
193 said selling during construction may have a temporary setback in value, but ultimately  
194 the value will increase. Ms. Davies said in her opinion as a valuation professional, more  
195 units don't equal a lower value. This is a successful project and a few more units aren't  
196 going to change the unit values. Regarding the proximity, there's a good amount of  
197 distance from Building A to Building D. There will be some disruption to the existing  
198 buildings during construction, but they won't see it once it's done. Mr. Thielbar continued  
199 with the criteria: 5) Literal enforcement of zoning ordinance will result in an undue  
200 hardship; yes, the original location of Building D limits the capacity and is not in a good  
201 area. The land proposed to be used is difficult to access but there is a way to  
202 productively use it. Everything on this site had hardship due to the water. Mr. Prior said  
203 we have to consider the parcel as proposed. Is there hardship on the newly designed  
204 parcel? Yes, getting to that upland portion is extremely difficult. The special conditions of  
205 the property create a hardship which is access.  
206

207 Mr. Thielbar moved to accept the application of CKT Associates for a variance from Article 4,  
208 Section 4.2 Schedule I: Permitted Uses to permit an age-restricted residential use for the  
209 proposed relocation of Building D in the Ray Farm Active Adult Community to be located on Ray  
210 Farmstead Road as shown in the submitted documents, with the understanding that the project  
211 will go to the Planning Board. Ms. Surman seconded. Mr. Prior said we should add a comment  
212 that the number of units is also expanded.

213  
214 Ms. Davies made a motion to add an amendment that we would also be granting an increase in  
215 the number of units from 116 to 128. Mr. Thielbar seconded the amendment. Mr. Prior, Mr.  
216 Thielbar, Ms. Davies, Ms. Olson-Murphy, and Ms. Surman voted aye and the amendment  
217 passed 5-0.  
218

219 Regarding the amended motion, Mr. Prior, Mr. Thielbar, Ms. Davies, Ms. Olson-Murphy, and  
220 Ms. Surman voted aye and the amended motion passed 5-0.

221  
222 Mr. Prior called for a five-minute break. Ms. Davies left the meeting at this time.  
223 The meeting reconvened at 8:50 PM.

- 224  
225 B. The application of Roger Elkus for a variance from Article 5, Section 5.5.3 to  
226 permit the proposed construction of a second principal building (residential) on  
227 the property located at 181 High Street. The subject property is located in the R-  
228 2, Single Family Residential zoning district. Tax Map Parcel #70-119. ZBA Case  
229 #21-13.

230  
231 Attorney Sharon Somers of DTC Lawyers was present to discuss the application.  
232 She said the owners would like to put a proposed dwelling in the location that juts out  
233 onto Ridgewood. This building would be no larger than 2,128 square feet, or 56' x 38'. It  
234 would conform with the setbacks, height restrictions, etc.

235 Mr. Prior asked if this is a lot line adjustment, and Attorney Somers said no, only  
236 variance relief to allow two principal dwellings on one lot. Ms. Surman asked if it would  
237 become a condominium, and Attorney Somers said it could, but it wouldn't have to. The  
238 zoning calls for one principal dwelling on a lot, but we are proposing two principal  
239 dwellings on a lot. The property is too big for the owners right now. The existing dwelling  
240 could be better used by a larger family with kids, for example.

241 Mr. Prior asked if the proposed house would meet all the size, access, area, lot  
242 coverage, and setback requirements for a single-family dwelling? Attorney Somers said  
243 yes. It's allowed to have two driveways on a single lot, and the property next door, Map  
244 70 Lot 20, has two driveways.

245 Mr. Thielbar said the ZBA rejected a similar application regarding this property in  
246 2019. Attorney Somers said the application in 2019 was for frontage relief because there  
247 is only 90 feet of frontage on Ridgewood Terrace, and was done in connection with a  
248 subdivision proposal. The new application is not a subdivision, it's to have two dwelling  
249 units on a single lot.

250 Mr. Prior said he asked if this unit would meet all requirements for a separate lot,  
251 and she said yes, but it actually doesn't. Attorney Somers said it's correct that it wouldn't  
252 meet the requirements as a separate lot, but that's not what's proposed. It would  
253 conform to all building setbacks, height, open space, etc.

254 Attorney Somers went through the variance criteria. 1) The variance will not be  
255 contrary to the public interest. She said the purpose of the zoning in requiring one  
256 dwelling on a lot is to prevent overcrowding. There will be no alteration of the essential  
257 character of the neighborhood. The neighborhood is single family homes, and this is just  
258 an additional family home. They will be on a lot which is well-sized to support both of  
259 them. There are no public safety issues. This would be a small house, around 2,000  
260 square feet, and will not result in excess population or traffic concerns. Between the two  
261 houses, it would be equivalent to a five bedroom property on 1.7 acres, which is  
262 adequate.

263 Ms. Surman asked what the address of the second house would be, which could  
264 be an issue for the Fire Department. Attorney Somers said she didn't know, but that  
265 could be worked out if the variance were granted and the building permit was pulled.

266 Attorney Somers continued with the variance criteria: 2) The spirit of the  
267 ordinance is observed; this is usually considered together with criteria 1 about public  
268 interest. 3) Substantial justice is done; yes, there is no gain to the public if this variance  
269 were denied. The applicant has a variety of options about what can go into this large 1.7  
270 acre parcel, such as an accessory structure like a barn or garage, or with a special  
271 exception it could have an accessory dwelling unit. The loss to the applicant would be  
272 that they can't have a modestly sized dwelling in the location that they would like. 4) The  
273 proposal will not diminish surrounding property values; yes, there won't be any  
274 diminution in value. 5) Literal enforcement of zoning ordinance will result in an undue  
275 hardship; yes, the size and configuration of the lot creates the hardship. There is a fair  
276 and substantial relationship between this proposal and the public purpose of the zoning  
277 ordinance, which is to prevent overcrowding on the land or excess additional population.  
278 Putting a 2,000 square foot dwelling on this area would not constitute overcrowding. The  
279 proposed use is reasonable because the lot is big enough to contain the proposed use.  
280 Large accessory units could go in there already, this proposal is only slightly different.

281 Mr. Prior asked if there are other 2 family properties in the neighborhood.  
282 Attorney Somers said no, but in 2000 there was a subdivision to create lot 119/1; prior to  
283 that subdivision there were two units on the lot. Mr. Prior said the second unit wasn't a  
284 dwelling unit until after the subdivision. Prior to that, it was a garage.

285 Mr. Thielbar said this is essentially a resubmittal of their 2019 request which was  
286 rejected. Attorney Somers said under the Fisher test, this is a material change of the  
287 proposed use. Previously, it was a subdivision proposal, but this is one lot with two  
288 dwellings. An accessory dwelling unit is not on the table because it's too small and  
289 wouldn't be able to be condo'd. An addition doesn't work. If this Board were to allow a  
290 second dwelling unit on some other portion of the property, it still wouldn't maintain open  
291 space because a driveway would have to go in.

292 Mr. Prior opened the session to public comment.

293 Matthew Forsyth, the neighbor to the south, said his concern is that his house  
294 has severe water issues, and where the applicants are proposing to build a house also  
295 collects water. If they build up, it will put even more water in his basement. He would like  
296 to see the proposed size of the house and a runoff water plan that's signed off on by the  
297 neighbors be conditions of the variance.

298 Mr. Prior closed the public session and allowed the applicant to address the  
299 Board.

300 Mr. Elkus said he knows this proposal is similar to the request two years ago.  
301 The house is a lot to take care of. He and his wife want to stay in Exeter, but do it in a  
302 more modest way. Not a lot of thought was put into how this lot was subdivided. If it had  
303 100 instead of 90 frontage feet, we would be able to subdivide. There are nearby houses  
304 that are smaller than the lot they're looking at building on, but they were grandfathered  
305 in.

306 Attorney Somers said regarding Mr. Forsyth's concern, they may want to table  
307 the issue so that she can discuss with her client whether this is an amenable condition.  
308 Mr. Prior said if the variance is approved, it would be conditional on Planning Board  
309 approval, and the Planning Board could address that issue. Attorney Somers said that  
310 the Planning Board wouldn't have jurisdiction because it's not a multi-family; three  
311 homes is the cut off for that.

312 Ms. Surman said it would make more sense to create it as a condo or a rental,  
313 since by definition there is only one primary dwelling on a lot. Attorney Somers said we  
314 would be amenable to treating it as two condominium units.

315 Mr. Prior said before the Board goes through the variance criteria, he would like  
316 to hear the applicants further address "hardship."

317 Attorney Somers said she would like a five-minute break to speak with her client  
318 about the water issues, since this is the first she's hearing of it.

319 Mr. Prior called for a five-minute recess. The meeting reconvened at 9:25 PM.

320 Attorney Somers asked to table the application to give her client the opportunity  
321 to talk with his neighbors.

322 Ms. Olson-Murphy made a motion to table this application until the next meeting. Mr. Thielbar  
323 seconded. Mr. Thielbar, Mr. Merrill, Mr. Prior, Ms. Olson-Murphy, and Ms. Surman voted aye,  
324 and the motion passed 5-0.

325  
326 **II. Other Business**

327 **A. Extension of Case 18-24.**

328 Mr. Prior said nothing about the application or property have changed, so it's  
329 reasonable to extend for the requested time of one additional year.

330 Mr. Thielbar made a motion to grant the extension of Case 18-24 for one year. Ms. Surman  
331 seconded. Mr. Thielbar, Mr. Merrill, Mr. Prior, Ms. Olson-Murphy, and Ms. Surman voted aye,  
332 and the motion passed 5-0.

333  
334 **B. Minutes of October 19, 2021**

335 Ms. Surman made a motion to accept the minutes of Oct 19, 2021 as presented. Mr. Thielbar  
336 seconded. Mr. Thielbar, Mr. Merrill, Mr. Prior, and Ms. Surman voted aye, and the motion  
337 passed 4-0.

338  
339 **III. Adjournment**

341 Ms. Surman moved to adjourn. Mr. Merrill seconded. All were in favor and the meeting was  
342 adjourned at 9:30 PM.

343  
344 Respectfully Submitted,  
345 Joanna Bartell  
346 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:** April 27, 2022

**To:** Denis Hamel, P.E., GM2  
Jonathan Shafmaster, Ray Farm LLC  
Justin Pasay, Esquire

**From:** Dave Sharples, Town Planner

**Re:** Site Plan Review TRC Comments  
PB Case #22-3 Willey Creek Co - Ray Farm, LLC  
Tax Map Parcel #47-8-1 and #47-9

The following comments are provided as a follow-up for technical review of the site plans and supporting documents submitted on March 29, 2022 for the above-captioned project. The TRC meeting was held on Thursday, April 21<sup>st</sup>, 2022 and materials were reviewed by Town departments.

### **TOWN PLANNER COMMENTS**

1. Are there any known environmental hazards on the site? If so, provide detail.
2. Show monuments in accordance with Section 9.25.
3. Provide all professional stamps (P.E., Wetland Scientist, LLS, etc.) on the applicable plans per Section 7.2.1 and 7.2.2 for the Planning Board submission.
4. Identify significant trees per Section 7.4.7. Be sure to identify all trees within the limit of work and along the proposed gravel access drive from Commerce Way to the site.
5. Please clarify the parking requirements and waivers on the cover sheet as it appears to indicate what is required as part of the prior approval and also the information does not appear accurate (i.e. 1233 parking stalls). Suggest treating this as a standalone application and provide details regarding parking and waivers requested that are specific to this application.
6. Add snow storage areas on plans per Section 7.5.14.
7. Add note per Section 7.5.16.
8. Please provide further details on the 14' wide gravel access road and how it will be constructed. Are all buffer impacts resulting in the creation of this access road included in

the CUP? There is a reference in the Gove memo that appears to indicate that this is an “existing woods road”. While there is packed down soil from bike and pedestrian use, it doesn’t not appear to be a road.

9. Provide information to determine if Section 9.6.3 is being satisfied.
10. Was the landscape plan created by a Licensed Landscape Architect? Are the plantings low maintenance and chosen for all site conditions? Will irrigation be required? If so, show locations on landscape plan.
11. Provide updated traffic memo addressing the additional units.
12. Sixteen (16) parking stalls are proposed along the front of Building D. This requires a parking island per Section 9.7.5.5.
13. Section 9.17.2 allows a maximum dead-end street of 1,200 feet. It appears that the access roadway exceeds 1,500 feet. Please see Section 9.17.10.B that states “An access road used to serve three or more units is considered a road (or street)”. Also see the definition of Street in Section 5.3.4.
14. The access road to Building D appears to conflict with the TIF Road (so called) design. Whether that road is built as a TIF road or built by Carlisle, it shows as access to the Carlisle property on a plan approved by the Planning Board for subdivision in 2017. To town planning staff it appears that the construction of this new accessway to proposed Building D will conflict with the intended construction of that road, though the applicant’s attorney represents that it does not. To resolve this, I recommend that the Planning Board refers this issue to the town’s outside engineering consultant for its guidance specifically on whether the proposed construction of this accessway to Building D would interfere with a road to be built through the Carlisle easement, whether it remains as a private roadway or becomes public.
15. Provide information on the Lighting Plan to determine compliance with all requirements set forth in Section 9.20.
16. Provide information that the project meets Section 11.2 and 11.3.
17. Confirm if there will be any grading within 5 feet of any exterior property line.
18. How will trash pick-up for the residential use and commercial uses be handled? Will there be any internal trash storage? No dumpsters are shown on the plans.
19. Please discuss potential addressing of the site/buildings with the Code Enforcement Officer and Deputy Fire Chief.

## **PUBLIC WORKS COMMENTS**

1. The layout of this roadway is not compatible with the Phase II Ray Farmstead Rd design. I compared this concept plan to the TIF Phase II portion of Ray Farmstead Rd that previously



went through final design by the developer and engineer. I assumed that both would be eventually built. In fact, the drainage pond in Phase I was designed and already built with runoff contributions from Phase II accounted for.

- A. The Building D roadway would intersect Ray Farmstead Rd at approximately STA 11+68. Ray Farmstead Rd centerline would be at elevation +/- 117.0 ft while Building D roadway is at +/- elevation 120.0 ft. (a difference of 3.0 ft)
  - B. The Building D roadway should intersect Ray Farmstead Rd on a straight-away and not on a curve. The intersection of the roadways should be perpendicular to each other.
  - C. The utilities for Building D need to be designed with the Ray Farmstead utility extensions in mind. Assuming that Phase II - Ray Farmstead Rd is built and accepted by the Town, it is not customary to have private utility corridors crossing a town right-of-way.
2. There is offsite area that contributes to the stormwater runoff through the proposed development. The sketches of the Pre-development and Post-development drainage areas do not show this offsite area.
  3. Check the pipe orientations and headwall detail for the headwall near STA 2+40.
  4. The existing utility information for Building C is different from the approved plan. It seems that additional utilities have already been installed without town approval or inspection.

### **FIRE DEPARTMENT COMMENTS**

In an e-mail from Ass't. Fire Chief Pizon, dated 4/7/22, it was indicated that Deputy Fire Chief Jason Fritz had previously met with the Applicant (and representatives) to go over the Fire Department requirements, and it was noted that the requirements were the same as for the other buildings

### **NATURAL RESOURCE PLANNER COMMENTS**

#### **CUPs**

- The application does not contain enough information to demonstrate it meets 9.6.1 B.2. (*"No alternative design .....or which has less detrimental impacts on the wetland or wetland buffer is feasible"*) or 9.6.1.B.4 (*"That the design, construction and maintenance*

*of the proposed use will, to the extent feasible minimize detrimental impact on the wetland or wetland buffer”).*

- You have demonstrated that an alternate location for Building D is feasible with your prior approved plans. Your proposal did not include a determination that the previous location would cause a greater wetland impact. Please provide a calculation of impacts that would result from locating the larger 32 Unit Building D to the original location. This is necessary to determine whether your proposal meets the aforementioned condition.
- The application states the gravel construction access road is necessary for construction to avoid conflicts with the developed portions of the lot however, prior plans for the construction of Building D, the recent construction of Building B, and the ongoing construction of Building C all entail driving through the developed portion of the lot for construction purposes, thereby demonstrating it is feasible. Further, eliminating this from the proposal will eliminate impacts to vernal pool buffers and eliminate a need for the temporary wetland crossing. Therefore, it is unclear how inclusion of this gravel construction access road can meet either condition.
- Your proposal has not documented that accessing Building D via the extension of Ray Farmstead Road is infeasible, or quantified the impacts in order to compare with the impacts resulting from the connection between Building C and D and the construction access road. This analysis should also consider that it will be creating a redundant wetland crossing within the wetland system serving Watson brook when the Ray Farmstead Road is extended as you acknowledged in your wetland application amendment to the State NHDES (File# 2017-01530) for the original proposal.
- The application does not meet 9.6.1.B.3 (impact evaluation) because it does not consider impacts to the 100-foot vernal pool buffer from widening the existing trail to meet the 14-20' wide construction access road called out in the plans.
- I am also concerned that conclusions within the impact evaluation did not consider all project related impacts adequately in order to meet 9.6.1.B.3 for the following reasons:

- The construction access road is described as requiring minor widening in some portions however it is currently best described as a foot path and the plans indicate resurfacing and widening to 14-20 feet. There is no quantification of this. Without these details, it is not possible to consider impacts to the resources. Further, there is no evaluation of sedimentation or runoff from the steep slope of the construction roadway which slopes directly into the wetland feeding Watson Brook. No stormwater management is described to address this. The only management offered is adding silt sock/fence along the linear edge of the road. This is also relevant to Shoreland CUP 9.3.4 (G)2.a. (“not detrimental to surface water quality”).
- The new location of Building D is within the State Wildlife Action Plan’s Highest Ranked Habitat in the Region category but this was not mentioned so it is unclear if this was considered. This is also relevant to Shoreland CUP 9.3.4. (G) 2.c. (“undue damage to....wildlife habitat”). Further the impact evaluation report identified a constriction for wildlife movement within the wetland at the crossing between Building C and D. As this is described as a primary function of the wetlands, and a larger crossing structure has not been considered, this also does not appear to meet Shoreland CUP criteria 9.3.4.(G).2.c.
- The application is missing the restoration plan for the temporary buffer impacts in order to meet Wetland CUP 9.6.1.B.7 (restoration proposal).
- Please clarify what the intent of the Open Space is at the former Building D location. Is it intended to remain free of buildings?

General Comments:

- The Conservation Commission will want a site walk. I recommend proposing dates that work for the applicant’s team prior to the 5/10 meeting when the additional info requested is submitted. They will want the ability to ask questions of the wetland scientist during the walk, so Brendan’s presence is requested. With later sunsets, 5 pm before the meeting or early mornings tend to fit best with work schedules.
- Soil stockpiling within the wetland buffer should be avoided.
- What are the nutrient removal efficiencies for the proposed stormwater structures?
- I did not see detail on the temporary crossing structure. Please provide. Has the applicant considered removing the damaged culvert from this crossing to improve wetland function?

- The original application indicated that there may be sensitive plant species present and follow up surveys would be conducted during the appropriate growing period prior to construction. When were these surveys conducted and what was the result? Were surveys also conducted within the proposed new location for Building D?
- Given the presence of wetlands, there is a potential for entrapment of amphibians from the deep sump catch basins. Is there potential to avoid the use of deep sumps?
- Please confirm all erosion control silt sock and matting materials are limited to natural material such as jute or coconut matting as photodegrading plastic causes wildlife impacts. Please add note accordingly.
- I did not see snow storage (Site and Sub Regs 7.5.14) or significant trees (remaining or to be removed) indicated (SS Regs 7.4.7). Please provide.
- Please confirm the selected lighting meets our lighting requirements for dark sky compliant, full cut-off shielding (SS Regs 9.20.4).
- *Miscanthus sinensis* is proposed for perennial grasses. This species is on the [NH Invasive Species Watch List](#). Some native suggestions for replacement: *Sorghastrum nutans* or *Andropogon gerardii*.
- What size is the culvert under the road between building C and D? It would be helpful to have this shown on the grading and drainage plans to identify whether it is sufficiently sized. Did the designs consider sufficient sizing for hydraulic capacity, wildlife and aquatic organism passage? Have elevated rainfall regime been considered in designs?
- Add requirement for wetland boundary disks to be installed along wetland buffers within the development (SS 9.9.1).

In order to be heard at the May 26<sup>th</sup>, 2022 Planning Board meeting, please submit any revised plans along with a letter responding to these comments (and other review comments, if applicable) **no later than May 17<sup>th</sup>, 2022**, but sooner if possible, to allow staff adequate time to review the revisions and responses prior to the planning board hearing.

2187.00

April 25, 2022

David Sharples, Town Planner  
Town Planning Office, Town of Exeter  
10 Front Street  
Exeter, NH 03833

**Re: *Ray Farm Building D***  
***Design Review Engineering Services***  
Exeter, New Hampshire

**Site Information:**

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Tax Map/Lot#	Map #47, Lot 8	Review No. 1
Address:	Ray Farmstead Road	
Lot Area:	15.75 acres (total after lot line adjustment)	
Proposed Use:	Residential	
Water:	Town	
Sewer:	Town	
Zoning District:	C-3	
Applicant:	Willey Creek Co., LLC, 158 Shattuck Way Newington, NH 03801	
Design Engineer:	GM2 Associates, Amesbury, Massachusetts	

**Application Materials Received:**

- Site plan set entitled “Ray Farm” “Site Development Plans for Building D off Ray Farmstead Road, Exeter, NH” dated January 11, 2022, prepared by GM2 Associates.
- Site plan application materials prepared by GM2 Associates.
- CUP application prepared by GM2 Associates.
- Drainage report and stormwater maintenance manual prepared by GM2 Associates.

Dear Mr. Sharples:

Based on our review of the above information, we offer the following comments in accordance with the Town of Exeter Regulations and standard engineering practice.

**General**

1. The plans should be stamped by the engineer, surveyor, wetlands scientist, et al. as appropriate.

2. An NHDES Sewer Connection Permit should be added to the list of permits on the plan set cover. Any revisions or modifications made in the field during construction since the prior NHDES approval should be submitted for after-the-fact review as well as those required for the approval of Building D.
3. It is unclear if the Proposed Building D (32-units) is intended to replace the previously approved Building D (20-units) and complete the project or if the applicant's intent is to preserve the option to re-permit the former Building D for construction at a later time. The application should be clear if the intent is that the project will be complete of all phases following the construction of the proposed Building D.

#### **Lot Line Adjustment Plan**

4. The General Notes (3) identifies W. Scott Carlisle as the beneficiary of the existing ROW/Easement through the project's parcels. Any encumbrance to that ROW should be reviewed by the beneficiary for concurrence.
5. It appears that Parcel 047-008-0002 exists but is labelled as "Proposed Lot II" in the lot line adjustment plan. Please confirm and adjust the label as appropriate.

#### **Existing Conditions Plan**

6. Near Station 2+60 Right is a round shape with small "x" in it. That symbology is missing from the legend. Please identify what the shape is intended to portray.

#### **Site Plan**

7. The length of the internal roadway exceeds the Town limit per section 9.17.2 of the Site Plan regulations.
8. The internal roadway must meet all other requirements of section 9.17.2.
9. The proposed project's design appears to disregard the ROW through Parcel A as well as the TIF Road design of 2018. The project plans should include the stationing from the TIF Road design and identify the station equation representing the point of intersection.
10. The roadway between Building C and Building D should be realigned to cross the intersection with the right-of-way at a 90-degree angle. Please see the Town of Exeter Standard Specifications for Construction Section E.III.D.2. Note that per the regulations, if this requirement cannot be met on both sides of the ROW, the roadway must be designed and stamped by a professional traffic engineer.
11. Confirm sight distance per the above-referenced Town regulation can be achieved at the ROW intersection per alignment geometry.
12. How will solid waste disposal be handled? No dumpster enclosure is shown on the plan.
13. There appears to be clearing within the 40' wetland buffer in the vicinity of Station 3+50 Left.
14. Confirm emergency vehicle access and turning movements are accommodated within the roadway widths and curb radii.



15. It appears to UE that the greater Ray Farm Condominium project would benefit from utilizing the extended TIF Road ROW/design rather than extending the access road for Ray Farm an additional 818 +/- feet as proposed. Benefits include:
- A. Avoidance of future coordination issues with the ROW/TIF Road.
  - B. Improved Emergency Access to Building D and potentially Buildings A through C.
  - C. Reduced total footprint impact when compared to the proposed 860' 14' wide access road.
  - D. Potential for reduced total wetland impacts.
  - E. Reduced commercial traffic through Industrial Drive and Commercial Way.

### Utility Plans

16. All utilities should be designed for isolation on both sides of the ROW at the crossing.
17. It is unclear how ownership of utilities crossing the right-of-way will be handled.
18. UE understands the proposed gas line is a private utility, however generally speaking, the placement of a utility spur around/behind a building is not advised.
19. A note should be added to the plan indicating 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 during construction of these utilities.
20. The terminus of the water main with a stub toward the abutting CKT parcel implies future extension plans, per comment 3 above, the application should be clear regarding the greater intent, if any.

### Grading and Drainage Plans

21. Has the 24" culvert proposed at station 2+53 been evaluated for wildlife passage requirements? The applicant should evaluate the wildlife corridor needs of the wetland system being restricted by the culvert.
22. The culvert crossing at Station 2+53 could be shortened significantly by utilizing taller headwalls or gravity retaining walls.
23. Restoration notes should be provided at each headwall. Will it be loam and seed? Riprap? In addition, the proposed tree line should be pushed out at those locations since equipment will need to access the area for installation of the headwalls and culvert.
24. Embankment slopes of steeper than 3:1 slope should be fitted with guardrails.
25. Where will foundation drains discharge?
26. Note 2 on several sheets refers to the TIF road plan. The proposed elevation of the access roadway is inconsistent with the design grades of the TIF road plans. Specifically, the intersection of the two roads differ by approximately 3.5 vertical feet.
27. The temporary easement lines for the construction access should be shown on sheet C1.23.
28. The perimeter drainage, labelled RD (roof drain?) should be fitted with clean-outs or better still, structures (i.e. nyoplast units), for access and cleaning. UE questions the layout as it would appear to be breaking the RD system at the northern corner of the building where



the northeasterly run would discharge to, or the vicinity of CB 2 may be preferable to running the RD water all the way around the building.

29. What is the finished treatment of the access road (to Commerce Way) once the project is complete – grassed, remain gravel? Note – the project proposes a swale that will discharge water to the access road and ultimately off site that, as graded, will not make it to the stormwater treatment downstream of CB2.

### **Profile Sheets**

30. The profile slope of the access road is 3% whereas the typical section of the proposed TIF road is a normal crown with 2% cross slopes.
31. Please note the maximum allowable grade within 50' of the future pavement of the ROW is 3% per the Town of Exeter Standard Specifications for Construction.
32. Show the temporary bridge in the profile view of the construction access road.
33. The access road profile approaches 15% for over 200' of its length. In addition to the steep grades, there appears to be the potential for vehicles to bottom out at the wetland crossing, particularly delivery trucks. Please confirm the vehicles will have no issue navigating the profile grades as shown.
34. Show the proposed temporary culvert at the construction access road wetlands crossing in the plan view. Label the slope and inverts. Since the wetlands will be spanned, what is the purpose of the culvert?
35. The proposed contours in the plan view do not match the profile view in the area of the temporary bridge. The profile indicates fill to station 9+97, while the plan view shows fill ending before the bridge. In addition, the profile indicates there will be fill within the wetlands rather than a temporary span.
36. The existing edges of gravel and the existing and proposed tree lines should be shown along the construction access route.
37. Add the edge of ROW lines to the profile view on sheet C1.41.

### **Erosion Control Plans**

38. Ultimate restoration of the construction access road should be labeled.

### **Landscape Plan**

39. Utilities should be added to the plan to assess potential conflicts. Proposed grading should be added as well.
40. Will an irrigation system be installed? If so, it should be shown on the plan.

### **Stormwater Design and Modeling**

41. The Pre and Post Development Plans for review of the HydroCAD model were attached to the CUP submittal. Please merge those into the stormwater analysis.
42. The Pre and Post Development Plans are missing call-outs for ponds, modelled CB ponds, reaches and other HydroCAD model nodes requiring a significant amount of interpretation to evaluate the features and their modelled limits. As such, the drainage review is not complete. The review will be completed upon resubmittal with labels.





43. UE is concerned about the simple Pre- model being used as a baseline for comparison to the post-model. While it is typical that the pre-models are simpler than post-models, as a quantitative analysis common features modelled in one model should be replicated as appropriate in the other model; an example being Post-Development Reach 5R (“Stream Channel”) should be modelled in the Pre-Development which would necessitate the Pre-Development Subcatchment E1 being broken up accordingly. It would seem reasonable that the post- model would define the Stream Channel Reach to correspond to the culvert at Stat 2+52 to address other comments within this review.
44. Subcatchment D8 is orphaned.
45. UE questions the size and routing of Subcatchment D1 as 50% of it is utilizing at least some portion of the Reach 5R for conveyance.
46. Rainfall amounts must be increased by 15% per AoT regulation Env-Wq 1503.08.
47. The project has not demonstrated its compliance with the Pollutant Loading removal requirements per the Town of Exeter stormwater treatment regulations.
48. Provide pipe sizing calculations for all drainage pipes and culverts, including the culvert at Station 2+52.
49. The project is required to comply with Exeter regulation section 9.3.3.6 regarding the evaluation of the effects of sea level rise.
50. **PTAP Database:** The Applicant is requested to enter project related stormwater tracking information contained in the site plan application documents using the Great Bay Pollution Tracking and Accounting Program (PTAP) database ([www.unh.edu/unhsc/ptapp](http://www.unh.edu/unhsc/ptapp)) and submit the entry for review.

A written response is required to facilitate future reviews. Please contact us if you have any questions.

Very truly yours,  
UNDERWOOD ENGINEERS, INC.



Allison M. Rees, P.E.  
Project Manager



Robert J. Saunders, P.E.  
Senior Project Engineer





CELEBRATING OVER 35 YEARS OF SERVICE TO OUR CLIENTS

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NICHOLAS R. AESCHLIMAN

17 May 2022

Langdon Plumer, Chair  
Exeter Planning Board  
10 Front Street  
Exeter, NH 03833

**Re: Planning Board Case #22-3**

Dear Chair Plumer and Board Members –

This firm represents the Applicant in the above referenced Planning Board case. Please find enclosed herewith a revised Site Plan set and Storm Water Report with calculations from Denis M. Hamel, P.E. at GM2 Associates ("GM2") as well as a GM2 Letter responding to the Town's TRC comments, all with requisite number of copies. The Applicant and its team of consultants look forward to discussing the Applicant's project proposal with the Planning Board at its 26 May 2022 meeting. The Applicant anticipates filing at a future date updated Conditional Use Permit Applications and corresponding analyses which address the Town's Natural Resource Planner's TRC comments as well as Waiver Requests which the Applicant will request the Planning Board review at a future hearing. The Applicant anticipates appearing before the Town's Conservation Commission at its next meeting on 14 June 2022.

By this letter, the Applicant responds to several TRC Comments which GM2 did not respond to, to include Town Planner Comment 14, Public Works Comment 1, and Underwood Engineering Comments 4, 9, 10, 11, 15, 16, 17, 30 and 31, all of which pertain to the potential extension of the existing public Ray Farmstead Road over an existing 50-foot private easement on the Applicant's Property benefiting the owner of abutting land currently owned by Scott Carlisle ("Mr. Carlisle's Private Easement" or the "Private Easement") (the "TRC Comments"). This letter also responds to correspondence filed with the Planning Board on 16 May 2022 by Upton & Hatfield, LLP on behalf of Mr. Carlisle ("Attorney Hilliard's Letter").

As the Planning Board is aware, there is ongoing litigation involving the Town of Exeter, the Applicant and Mr. Carlisle regarding the potential extension of Ray Farmstead Road over Mr. Carlisle's Private Easement to access Mr. Carlisle's Property. To summarize the foundational subject of that litigation, the Town and Mr. Carlisle maintain that the Applicant has a legal obligation to permit the Town to site and construct a public road over the Private Easement. The Applicant maintains, as it expressly has for years, that it does not consent to the extension of Ray Farmstead Road as a public road over Mr. Carlisle's Private Easement and has never agreed to convey the necessary property interests to the Town to convert the Private Easement into a public road.

**DONAHUE, TUCKER & CIANDELLA, PLLC**  
16 Acadia Lane, P.O. Box 630, Exeter, NH 03833

111 Maplewood Avenue, Suite D, Portsmouth, NH 03801

Towle House, Unit 2, 164 NH Route 25, Meredith, NH 03253

83 Clinton Street, Concord, NH 03301

The TRC Comments which the Applicant responds to by this letter unfortunately put the Planning Board in the middle of this private dispute between the Applicant and the Town by improperly assuming that Ray Farmstead Road will be extended as a public road over the Private Easement as a matter of fact and by stating that the Applicant's proposal is not compatible with same. In so doing, the TRC Comments conflate the reality of the existing conditions of the underlying Property inclusive of the Private Easement, with the speculative and unestablished nature of the potential extension of the public Ray Farmstead Road over the Private Easement. To be clear, the "TIF Road design" which the TRC Comments consistently refer to, was produced by the Applicant and provided to the Town at the Town's request in 2018. This design has not been reviewed, approved or permitted. Further, the Applicant expressly declined to convey to the Town the property interests necessary to convert the Private Easement into a public road. As such, the so-called "TIF Road extension" is theoretical in nature.

Attorney Hilliard's letter suffers from the same false premise as the TRC Comments: that construction of the public extension of Ray Farmstead Road over the Private Easement will occur as a matter of fact. On the contrary, Mr. Carlisle's improper "dedication" of a public road over land he does not own pursuant to a 2017 subdivision application which did not have the Applicant's authorization, does not create a legal obligation on the Applicant to facilitate said construction. Indeed, as Note 7 of the Subdivision Plan indicates, "Upon approval by the Town, the Proposed Road will be conveyed to the Town." Only the Applicant, the owner of the underlying land, has the authority to convey title of the roadway to the Town. For these reasons, like the TRC Comments, Attorney Hilliard's allegations regarding the compatibility of the Applicant's proposal with the theoretical "TIF Road extension" are irrelevant to the Planning Board's review.

To avoid this very dilemma, for months the Applicant made unrequited attempts to discuss an alternative access to Mr. Carlisle's Property with the Town and counsel for Mr. Carlisle. Specifically, the Applicant has been open to the idea of facilitating access to Mr. Carlisle's Property over other property owned by the Applicant off Commerce Way. The Applicant anticipates that that proposed alternative access would, as depicted in the plans filed herewith by GM2, cause considerably less direct wetland, wetland buffer and shoreland impact than extending Ray Farmstead Road over Mr. Carlisle's Private Easement.<sup>1</sup> The Town is under a contractual obligation to confer and cooperate with the Applicant in this regard. Instead of exploring the viability of this possibility, or even responding to the Applicant and engaging in a discussion, the Town elected to file a lawsuit.

The Planning Board is required to review applications in light of existing conditions, not in light speculative future development which has not been reviewed, approved or permitted. As such, the TRC Comments which are the subject of this letter are irrelevant to the Planning Board's jurisdictional obligations and the Applicant respectfully requests that the Planning Board

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<sup>1</sup> Specifically, as depicted on GM2's plans, the extension of Ray Farmstead Road over Mr. Carlisle's Private Easement is projected to cause 2,280 sf of direct wetland impact, 15,715 sf of total wetland buffer impact, and 232,124 sf of total shoreland impact where the alternative access to Mr. Carlisle's Property from Commerce Way is only projected to cause approximately 712 sf of direct wetland impact (a reduction of 69%), approximately 13,285 sf of total wetland buffer impact (a reduction of 15%) and no shoreland impacts.

Langdon Plumer, Chair  
Exeter Planning Board  
17 May 2022  
Page 3

treat said comments as such. In short, consideration of the comments implicating the Private Easement or the TIF Road extension is improper.

Finally, in an effort to help remove this issue from the Planning Board's consideration and ensure it remains where it belongs, with the Court, the Applicant would be comfortable with a condition of Planning Board approval stating that if the extension of Ray Farmstead Road over the existing Private Easement is ever reviewed, approved and permitted, the Applicant will pursue amended site plan approval for the parking, grading and water/sewer connection reconfigurations that would be necessary for Building D to be fully compatible with same. GM2 has already looked at what would be required to ensure full compatibility between Building D and an extended Ray Farmstead Road and is comfortable that the underlying alterations would be the appropriate subject of an amended site plan review by the Planning Board.

Thank you for your time and consideration. We look forward to appearing before the Planning Board on 26 May.

Very truly yours,  
DONAHUE, TUCKER & CIANDELLA, PLLC



Justin L. Pasay  
JLP/LH

Cc: Jon Shafmaster  
Gove Environmental, Inc. (email only)  
GM2 Associates  
Chris Hilson, Esq. (email only)  
Walter Mitchel, Esq. (email only)  
Russ Hilliard, Esq. (email only)



May 17, 2022

Mr. Dave Sharples  
Planning Department  
Town of Exeter  
Front Street  
Exeter, NH 03833

Dear Mr. Sharples:

Subject: Response to **Town Comments to Ray Farm Building D Re-location Site Plan Review Application as discussed at the TRC meeting held on April 21, 2022**

*Headquarters*  
115 GLASTONBURY BLVD  
GLASTONBURY CT 06033  
860.659.1416

10 CABOT ROAD  
SUITE 101B  
MEDFORD MA 02155  
617.776.3350

6 CHESTNUT ST  
SUITE 110  
AMESBURY MA 01913  
978.388.2157

197 LOUDON RD  
SUITE 310  
CONCORD NH 03301  
603.856.7854

200 MAIN ST  
PAWTUCKET RI 02860  
401.726.4084

The comments from the Town Departments and their consultants are listed. Our response is directly below each comment and is bold italic text.

### **TOWN PLANNER COMMENTS**

1. Are there any known environmental hazards on the site? If so, provide detail.

***We are unaware of any environmental hazards on the site.***

2. Show monuments in accordance with Section 9.25.

***Monuments “to be set” have been added to the plan.***

3. Provide all professional stamps (P.E., Wetland Scientist, LLS, etc.) on the applicable plans per Section 7.2.1 and 7.2.2 for the Planning Board submission.

***Stamps by the professionals preparing the plans will be added when the plans are final. There will be further comments by the Planning Board and Conservation Commission as the process continues.***

4. Identify significant trees per Section 7.4.7. Be sure to identify all trees within the limit of work and along the proposed gravel access drive from Commerce Way to the site.

***There were several significant trees (greater than 21” in diameter) found in or near the development area that will need to be cut down. All are white pine trees. The***

**trees near the development area that pose a significant threat were also identified as to be cut down. For the trees outside the development area, the stumps will remain. The trees are shown on the Site Plans C1.11 and C1.12.**

5. Please clarify the parking requirements and waivers on the cover sheet as it appears to indicate what is required as part of the prior approval and also the information does not appear accurate (i.e. 1233 parking stalls). Suggest treating this as a standalone application and provide details regarding parking and waivers requested that are specific to this application.

**The Site Data and parking data has been revised and clarified.**

6. Add snow storage areas on plans per Section 7.5.14.

**Snow storage notes and location have been added to the Site Plans C1.11 and C1.12.**

7. Add note per Section 7.5.16.

**The note per section 7.5.16 has been added to the General Notes sheet G1.20 under section General Notes #20.**

8. Please provide further details on the 14' wide gravel access road and how it will be constructed. Are all buffer impacts resulting in the creation of this access road included in the CUP? There is a reference in the Gove memo that appears to indicate that this is an "existing woods road". While there is packed down soil from bike and pedestrian use, it doesn't not appear to be a road.

**The Temporary Construction Access Road has been removed from the plan set. Construction vehicles will access the site from the existing Ray Farm project.**

9. Provide information to determine if Section 9.6.3 is being satisfied.

**The upland area where Building D was and defined as Phase IV of the approved project is 1.35 acres. The new area being added to the approved project is 4.28 acres. The area where Building D was will remain open space**

**and used by the residents as passive recreation. No buildings will be placed in this area. This area (1.35 acres) is 31.5% of the new land being added and complies with Section 9.6.3.**

10. Was the landscape plan created by a Licensed Landscape Architect? Are the plantings low maintenance and chosen for all site conditions? Will irrigation be required? If so, show locations on landscape plan.

**A Landscape Architect will stamp the Landscape plans. There will be irrigation for Building D as it is for the other three building and the Community Building. The irrigation system is installed only after the site improvements are in place in order not to interfere with landscape and hardscapes. The irrigation will not be shown on the design plans.**

11. Provide updated traffic memo addressing the additional units.

**The Traffic Engineer will provide a memo about the additional traffic generated by the additional twelve units.**

12. Sixteen (16) parking stalls are proposed along the front of Building D. This requires a parking island per Section 9.7.5.5.

**The parking has been modified to not have more than 15 spaces in a row. A landscaped island was added to the front parking.**

13. Section 9.17.2 allows a maximum dead-end street of 1,200 feet. It appears that the access roadway exceeds 1,500 feet. Please see Section 9.17.10.B that states "An access road used to serve three or more units is considered a road (or street)". Also see the definition of Street in Section 5.3.4.

**A waiver request will be submitted to allow the access drive as submitted.**

14. The access road to Building D appears to conflict with the TIF Road (so called) design. Whether that road is built as a TIF road or built by Carlisle, it shows as access to the Carlisle property on a plan approved by the Planning

Board for subdivision in 2017. To town planning staff it appears that the construction of this new accessway to proposed Building D will conflict with the intended construction of that road, though the applicant's attorney represents that it does not. To resolve this, I recommend that the Planning Board refers this issue to the town's outside engineering consultant for its guidance specifically on whether the proposed construction of this accessway to Building D would interfere with a road to be built through the Carlisle easement, whether it remains as a private roadway or becomes public.

***Please see letter from DTC Lawyers dated May 17, 2022.***

15. Provide information on the Lighting Plan to determine compliance with all requirements set forth in Section 9.20.

***The requirements of Section 9.20 will be met and added to the Lighting Plans.***

- 16 Provide information that the project meets Section 11.2 and 11.3.

***We believe that the project complies with applicable portions of Sections 11.2 and 11.3.***

17. Confirm if there will be any grading within 5 feet of any exterior property line.

***There will no grading within five feet of any property line.***

- 18 How will trash pick-up for the residential use and commercial uses be handled? Will there be any internal trash storage? No dumpsters are shown on the plans.

***There will be no outside dumpsters. The trash will be collected inside the basement area and set out for private pickup weekly which is the same as the other three buildings.***

- 19 Please discuss potential addressing of the site/buildings with the Code Enforcement Officer and Deputy Fire Chief.



***The applicant met with the Fire Department and discussed the access requirements for the Fire Department apparatus. The plans have been revised to accommodate the largest fire vehicle. The Fire Department approved the location of the fire hydrants as shown on the plans.***

### **PUBLIC WORKS COMMENTS**

1. The layout of this roadway is not compatible with the Phase II Ray Farmstead Rd design. I compared this concept plan to the TIF Phase II portion of Ray Farmstead Rd that previously went through final design by the developer and engineer. I assumed that both would be eventually built. In fact, the drainage pond in Phase I was designed and already built with runoff contributions from Phase II accounted for.
  - A. The Building D roadway would intersect Ray Farmstead Rd at approximately STA 11+68. Ray Farmstead Rd centerline would be at elevation +/- 117.0 ft while Building D roadway is at +/- elevation 120.0 ft. (a difference of 3.0 ft)
  - B. The Building D roadway should intersect Ray Farmstead Rd on a straight-away and not on a curve. The intersection of the roadways should be perpendicular to each other.
  - C. The utilities for Building D need to be designed with the Ray Farmstead utility extensions in mind. Assuming that Phase II - Ray Farmstead Rd is built and accepted by the Town, it is not customary to have private utility corridors crossing a town right-of-way.

***Please see letter from DTC Lawyers dated May 17, 2022.***

- 2 There is offsite area that contributes to the stormwater runoff

through the proposed development. The sketches of the Pre-development and Post-development drainage areas do not show this offsite area.

***The offsite stormwater runoff from the Carlisle property does not affect the stormwater system. Some flow arrows on the Pre-Development and Post Development were added that indicate that the stormwater from the Carlisle property bypass the development in the same fashion for both scenarios. The stormwater flow goes to the two streams on each side of the development. He flow does not enter the developed stormwater system. The offsite flow is the same for the Pre-Development as the Post-Development and will not affect the design. The offsite flow is considered for the sizing of the cross culvert for the access drive. That culvert is oversized to allow for small wildlife to pass.***

- 3 Check the pipe orientations and headwall detail for the headwall near STA 2+40.

***The headwalls were eliminated with the installation of the large block retaining walls.***

- 4 The existing utility information for Building C is different from the approved plan. It seems that additional utilities have already been installed without town approval or inspection.

***The Sewer extension and water extension were installed without public review. The submitted plans show them and will be approved or adjusted based on review by the Town.***

## FIRE DEPARTMENT COMMENTS

In an e-mail from Ass't. Fire Chief Pizon, dated 4/7/22, it was indicated that Deputy Fire Chief Jason Fritz had previously met with the Applicant (and representatives) to go over the Fire Department requirements, and it was noted that the requirements were the same as for the other

buildings

**No Comment needed.**

## NATURAL RESOURCE PLANNER COMMENTS

**All the comments will be addresses with the CUP application.**

CUPs

- The application does not contain enough information to demonstrate it meets 9.6.1 B.2.  
*{ "No alternative design .....or which has less detrimental impacts on the wetland or wetland buffer is feasible" } or 9.6.1.B.4 ( That the design, construction and maintenance of the proposed use will, to the extent feasible minimize detrimental impact on the wetland or wetland buffer " ).*
  - o You have demonstrated that an alternate location for Building D is feasible with your prior approved plans. Your proposal did not include a determination that the previous location would cause a greater wetland impact. Please provide a calculation of impacts that would result from locating the larger 32 Unit Building D to the original location. This is necessary to determine whether your proposal meets the aforementioned condition.
  - o The application states the gravel construction access road is necessary for construction to avoid conflicts with the developed portions of the lot however, prior plans for the construction of Building D, the recent construction of Building B, and the ongoing construction of Building C all entail driving through the developed portion of the lot for construction purposes, thereby demonstrating it is feasible. Further, eliminating this from the proposal will eliminate impacts to vernal pool buffers and eliminate a need for the temporary wetland crossing.

Therefore, it is unclear how inclusion of this gravel construction access road can meet either condition.

- o Your proposal has not documented that accessing Building D via the extension of Ray Farmstead Road is infeasible, or quantified the impacts in order to compare with the impacts resulting from the connection between Building C and D and the construction access road. This analysis should also consider that it will be creating a redundant wetland crossing within the wetland system serving

Watson brook when the Ray Farmstead Road is extended as you acknowledged in your wetland application amendment to the State NHDES (File# 2017-01530) for the original proposal.

- The application does not meet 9.6.1.B.3 (impact evaluation) because it does not consider impacts to the 100-foot vernal pool buffer from widening the existing trail to meet the 14-20' wide construction access road called out in the plans.
- I am also concerned that conclusions within the impact evaluation did not consider all project related impacts adequately in order to meet 9.6.1.B.3 for the following reasons:
  - o The construction access road is described as requiring minor widening in some portions however it is currently best described as a foot path and the plans indicate resurfacing and widening to 14-20 feet. There is no quantification of this. Without these details, it is not possible to consider impacts to the resources. Further, there is no evaluation of sedimentation or runoff from the steep slope of the construction roadway which slopes directly into the wetland feeding Watson Brook. No stormwater management is described to address this. The only management offered is adding silt sock/fence along the linear edge of the road. This is also relevant to Shoreland CUP

9.3.4 (G)2.a. ("not detrimental to surface water quality").

- o The new location of Building D is within the State Wildlife Action Plan's Highest Ranked Habitat in the Region category but this was not mentioned so it is unclear if this was considered. This is also relevant to Shoreland CUP 9.3.4. (G) 2.c. ("undue damage to....wildlife habitat"). Further the impact evaluation report identified a constriction for wildlife movement within the wetland at the crossing between Building C and D. As this is described as a primary function of the wetlands, and a larger crossing structure has not been considered, this also does not appear to meet Shoreland CUP criteria 9.3.4.(G).2.c.
- The application is missing the restoration plan for the temporary buffer impacts in order to meet Wetland CUP 9.6.1.B.7 (restoration proposal).
- Please clarify what the intent of the Open Space is at the former Building D location. Is it intended to remain free of buildings?

General Comments:

- The Conservation Commission will want a site walk. I recommend proposing dates that work for the applicant's team prior to the 5/10 meeting when the additional info requested is submitted. They will want the ability to ask questions of the wetland scientist during the walk, so Brendan's presence is requested. With later sunsets, 5 pm before the meeting or early mornings tend to fit best with work schedules.
- Soil stockpiling within the wetland buffer should be avoided.
- What are the nutrient removal efficiencies for the proposed stormwater structures?
- I did not see detail on the temporary crossing structure. Please provide. Has the applicant considered removing the damaged culvert from this crossing to improve wetland function?
- The original application indicated that there may be sensitive plant species present and follow up surveys would be conducted during the appropriate growing period prior to construction. When were these surveys conducted

and what was the result? Were surveys also conducted within the proposed new location for Building D?

- Given the presence of wetlands, there is a potential for entrapment of amphibians from the deep sump catch basins. Is there potential to avoid the use of deep sumps?
- Please confirm all erosion control silt sock and matting materials are limited to natural material such as jute or coconut matting as photodegrading plastic causes wildlife impacts. Please add note accordingly.
- I did not see snow storage (Site and Sub Regs 7.5.14) or significant trees (remaining or to be removed) indicated (SS Regs 7.4.7). Please provide.
- Please confirm the selected lighting meets our lighting requirements for dark sky compliant, full cut-off shielding (SS Regs 9.20.4).
- *Miscanthus sinensis* is proposed for perennial grasses. This species is on the NH [Invasive Species Watch List](#). Some native suggestions for replacement: *Sorghastrum nutans* or *Andropogon gerardii*.
- What size is the culvert under the road between building C and D? It would be helpful to have this shown on the grading and drainage plans to identify whether it is sufficiently sized. Did the designs consider sufficient sizing for hydraulic capacity, wildlife and aquatic organism passage? Have elevated rainfall regime been considered in designs?
- Add requirement for wetland boundary disks to be installed along wetland buffers within the development (SS 9.9.1).

In order to be heard at the May 26th, 2022 Planning Board meeting, please submit any revised plans along with a letter responding to these comments (and other review comments, if applicable) no **later than May 17th, 2022**, but sooner if possible, to allow staff adequate time to review the revisions and responses prior to the planning board hearing.

## Underwood Engineers Comments

### General

1. The plans should be stamped by the engineer, surveyor, wetlands scientist, et al. as appropriate.

***The plans will be stamped by the appropriate professionals for the final submittal.***

2. An NHDES Sewer Connection Permit should be added to the list of permits on the plan set cover. Any revisions or modifications made in the field during construction since the prior NHDES approval should be submitted for after-the-fact review as well as those required for the approval of Building D.

***A Sewer Connection Permit for the additional flow will be applied for.***

3. It is unclear if the Proposed Building D (32-units) is intended to replace the previously approved Building D (20-units) and complete the project or if the applicant's intent is to preserve the option to re-permit the former Building D for construction at a later time. The application should be clear if the intent is that the project will be complete of all phases following the construction of the proposed Building D.

***Building D will be enlarged to be the same as the other three buildings and re-located to site for which this Site Plan Review was submitted. The location where the original Building D was located will remain as part of the development, but be open space. No new buildings will be placed in the old location***

*Lot Line Adjustment Plan*

4. The General Notes (3) identifies W. Scott Carlisle as the beneficiary of the existing ROW/Easement through the project's parcels. Any encumbrance to that ROW should be reviewed by the beneficiary for concurrence.

***That is an issue between the owner of the land and Mr. Carlisle.***

5. It appears that Parcel 047-008-0002 exists but is labelled as "Proposed Lot II" in the lot line adjustment plan. Please confirm and adjust the label as appropriate.

***The Note has been removed and not appropriate for this plan.***

Existing Conditions Plan

6. Near Station 2+60 Right is a round shape with small "x" in it. That symbology is missing from the legend. Please identify what the shape is intended to portray.

***The object is a large surface boulder. A symbol for that has been added to the Legend on sheet G1.20***

Site Plan

7. The length of the internal roadway exceeds the Town limit per section 9.17.2 of the Site Plan regulations.

***A waiver request will be submitted for the length of Road.***

8. The internal roadway must meet all other requirements of section 9.17.2.

***A waiver request from the subdivision road requirements will be submitted.***

9. The proposed project's design appears to disregard the ROW through Parcel A as well as the TIF Road design of 2018. The project plans should include the stationing from the TIF Road design and identify the station equation representing the point of intersection.

***Please see letter from DTC Lawyers dated May 17, 2022.***

10. The roadway between Building C and Building D should be realigned to cross the intersection with the right-of-way at a 90-degree angle. Please see the Town of Exeter Standard Specifications for Construction Section E.III.D.2. Note that per the regulations, if this requirement cannot be met on both sides of the ROW, the roadway must be designed and stamped by a professional traffic engineer.

***Please see letter from DTC Lawyers dated May 17, 2022.***

11. Confirm sight distance per the above-referenced Town regulation can be achieved at the ROW intersection per alignment geometry.



**Please see letter from DTC Lawyers dated May 17, 2022.**

12. How will solid waste disposal be handled? No dumpster enclosure is shown on the plan.

**There are no exterior dumpsters. The trash will be handled as it is for the other three buildings. See the response to Dave Sharples comment # 18 above.**

13. There appears to be clearing within the 40' wetland buffer in the vicinity of Station 3+50 Left.

**There is no grading of disturbing the surface in this area. See the Grading plan C1.21.**

14. Confirm emergency vehicle access and turning movements are accommodated within the roadway widths and curb radii.

**The Applicant met with the Fire Department for their vehicles and they are satisfied.**

- 15.

It appears to UE that the greater Ray Farm Condominium project would benefit from utilizing the extended TIF Road ROW/design rather than extending the access road for Ray Farm an additional 818 +/- feet as proposed. Benefits include:

- a. Avoidance of future coordination issues with the ROW/TIF Road.

It appears to UE that the greater Ray Farm Condominium project would benefit from utilizing the extended TIF Road ROW/design rather than extending the access road for Ray Farm an additional 818 +/- feet as proposed. Benefits include:

- b. Avoidance of future coordination issues with the ROW/TIF Road.

- A. Improved Emergency Access to Building D and potentially Buildings A through C.
- B. Reduced total footprint impact when compared to the proposed 860' 14' wide access road.
- C. Potential for reduced total wetland impacts.
- D. Reduced commercial traffic through Industrial Drive and Commercial Way.

**Please see letter from DTC Lawyers dated May 17, 2022.**

Utility Plans

16. All utilities should be designed for isolation on both sides of the ROW at the crossing.

**Please see letter from DTC Lawyers dated May 17, 2022.**

17. It is unclear how ownership of utilities crossing the right-of-way will be handled.

**Please see letter from DTC Lawyers dated May 17, 2022.**

- UE understands the proposed gas line is a private utility, however generally speaking, the placement of a utility spur around/behind a building is not advised.

**The other buildings have gas along the rear of the building.**

- A note should be added to the plan indicating 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 during construction of these utilities.

**Note 1. Was added to the General Notes sheet G1.20, Contractors Responsibilities.**

20. The terminus of the water main with a stub toward the abutting CKT parcel implies future extension plans, per comment 3 above, the application should be clear regarding the greater intent, if any.

**The water stub at the end of the proposed water main at sta. 8+28 is for future looping of the water main to Commerce Way if the Town has that desire.**

*Grading and Drainage Plans*

21. Has the 24" culvert proposed at station 2+53 been evaluated for wildlife passage requirements? The applicant should evaluate the wildlife corridor needs of the wetland system being restricted by the culvert.

**Wildlife passage and restrictions will be evaluated with**

***the Wetland Permit application. The culvert has been enlarged to 36”.***

22. The culvert crossing at Station 2+53 could be shortened significantly by utilizing taller headwalls or gravity retaining walls.

***Large block retaining walls have been incorporated into the design for that purpose.***

23. Restoration notes should be provided at each headwall. Will it be loam and seed? Riprap? In addition, the proposed tree line should be pushed out at those locations since equipment will need to access the area for installation of the headwalls and culvert.

***The headwalls have been removed due to the retaining walls. Rip-Rap has been added to the outlet end.***

24. Embankment slopes of steeper than 3:1 slope should be fitted with guardrails.

***Guard rails have been added to the plan.***

25. Where will foundation drains discharge?

***A footing drain has been added to the Grading/Drainage plans. See sheet C1.22***

26. Note 2 on several sheets refers to the TIF road plan. The proposed elevation of the access roadway is inconsistent with the design grades of the TIF road plans. Specifically, the intersection of the two roads differ by approximately 3.5 vertical feet.

***That note has been removed from the plans.***

27. The temporary easement lines for the construction access should be shown on sheet CI.23.

***The Temporary Construction Access Road has been removed from the project.***

28. The perimeter drainage, labelled RD (roof drain?) should be fitted with clean-outs or better still, structures (i.e. nyoplast units), for access and cleaning. UE questions the layout as it would appear to be breaking the RD system at the northern corner of the building where the northeasterly run would discharge to, or the vicinity of CB 2 may be preferable to running the RD water all the

way around the building.

***Cleanout have been added to the roof drain piping at the corners. We will discharge all the roof runoff into a infiltration basin located under the parking area in front of the building.***

29. What is the finished treatment of the access road (to Commerce Way) once the project is complete -grassed, remain gravel? Note -the project proposes a swale that will discharge water to the access road and ultimately off site that, as graded, will not make it to the stormwater treatment downstream of CB2.

***The temporary access road has been removed from the project.***

#### **Profile Sheets**

30. The profile slope of the access road is 3% whereas the typical section of the proposed TIF road is a normal crown with 2% cross slopes.

***Please see letter from DTC Lawyers dated May 17, 2022.***

31. Please note the maximum allowable grade within 50' of the future pavement of the ROW is 3% per the Town of Exeter Standard Specifications for Construction.

***Please see letter from DTC Lawyers dated May 17, 2022.***

32. Show the temporary bridge in the profile view of the construction access road.

***The access road and bridge have been removed from the project.***

33. The access road profile approaches 15% for over 200' of its length. In addition to the steep grades, there appears to be the potential for vehicles to bottom out at the wetland crossing, particularly delivery trucks. Please confirm the vehicles will have no issue navigating the profile grades as shown.

***The access road and bridge have been removed from the project.***

34. Show the proposed temporary culvert at the construction access road wetlands crossing in the plan view. Label the slope and inverts. Since the wetlands will be spanned, what is the purpose of the culvert?

***The access road and bridge have been removed from the project.***

35. The proposed contours in the plan view do not match the profile view in the area of the temporary bridge. The profile indicates fill to station 9+97, while the plan view shows fill ending before the bridge. In addition, the profile indicates there will be fill within the wetlands rather than a temporary span.

***The access road and bridge have been removed from the project.***

36. The existing edges of gravel and the existing and proposed tree lines should be shown along the construction access route.

***The access road and bridge have been removed from the project.***

37. Add the edge of ROW lines to the profile view on sheet Cl.41.

***The Center line of the Easement is shown on the Profiles. The edges of the Easement have been added.***

#### Erosion Control Plans

38. Ultimate restoration of the construction access road should be labeled.

***The access road and bridge have been removed from the project.***

#### Landscape Plan

39. Utilities should be added to the plan to assess potential conflicts. Proposed grading should be added as well.

***The landscaping will be adjusted during installation to avoid any conflicts with the utilities or other items onsite.***

40. Will an irrigation system be installed? If so, it should be shown on the plan.

***An irrigation system will be installed. It will be the last item to be installed and will adjust as needed to provide watering coverage and avoid conflicts with landscaping and structures.***

#### Stormwater Design and Modeling

41. The Pre and Post Development Plans for review of the HydroCAD model were attached to the CUP submittal. Please merge those into the stormwater analysis.

***The Water shed plans will be submitted with the stormwater***

**report.**

42. The Pre and Post Development Plans are missing call-outs for ponds, modelled CB ponds, reaches and other HydroCAD model nodes requiring a significant amount of interpretation to evaluate the features and their modelled limits. As such, the drainage review is not complete. The review will be completed upon resubmittal with labels.

***On the Hydro-Cad Model Diagram all the Nodes and Subcatchments are labeled to which structure they go to. The Grading plans label all the structures. The Watershed Plans are at too small of a scale to label all the structures.***

43. UE is concerned about the simple Pre- model being used as a baseline for comparison to the post-model. While it is typical that the pre-models are simpler than post-models, as a quantitative analysis common features modelled in one model should be replicated as appropriate in the other model; an example being Post-Development Reach SR ("Stream Channel") should be modelled in the Pre-Development which would necessitate the Pre-Development Subcatchment EI being broken up accordingly. It would seem reasonable that the post- model would define the Stream Channel Reach to correspond to the culvert at Stat 2+S2 to address other comments within this review.

***The Pre-Developed Watershed was divided into to Subcatchments to more resemble the Post-Development Watershed. The Post-Development Subcatchment D1 (by-passing the basins) was divided into two subcatchments to more resemble the Pre-Development.***

44. Subcatchment D8 is orphaned.

***Subcatchment D8 does not enter any structures associated with Building D. It does flow to a Focal Point for the Building C system. The area is small and will not overload the Focal Point. The stormwater will be treated through the Focal Point and then discharged into an infiltration system before being released. Some of the area that flows into Focal Point 11 on the Building D site was flowing into Focal Point at Building C and we considered it a wash.***

45. UE questions the size and routing of Subcatchment DI as SO% of it is utilizing at least some portion of the Reach SR for conveyance.

**See Response to comment 43 above.**

46. Rainfall amounts must be increased by 15% per AoT regulation Env-Wq 1S03.08.5

***The rainfall amounts have been increased by 15 %.***

47. The project has not demonstrated its compliance with the Pollutant Loading removal requirements per the Town of Exeter stormwater treatment regulations.

***In review of the stormwater treatment requirements, it states that total Nitrogen and Phosphorus be reduced by 60%. In the New Hampshire Stormwater Manual, Volume 2, Appendix B, Pollutant Removal Efficiencies table, indicates that Infiltration systems greater than 75' from surface waters, Nitrogen is 60% and Phosphorus is 65% in removal efficiencies. All stormwater runoff from pavement for this project is directed to a deep sump hooded catch basin, then through a "Focal Point" (manufacturer claims 40% Nitrogen removal), and then into an infiltration basin (60% TN, 65% TP).***

48. Provide pipe sizing calculations for all drainage pipes and culverts, including the culvert at Station 2+S2.

***The Drainage Pipes within the drainage system are modeled in Hydro-Cad with the outlets of structures. The culvert has been sized separately because it receives runoff from off site. A separate report for this culvert will be provided.***

49. The project is required to comply with Exeter regulation section 9.3.3.6 regarding the evaluation of the effects of sea level rise.

***The entire developed portion of the site is higher than elevation 100. It is unlikely to be affected by sea level rise.***

50. **PTAP Database:** The Applicant is requested to enter project related stormwater tracking information contained in the site plan application documents using the Great Bay Pollution Tracking and Accounting Program (PTAP) database ([www.unh.edu/unhsc/ptapp](http://www.unh.edu/unhsc/ptapp)) and submit

the entry for review.

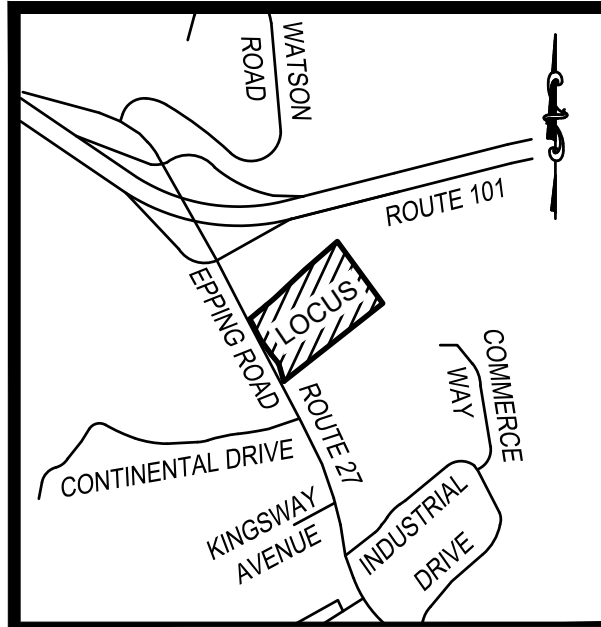
***We have not submitted anything to Great Bay Pollution Tracking and Accounting Program. We will discuss with our Environmental Consultant to determine what may be needed.***

Respectfully,

*Denis M. Hamel*

Denis M. Hamel, CPESC  
Site/Civil Project Manager





LOCUS MAP  
SCALE: 1" = 3000'

# Ray Farm

## Active Adult Community

### Site Development Plans for Building D off Ray Farmstead Road, Exeter, NH

#### SHEET INDEX

G1.10	TITLE SHEET
G1.20	GENERAL NOTES, LEGEND, & ABBREVIATIONS
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V1.11, V1.12	EXISTING CONDITIONS
C1.10	OVERALL SITE PLAN
C1.11, C1.12	SITE PLANS
C1.21, C1.22	GRADING AND DRAINAGE PLANS
C1.31, 1.32	UTILITY PLANS
C1.41	PLAN & PROFILES
C1.51	EROSION AND SEDIMENT CONTROL PLAN
C5.11 TO C5.16	DETAILS
C1.24	WETLAND IMPACTS
C1.25	WETLAND BUFFER IMPACT PLAN
C1.26	WATERSHED PLAN



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LAND SURVEYORS SINCE 1988  
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Sheet Title:

## TITLE SHEET

Project Title:

**Ray Farm  
Condominium**  
Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

Applicant/Owner:

**Ray Farm, LLC**  
158 Shattuck Way  
Newington, NH 03801

#### REVISION BLOCK

NO.	DATE	DESC	BY
1	5.10.22	TRC COMMENTS	DH

#### DIMENSIONAL REQUIREMENTS (C-3 DISTRICT)

	REQUIRED
MINIMUM LOT AREA	40,000 SF
MINIMUM LOT WIDTH	175 FEET
MINIMUM LOT DEPTH	225 FEET
MINIMUM YARD SETBACKS	
FRONT	50 FEET
SIDE	30 FEET
REAR	25 FEET
MAXIMUM BUILDING COVERAGE	40 %
MINIMUM OPEN SPACE	20 %
MAXIMUM HEIGHT	50 FEET

#### LOCUS PARCEL

OKT ASSOCIATES  
MAP 47, PARCELS, 8 & 9  
(SEE MINOR SUBDIVISION PLAN V1.10)

#### TOTAL SITE DENSITY

TOTAL PARCEL AREA  
15.75 Acres (686,127 SF)  
TOTAL NUMBER OF UNITS - 128  
DENSITY = 5,360.4 SF PER UNIT

#### BUILDING D SITE DATA

PROPOSED USE - ACTIVE ADULT COMMUNITY (VARIANCE GRANTED)  
FOUR STORY 32 UNIT BUILDING, WITH INSIDE PARKING AT BASEMENT LEVEL

PARKING REQUIRED - 32 UNITS x 2 SPACES PER UNIT +  
1 SPACE PER 4 UNITS = 72 SPACES REQUIRED

PARKING PROVIDED - 58 TOTAL (1.81 SPACES/UNIT) (WAIVER REQUESTED)  
36 IN PARKING GARAGE BELOW BUILDING 22 SURFACE PARKING

#### TOTAL SITE DATA

PROPOSED USE - ACTIVE ADULT COMMUNITY (VARIANCE GRANTED)  
4 BUILDINGS WITH 4-32 UNIT BUILDINGS, = 128 UNITS

PARKING REQUIRED - 128 UNITS x 2 SPACES PER UNIT +  
1 SPACE PER 4 UNITS = 288 SPACES REQUIRED

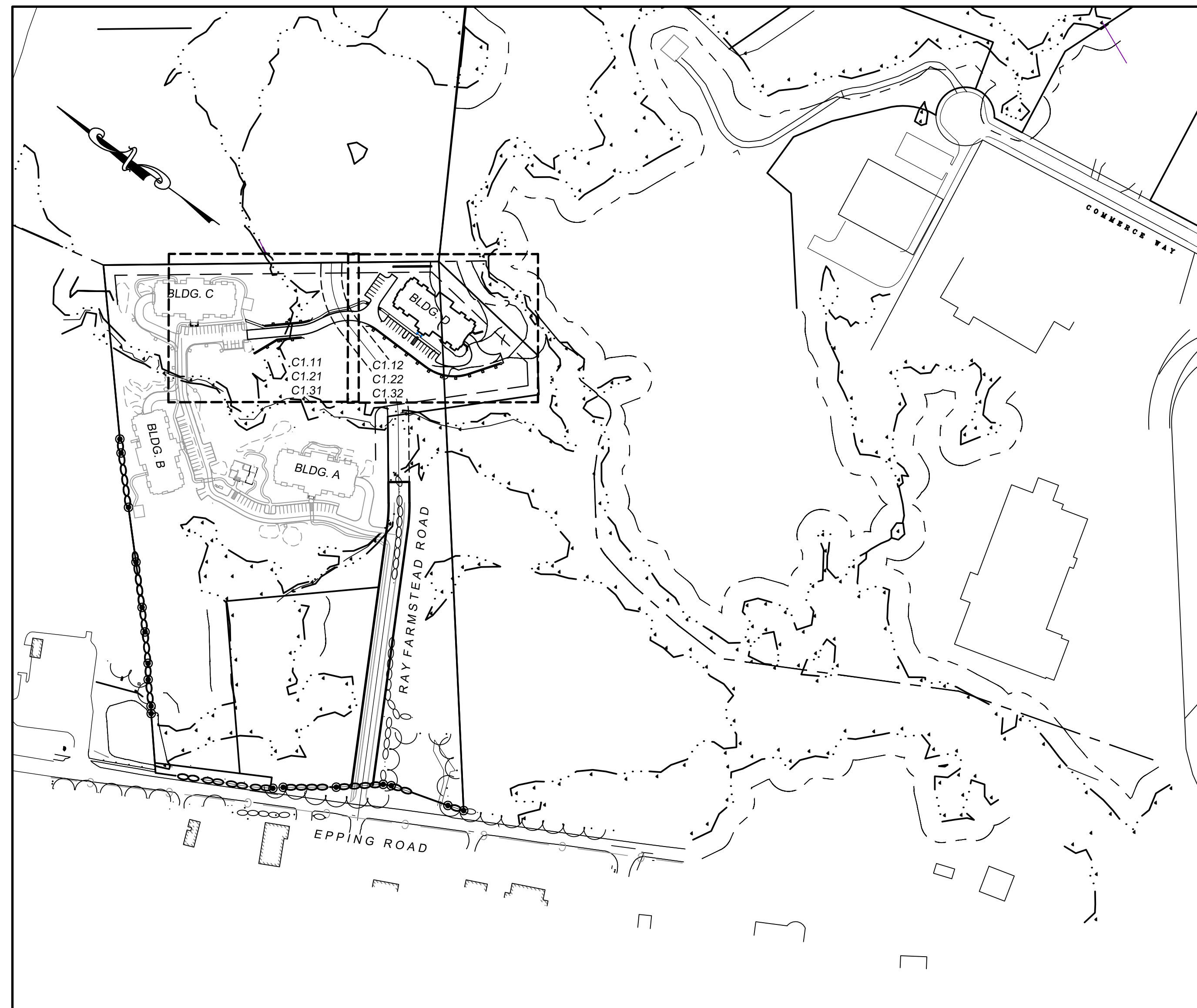
PARKING PROVIDED - 233 TOTAL (1.82 SPACES/UNIT) (WAIVER REQUESTED)  
144 IN PARKING GARAGE BELOW BUILDINGS  
89 SURFACE PARKING

#### WAIVERS

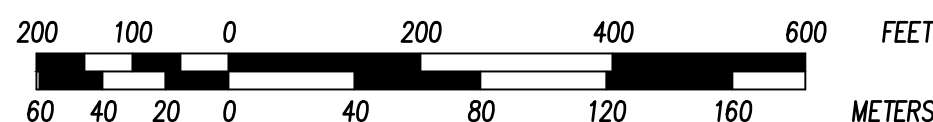
1. WAIVER FOR WETLAND IMPACTS - 9.9.2 SITE PLAN REVIEW REGULATIONS
2. WAIVER FOR PARKING - 5.6.5 ZONING ORDINANCE
3. WAIVER FOR ROADWAY DESIGN PLANS - 7.5.7 AND 7.7 SITE PLAN REVIEW REGULATIONS
4. WAIVER FOR PARKING SETBACKS - 11.3.1.2 SITE PLAN REVIEW REGULATIONS
5. WAIVER FOR RECREATIONAL AREAS - 11.3.4 SITE PLAN REVIEW REGULATIONS
6. WAIVER FOR LENGTH OF ROAD - 9.17.2 SITE PLAN REVIEW REGULATION

#### PERMITS

ALTERATION OF TERRAIN - AOT 1335 (PREVIOUSLY APPROVED)  
ALTERATION OF TERRAIN - AOT XXXX (FOR BUILDING D)  
DREDGE AND FILL - FILE NO. 2017-01530 (PREVIOUSLY APPROVED)  
DREDGE AND FILL - FILE NO. XXXX-XXX (ASSOCIATED WITH BUILDING D)



SCALE: 1"=200'



TOWN OF EXETER PLANNING BOARD

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

PROJ. MGR.: D. HAMEL  
FIELD: J. SALVAGGIO / R. SMITH  
DESIGN: D. HAMEL  
DRAWN: D. HAMEL  
CHECKED: D. GIANGRANDE  
DATE: 01-11-2022  
FILE: 16042 D T1.DWG  
FBK:  
JOB #: 16042 D

SHEET G1.10

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**GENERAL NOTES**

- ELEVATIONS BASED ON NAVD 1988. PLANS ARE NH STATE PLAIN NAD83 COORDINATE SYSTEM.
- OWNERS OF ADJOINING PROPERTIES ARE SHOWN ACCORDING TO CURRENT ASSESSOR'S MAPS AND DO NOT CONSTITUTE CERTIFICATION TO TITLE OR OWNERSHIP.
- EXISTING CONDITIONS DATA FROM AN ON THE GROUND SURVEY CONDUCTED BY W.C. CAMMETT ENG., NOVEMBER OF 2016 THROUGH APRIL OF 2017, AND GM2 ASSOCIATES IN DECEMBER OF 2021.
- WETLANDS AND SOILS INFORMATION PROVIDED BY GOVE ENVIRONMENTAL SERVICES.
- THERE IS NO FLOOD PLAIN ON THIS SITE ACCORDING TO THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NUMBER 330130 0401 E.
- THE ORIGINAL PARCEL IS LOCATED AT 183 EPPING ROAD AND IS SHOWN AS LOT 8 ON EXETER TAX MAP 47. IT HAS AN AREA OF 960,175 S.F.± (22.04 ACRES±).
- EXISTING 50' WIDE RIGHT OF WAY IS FOR THE BENEFIT OF N. SCOTT CARLISLE. SEE BOOK 3794 PAGE 1963 FOR NOTICE OF EASEMENT.
- THE PERIMETER SURVEY PERFORMED BY W.C. CAMMETT ENG. WITH A 5" TOTAL STATION AND AN ERROR OF CLOSURE OF BETTER THAN 1:32,000.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, WATER AND ANY OTHER PRIVATE OR MUNICIPAL UTILITIES WITH THE APPROPRIATE UTILITY COMPANY.
- WHERE EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RECORD FOR RESOLUTION OF THE CONFLICT.
- EXISTING UTILITY POLES, WILL BE RELOCATED BY OTHERS, IF NECESSARY.
- EXCAVATION SHALL ONLY OCCUR WITHIN THE LIMIT OF WORK, AS SHOWN.
- IF AREAS OUTSIDE THE LIMIT OF PROPOSED WORK IS DISTURBED BY THE CONTRACTOR'S OPERATIONS, THE AREAS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
- JOINTS BETWEEN NEW BITUMINOUS CONCRETE ROADWAY PAVEMENT AND SAW CUT EXISTING PAVEMENT SHALL BE SEALED WITH BITUMEN, INFRARED SEAL, AND BACK SANDED.
- EXISTING SIGNS AND/OR MAILBOXES WITHIN THE PROJECT LIMITS THAT ARE DISTURBED SHALL BE REMOVED AND RELOCATED AS APPLICABLE.
- ALL DISTURBED AREAS OUTSIDE OF THE NEW PAVEMENT LIMITS SHALL BE LOAMED (4" MINIMUM DEPTH) AND SEEDED.
- A MINIMUM OF 10' HORIZONTAL AND 18" VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN WATER MAINS AND SEWER LINES.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE EXETER WATER AND SEWER DEPARTMENT WHEN MAKING THE CONNECTIONS.
- ALL WORK SHALL COMPLY WITH EXETER'S "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER" NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
- ALL WATER, SEWER, ROAD (INCLUDING PARKING LOT), AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 9.3 STORMWATER MANAGEMENT STANDARDS, STORMWATER MANAGEMENT PLAN, AND EROSION AND SEDIMENT CONTROL STANDARDS AND THE STANDARD SPECIFICATION FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER, NEW HAMPSHIRE.

**MATERIAL NOTES**

- CRUSHED GRAVEL - NHDOT 304.3
- GRAVEL - NHDOT 304.2
- SAND - NHDOT 304.1
- BACKFILL MATERIAL - EARTH MATERIAL FREE FROM ROCKS LARGER THAN 3", DEBRIS, STUMPS, CLAY, ORGANIC MATTER, ICE, FROZEN SOIL, AND EXCESSIVE MOISTURE.
- LOAM - NHDOT 641.2.1
- CRUSHED STONE - GRADED CRUSHED ROCK TO THE SIZE SPECIFIED, WITH LESS THAN 2% FINES PASSING THE #200 SIEVE.
- PLACING AND COMPACTION OF FILL MATERIALS SHALL COMPLY WITH NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SECTION 304.3.4, 304.3.5, AND 304.3.6.
- PAVEMENTS SHALL COMPLY WITH SECTIONS 401, 403, AND 410 OF NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

**CONSTRUCTION NOTES**

- PRIOR TO ANY EXCAVATION, DIG-SAFE AND EXETER DPW (603-773-6157) SHALL BE NOTIFIED TO LOCATE ALL PERTINENT UTILITIES INCLUDING WATER, SEWER, AND DRAINAGE.
- THIS PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER Agr 3800 RELATIVE TO INVASIVE SPECIES.
- ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY RAINFALL OF ONE HALF INCH OR MORE.
- DO NOT CLEAR AND STRIP THE ENTIRE SITE AT ONE TIME. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION. IN NO CASE SHALL MORE THAN 3 ACRES BE DISTURBED AT ONE TIME. STABILIZE THE AREA BEFORE MOVING ON TO THE NEXT AREA. DISTURBED AREAS REMOVED OPEN FOR MORE THAN 30 DAYS, SHALL BE STABILIZED.
- WOODY MATERIAL REMOVED DURING THE CLEARING PROCESS MAY BE GROUND UP AND USED AS MULCH FOR EROSION CONTROL TO STABILIZE APPROPRIATE AREAS.
- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
  - BASE COURSE GRAVEL HAS BEEN INSTALLED IN AREAS TO BE PAVED
  - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
  - A MINIMUM OF 3 INCH OF NON EROSION MATERIAL SUCH AS RIP-RAP HAS BEEN INSTALLED
  - OR EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED
- ALL AREAS SHALL BE STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE SEEDING SPECIFICATIONS ARE AS FOLLOWS:

**TEMPORARY SEEDING FOR EROSION CONTROL DURING CONSTRUCTION:**

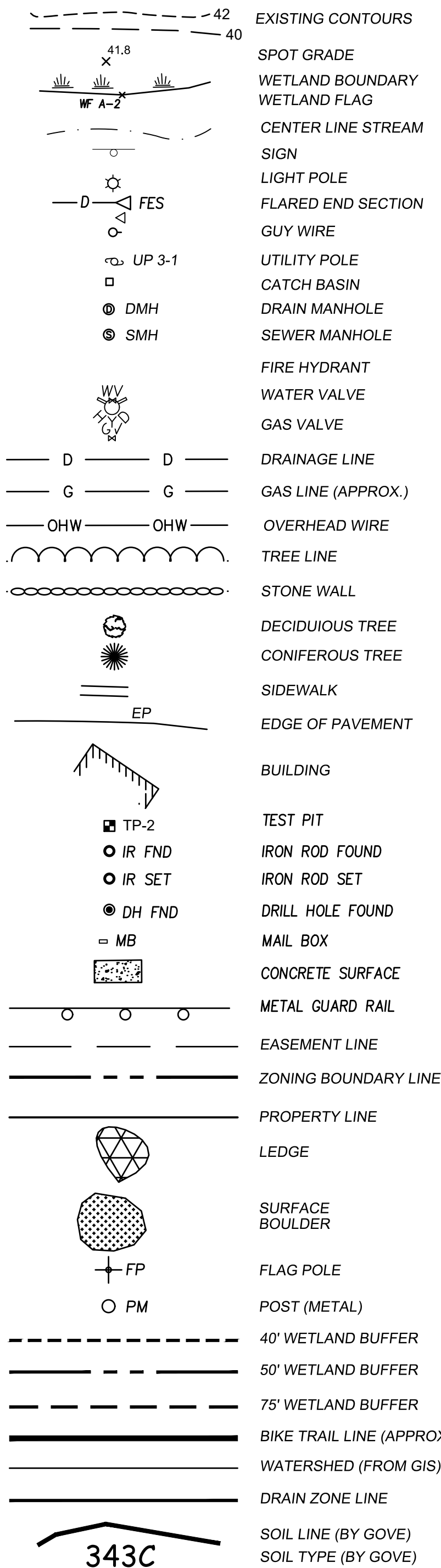
SPECIES	POUNDS/1000 SF	REMARKS
WINTER RYE	2.5	BEST FOR FALL SEEDING. AUG. 15 TO SEPT. 15. SEED TO A DEPTH OF 1"
OATS	2.0	BEST FOR SPRING SEEDING. NO LATER THAN MAY 15. SEED TO A DEPTH OF 1"
ANNUAL RYEGRASS	1.0	SEED EARLY SPRING. AUG. 15 TO SEPT. 15. SEED TO A DEPTH OF 0.25"
PERNIAL RYEGRASS	0.7	SEED BETWEEN APRIL 1 TO AUG. 15. SEED TO A DEPTH OF 0.5"

**PERMANENT VEGETATION SEED MIXTURE:**

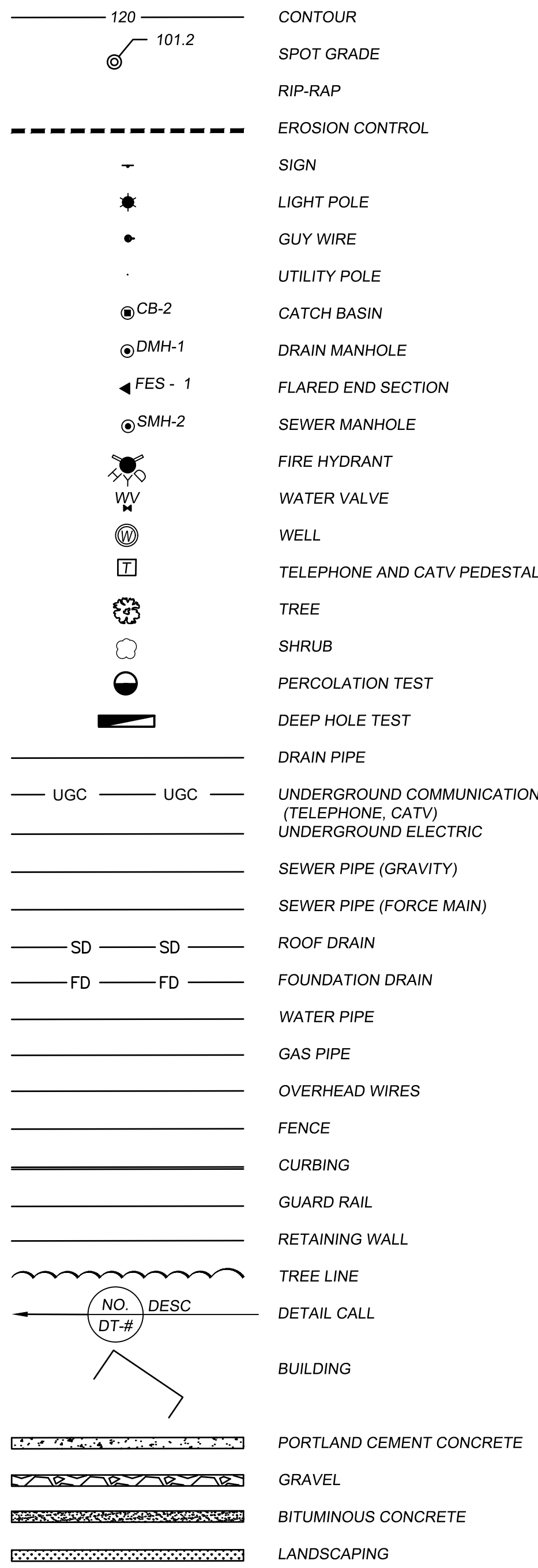
SPECIES	POUNDS/1000 SF
TALL FESCUE	0.45
CREeping RED FESCUE	0.45
BIRDSFOOT TREFEIL	0.20
<b>TOTAL</b>	<b>1.10</b>

- ALL RE-VEGETATED AREAS THAT DO NOT EXHIBIT 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS (ON 3:1 SLOPES OR GREATER). SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, OR SECURING WITH ANCHORED NETTING. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER SNOW OR FROZEN GROUND AND SHALL BE COMPLETED PRIOR TO AN ACCUMULATION OF SNOW AND/OR FROST.
- ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
- AFTER NOVEMBER 15, INCOMPLETE ROADS 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.
- CONCRETE WASH OUT SHALL BE CONDUCTED IN THE AREAS SHOWN ON SHEET C1.51" AND USE THE CONCRETE WASH OUT DETAIL SHOWN ON SHEET C5.11.
- NO STUMPS OR DEBRIS SHALL BE BURIED ONSITE. ALL STUMPS AND CONSTRUCTION DEBRIS SHALL BE STORED ONSITE UNTIL THEY CAN BE DISPOSED OFF SITE IN A FACILITY CAPABLE OF HANDLING SUCH MATERIALS.
- TEMPORARY PORTABLE TOILETS SHALL BE PROVIDED AND PROPERLY MAINTAINED ONSITE FOR THE DURATION OF THE PROJECT.
- VEHICLE MAINTENANCE SHALL BE PERFORMED OFF SITE. ANY VEHICLE LEAKING OIL OR GREASE SHALL BE IMMEDIATELY REPAIRED OR REMOVED FROM THE SITE. FUEL AND OILS SHALL BE STORED IN AN APPROVED LOCATION AND COMPLY WITH LOCAL, STATE, AND FEDERAL REGULATIONS. IN NO CASE SHALL THEY BE STORED WITHIN 100' OF WETLAND AREAS.

**EXISTING**



**LEGEND**



**PROPOSED**

**ABBREVIATIONS**

UTILITIES	
RCP	REINFORCED CONCRETE PIPE
PVC	POLYVINYLCHLORIDE PIPE
C.I.	CAST IRON PIPE
COND	CONDUIT
D.I.	DUCTILE IRON PIPE
HYD.	HYDRANT
INV.	INVERT ELEVATION
UP	UTILITY POLE
TSV & B	TAPPING SLEEVE, VALVE AND BOX

**GENERAL**

PROP.	PROPOSED
MIN.	MINIMUM
MAX.	MAXIMUM
EXIST.	EXISTING
STA	STATION
GRAN.	GRANITE
DRIVE	DRIVEWAY
ELEV.	ELEVATION
N.T.S.	NOT TO SCALE
TYP.	TYPICAL
APPROX.	APPROXIMATE
CEM. CONC.	CEMENT CONCRETE
BIT. CONC.	BITUMINOUS CONCRETE
ROW	RIGHT OF WAY
CL	CENTERLINE
WALK	SIDEWALK
TBM	TEMPORARY BENCH MARK
SGE	SLOPED GRANITE EDGING

**TREES**

12" B	12" BIRCH
12" C	12" CEDAR
12" M	12" MAPLE
12" O	12" OAK
12" P	12" PINE

**ROADWAY**

H.P.	HIGH POINT
L.P.	LOW POINT
A.D.	ALGEBRAIC DIFFERENCE
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
PRC	POINT OF REVERSE CURVATURE
PCC	POINT OF COMPOUND CURVATURE
CC	CENTER OF CURVE
PVC	POINT OF VERTICAL CURVATURE
PVT	POINT OF VERTICAL TANGENCY
PVRC	POINT OF VERTICAL REVERSE CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
OD	OUTSIDE DIAMETER
ID	INSIDE DIAMETER
DIA. Ø	DIAMETER
R	RADIUS
TYP.	TYPICAL
L	LENGTH
DP.	DEPTH
EQ.	EQUIVALENT

TOWN OF EXETER PLANNING BOARD

CHAIRMAN DATE



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Sheet Title:

**General Notes**

Project Title:

**Ray Farm Condominium**

Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

Applicant/Owner:

Ray Farm, LLC  
158 Shattuck Way  
Newington, NH 03801

**REVISION BLOCK**

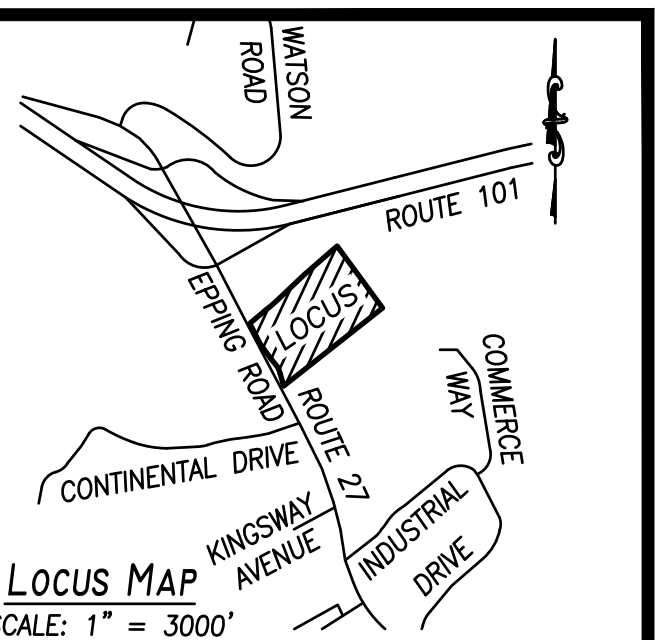
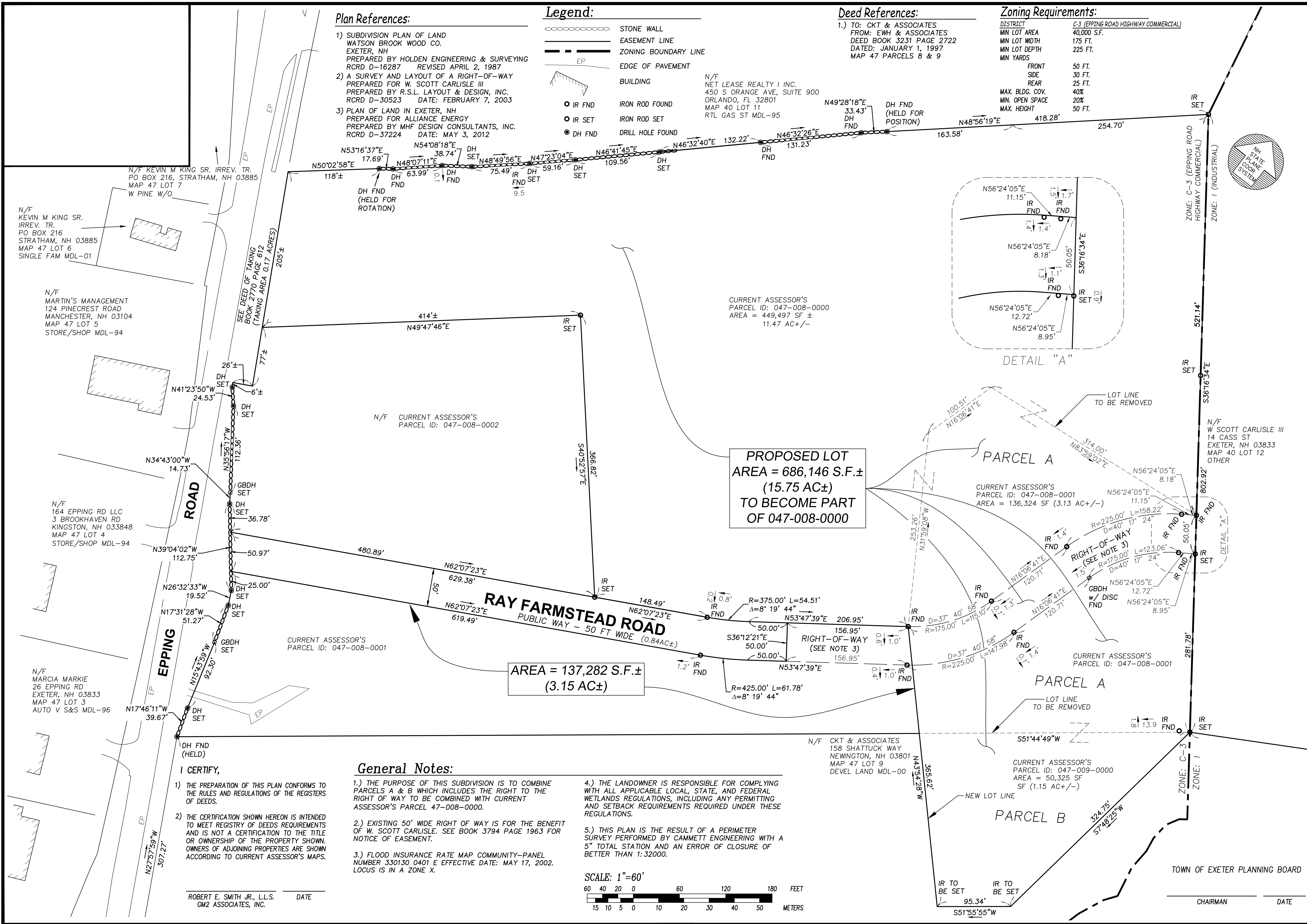
NO.	DATE	DESC	BY
1	5.10.22	TRC COMMENTS	DH

PROJ. MGR.:	D. HAMEL
FIELD:	J. SALVAGGIO / R. SMITH
DESIGN:	D. HAMEL
DRAWN:	D. HAMEL
CHECKED:	D. GIANGRANDE
DATE:	01-11-2022
FILE:	16042 D.GN.DWG
FBK:	
JOB #:	16042 D

SHEET G1.20

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**GM2**

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**Lot Line Adjustment Plan**

**"Ray Farm" Active Adult Community**

Epping Road  
 Exeter, NH 03833  
 Rockingham County

**Applicant:**  
 Willey Creek Company  
 158 Shattuck Way  
 Newington, NH 03801

**Owner:**  
 CKT & Associates  
 158 Shattuck Way  
 Newington, NH 03801

REVISION			
NO.	DATE	DESCRIPTION	BY
1	11.23.21	MINOR EDITS	RS
2	02.01.22	MINOR EDITS	RS

**PROJ. MGR.:** D. HAMEL  
**FIELD:** M. MICHAUD / A. BICK  
**DESIGN:** D. HAMEL  
**DRAWN:** J. SALVAGGIO  
**CHECKED:** R. SMITH  
**DATE:** 5-12-2022  
**FILE:** 16042 SUB NOV 2021.DWG  
**FBK:**  
**JOB #:** 16042

**SHEET 1 of 1 VI.10**



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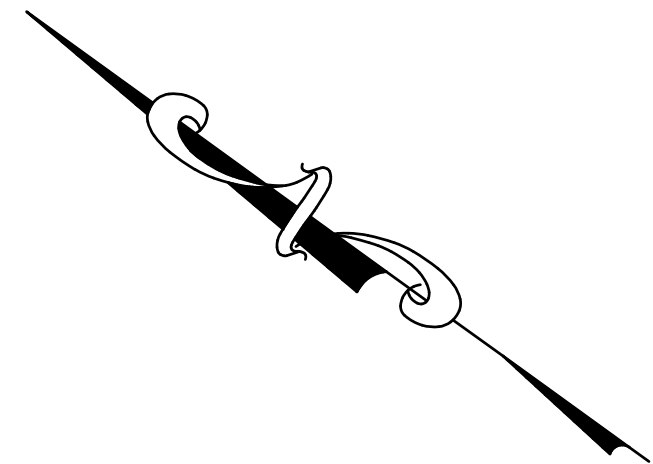
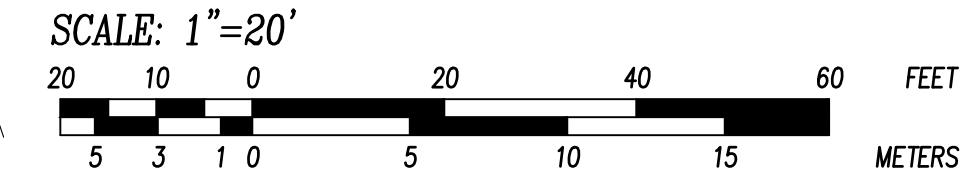
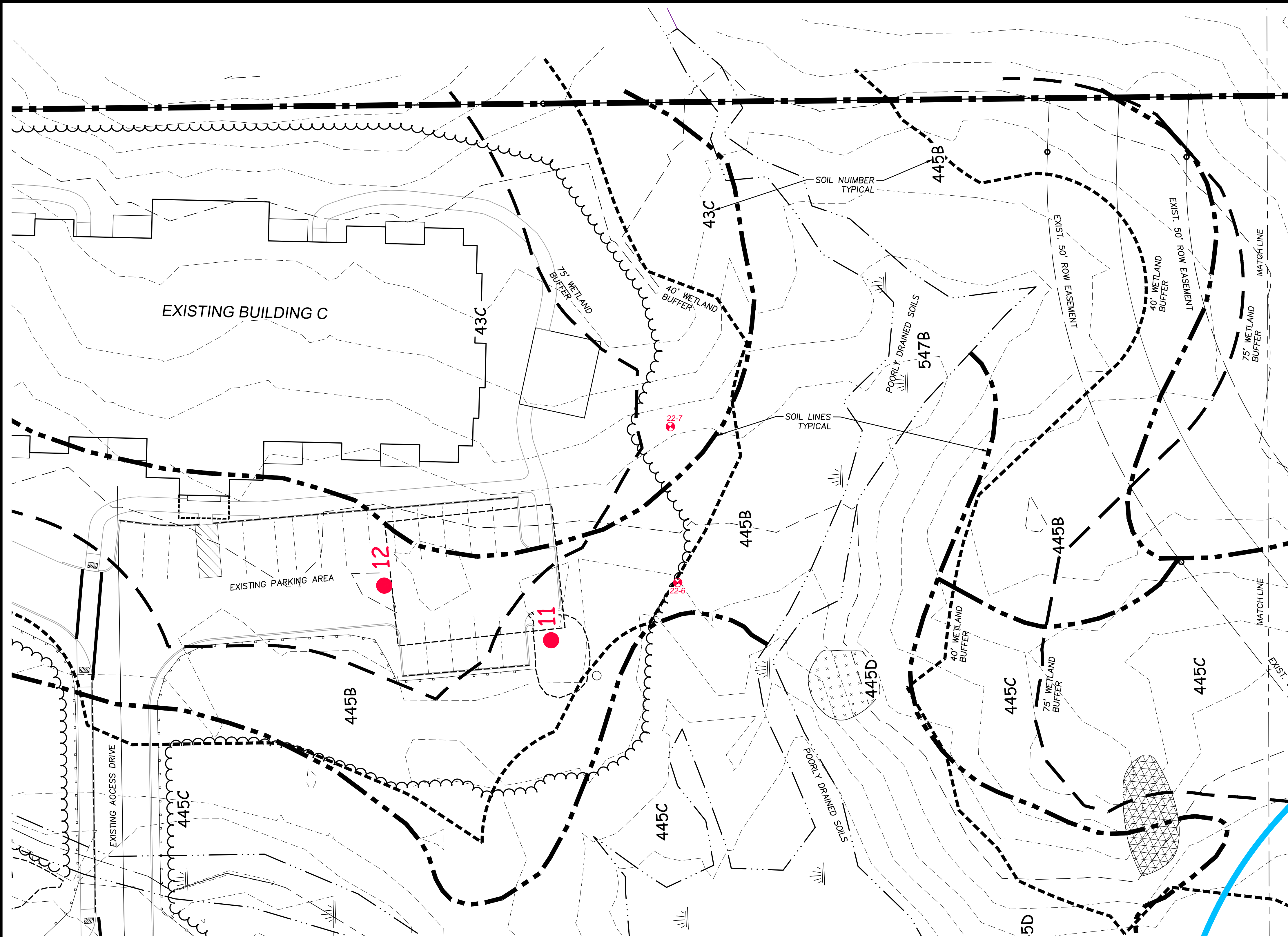
Sheet Title:  
**EXISTING  
 CONDITIONS**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY
1	5.10.22	TRC COMMENTS	DH

PROJ. MGR.: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D EC.DWG  
 FBK:  
 JOB #: 16042 D



**SOILS DATA (2016)**

43	CANTON, VERY STONY : HYDROLOGIC GROUP - B
115	SCARBORO MUCK : HYDROLOGIC GROUP - D
343	CANTON, EXTREMELY BOULDERY : HYDROLOGIC GROUP - B
445	NEWFIELDS, VERY STONY : HYDROLOGIC GROUP - B
500	UDORTHENTS, LOAMY : HYDROLOGIC GROUP - B
547	WALPOLE, VERY STONY : HYDROLOGIC GROUP - C

**SLOPES**

B	0 - 8%
C	8 - 15%
D	15 - 25%

**WETLAND NOTES:**  
 The limits of jurisdictional wetlands as shown on this plan were delineated by Gove Environmental Services, Inc., between November 2014 to April 2015 AND November 2021 in accordance with:  
 1. US Army Corps of Engineers Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Technical Report ERDC/EL TR-12-1, January 2012, Version 2.0  
 2. Field Indicators of Hydric Soils in the United States, Version 7.0, 2010 AND (for disturbed site) Field Indicators for Identifying Hydric Soils in New England, Version 3. NEIWPCC Wetlands Work Group (April 2004)  
 3. North American Digital Flora: National Wetland Plant List, current version.

**SOIL NOTES:**  
 The soils mapping is within the technical standards of the National Cooperative Soil Survey. It is a special purpose product, intended for infiltration requirements by the NH DES Alteration of Terrain Bureau. It was produced by a professional soil scientist, and is not a product of the USDA Natural Resources Conservation Service. There is a report that accompanies this mapping.  
 The site specific soil survey was produced October 20, 2016, Masy 2, 2022 and was prepared by James P. Gove, CSS # 004, Gove Environmental Services, Inc.  
 Soils were identified with the New Hampshire State-wide Numerical Soils Legend, USDA NRCS, Durham, NH. Issue # 10, January 2011. The numerical legend was amended to identify the correct soil components of the complex.  
 Hydrologic Soil Group from Ksat Values for New Hampshire Soils, Society of Soil Scientist of New England, Special Publication No. 5, September, 2009.

**SOILS DATA (2022)**

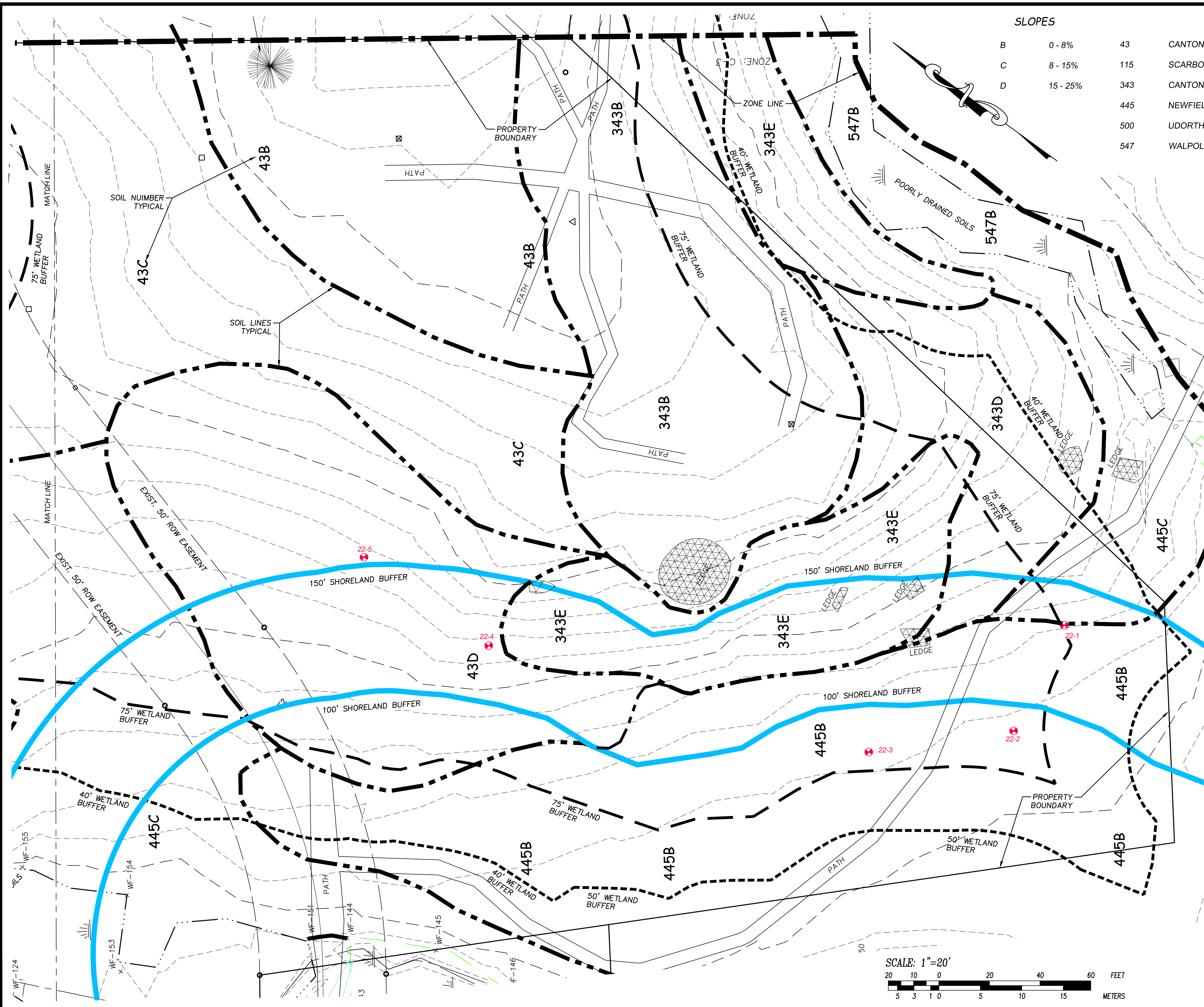
343	Canton, extremely bouldery : Hydro Soil Group B
445	Newfields, very stony : Hydro Soil Group B
547	Walpole, very stony : Hydro Group C

**SLOPES**

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C	8 - 15%
D	15 - 25%

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**SLOPES**

B	0 - 8%	43
C	8 - 15%	115
D	15 - 25%	343

**SOILS DATA**

CANTON, VERY STONY	: HYDROLOGIC GROUP - B	43
SCARBORO MUCK	: HYDROLOGIC GROUP - D	115
CANTON, EXTREMELY BOULDERY	: HYDROLOGIC GROUP - B	343
NEWFIELDS, VERY STONY	: HYDROLOGIC GROUP - B	445
UDORTHENTS, LOAMY	: HYDROLOGIC GROUP - B	500
WALPOLE, VERY STONY	: HYDROLOGIC GROUP - C	547

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Sheet Title:  
**EXISTING  
 CONDITIONS**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK

NO.	DATE	DESC	BY
1	5.10.22	TRC COMMENTS	DH

PROJ. MGR: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D EC.DWG  
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 JOB #: 16042 D



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Sheet Title:

# OVERALL SITE PLAN

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:

Ray Farm, LLC  
 158 Shattuck Way  
 Newington, NH 03801

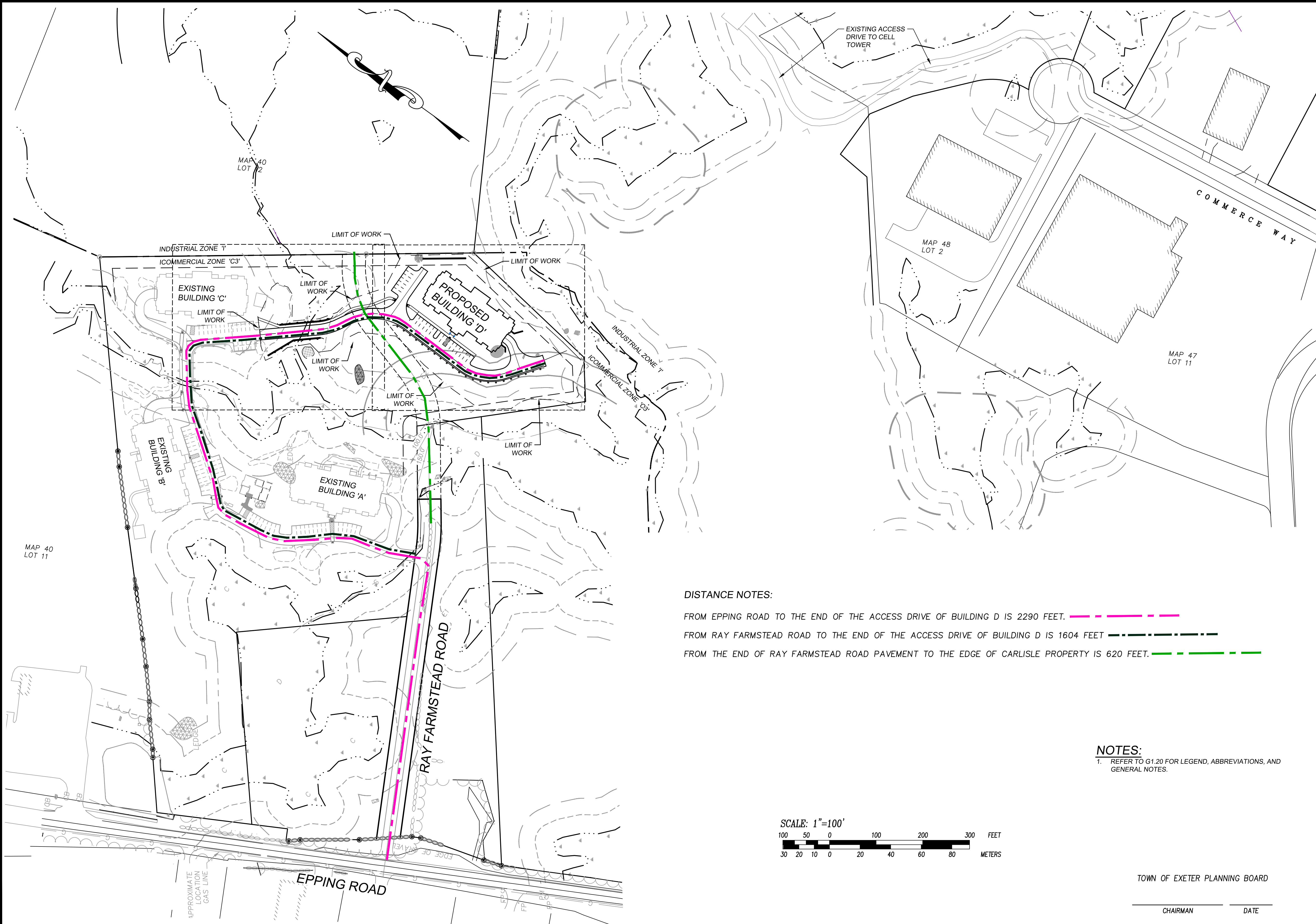
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NO.	DATE	DESC	BY	
1	5.10.22	TRC COMMENTS	DH	

PROJ. MGR.: D. HAMEL  
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 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D 5P.DWG  
 FBK:  
 JOB #: 16042 D

TOWN OF EXETER PLANNING BOARD

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

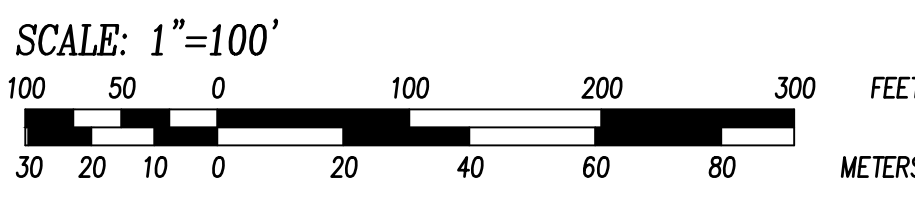
SHEET C1.10



**DISTANCE NOTES:**

- FROM EPPING ROAD TO THE END OF THE ACCESS DRIVE OF BUILDING D IS 2290 FEET.
- FROM RAY FARMSTEAD ROAD TO THE END OF THE ACCESS DRIVE OF BUILDING D IS 1604 FEET
- FROM THE END OF RAY FARMSTEAD ROAD PAVEMENT TO THE EDGE OF CARLISLE PROPERTY IS 620 FEET.

**NOTES:**  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.



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Sheet Title:

# SITE PLAN

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:

Ray Farm, LLC  
 158 Shattuck Way  
 Newington, NH 03801

### REVISION BLOCK

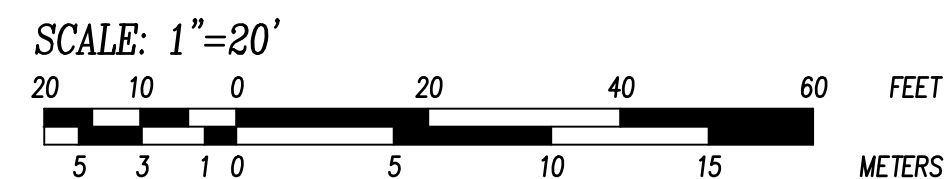
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1	5.10.22	TRC COMMENTS	DH

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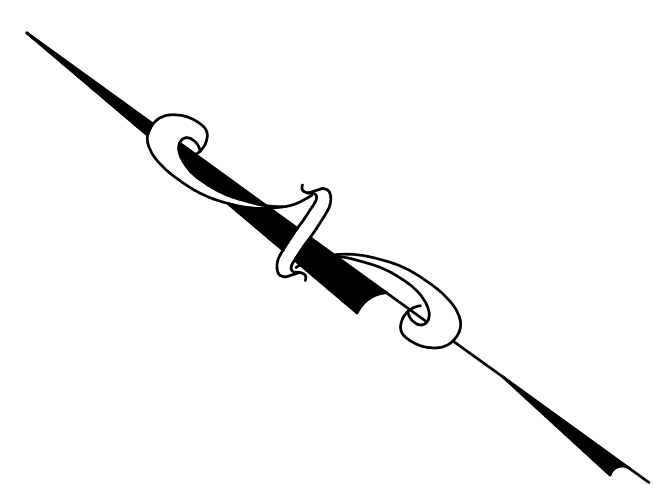
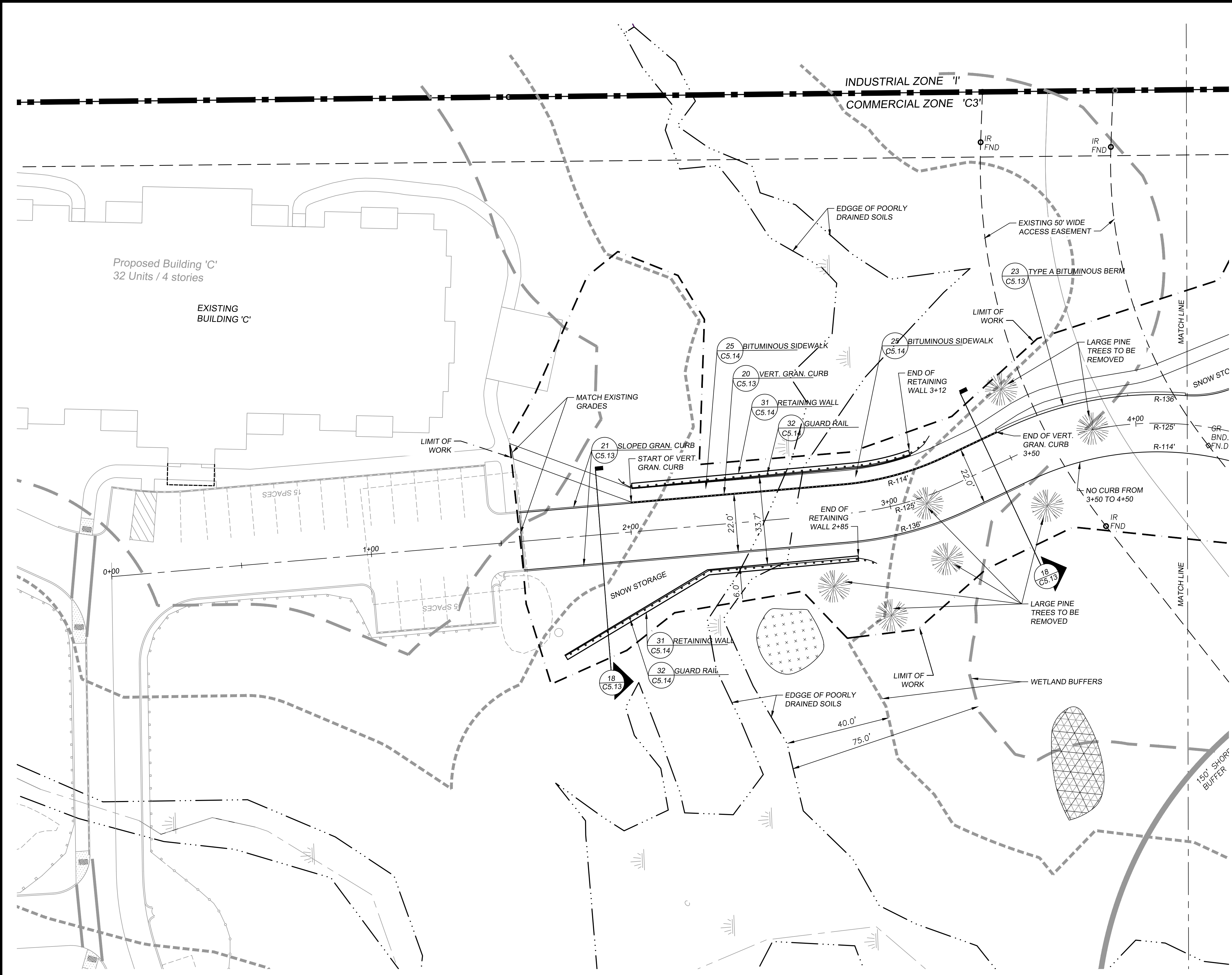
- REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

TOWN OF EXETER PLANNING BOARD

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



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Sheet Title:

# SITE PLAN

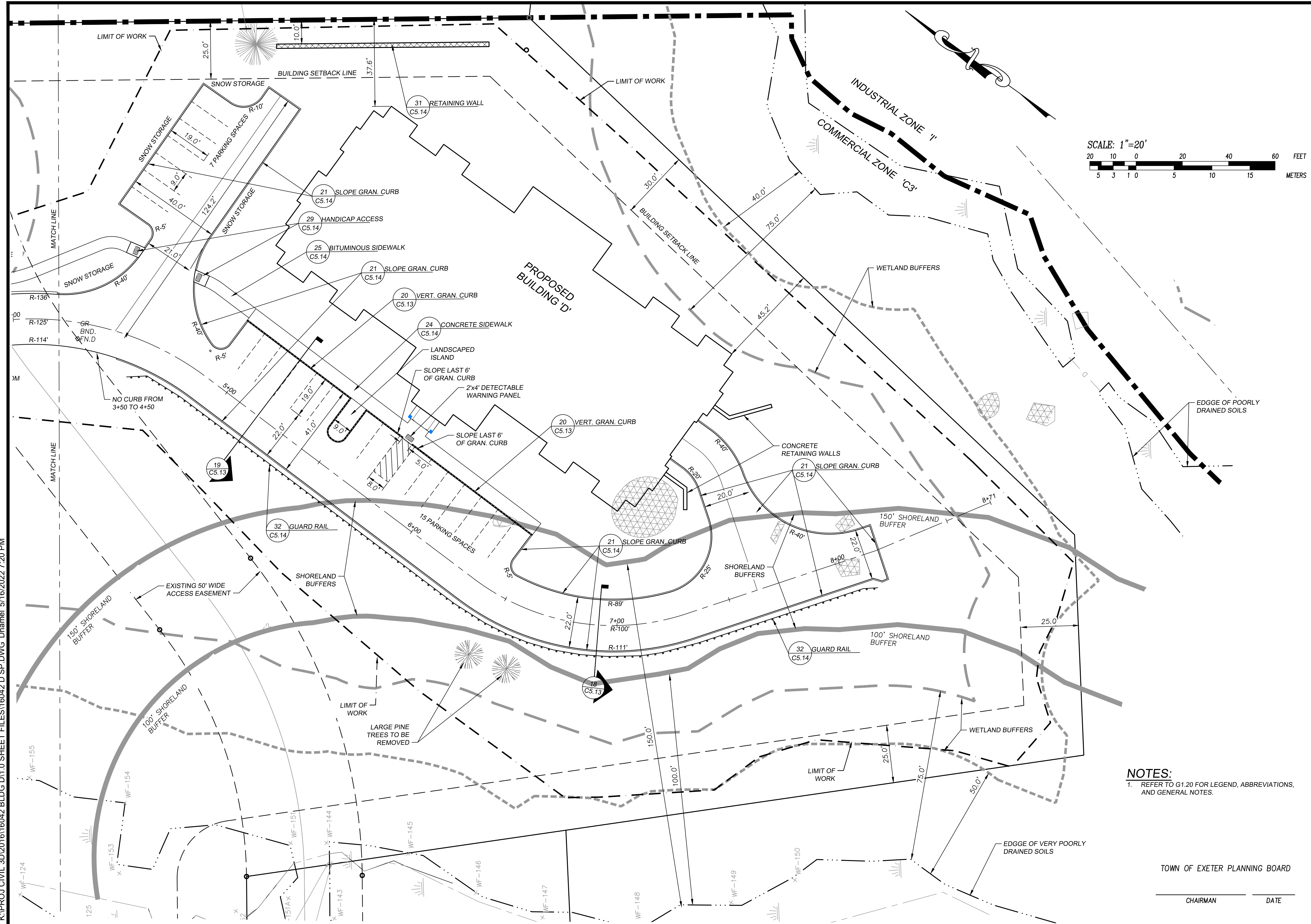
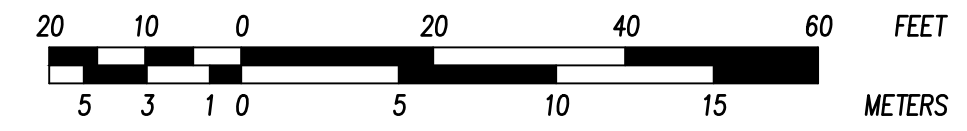
Project Title:

**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:

**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

SCALE: 1"=20'



**NOTES:**  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

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

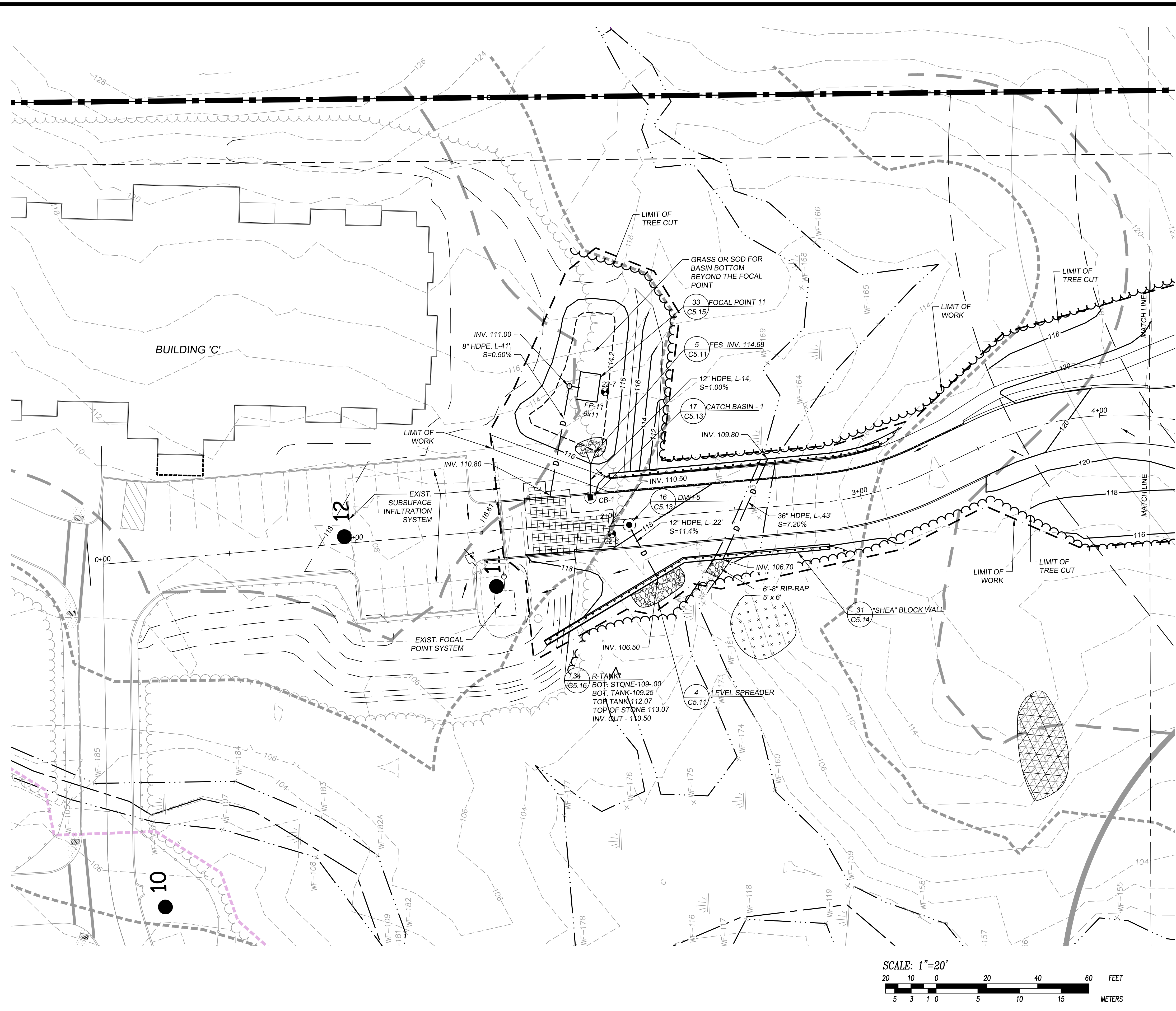
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NO.	DATE	DESC	BY	
1	5.10.22	TRC COMMENTS	DH	

PROJ. MGR: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D 5P.DWG  
 FBK:  
 JOB #: 16042 D

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**DRAINAGE STRUCTURES**

CB-1 R-117.15  
12" INV. OUT 114.82

DMH-5 R-117.90  
12" INV. IN - 110.44  
12" INV. OUT - 109.00

SOIL TEST LOGGED BY DENIS HAMEL 5-3-2022

SOIL TEST 22-6  
0-6" Sandy Loam 10 YR 3/2  
6"-13" Loamy Sand 10 YR 5/6  
13"-36" Loamy Sand 2.5Y 5/6  
SHWT @17", No Water, No Ledge

SOIL TEST 22-7  
0-4" Sandy Loam 10 YR 3/2  
4"-13" Loamy Sand 10 YR 5/6  
13"-36" Loamy Sand 2.5Y 5/4  
SHWT @13", No Water, No Ledge



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# GRADING/ DRAINAGE PLAN

**Ray Farm  
Condominium**

Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

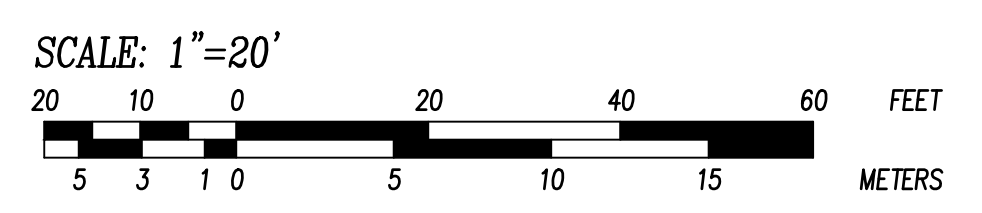
Applicant/Owner:  
**Ray Farm, LLC**  
158 Shattuck Way  
Newington, NH 03801

REVISION BLOCK				
NO.	DATE	DESC	BY	
1	4.26-22	REVISE WET IMPACTS	DH	

**NOTES:**  
1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

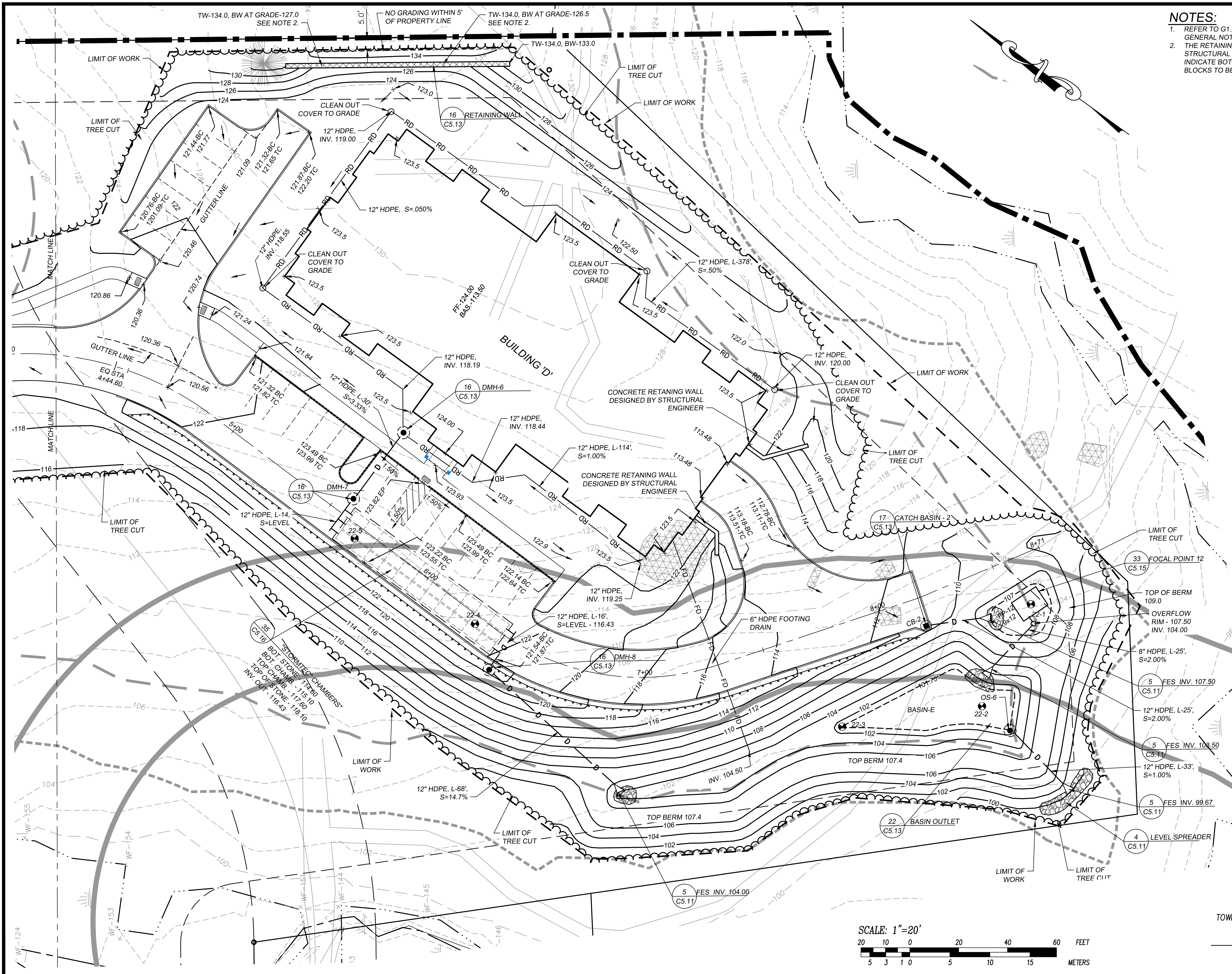
TOWN OF EXETER PLANNING BOARD

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



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FIELD: J. SALVAGGIO / R. SMITH  
DESIGN: D. HAMEL  
DRAWN: D. HAMEL  
CHECKED: D. GIANGRANDE  
DATE: 01-11-2022  
FILE: 16042 D GR.DWG  
FBK:  
JOB #: 16042 D

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**NOTES:**  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.  
 2. THE RETAINING WALL SHALL BE DESIGNED BY A STRUCTURAL ENGINEER. THE DEGN PLANS SHALL INDICATE BOTTOM OF WALL ELEVATIONS AND SIZE OF BLOCKS TO BE USED.

**DRAINAGE STRUCTURES**

CB-2	R-111.09	12" INV. OUT 108.00
DMH-6	R-123.50	12" INV. IN - 118.10 12" INV. OUT - 118.00
DMH-7	R-123.16	12" INV. IN - 117.00 12" INV. OUT - 116.43
DMH-8	R-122.10	12" INV. IN - 116.43 12" INV. OUT - 114.00
OS-6	RIM 105.50	TOP OF STRUCTURE-104.83 3" ORIFICE-103.00 6" ORIFICE-104.00 12" HDPE OUT-99.67

SOIL TEST LOGGED BY  
 JIM GOVE 5-2-2022

SOIL TEST 22-1  
 0-7" Sandy Loam 10 YR 3/2  
 7"-39" Loamy Sand 10 YR 5/6  
 39"-42" Loamy Sand 2.5Y 5/4  
 SHWT @39", No Water, Large Boulder

SOIL TEST 22-2  
 0-4" Sandy Loam 10 YR 3/2  
 4"-30" Sandy Loam 10 YR 5/6  
 30"-49" Loamy Sand 2.5Y 5/4  
 SHWT @30", No Water, No Ledge

SOIL TEST 22-3  
 0-5" Sandy Loam 10 YR 3/2  
 5"-31" Sandy Loam 10 YR 4/6  
 31"-52" Loamy Sand 2.5Y 5/4  
 SHWT @31", No Water, Large Boulder

SOIL TEST 22-4  
 0-6" Sandy Loam 10 YR 3/2  
 6"-35" Loamy Sand 10 YR 5/6  
 35"-60" Loamy Sand 2.5Y 5/4  
 SHWT @35", No Water, No Ledge

SOIL TEST 22-5  
 0-8" Sandy Loam 10 YR 3/2  
 8"-24" Sandy Loam 10 YR 5/6  
 24"-44" Loamy Sand 2.5Y 5/4  
 44"-55" Loamy Sand 2.5Y 5/4  
 SHWT @44", No Water, No Ledge



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# GRADING/ DRAINAGE PLAN

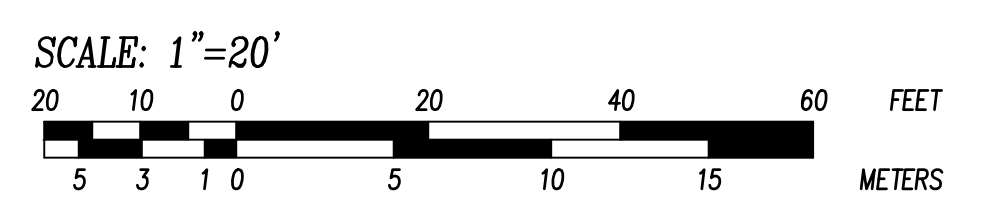
## Ray Farm Condominium

Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK				
NO.	DATE	DESC	BY	
1	4.26-22	REVISE WET IMPACTS	DH	

PROJ. MGR.: D. HAMEL  
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 DATE: 01-11-2022  
 FILE: 16042 D.GR.DWG  
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Sheet Title:

# UTILITY PLAN

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:

Ray Farm, LLC  
 158 Shattuck Way  
 Newington, NH 03801

### REVISION BLOCK

NO.	DATE	DESC	BY
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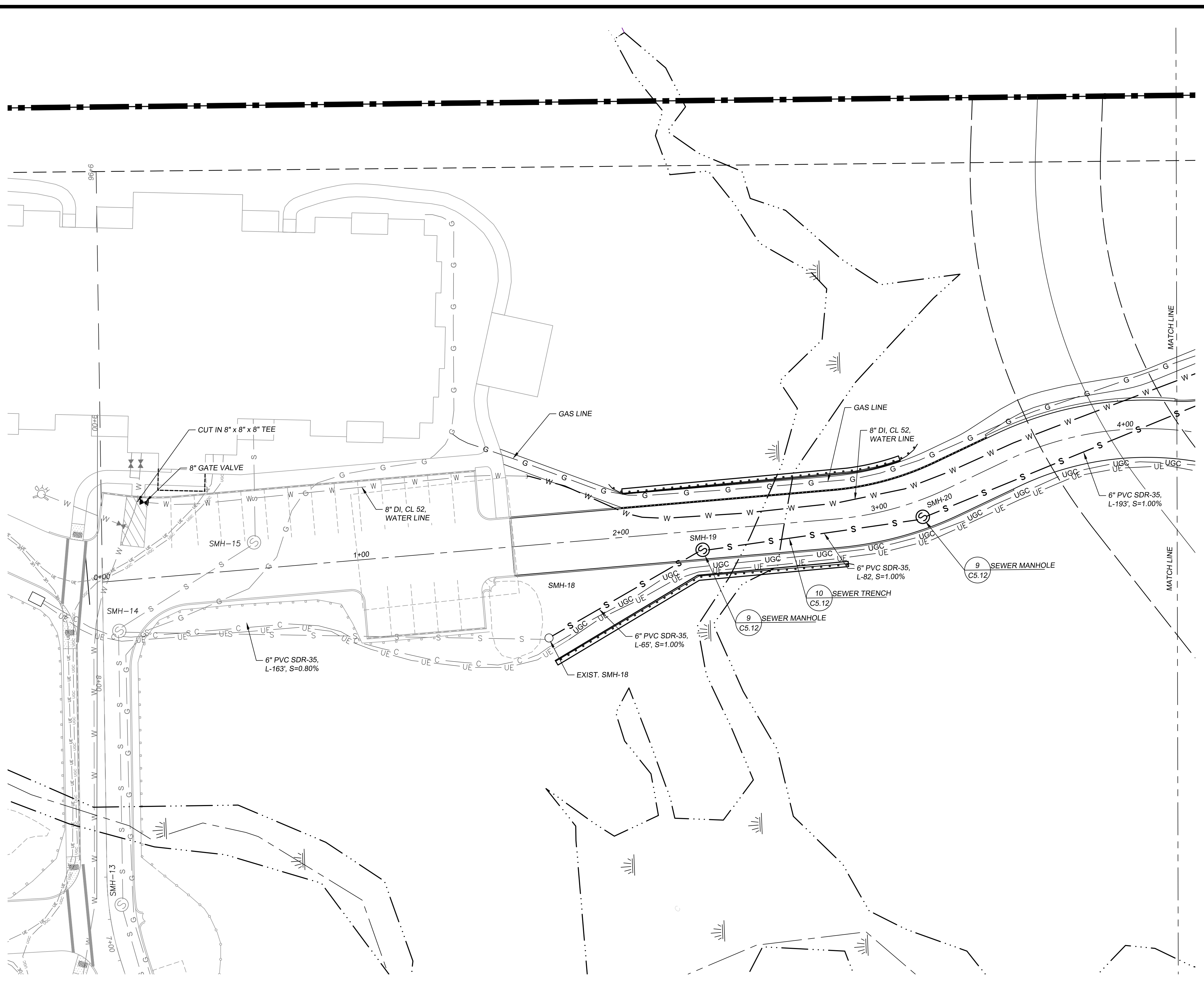
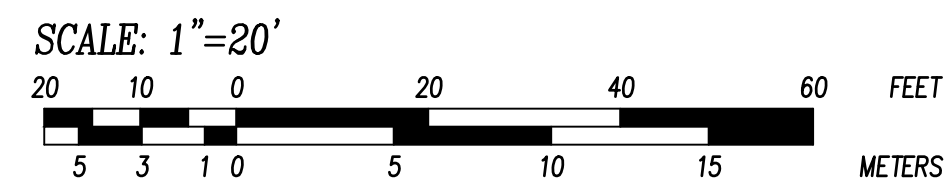
SHEET C1.31

SEWER STRUCTURES	
SMH-14 EXISTING 6" INV. IN 110.60 (EX) 6" INV. OUT 110.50 (EX)	SMH-15 EXISTING 6" INV. IN 111.28 (EX) 6" INV. OUT 111.20 (EX)
SMH-18 EXISTING 6" INV. IN 111.97 (PROP) INV. OUT 111.87 (EX)	SMH-19 R-118.27 6" INV. IN 112.72 6" INV. OUT 112.62
SMH-20 R-119.10 6" INV. IN 113.64 6" INV. OUT 113.54	SMH-21 R-123.00 6" INV. IN 115.67 6" INV. OUT 115.57

**NOTES:**  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

TOWN OF EXETER PLANNING BOARD

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



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Sheet Title:

# UTILITY PLAN

Project Title:

## Ray Farm Condominium

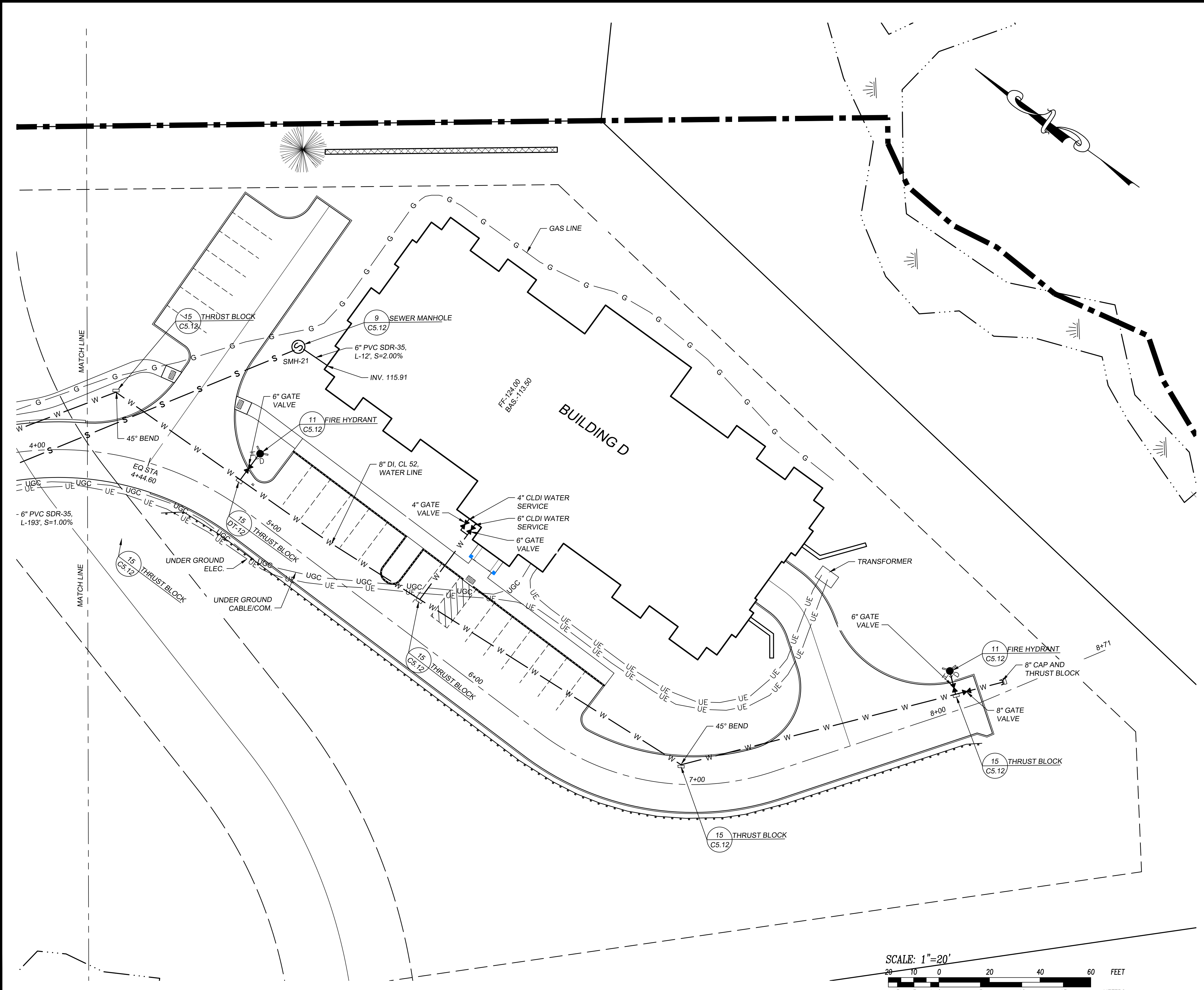
Ray Farmstead Road  
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Rockingham County

Applicant/Owner:

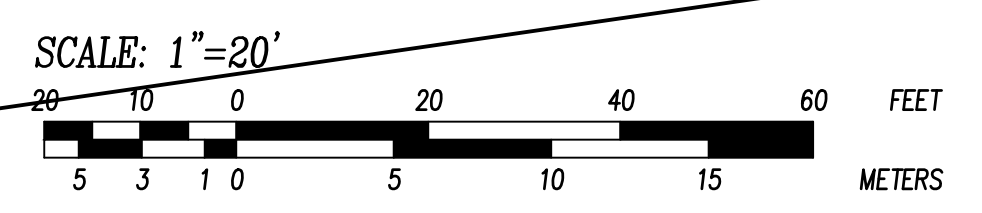
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158 Shattuck Way  
Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY
1	5.10.22	TRC COMMENTS	DH

SEWER STRUCTURES	
SMH-20 R-119.10	SMH-21 R-123.00
6" INV. IN 113.64	6" INV. IN 115.67
6" INV. OUT 113.54	6" INV. OUT 115.57



**NOTES:**  
1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

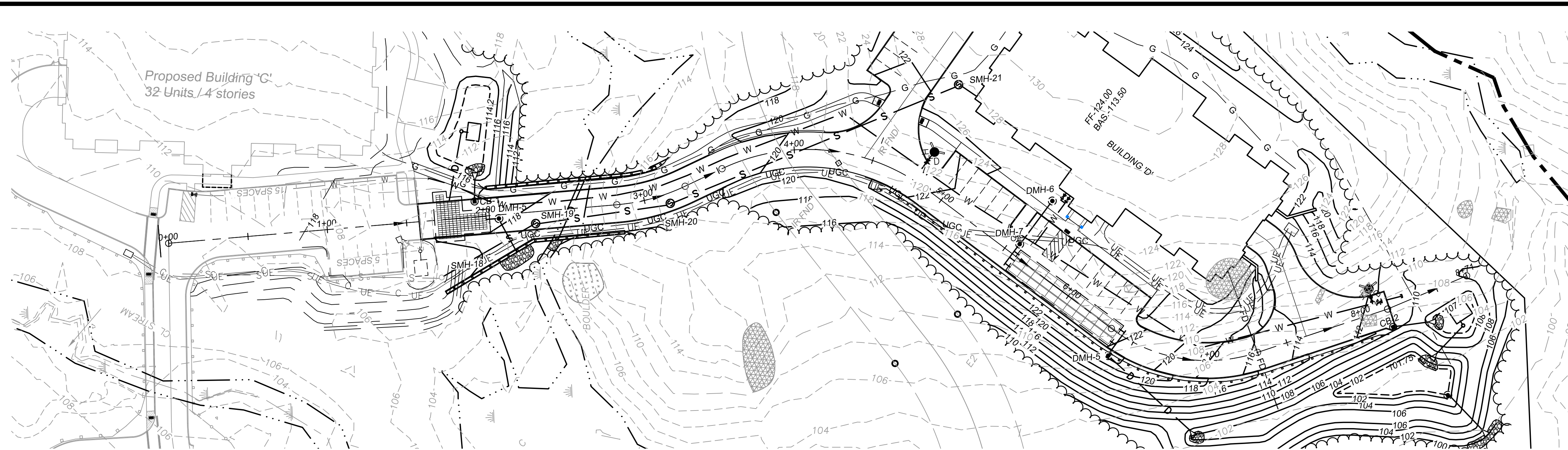


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CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_

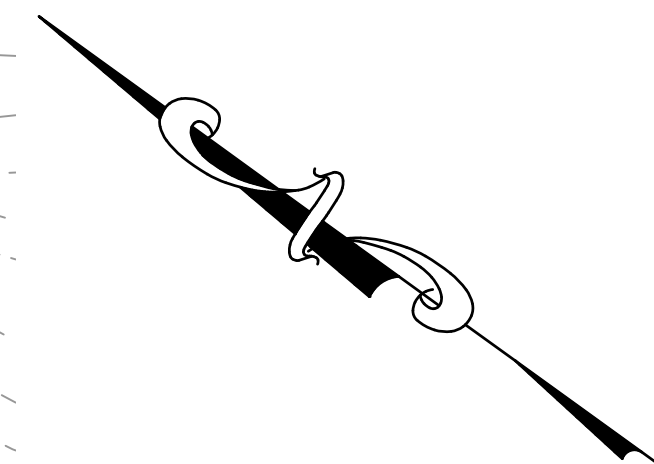
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SCALE: 1"=40' HORIZONTAL  
 40 20 0 40 80 120 FEET  
 10 5 0 10 20 30 METERS  
 VERTICAL 1"=4'



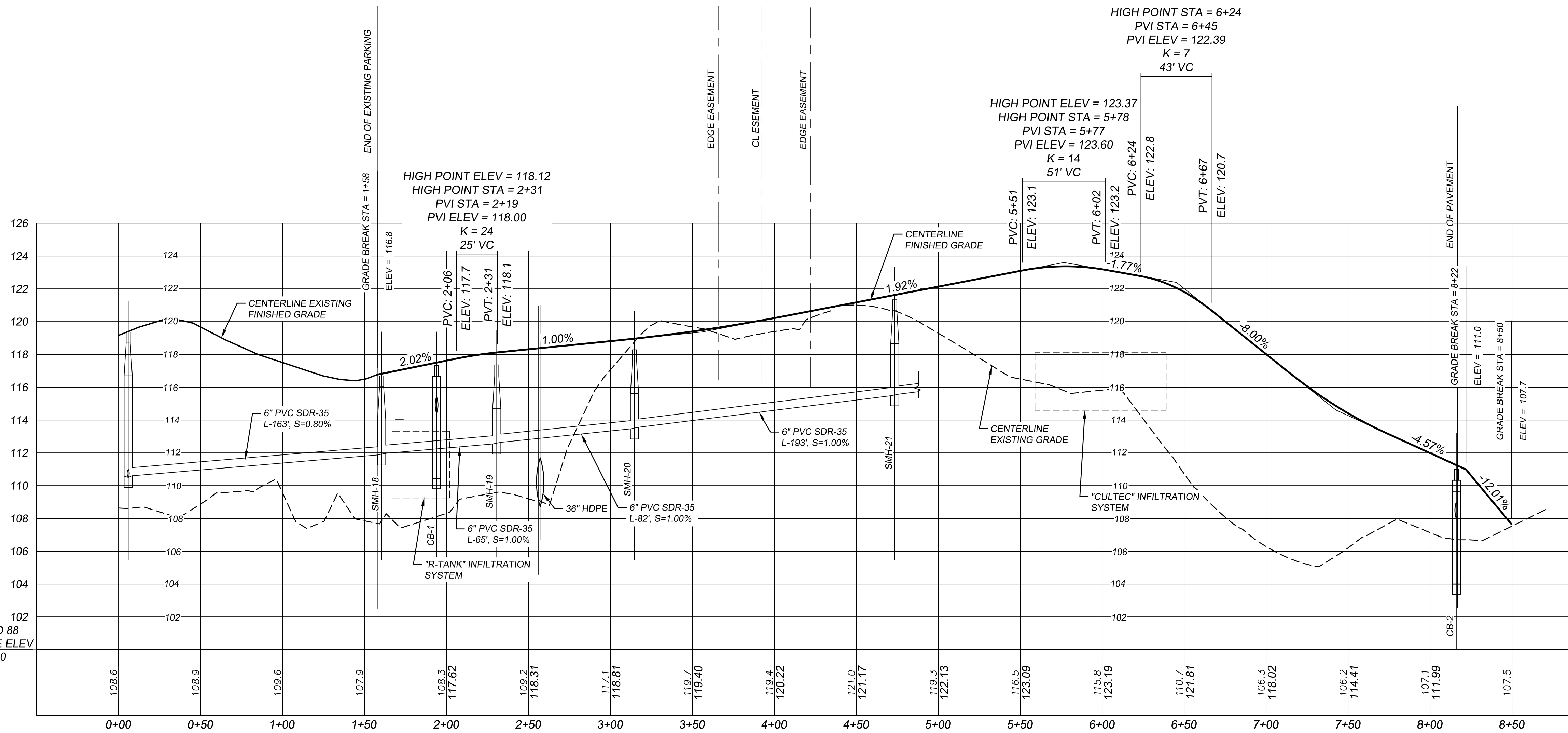
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Sheet Title:  
**PLAN  
 PROFILE**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
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REVISION BLOCK			
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1	5.10.22	TRC COMMENTS	DH



**NOTES:**  
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TOWN OF EXETER PLANNING BOARD  
 CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_

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Sheet Title:

# EROSION AND SEDIMENT CONTROL PLAN

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

Applicant/Owner:

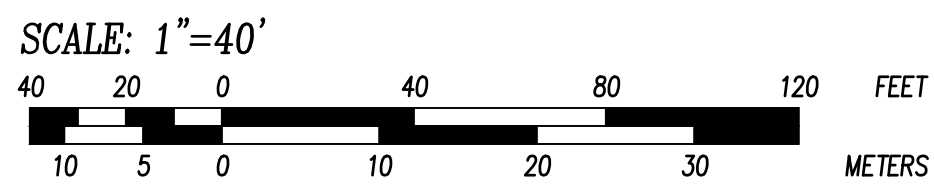
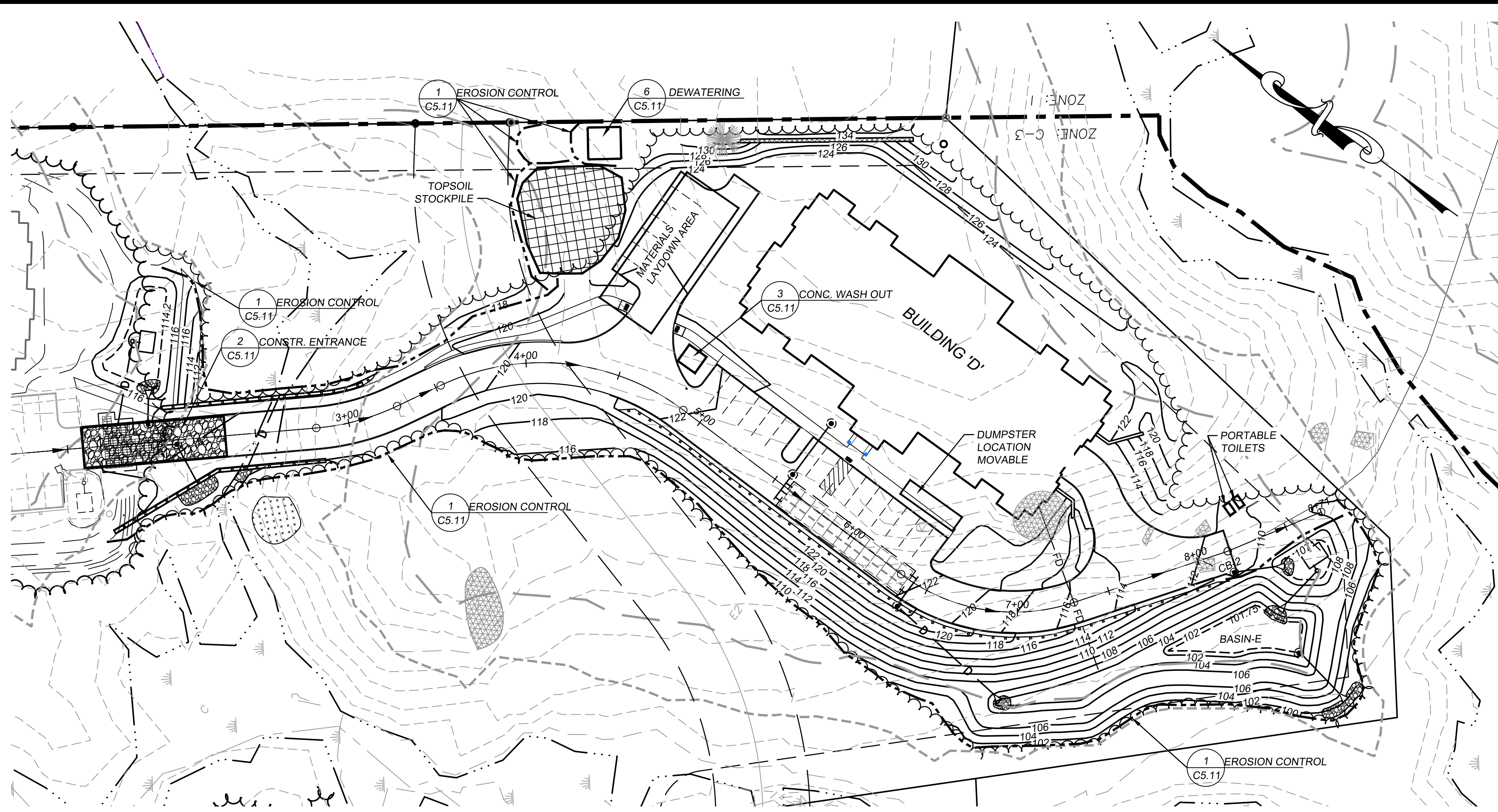
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 FILE: 16042 D ES.DWG  
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SHEET C1.51



### Construction Notes

- PRIOR TO ANY EXCAVATION, DIG-SAFE AND EXETER DPW (603-773-6157) SHALL BE NOTIFIED TO LOCATE ALL PERTINENT UTILITIES INCLUDING WATER, SEWER, AND DRAINAGE.
- THIS PROJECT IS BE TO MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER Agr 3800 RELATIVE TO INVASIVE SPECIES.
- ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY RAINFALL OF ONE HALF INCH OR MORE.
- DO NOT CLEAR AND STRIP THE ENTIRE SITE AT ONE TIME. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION. IN NO CASE SHALL MORE THAN 3 ACRES BE DISTURBED AT ONE TIME. STABILIZE THE AREA BEFORE MOVING ON TO THE NEXT AREA. DISTURBED AREAS REMAINING OPEN FOR MORE THAN 30 DAYS, SHALL BE STABILIZED.
- WOODY MATERIAL REMOVED DURING THE CLEARING PROCESS MAY BE GROUND UP AND USED AS MULCH FOR EROSION CONTROL TO STABILIZE APPROPRIATE AREAS.
- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
  - BASE COURSE GRAVEL HAS BEEN INSTALLED IN AREAS TO BE PAVED
  - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
  - A MINIMUM OF 3 INCH OF NON EROSIIVE MATERIAL SUCH AS RIP-RAP HAS BEEN INSTALLED
  - OR EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED
- ALL AREAS SHALL BE STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE  
 SEEDING SPECIFICATIONS ARE AS FOLLOWS:  
 TEMPORARY SEEDING FOR EROSION CONTROL DURING CONSTRUCTION:  

SPECIES	POUNDS/1000 SF	REMARKS
WINTER RYE	2.5	BEST FOR FALL SEEDING. AUG. 15 TO SEPT. 15.
OATS	2.0	BEST FOR SPRING SEEDING. NO LATER THAN MAY 15.
ANNUAL RYEGRASS	1.0	SEED EARLY SPRING. AUG. 15 TO SEPT. 15.
PERENIAL RYEGRASS	0.7	SEED BETWEEN APRIL 1 TO AUG. 15. SEED TO A DEPTH OF 0.5"

  
 PERMANENT VEGETATION SEED MIXTURE:  

SPECIES	POUNDS/1000 SF
TALL FESCUE	0.45
CREEPING RED FESCUE	0.45
BIRDSFOOT TREFOL	0.20
TOTAL	1.10
- ALL RE-VEGETATED AREAS THAT DO NOT EXHIBIT 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS (ON 3:1 SLOPES OR STEEPER). SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, OR SECURING WITH ANCHORED NETTING. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER SNOW OR FROZEN GROUND AND SHALL BE COMPLETED PRIOR TO AN ACCUMULATION OF OF SNOW AND/OR FROST.
- ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
- AFTER NOVEMBER 15, INCOMPLETE ROADS 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.
- CONCRETE WASH OUT SHALL BE CONDUCTED IN THE AREAS SHOWN ON SHEETS C1.51 AND C1.52. AND USE THE CONCRETE WASH OUT DETAIL SHOWN ON SHEET C5.11.
- NO STUMPS OR DEBRIS SHALL BE BURIED ONSITE. ALL STUMPS AND CONSTRUCTION DEBRIS SHALL BE STORED ONSITE UNTIL THEY CAN BE DISPOSED OFFSITE IN A FACILITY CAPABLE OF HANDLING SUCH MATERIALS.
- TEMPORARY PORTABLE TOILETS SHALL BE PROVIDED AND PROPERLY MAINTAINED ONSITE FOR THE DURATION OF THE PROJECT.
- VEHICLE MAINTENANCE SHALL BE PERFORMED OFF SITE. ANY VEHICLE LEAKING OIL OR GREASE SHALL BE IMMEDIATELY REPAIRED OR REMOVED FROM THE SITE. FUEL AND OILS SHALL BE STORED IN AN APPROVED LOCATION AND COMPLY WITH LOCAL, STATE, AND FEDERAL REGULATIONS. IN NO CASE SHALL THEY BE STORED WITHIN 100' OF WETLAND AREAS.

**NOTES:**  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

### Construction Sequence

- PRIOR TO CLEARING, OR EARTH MOVING ACTIVITIES, INSTALL TEMPORARY EROSION CONTROLS AS SHOWN. SEE SHEET C5.11 FOR EROSION CONTROL DETAILS AND TECHNIQUES.
- INSTALL CONSTRUCTION ENTRANCE.
- STRIP TOPSOIL AND STOCKPILE IN DESIGNATED AREA. INSTALL TEMPORARY EROSION CONTROLS AROUND STOCKPILE. BOULDERS AND LARGE ROCKS GREATER THAN TWO FEET IN DIAMETER SHALL BE STOCKPILED SEPARATELY IN A DESIGNATED AREA.
- CONSTRUCT TEMPORARY SEDIMENT BASINS AND OUTLET SWALES IN SAME LOCATION AS THE FINAL BASINS AS SHOWN ON THE PLANS. ADDITIONAL TEMPORARY ROWS OF COMPOST SOCK MAY BE REQUIRED IN THE SWALES. INSTALL OUTLET PROTECTION RIP-RAP AS SHOWN PRIOR TO DIRECTING ANY STORMWATER TO THE BASINS. THE FORE-BAYS WILL SERVE AS CONSTRUCTION PERIOD SEDIMENT SETTLING AREAS BUT MUST BE CLEANED AFTER PARKING/LOADING AREAS ARE PAVED, BUILDINGS CONSTRUCTED, AND UTILITIES INSTALLED.
- CREATE SWALES TO DIRECT STORMWATER FROM THE DEVELOPED PORTION OF THE SITE TO THE TEMPORARY BASINS. IMMEDIATELY STABILIZE THE SLOPES OF THE BASINS BY SEEDING AND MULCHING WITHIN 72 HOURS OF ACHIEVING FINISHED GRADES. ALTERNATE METHODS OF SLOPE STABILIZATION MAY BE REQUIRED IF WORK IS PERFORMED OUTSIDE THE GROWING SEASON.
- PREPARE BUILDING SITE TO BE CONSTRUCTED. INSTALL THE BUILDING FOUNDATION AND IMMEDIATELY BRING THE FILL UP TO DESIGN GRADES. CONSTRUCT THE SLOPES IN THE AREAS SHOWN ON THE GRADING PLANS. STABILIZE THE SLOPE WITH SELECTED PLANT MATERIALS AND SEED IMMEDIATELY.
- ROUGH GRADE PARKING AREAS TO SUBBASE ELEVATIONS. FILL WILL BE REQUIRED TO BRING PARKING AREAS TO THE DESIGN GRADES. IMPORTED FILL SHALL BE COMPACTED TO A MINIMUM OF 95% DENSITY. WATER MAY BE REQUIRED TO BRING THE FILL TO THE APPROPRIATE MOISTURE CONTENT FOR PROPER COMPACTION. DO NOT OVER WATER AND CREATE RUNOFF. DO NOT CONTINUE THE FILLING OPERATION DURING INTENSE RAINFALL OR IF RAINFALL IS ANTICIPATED. INSTALL ADDITIONAL EROSION CONTROL AT THE BASE OF SLOPES WHEN RAIN IS ANTICIPATED, AND LEAVE IT IN PLACE UNTIL SLOPES ARE STABILIZED OR ADDITIONAL FILL IS INSTALLED.
- INSTALL PERMANENT STORMWATER TREATMENT DEVICES INCLUDING THE "FOCAL POINT" BIO-RETENTION SYSTEMS AS SHOWN ON THE PLANS. DO NOT ALLOW STORMWATER FLOW TO THE DEVICES FROM UNSTABILIZED AREAS. IF STORMWATER FLOWS ARE ANTICIPATED TO REACH THE TREATMENT DEVICES PRIOR TO FINAL STABILIZATION, ENCASE THE DEVICES WITH FILTER FABRIC.
- INSTALL UNDERGROUND UTILITIES. BACKFILL AND COMPACT TRENCHES. IF DEWATERING IS REQUIRED TO INSTALL UTILITIES OR STRUCTURES, CONSTRUCT THE DEWATERING AREA AS PER THE DETAIL ON SHEET C 5.11 AND PLACE IN THE DESIGNATED AREA. ADDITIONAL ROWS OF COMPOST SOCK MAY BE REQUIRED AT THE DISCHARGE POINT IF THE WATER IS NOT CLEAR. INSTALL AND COMPACT PARKING AREA GRAVEL. INSTALL THE BINDER COURSE IN PARKING AREAS WITHIN 72 HOURS OF PLACING GRAVEL.
- INSTALL UTILITY CONNECTIONS. SPREAD TOPSOIL IN GRASS AND LANDSCAPED AREAS AND IMMEDIATELY SEED AND MULCH IF NEEDED. ADDITIONAL EROSION CONTROL MAY BE NEEDED TO CONTROL EROSION AND SILTS FROM ENTERING THE TEMPORARY SETTLEMENT BASIN.

TOWN OF EXETER PLANNING BOARD

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

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Sheet Title:

# DETAILS

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

Applicant/Owner:

Ray Farm, LLC  
158 Shattuck Way  
Newington, NH 03801

REVISION BLOCK

NO.	DATE	DESC	BY
1	5.10.22	TRC COMMENTS	DH

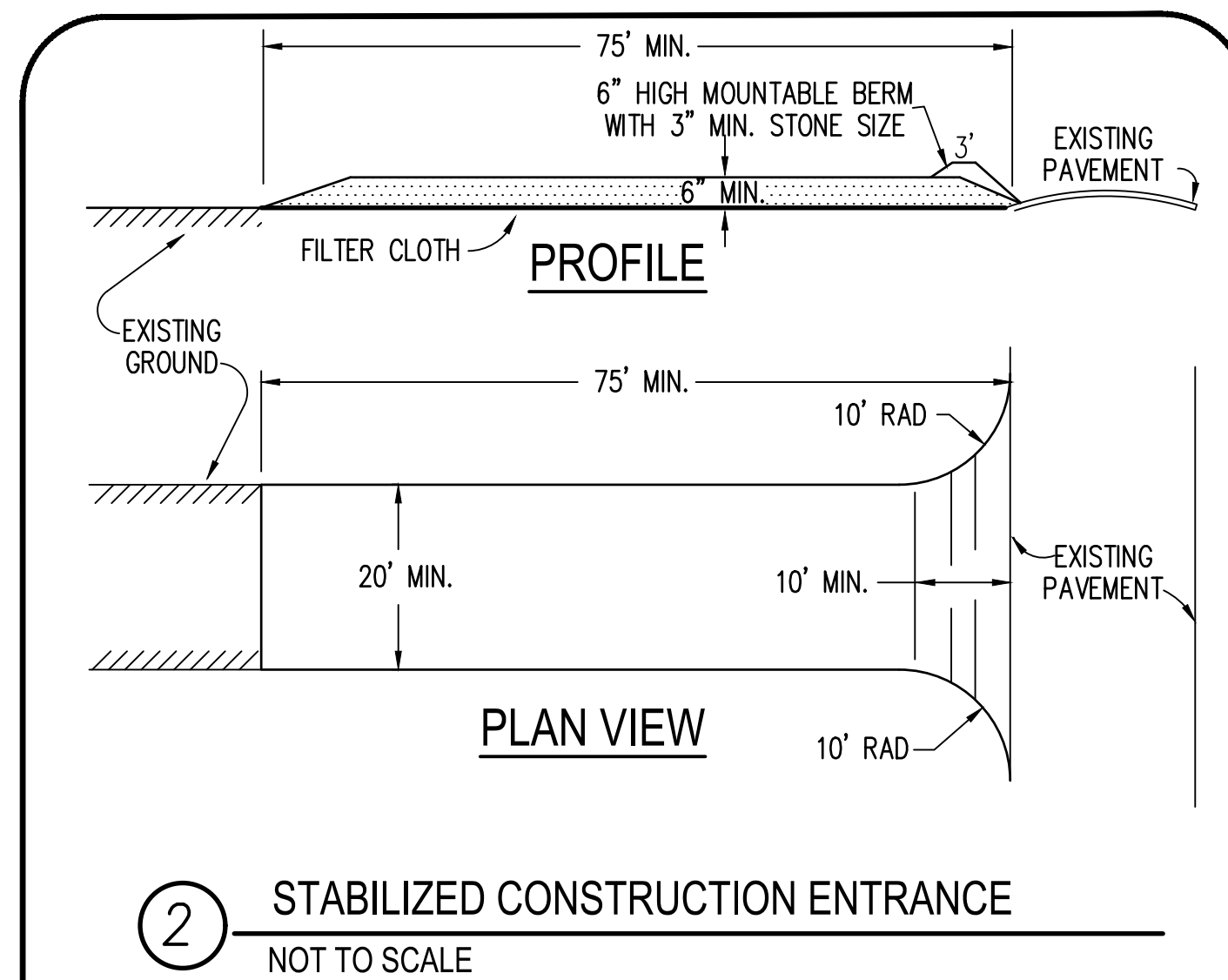
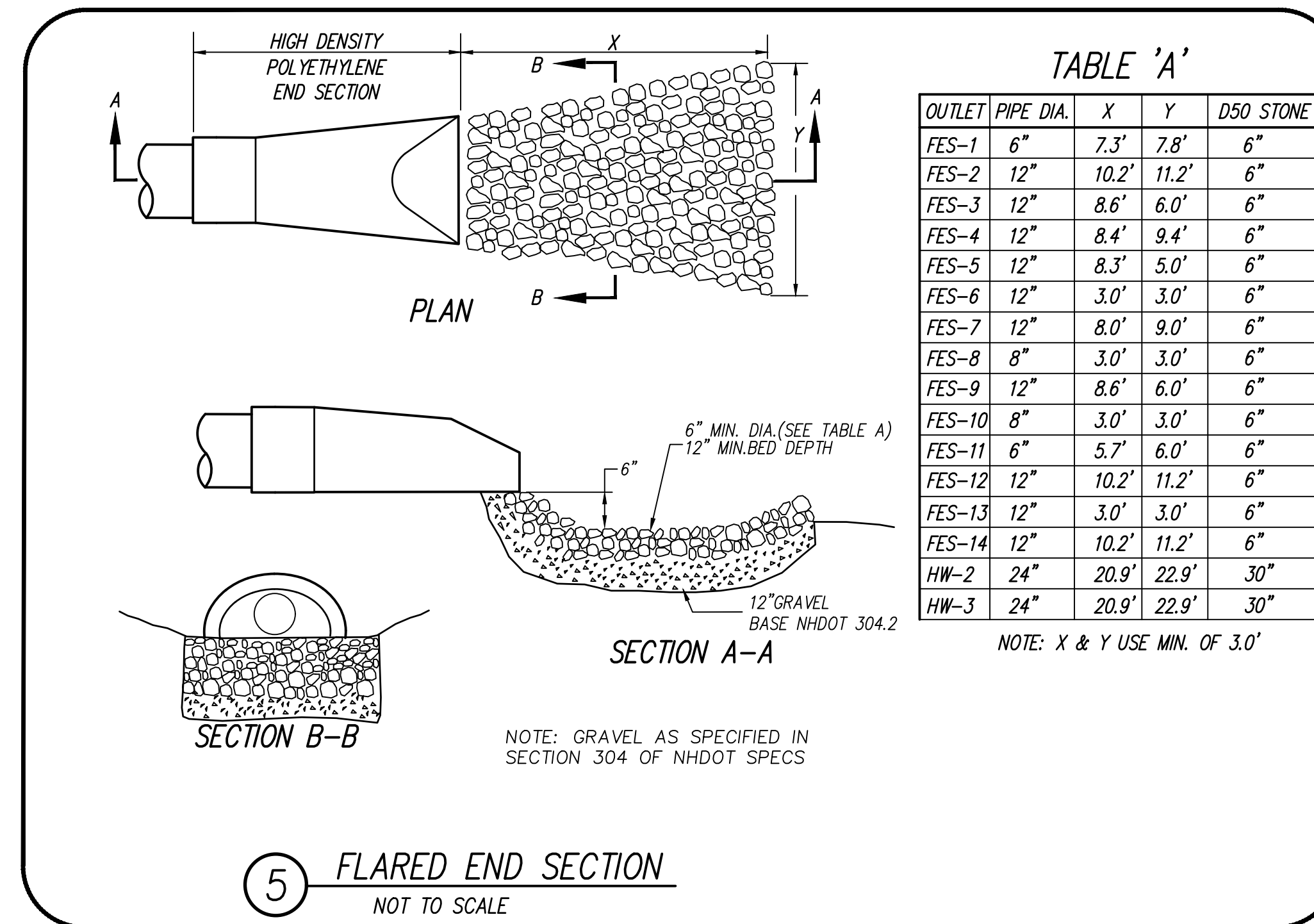
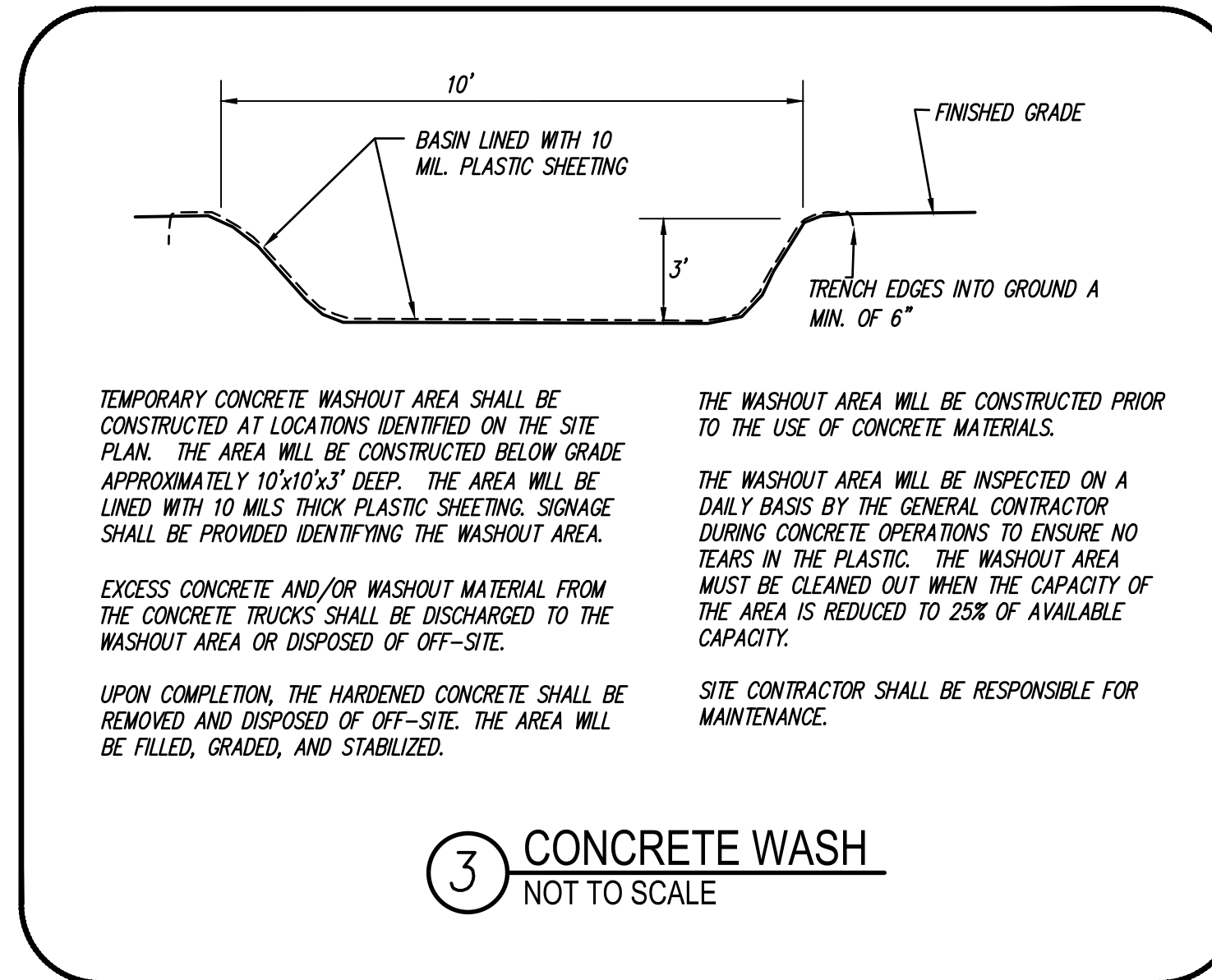
PROJ. MGR.:	D. HAMEL
FIELD:	J. SALVAGGIO / R. SMITH
DESIGN:	D. HAMEL
DRAWN:	D. HAMEL
CHECKED:	D. GIANGRANDE
DATE:	01-11-2022
FILE:	16042 D.DT.DWG
FBK:	
JOB #:	16042 D

TOWN OF EXETER PLANNING BOARD

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

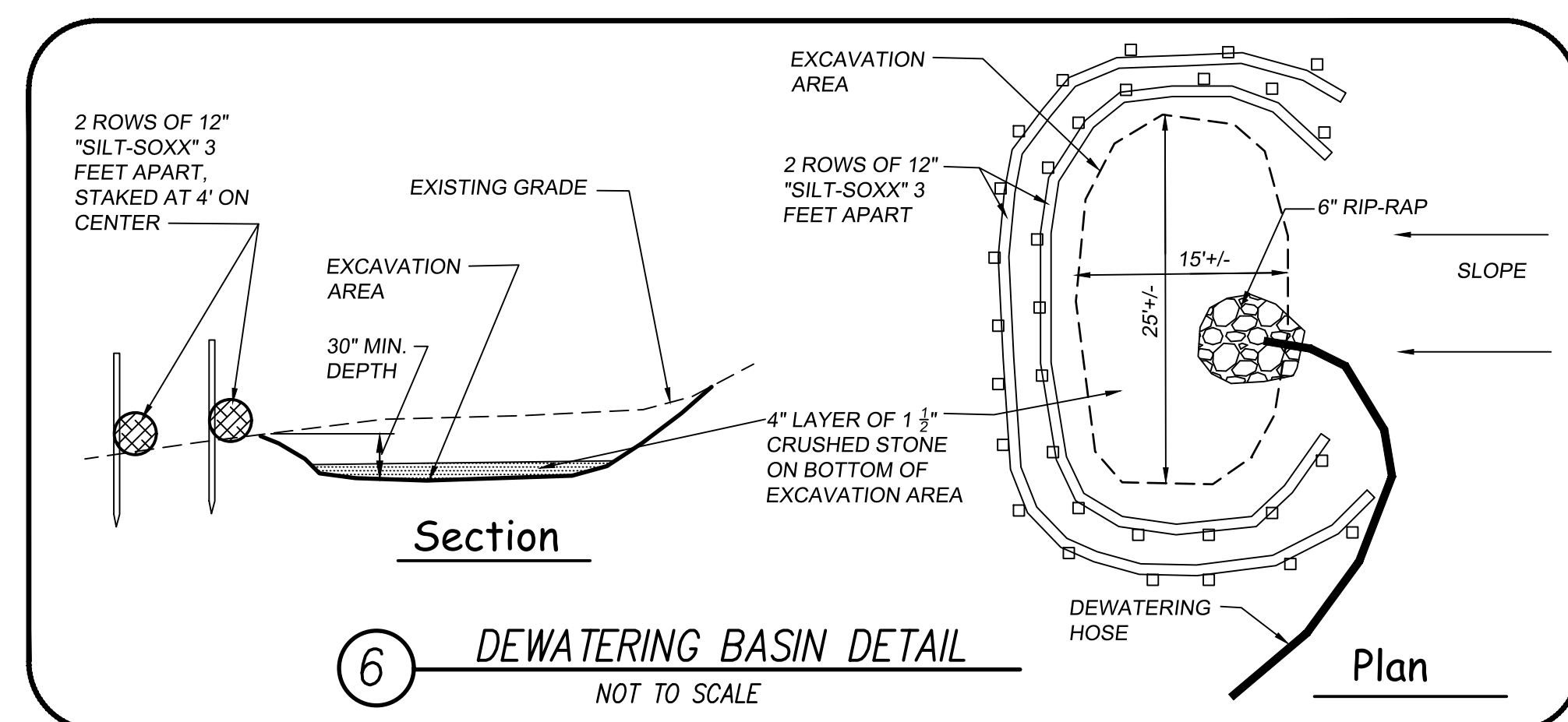
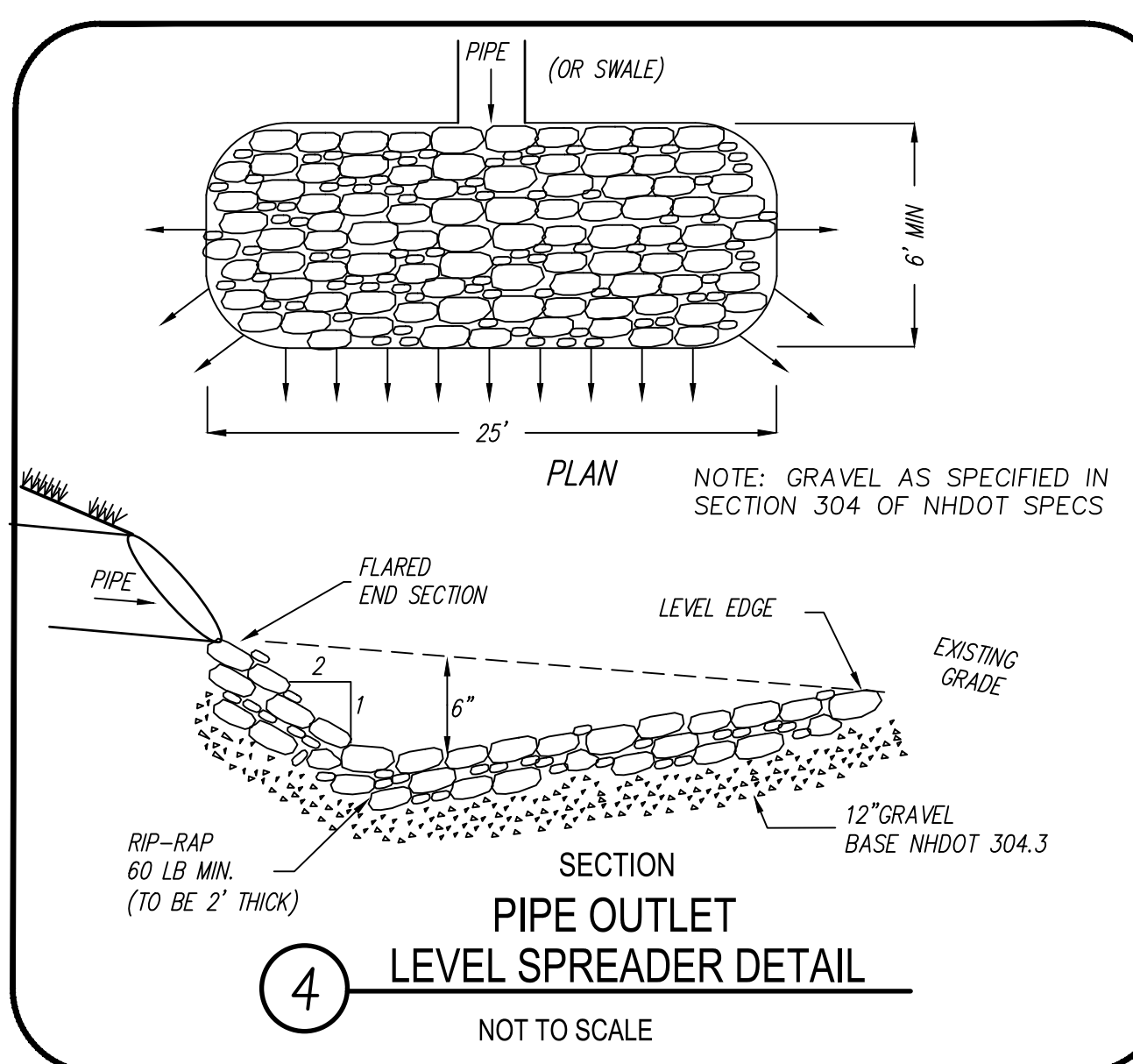
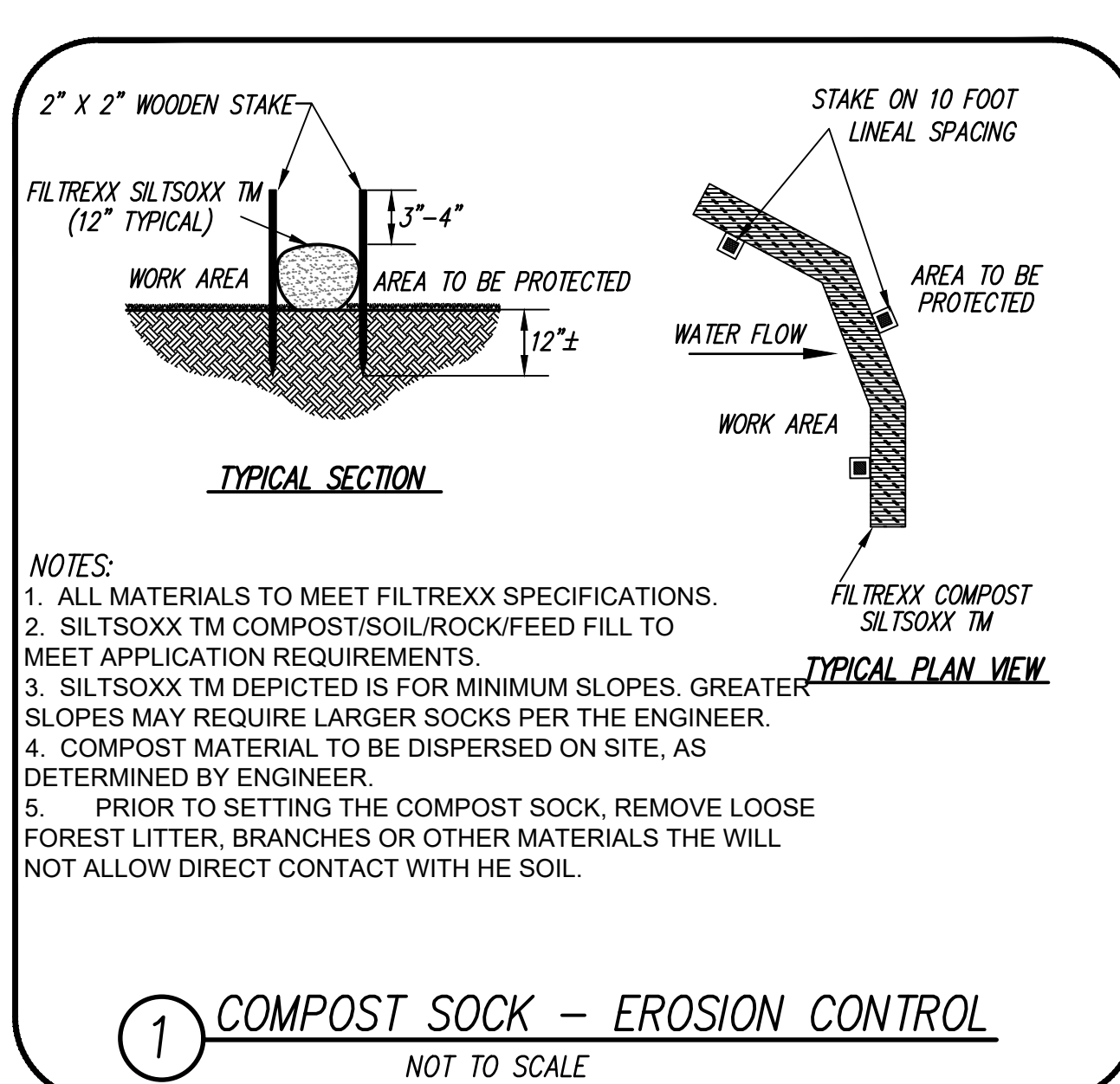
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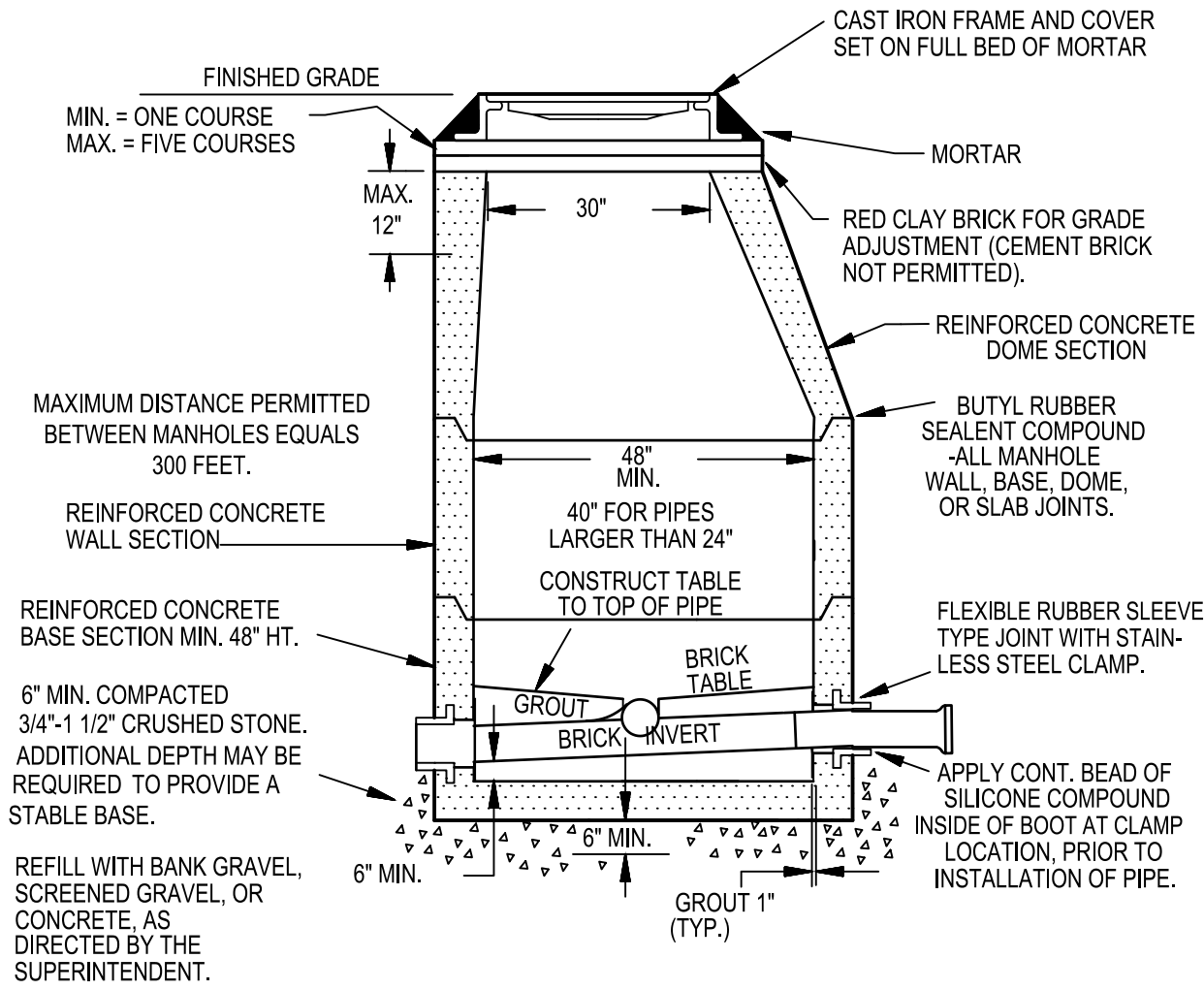
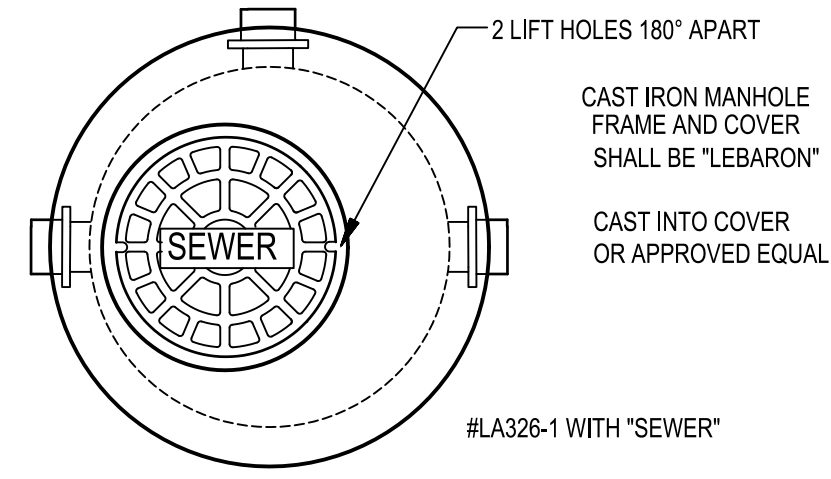
- REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.



**Construction Specifications**

- STONE SIZE - USE 3" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- LENGTH - AS REQUIRED, BUT NOT LESS THAN 75 FEET
- THICKNESS - NOT LESS THAN SIX (6) INCHES.
- WIDTH - TWENTY (20) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
- FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER CLOTH WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
- SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAINFALL EVENT.

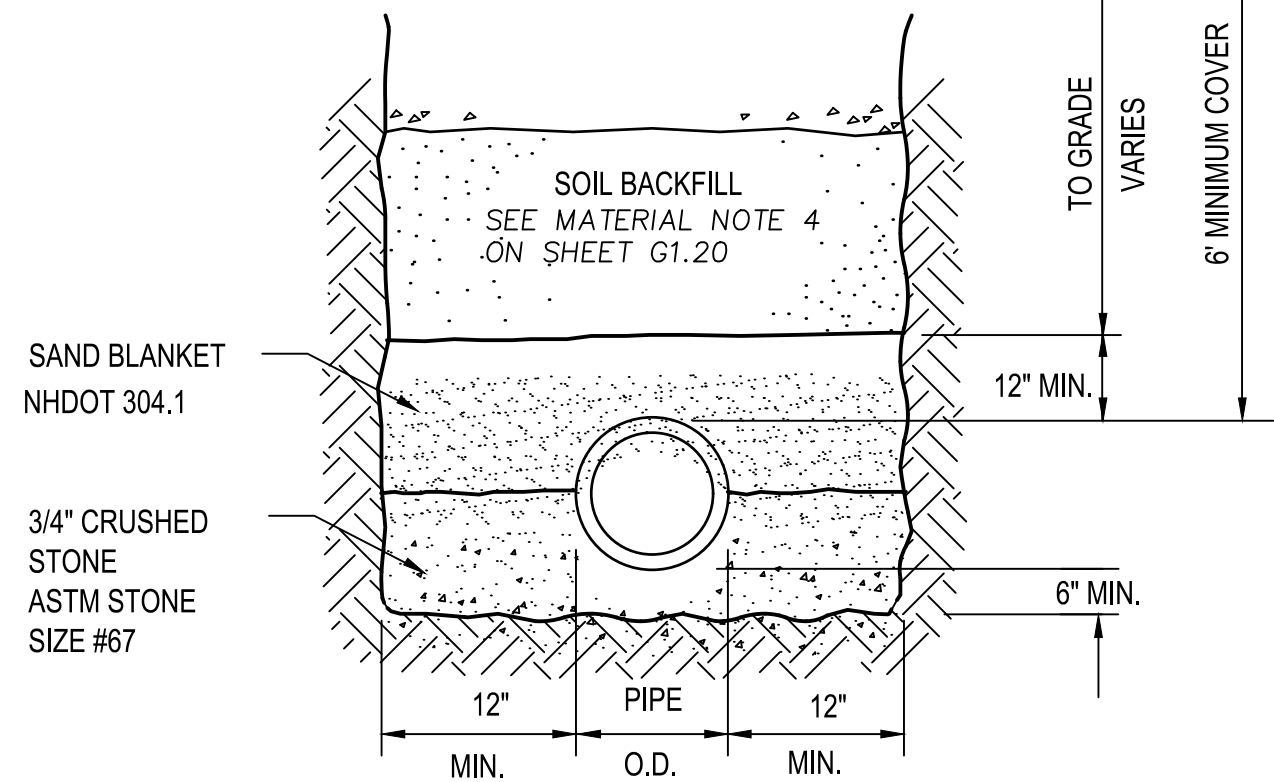




**MANHOLE TESTING: VACUUM TEST MANHOLE FOR LEAKAGE**  
 THE INITIAL VACUUM GAUGE TEST PRESSURE SHALL BE 10 INCHES Hg. THE MINIMUM TEST HOLD FOR A 1 INCH DROP TO 9 INCHES Hg SHALL BE NOT LESS THAN 2 MINUTES FOR MANHOLES LESS THAN 10 FEET DEEP, 2.5 MINUTES FOR MANHOLES 10 TO 15 FEET DEEP, AND NOT LESS THAN 3 MINUTES FOR MANHOLES MORE THAN 15 FEET DEEP.

- NOTES:
- GRAVEL AS SPECIFIED IN SECTION 304 OF NHDOT SPECS
  - SEWER MANHOLE SHALL BE RATED FOR H-20 LOADING
  - BRICK INVERTS TO BE INSTALLED AFTER TESTING
  - NO STEPS IN MANHOLE
  - BRICKS FOR GRADE ADJUSTMENTS ARE A MAXIMUM OF 5 COURSES

**9 SEWER MANHOLE**  
NOT TO SCALE

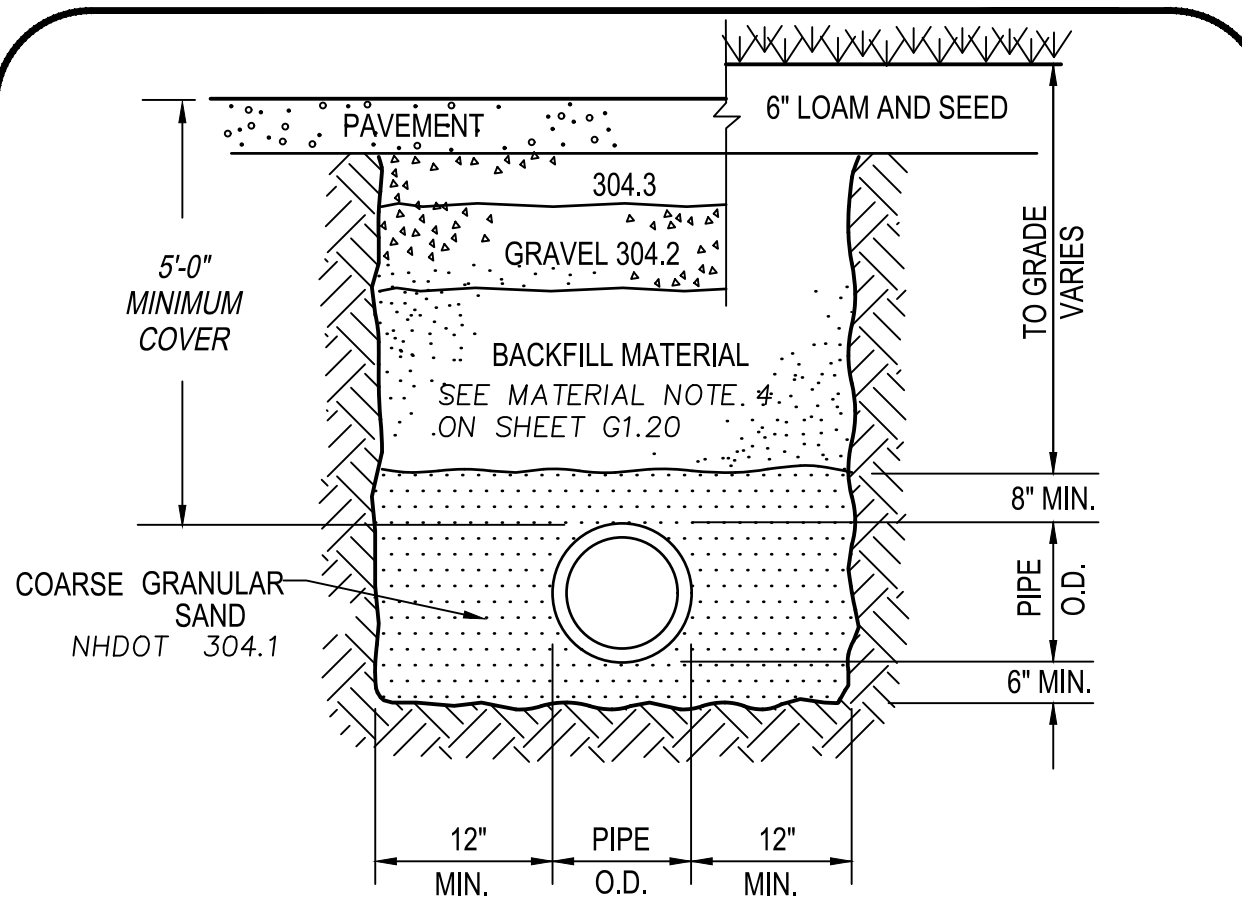
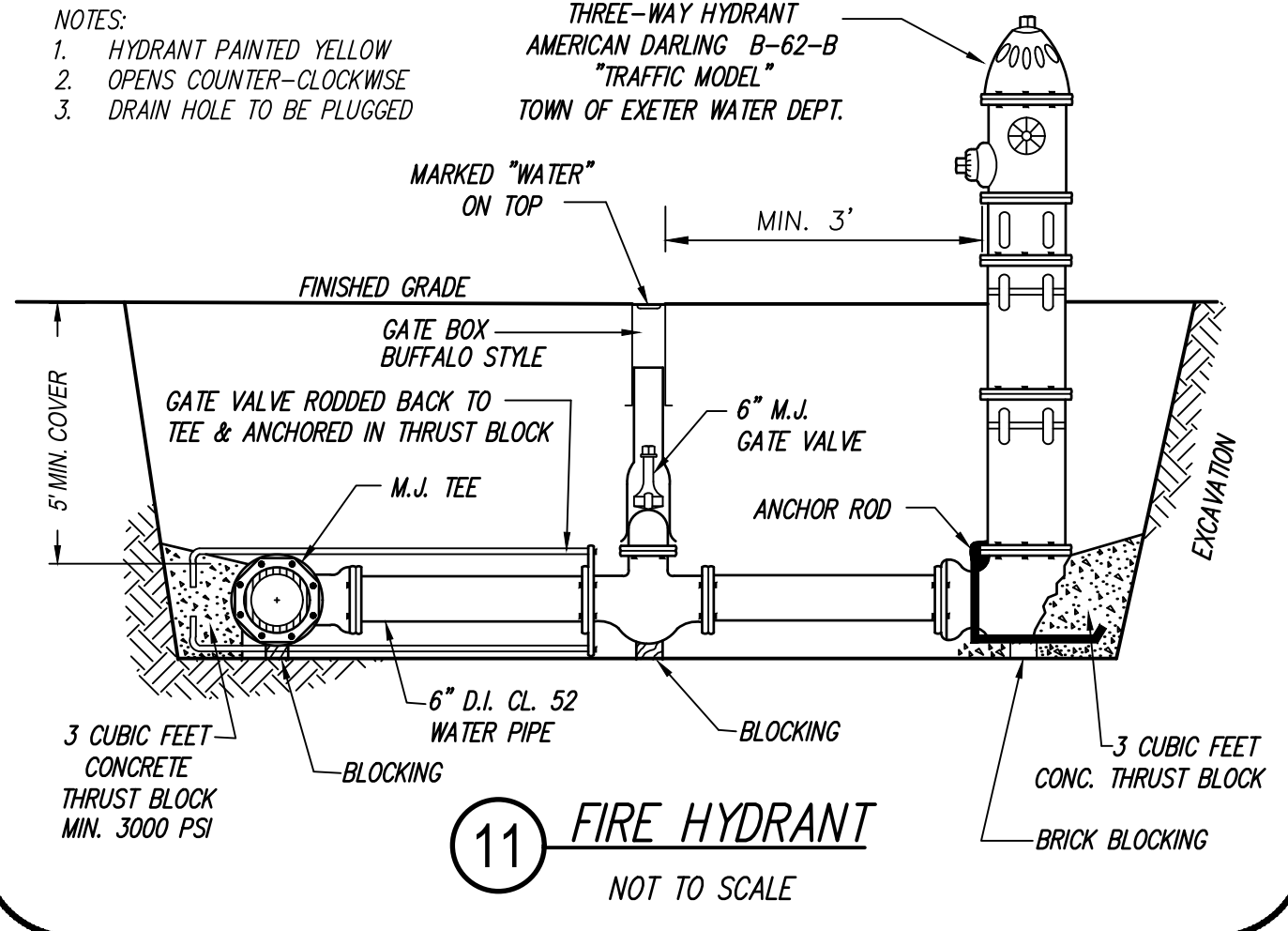


- NOTES:
- GRAVITY SEWER TO BE PVC SDR 35 CONFORMING TO ASTM D3034-04a
  - PLASTIC SEWER PIPE SHALL HAVE A PIPE STIFFNESS RATING OF AT LEAST 46 POUNDS PER SQUARE INCH AT 5% PIPE DIAMETER AS MEASURED WITH ASTM D2412-02 DURING MANUFACTURE.
  - JOINT SEALS OF PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D3212-96(a) AND BE PUSH-ON, BELL-AND-SPIGOT TYPE.
  - SAND BLANKET SHALL BE FREE OF ORGANIC MATERIALS, 100% PASSING 1/2" SIEVE, AND MAXIMUM 15% PASSING #200 SIEVE.
  - COMPACT BEDDING AND SAND BLANKET IN MAXIMUM OF 12" LIFTS.
  - COMPACT BACKFILL MATERIAL IN MAXIMUM OF 12" LIFTS.

**GRAVITY SEWER PIPE TESTING**  
 LOW PRESSURE AIR TESTS SHALL BE USED FOR ALL NEW GRAVITY SEWERS CONFORMING TO ASTM F1417 "STANDARD TEST METHOD OF INSTALLATION ACCEPTANCE OF PLASTIC GRAVITY SEWER LINES USING LOW-PRESSURE AIR" OR UNI-BELL PVC PIPE ASSOCIATION UNI-B-6, "LOW PRESSURE AIR TESTING OF INSTALLED SEWER PIPE (1998)."

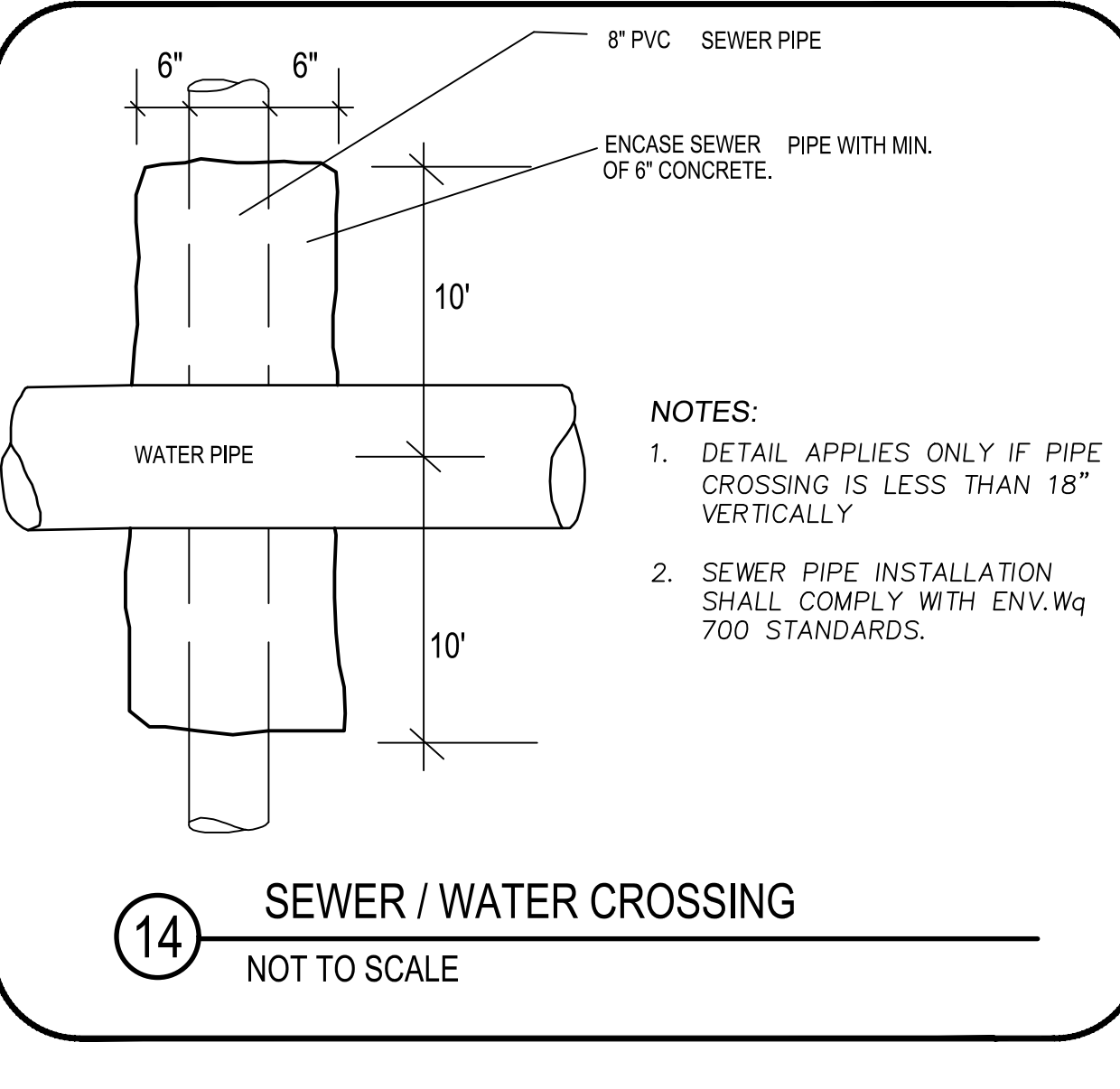
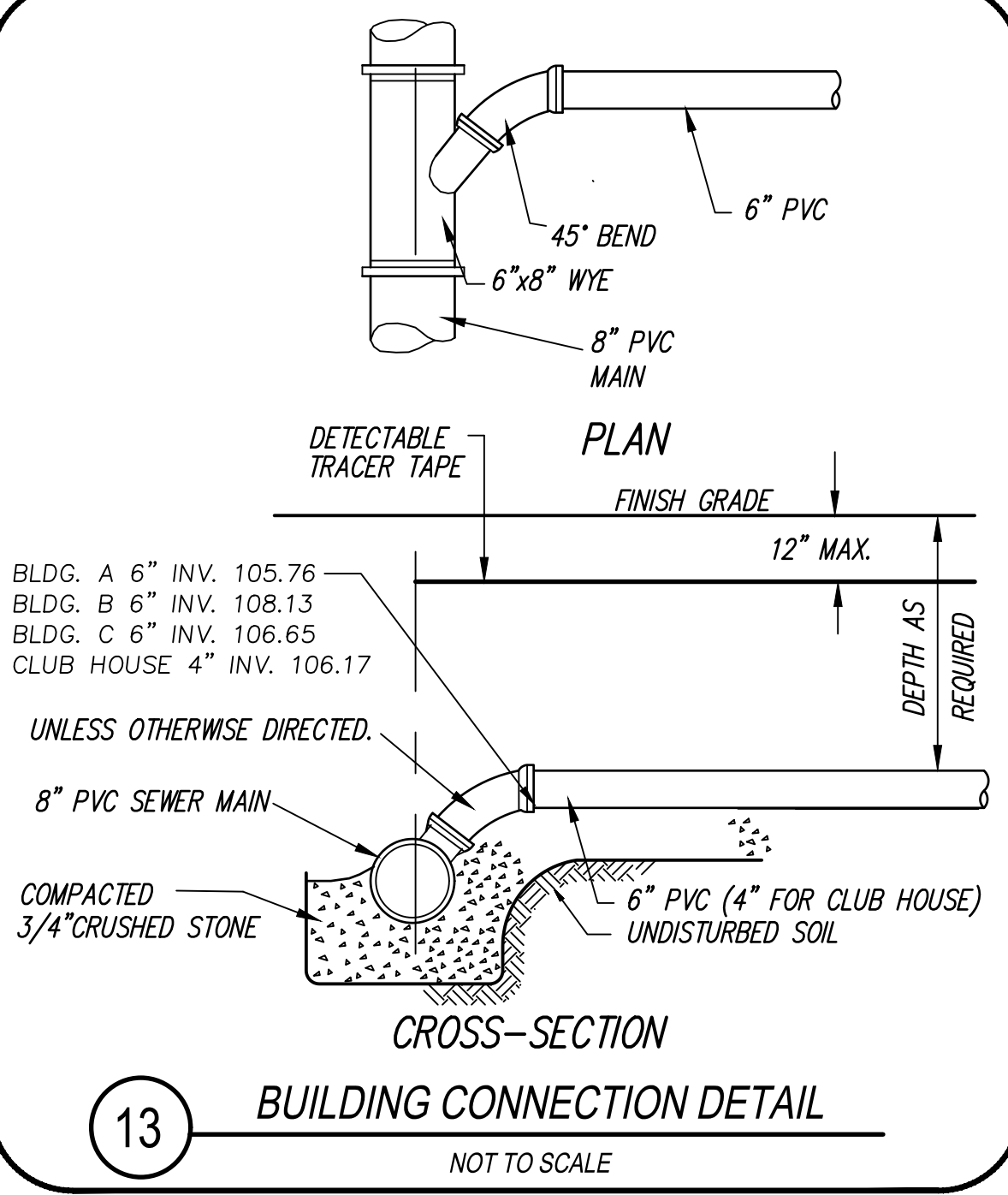
DEFLECTION TEST ALL PLASTIC SEWER PIPE NOT LESS THAN 30 DAYS NOR MORE THAN 90 DAYS FOLLOWING INSTALLATION. MAXIMUM ALLOWABLE DEFLECTION OF FLEXIBLE SEWER PIPE SHALL BE 5 1/2% OF AVERAGE INSIDE DIAMETER.

**10 SEWER TRENCH**  
NOT TO SCALE

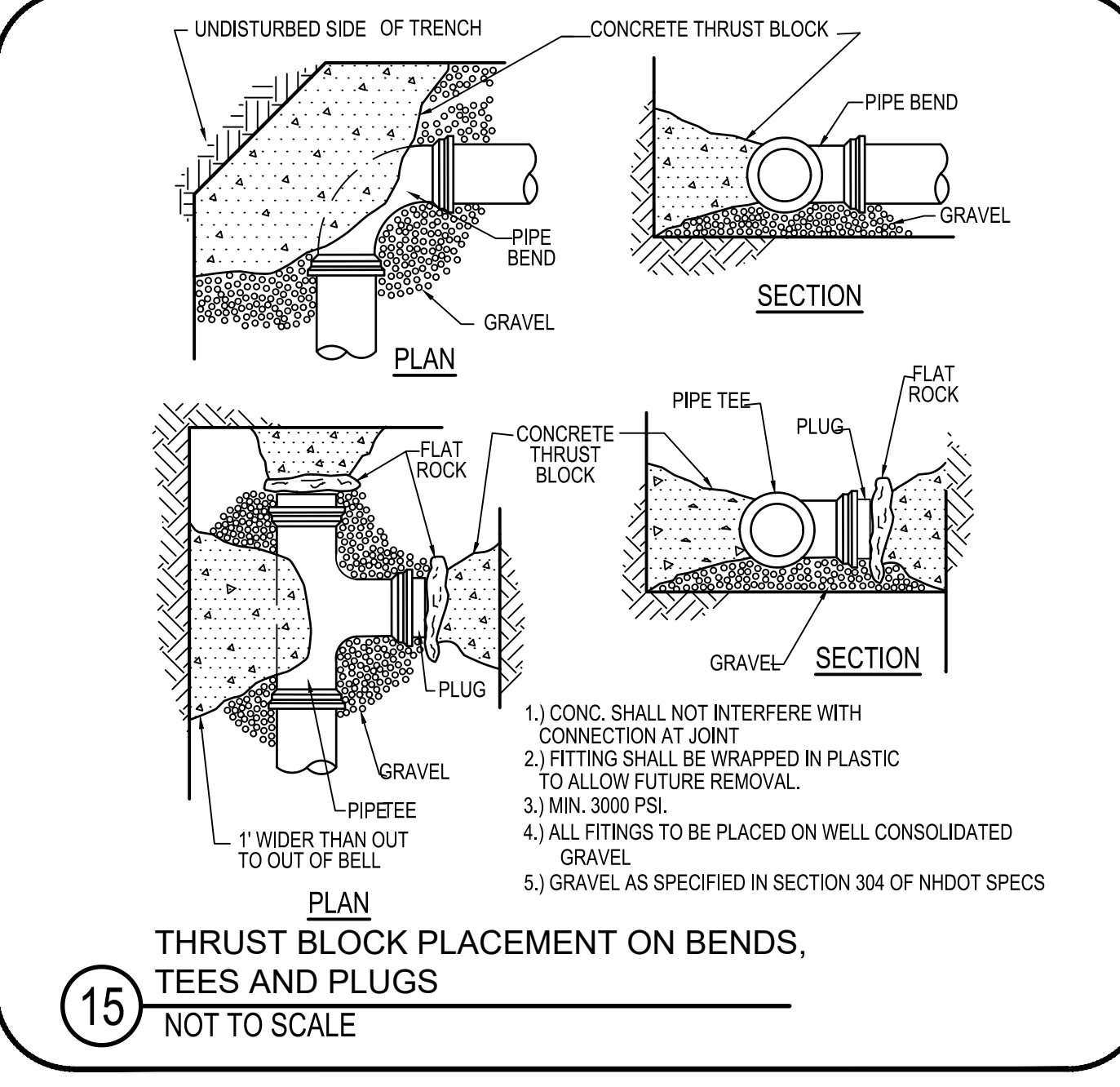


- NOTE:
- SEE SITE PLAN FOR PIPE SIZES AND SERVICE.
  - WATER PIPE TO BE DUCTILE IRON (D.I.) CLASS 52
  - GRAVEL AS SPECIFIED IN SECTION 304 OF NHDOT SPECS

**12 WATER TRENCH**  
NOT TO SCALE



- NOTES:
- DETAIL APPLIES ONLY IF PIPE CROSSING IS LESS THAN 18" VERTICALLY
  - SEWER PIPE INSTALLATION SHALL COMPLY WITH ENV.Wq 700 STANDARDS.



- NOTES:
- CONC. SHALL NOT INTERFERE WITH CONNECTION AT JOINT
  - FITTING SHALL BE WRAPPED IN PLASTIC TO ALLOW FUTURE REMOVAL.
  - MIN. 3000 PSI.
  - ALL FITTINGS TO BE PLACED ON WELL CONSOLIDATED GRAVEL.
  - GRAVEL AS SPECIFIED IN SECTION 304 OF NHDOT SPECS

NOTES:  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

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



6 CHESTNUT STREET, AMESBURY, MA.  
 Phone: (978) 388-2157  
 CONSULTING ENGINEERS &  
 LAND SURVEYORS SINCE 1988  
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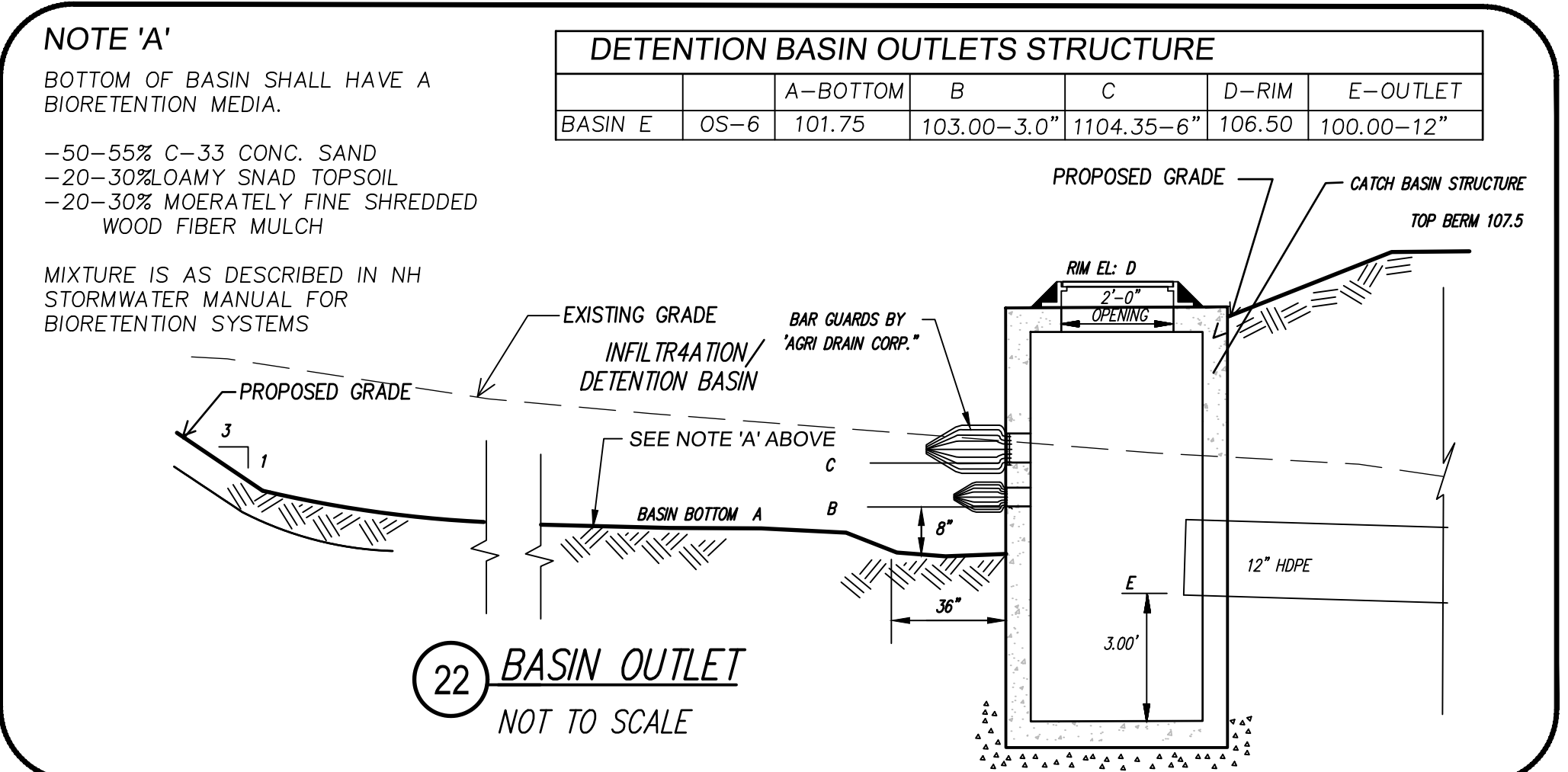
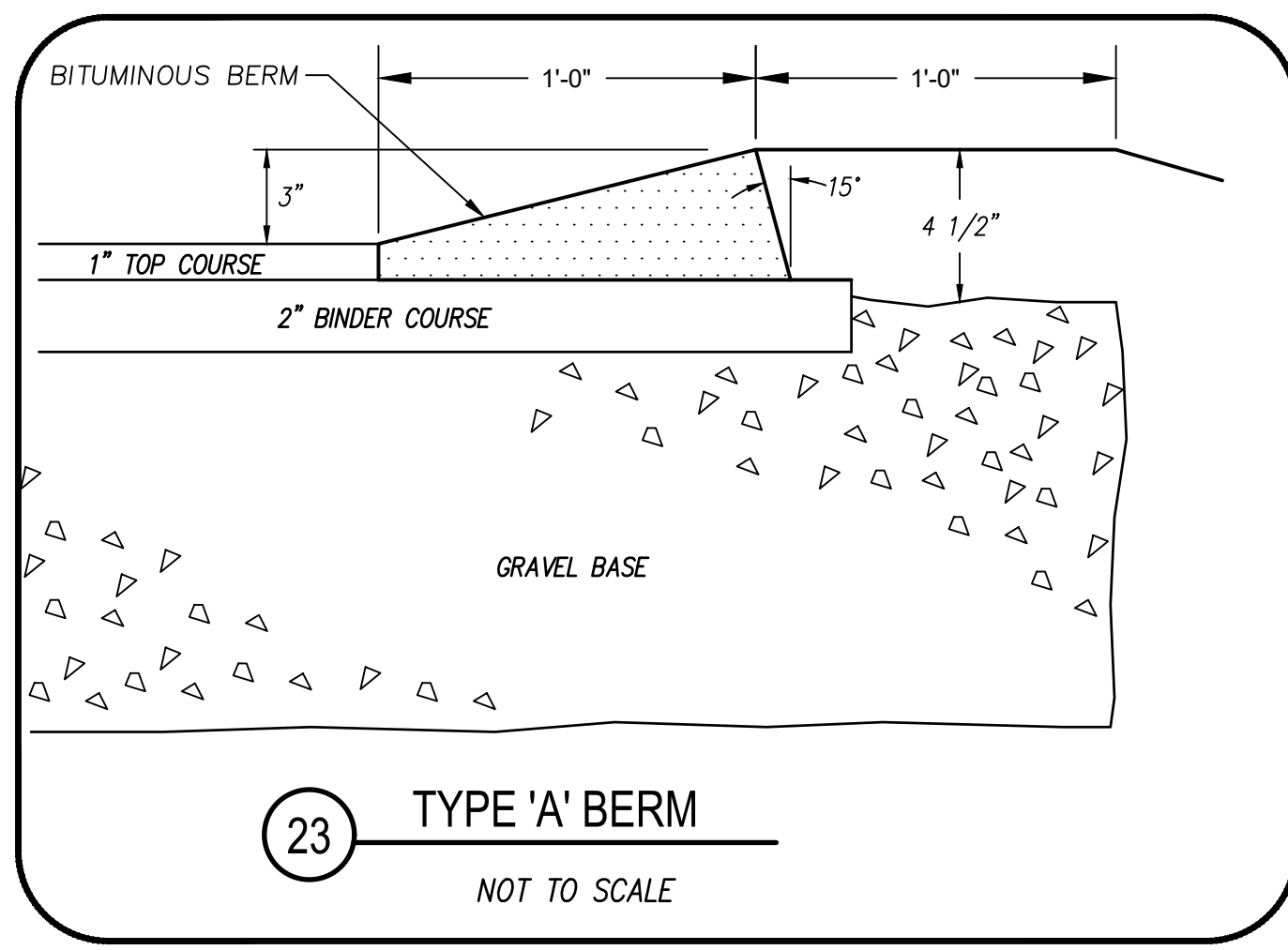
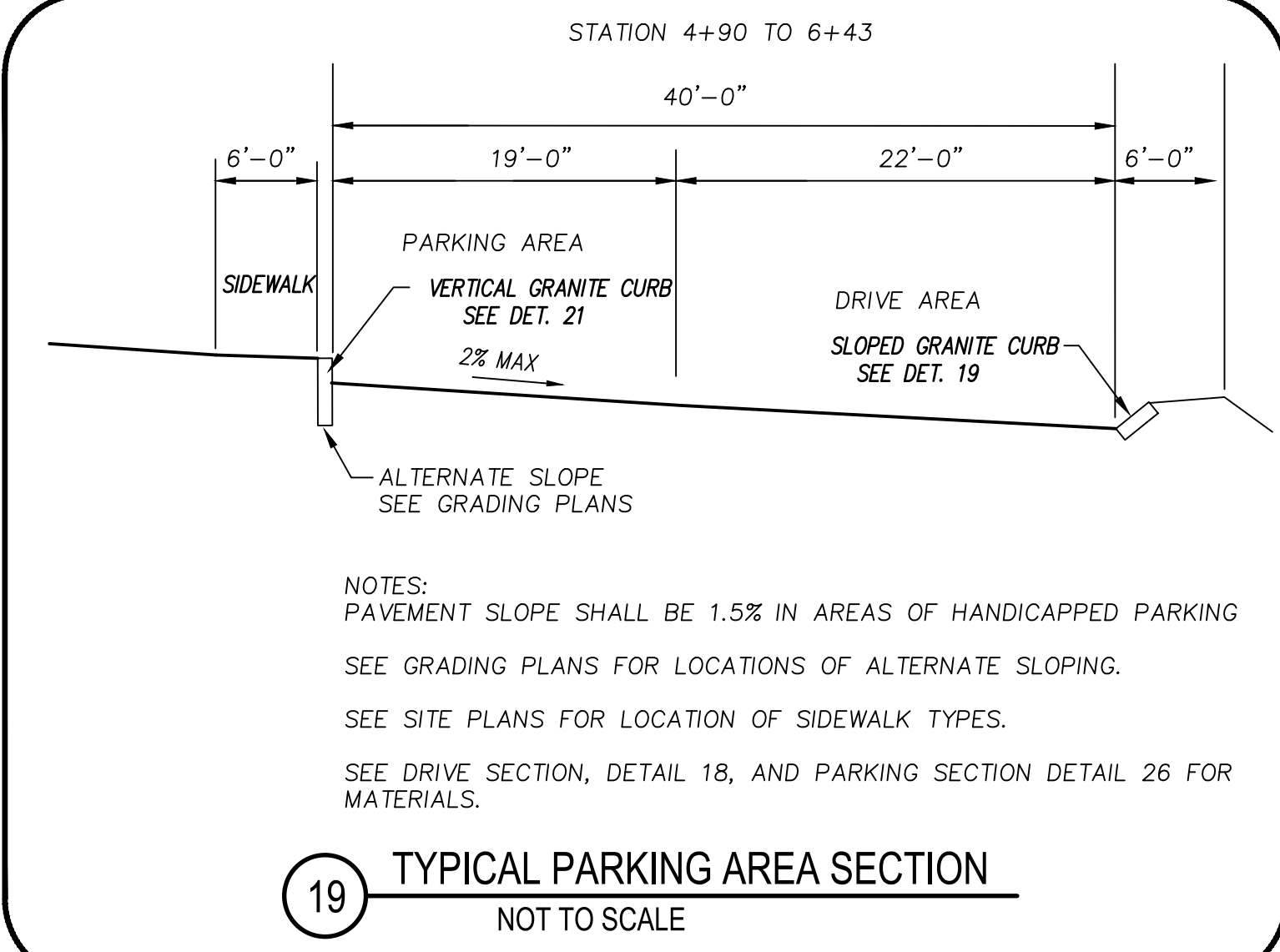
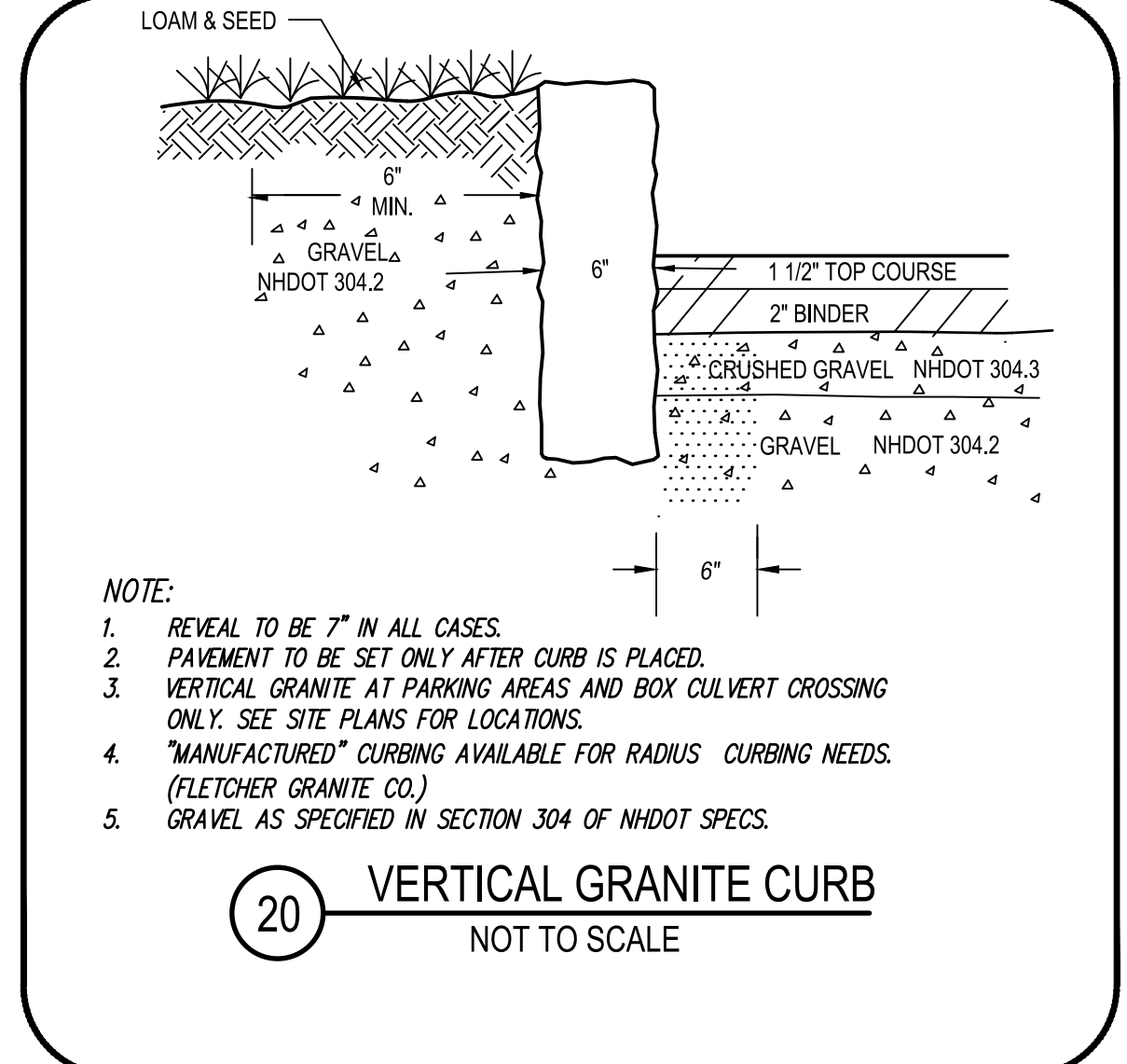
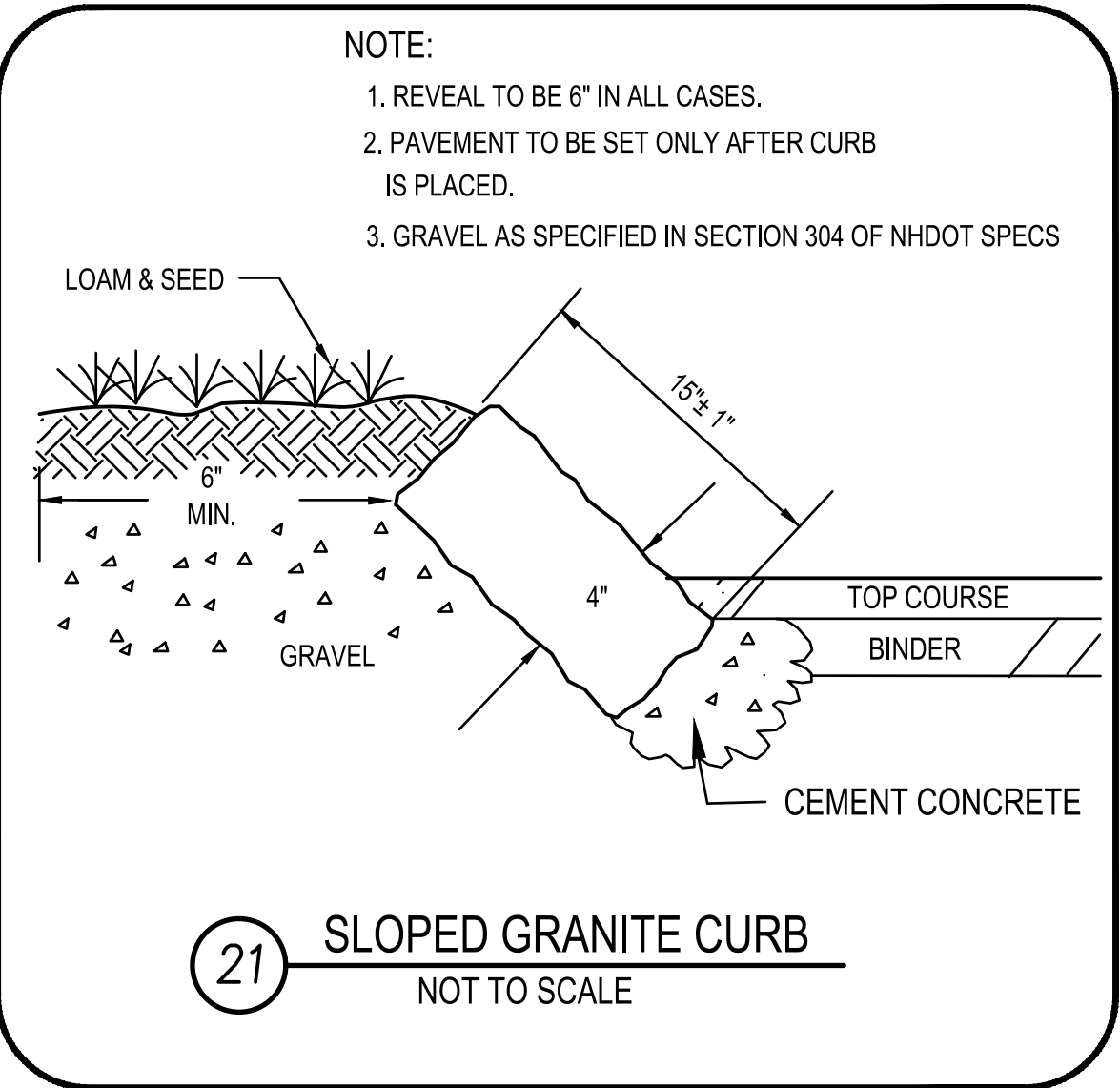
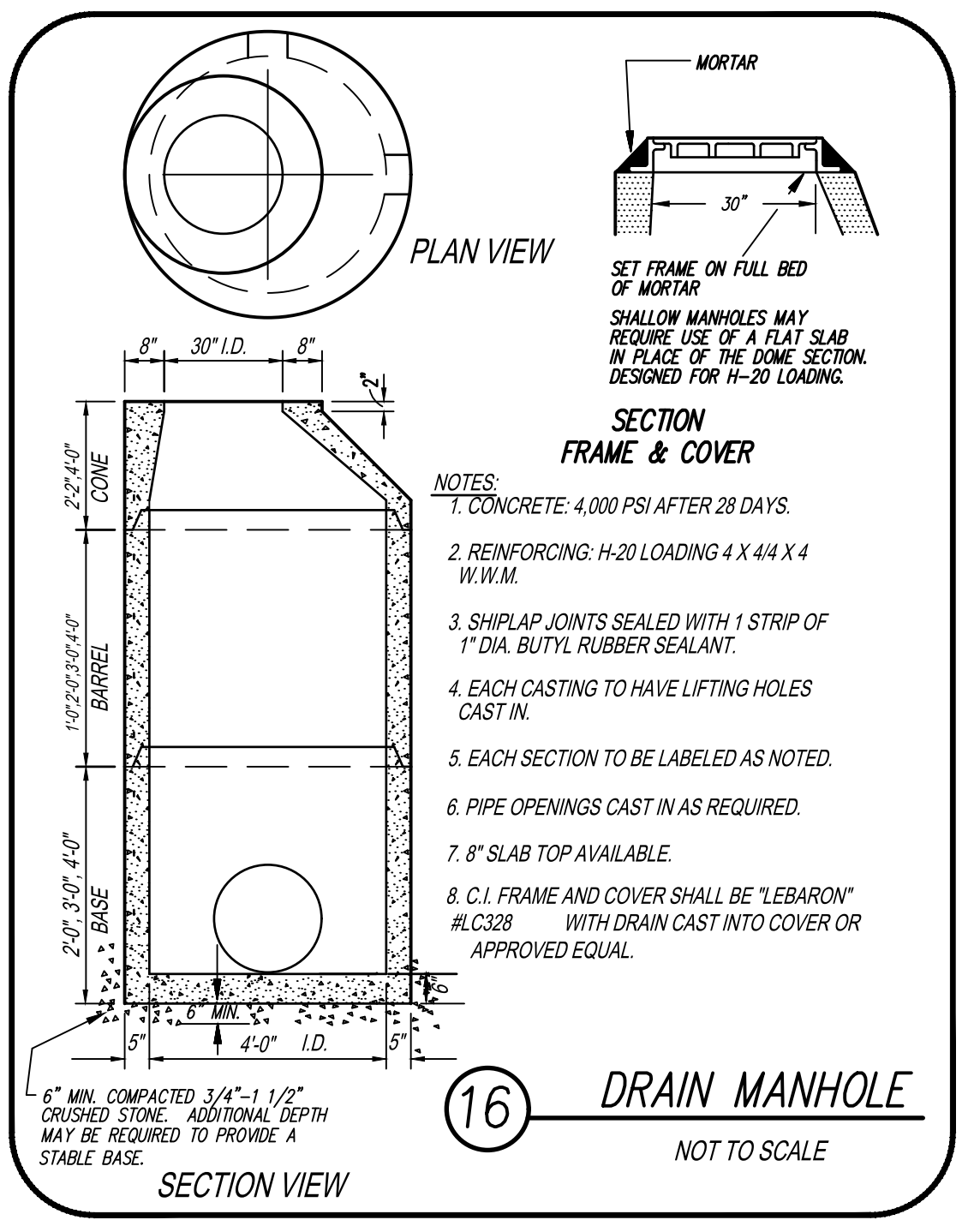
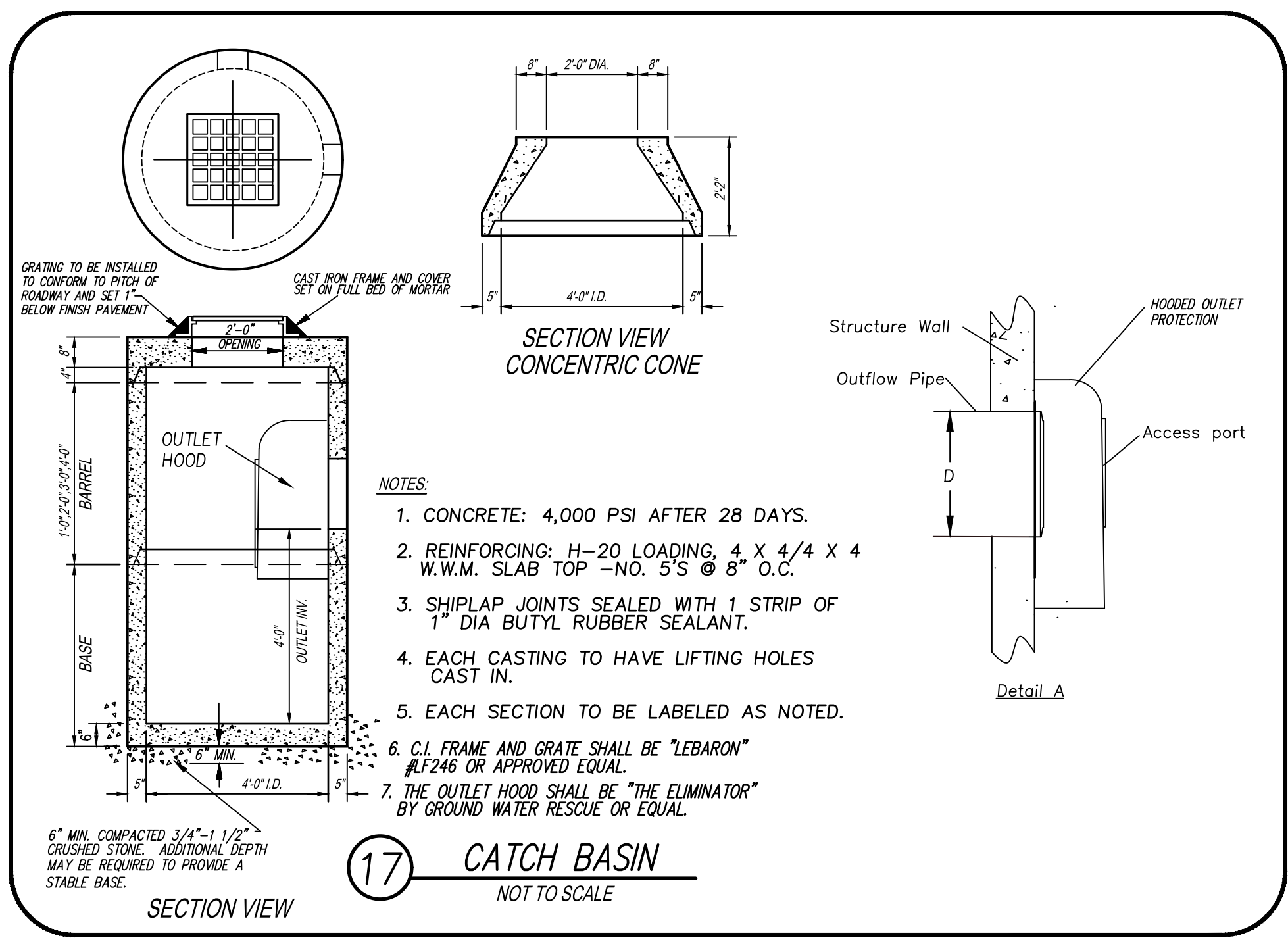
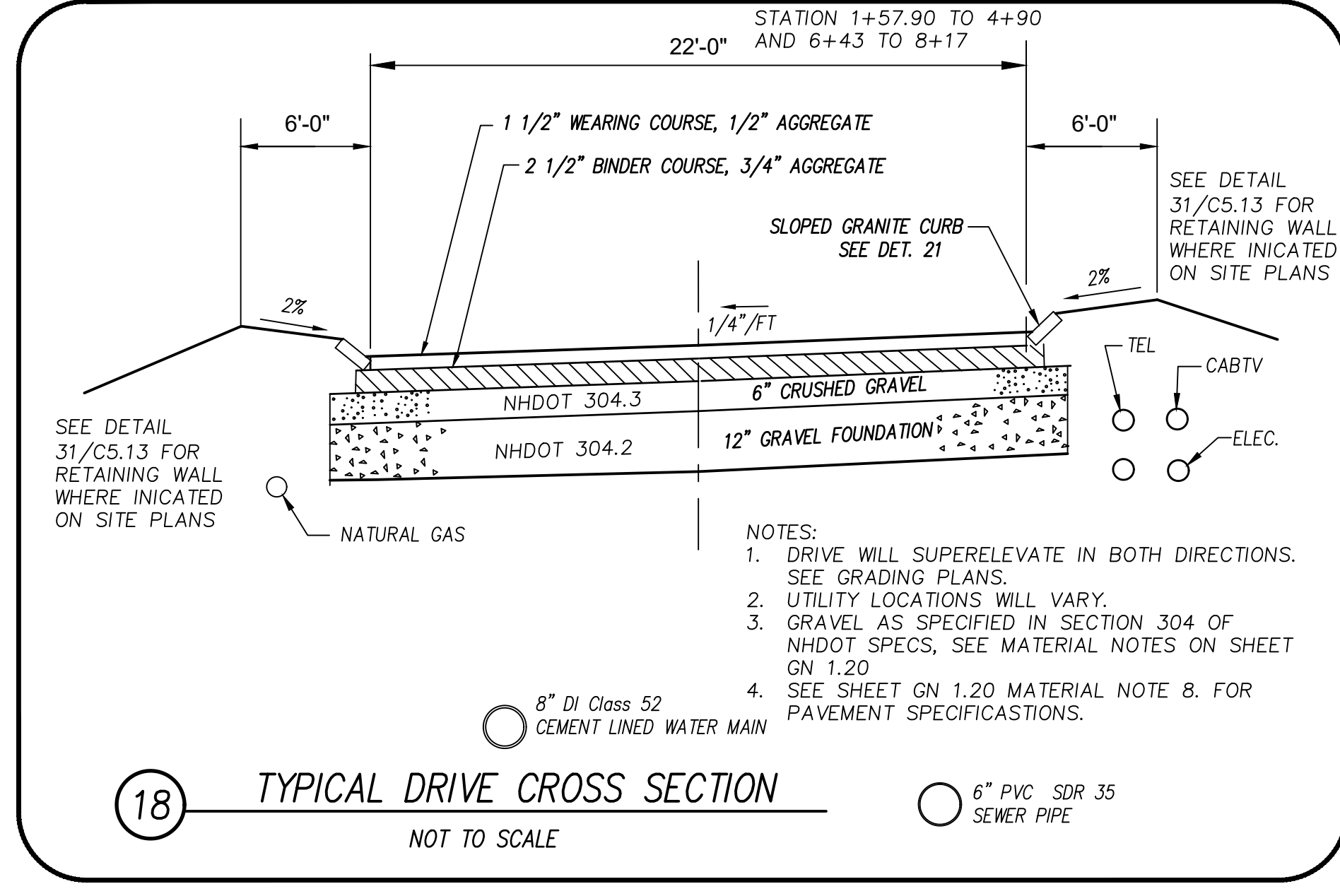
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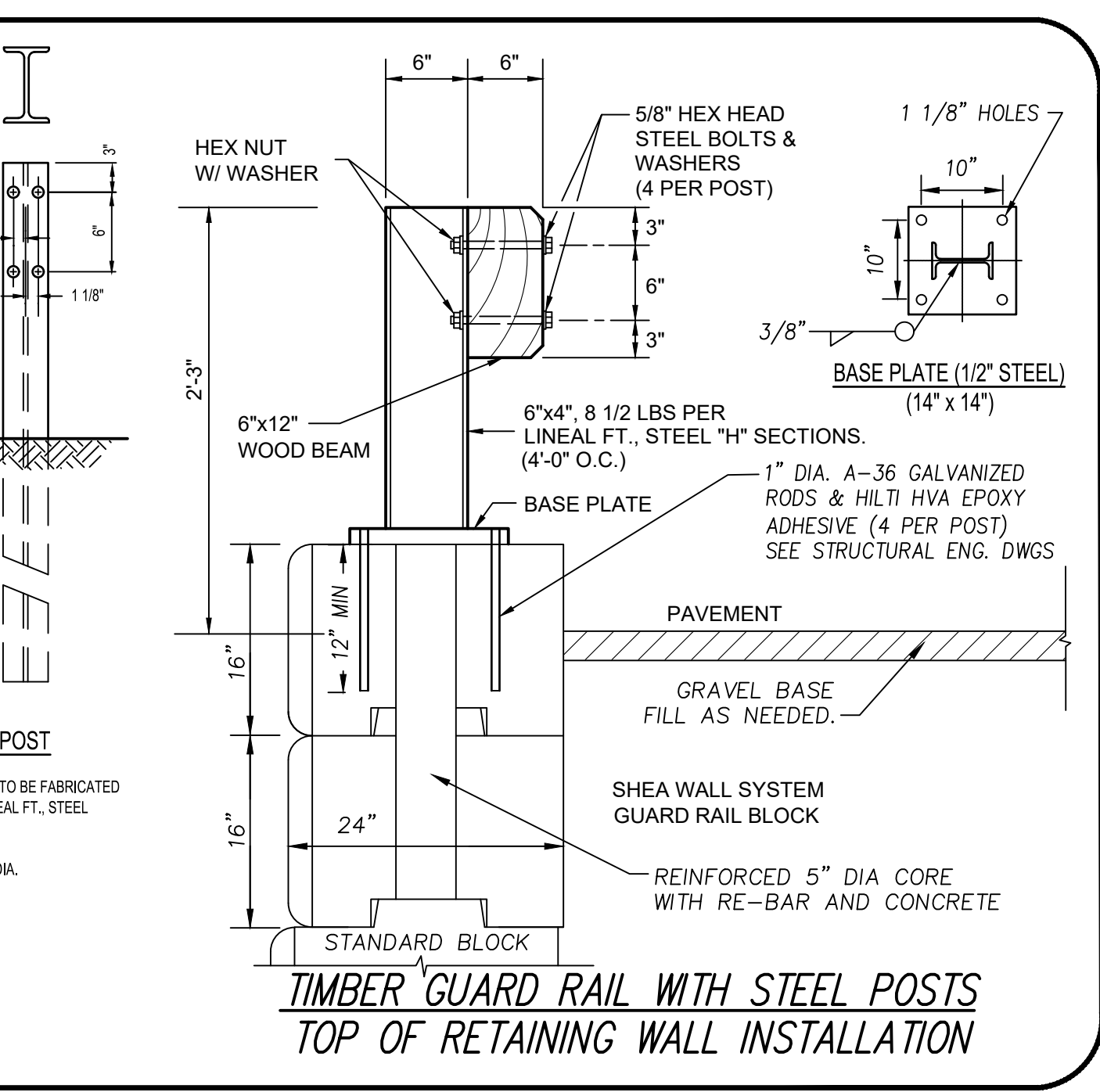
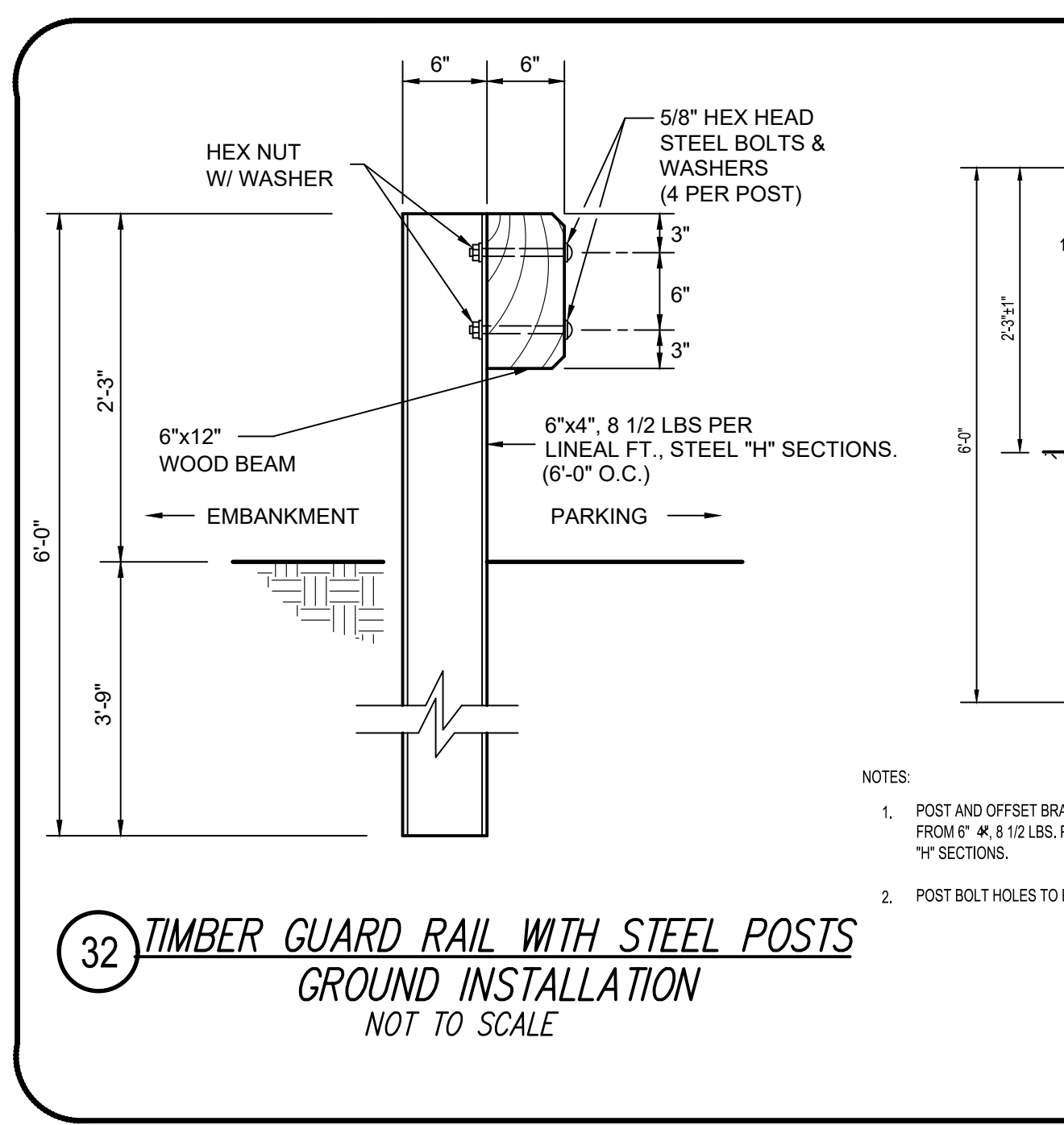
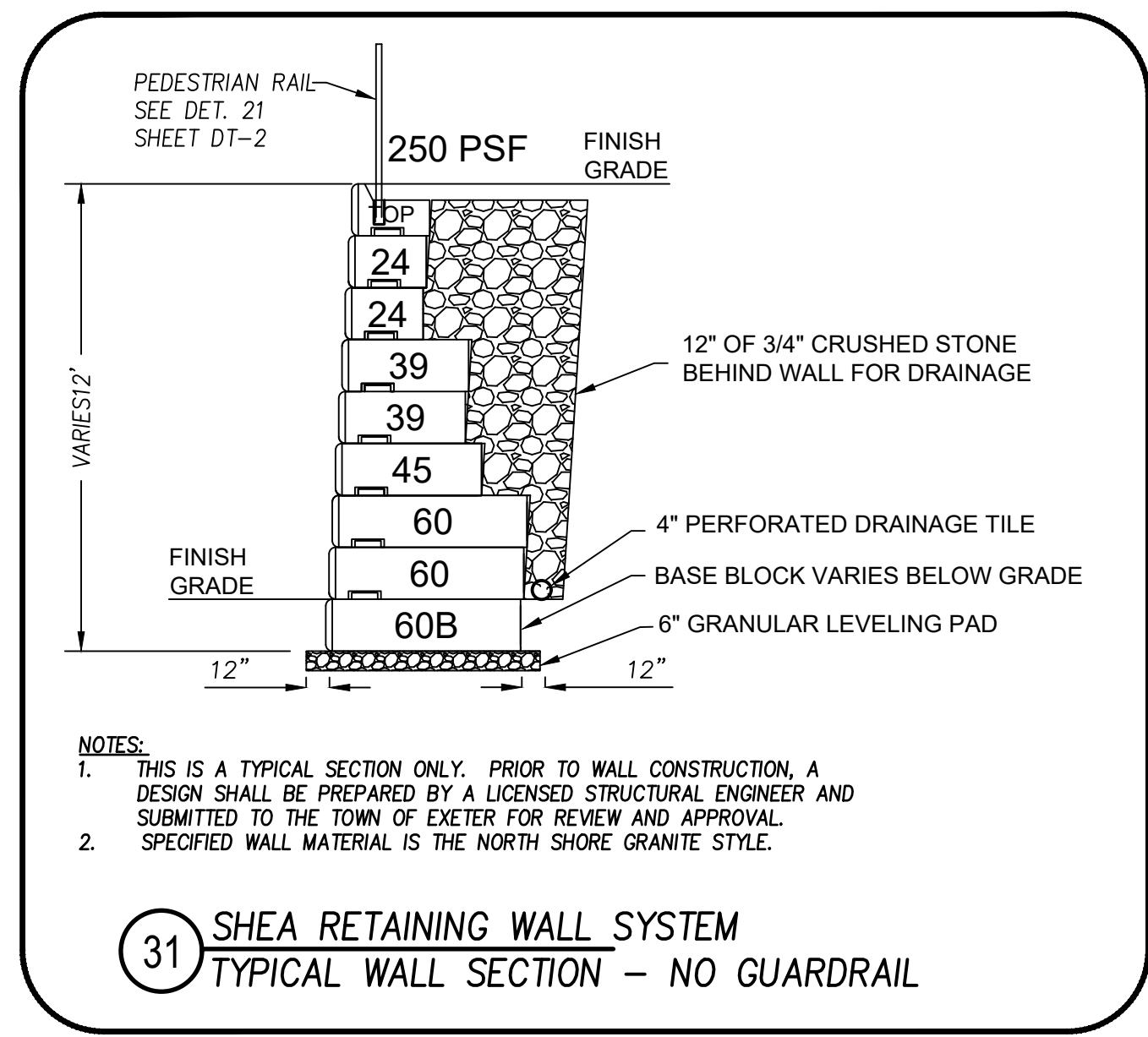
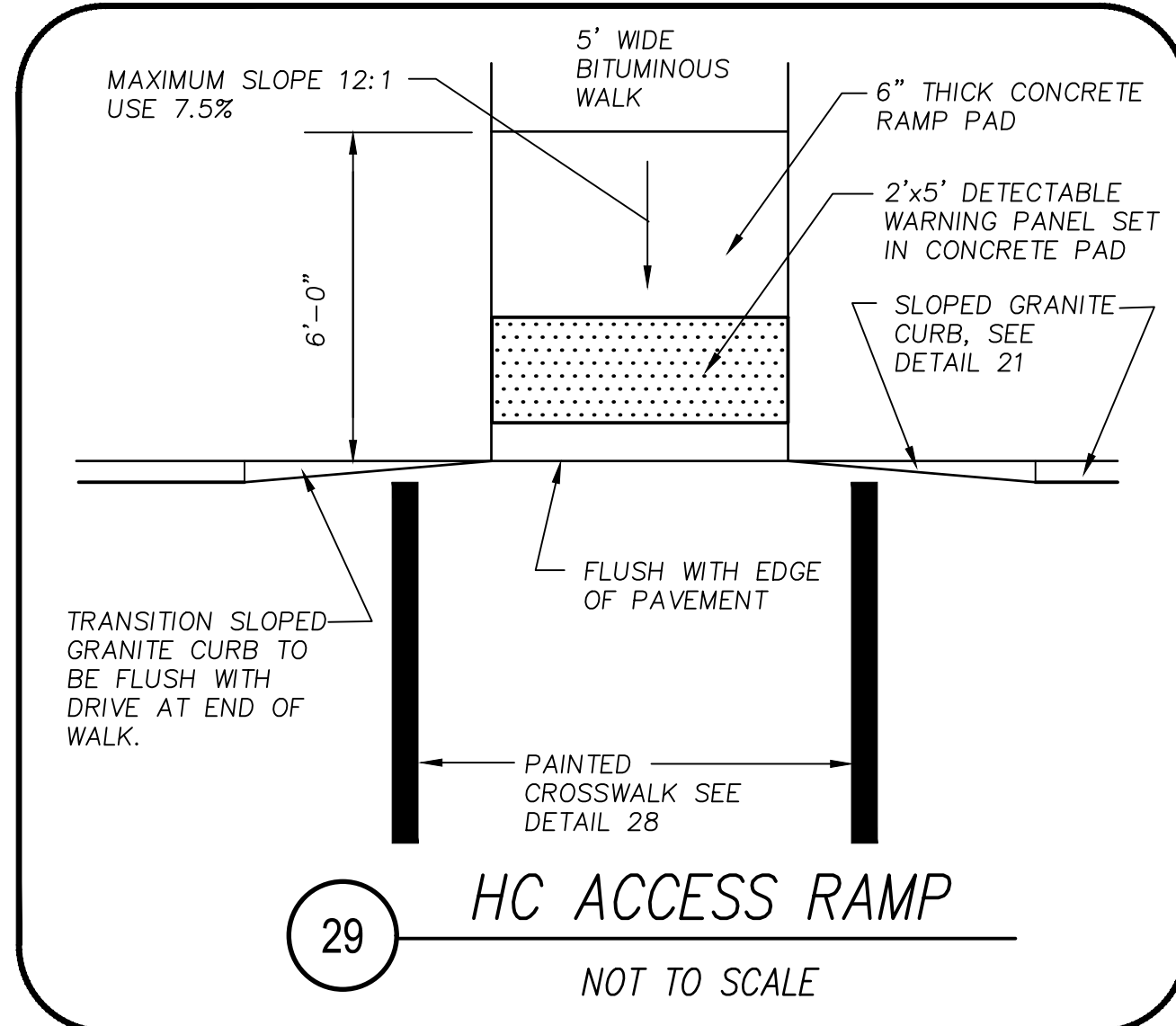
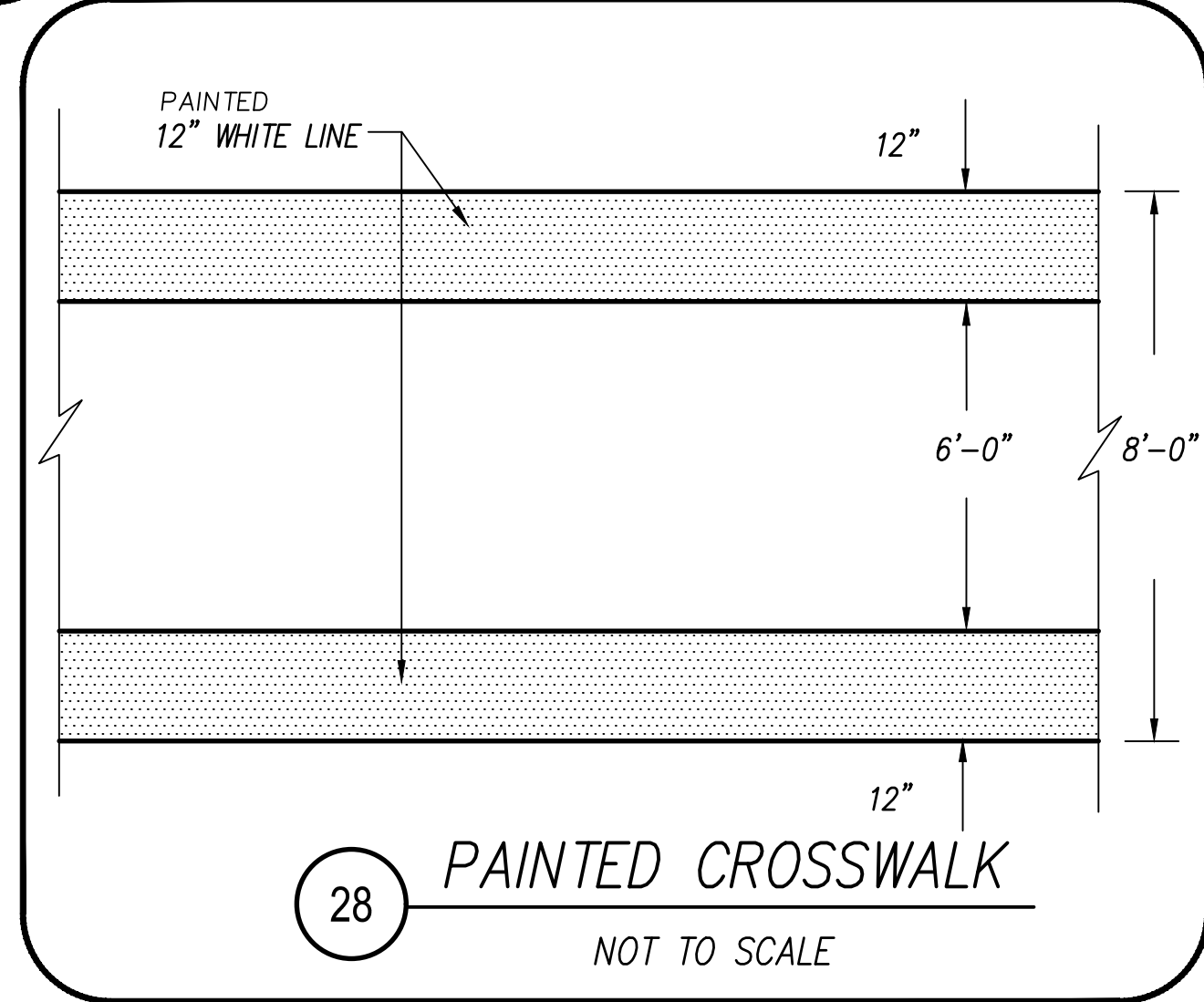
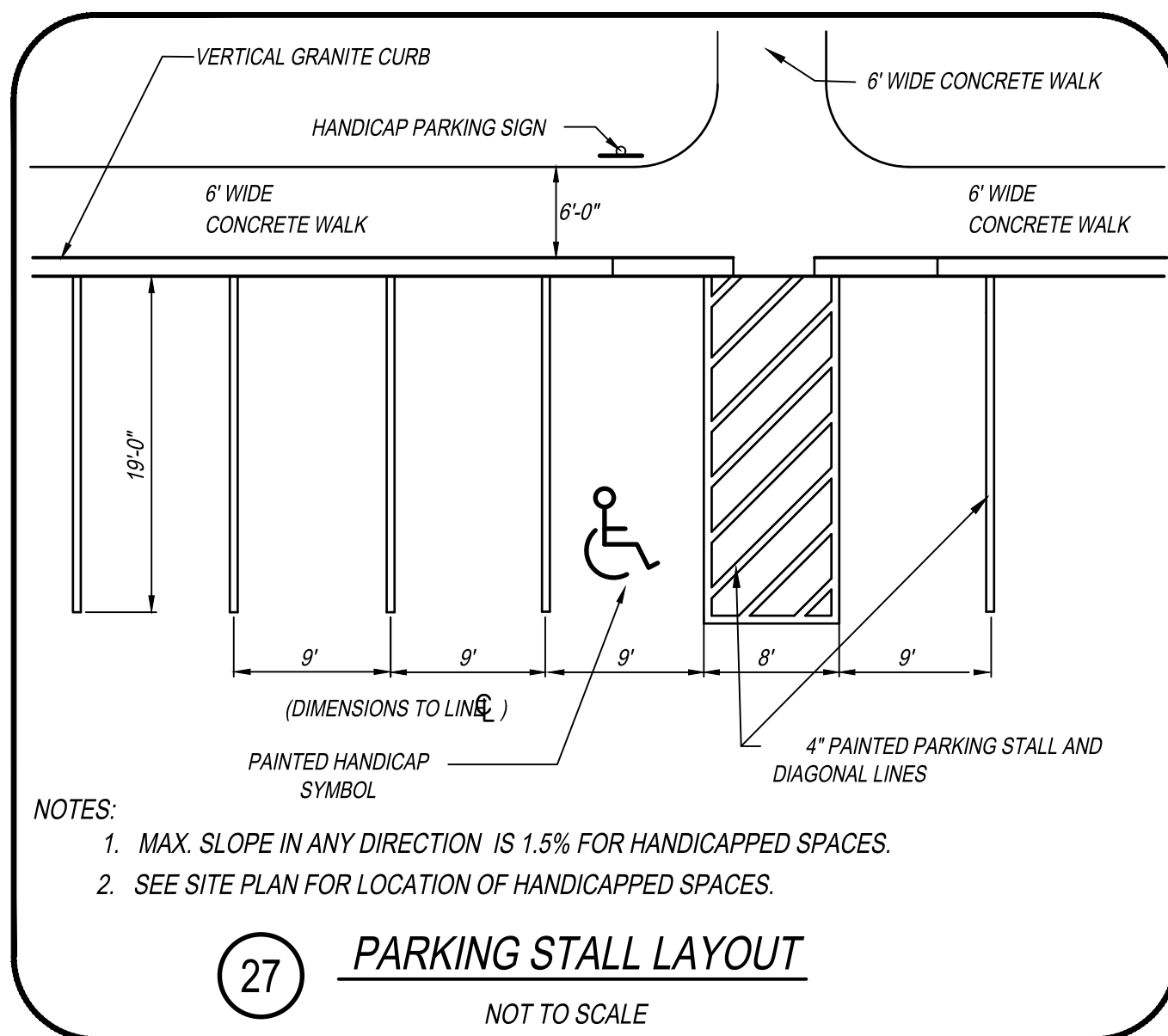
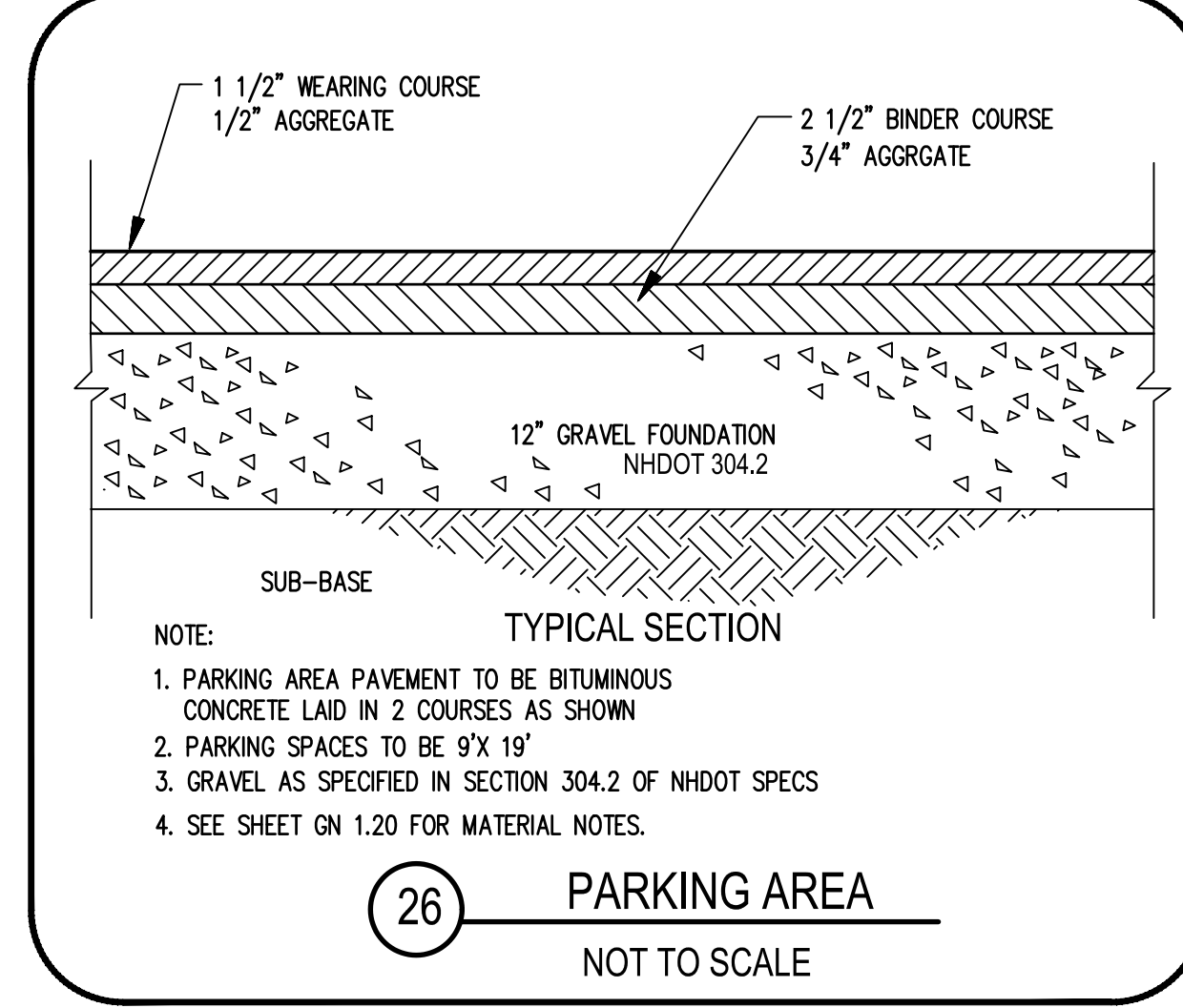
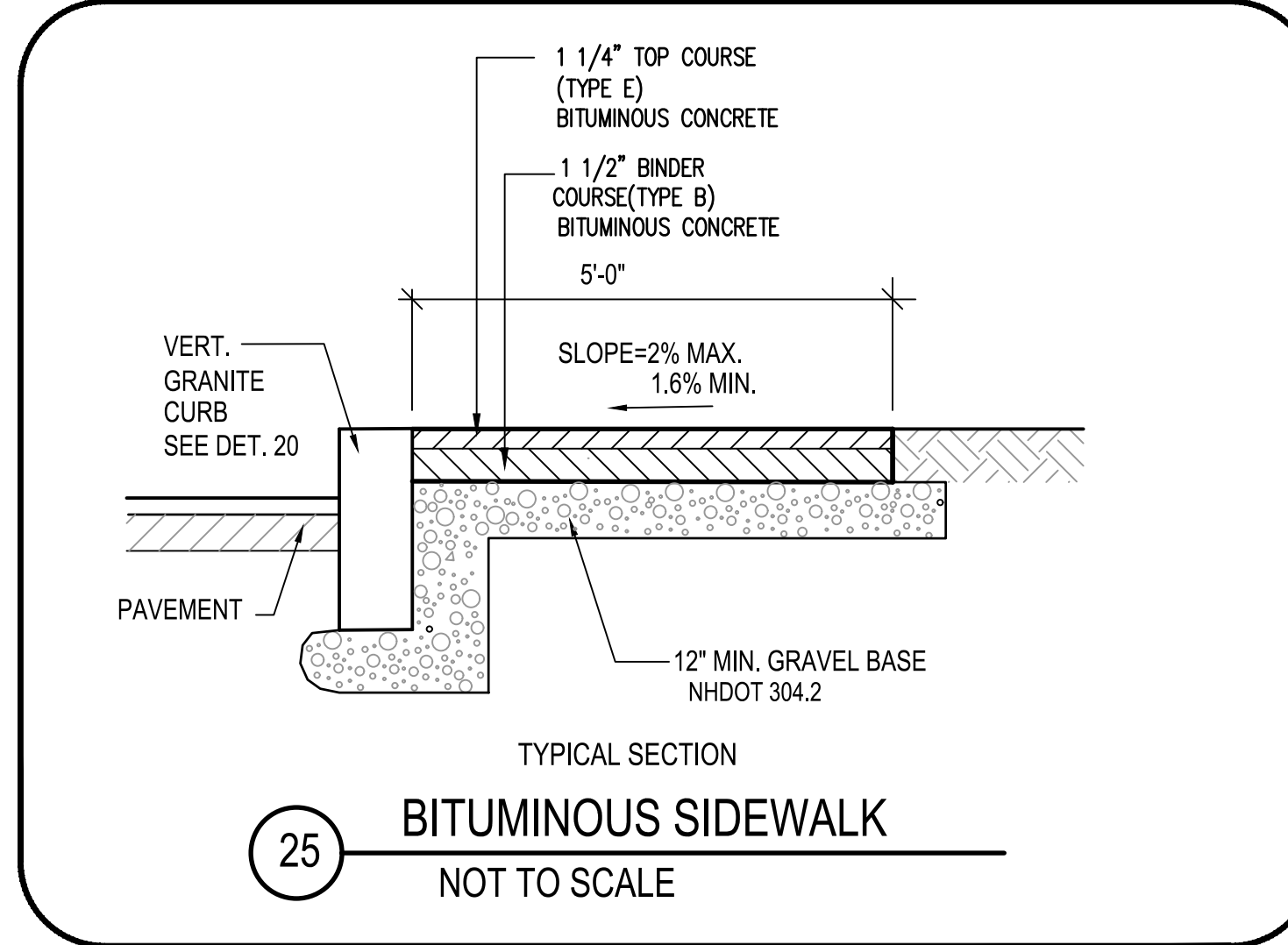
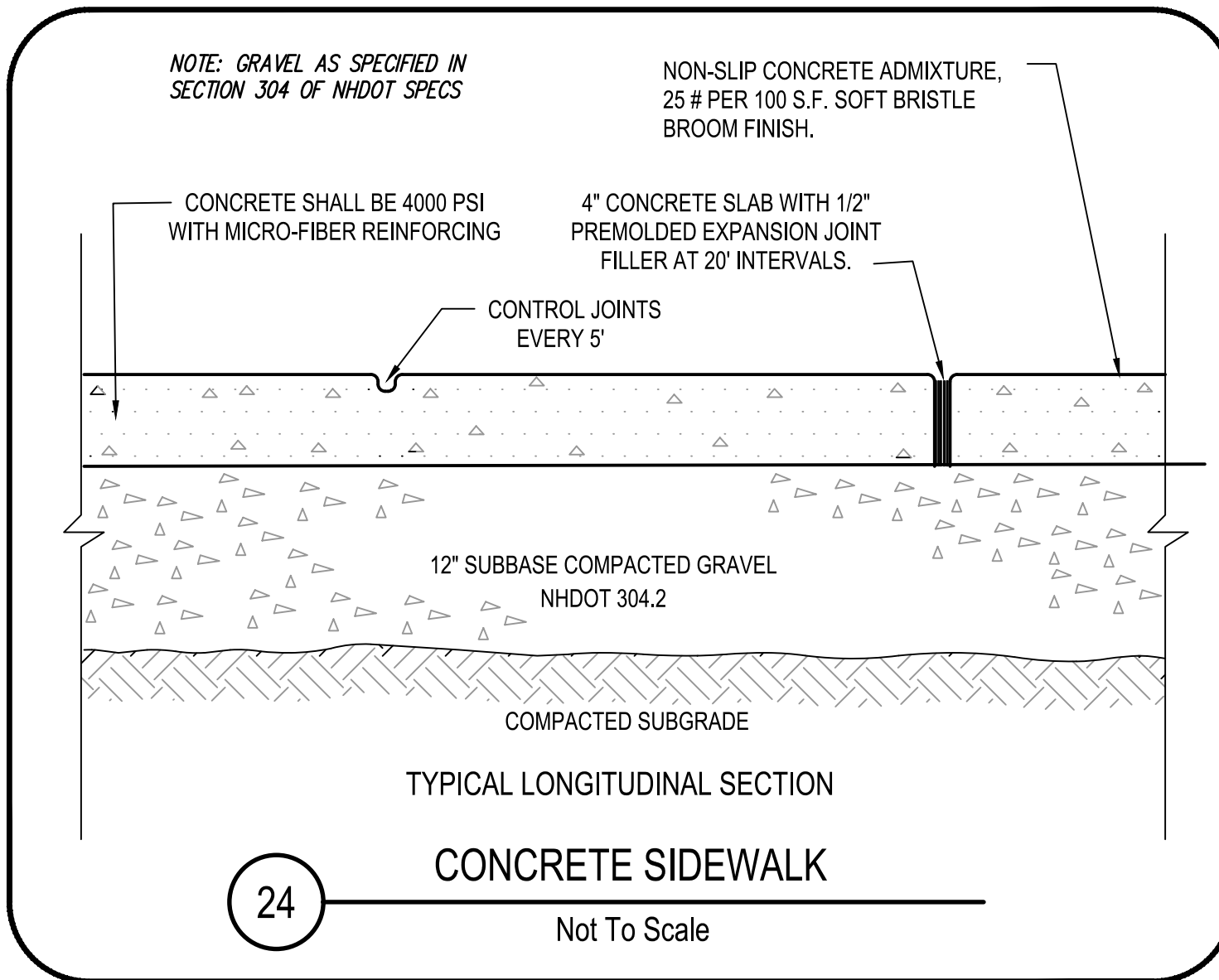
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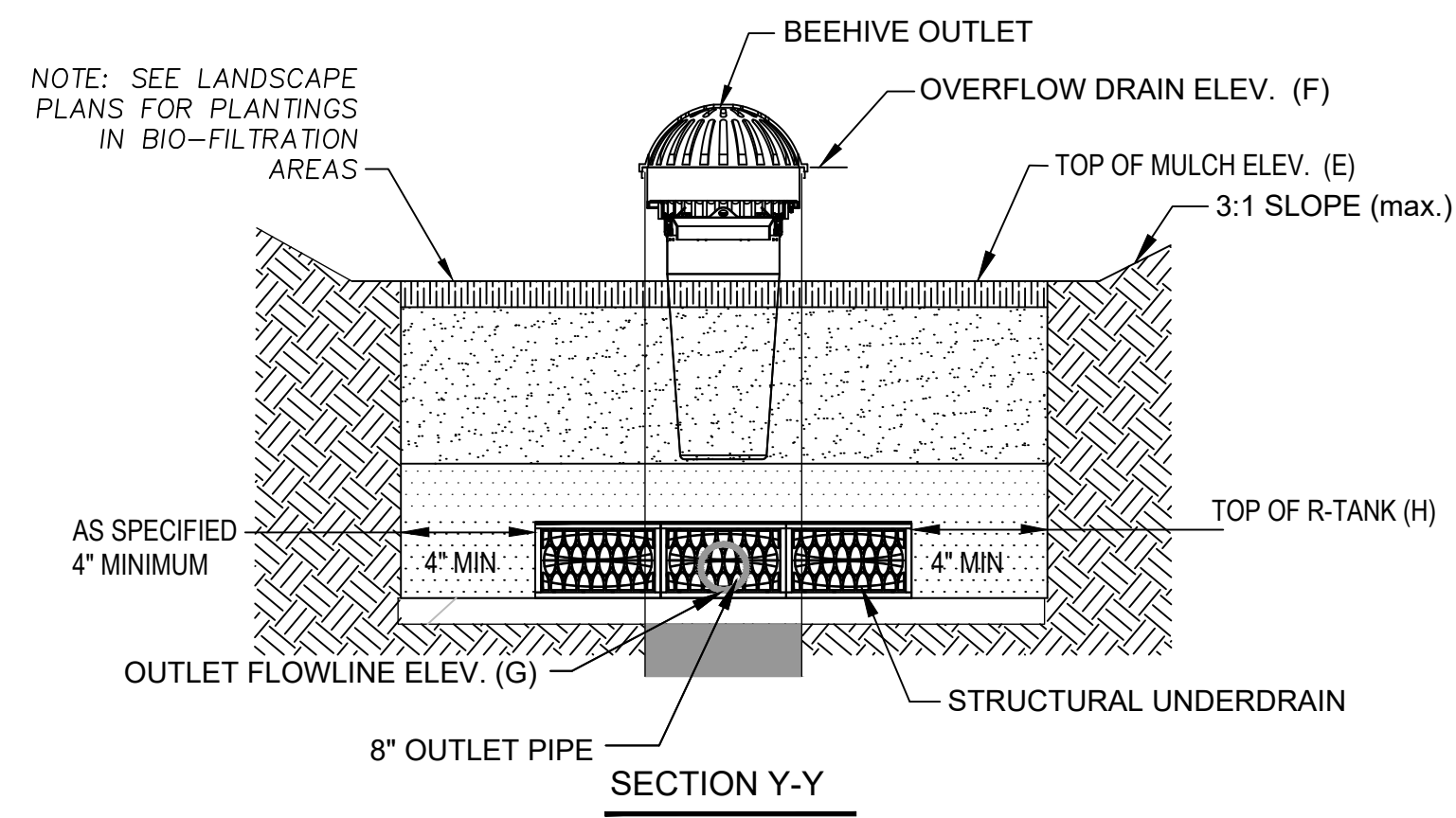
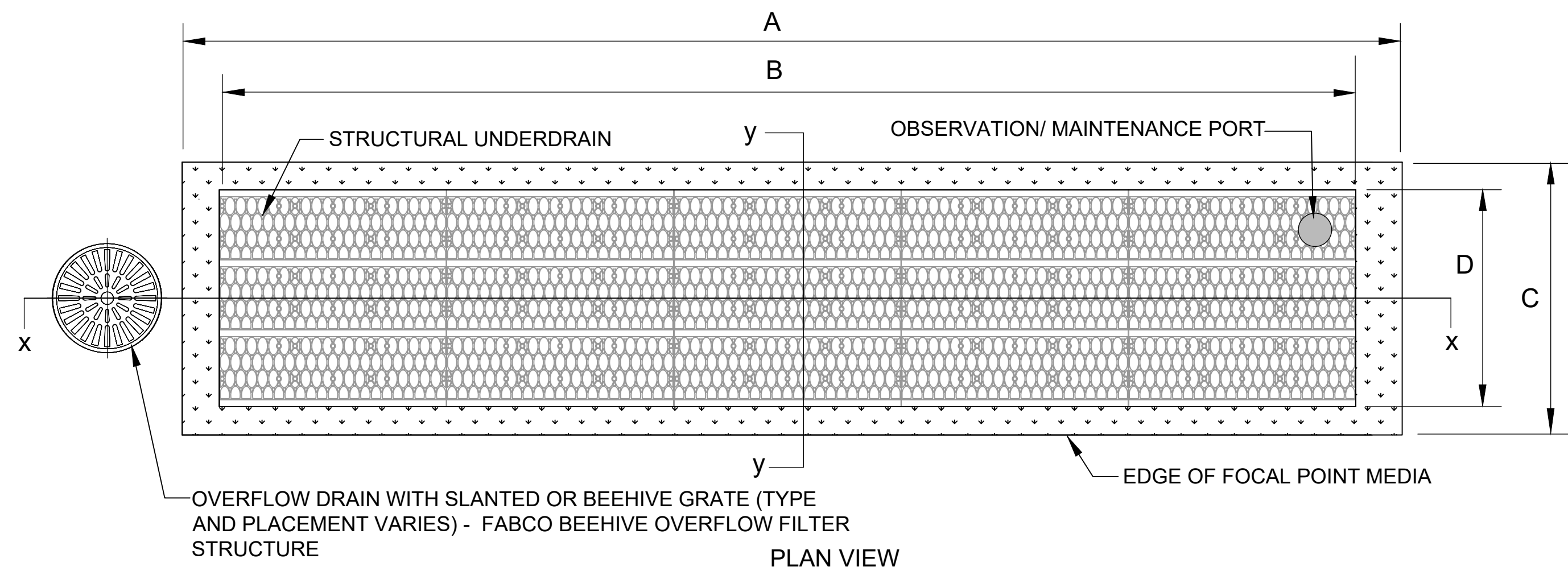
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33

BIO-FILTRATION SYSTEM "FOCAL POINT"

NOT TO SCALE

NOTE: PRODUCTS ON THIS SHEET ARE DISTRIBUTE BY "ACF ENVIRONMENTAL",  
 -25-A PROGRESS AVENUE NASHUA, NH 03062 (603) 589-9255  
 -23 FAITH DR. GORHAM, ME 04038 (207) 272 4431 CONTACT ROBERT WOODMAN

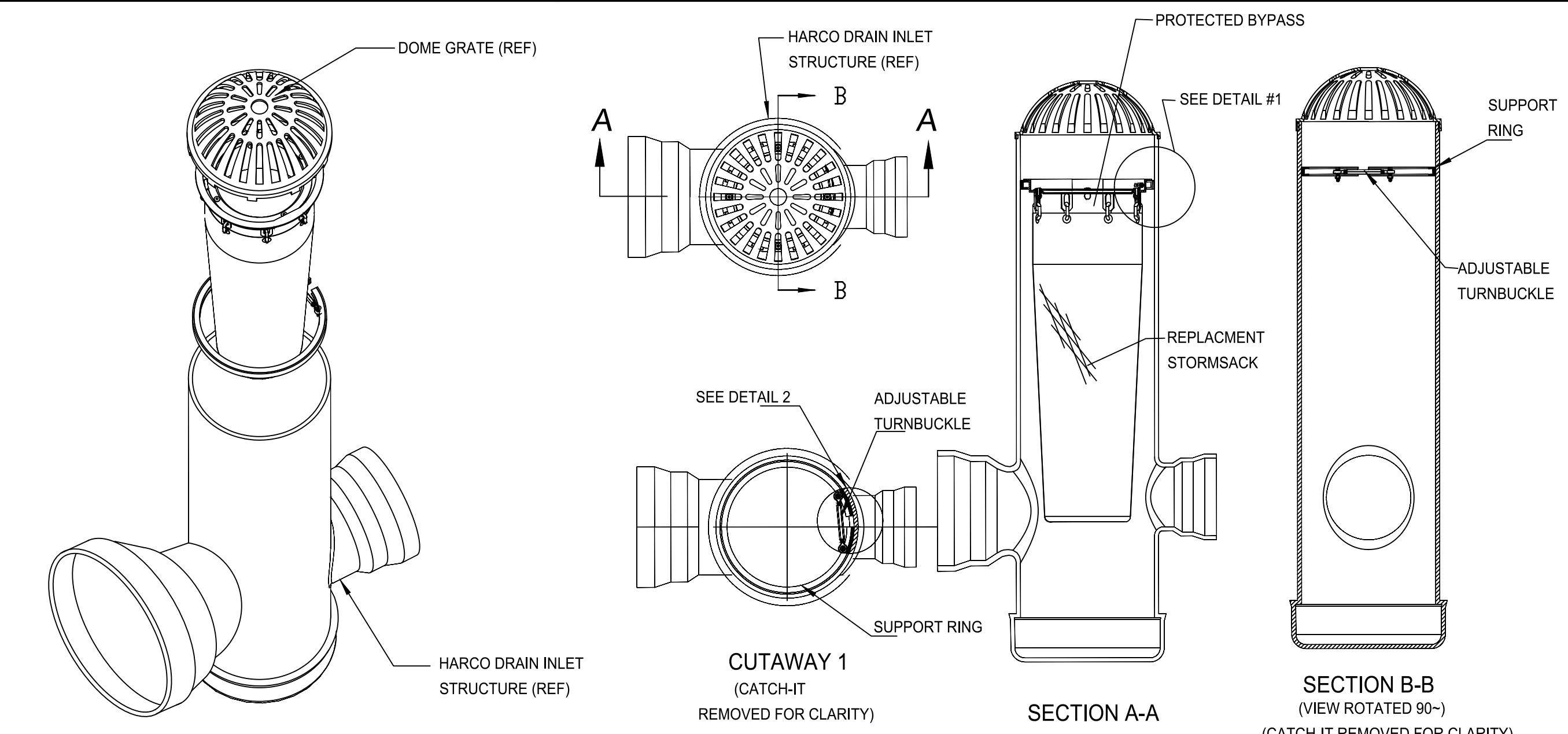
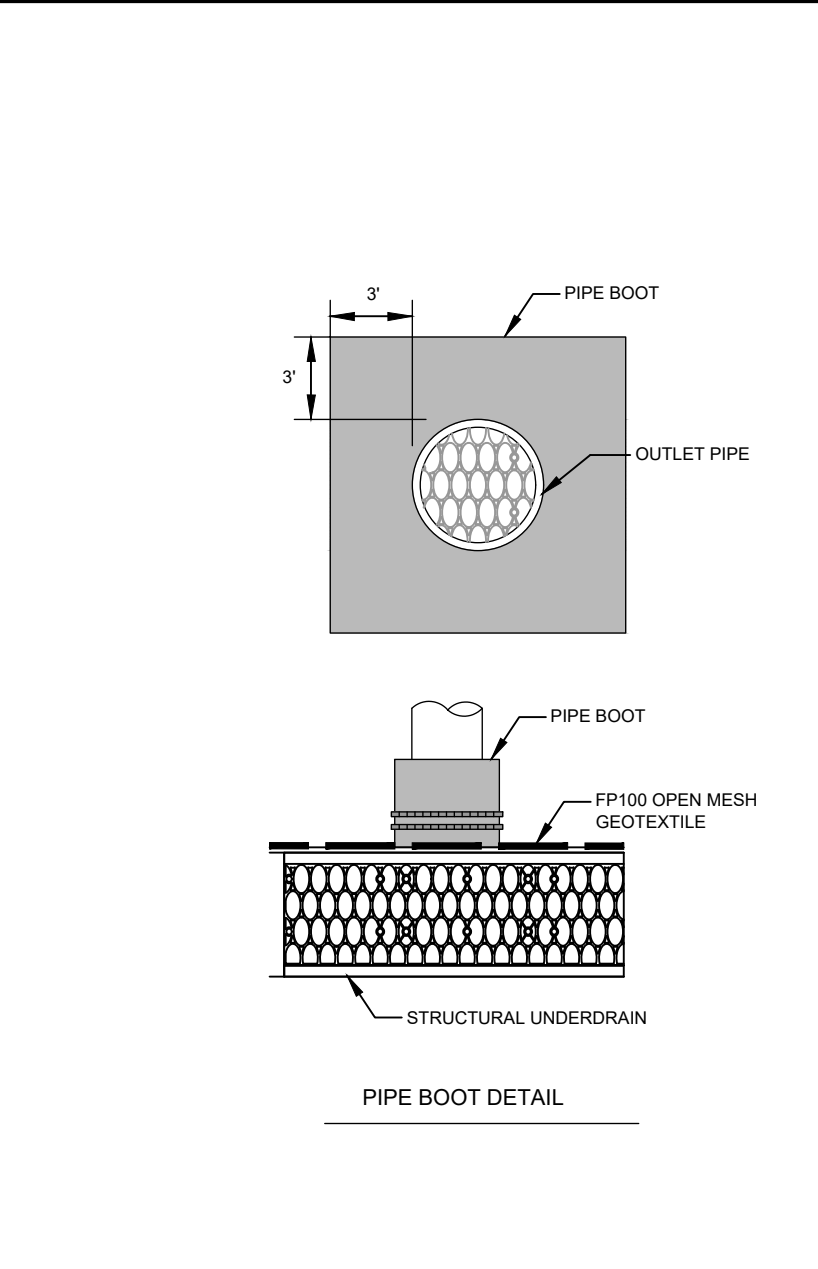
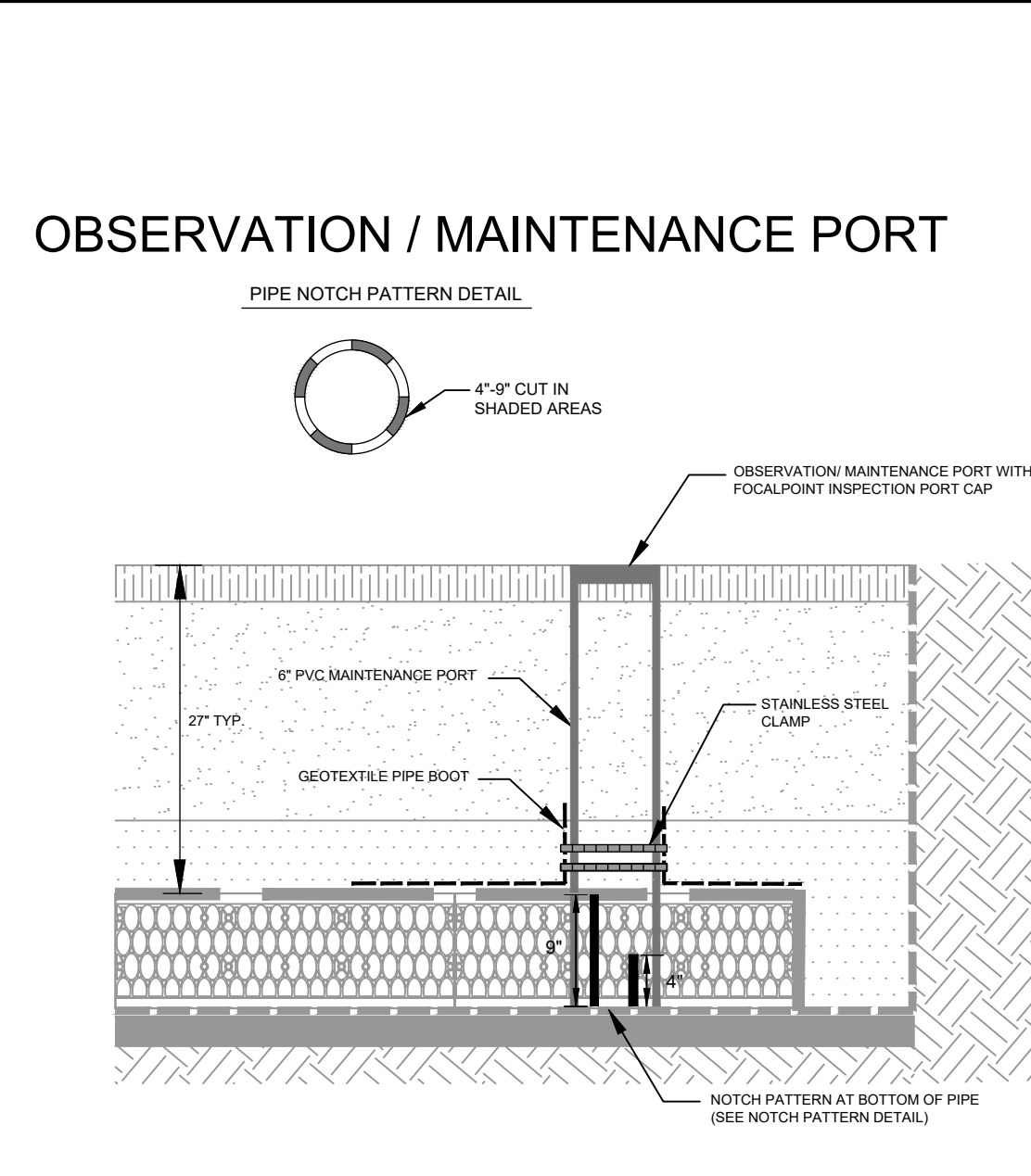
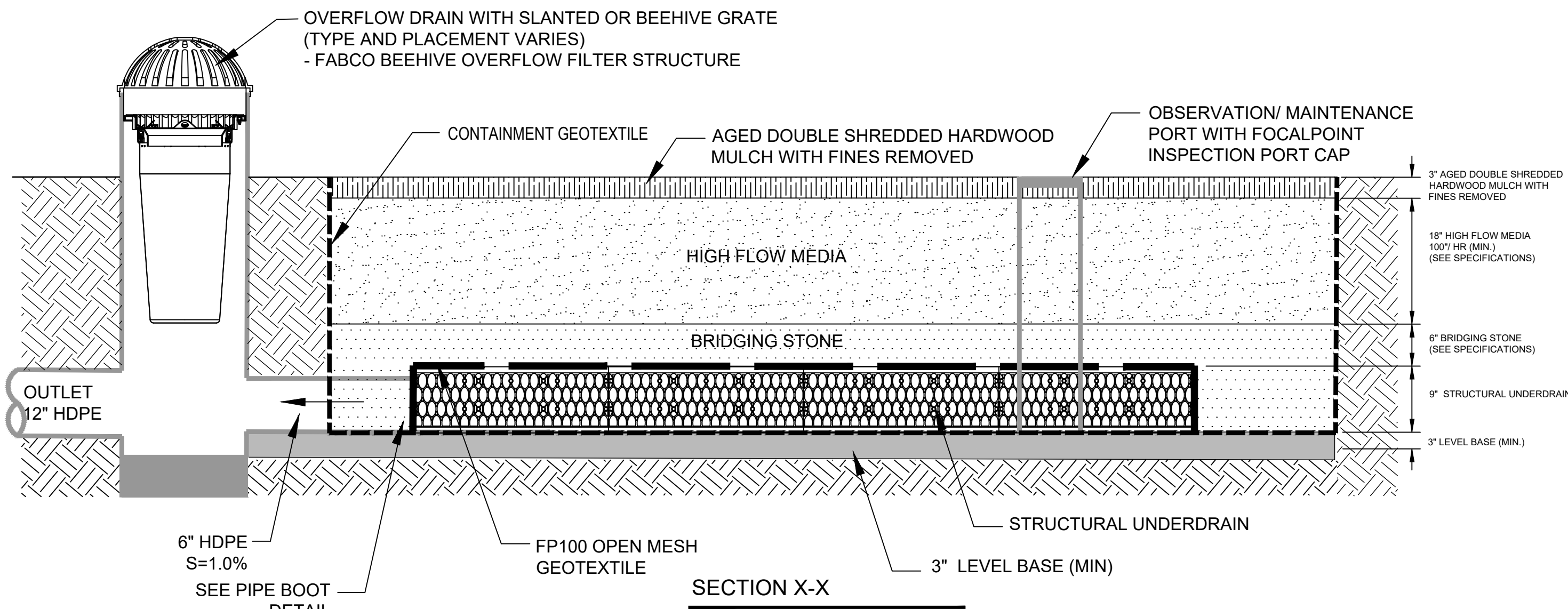


'BEEHIVE' OVERFLOW / OUTLET DATA

	DIA.	RIM ELEV. 'F'	INLET/INV.	OUTLET/INV.
FP-11	12"	115.00	8"/111.00	8"/111.00
FP-12	12"	107.50	8"/104.00	8"/104.00

FOCAL POINT DATA

	A	B	C	D	E	F	G	H
FP-11	11.00'	9.38' (4 CHAMB)	8.00'	6.56' (5 CHAMB.)	114.20	115.00	111.00	111.95
FP-12	12.00'	9.38' (4 CHAMB)	9.00'	7.87' (6 CHAMB.)	107.00	107.50	104.00	104.75



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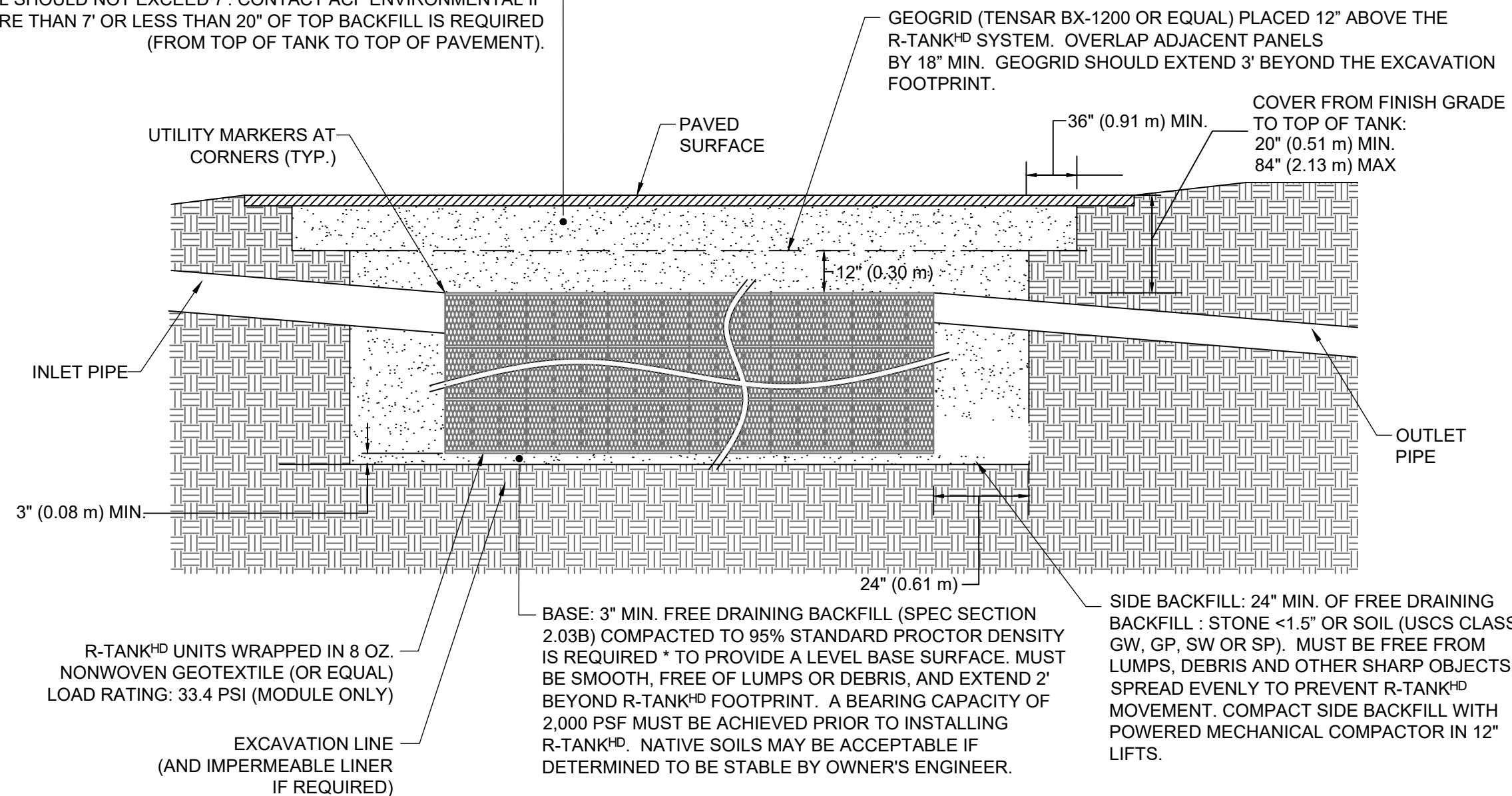
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TOTAL COVER: 20" MINIMUM AND 84" MAXIMUM. FIRST 12" MUST BE FREE DRAINING BACKFILL: STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). ADDITIONAL FILL MAY BE STRUCTURAL FILL (SPEC SECTION 2.03C) STONE OR SOIL (USCS CLASS SM, SP, SW, GM, GP OR GW) WITH MAX CLAY CONTENT <10%, MAX 25% PASSING NO. 200 SIEVE, AND MAX PLASTICITY INDEX OF 4. A MIN. 12" COVER MUST BE MAINTAINED BETWEEN BACKFILL EQUIPMENT AND THE TOP OF THE R-TANK™ SYSTEM AT ALL TIMES. TOTAL HEIGHT OF TOP BACKFILL SHOULD NOT EXCEED 7' OR LESS THAN 20" OF TOP BACKFILL IS REQUIRED (FROM TOP OF TANK TO TOP OF PAVEMENT).

**NOTES:**

- FOR COMPLETE MODULE DATA, SEE APPROPRIATE R-TANK® MODULE SHEET
- INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF H20 LOADING PER THE 1983, 13TH EDITION OF THE AMERICAN ASSOCIATION OF STATE, HIGHWAY AND TRAFFIC OFFICIALS (AASHTO) STANDARD SPECIFICATIONS
- PRE-TREATMENT STRUCTURES NOT SHOWN



\* FOR INFILTRATION APPLICATIONS, BASE SHALL BE 4" MIN. UNCOMPACTED FREE DRAINING BACKFILL (SPEC SECTION 2.03B) TO PROVIDE A LEVEL BASE SURFACE. MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK® FOOTPRINT. A BEARING CAPACITY OF 2,000 PSF MUST BE ACHIEVED PRIOR TO INSTALLING R-TANK®.



**R-TANK<sup>HD</sup> - HS-20 LOADS**

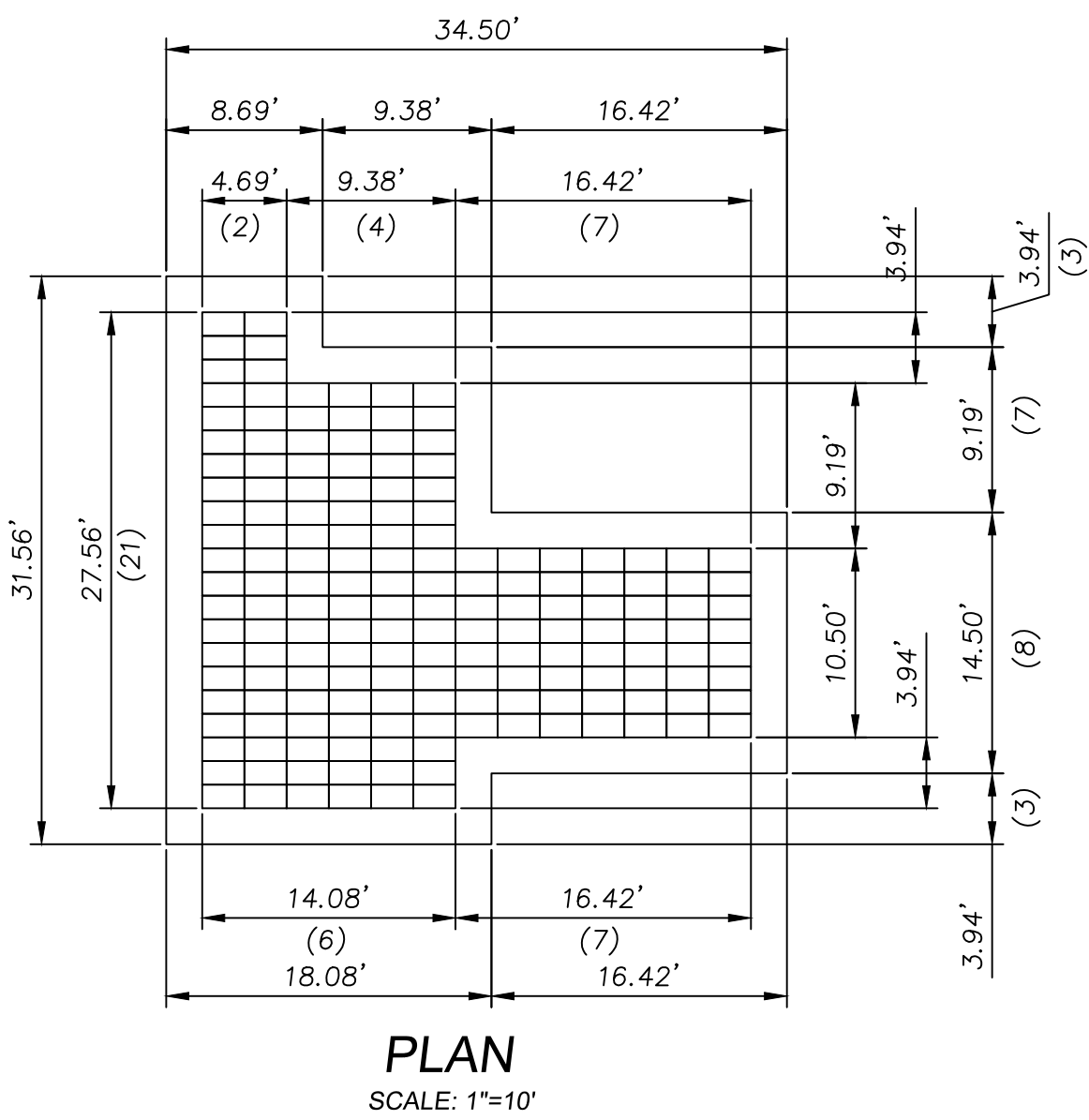
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FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

**CONSTRUCTION NOTES:**

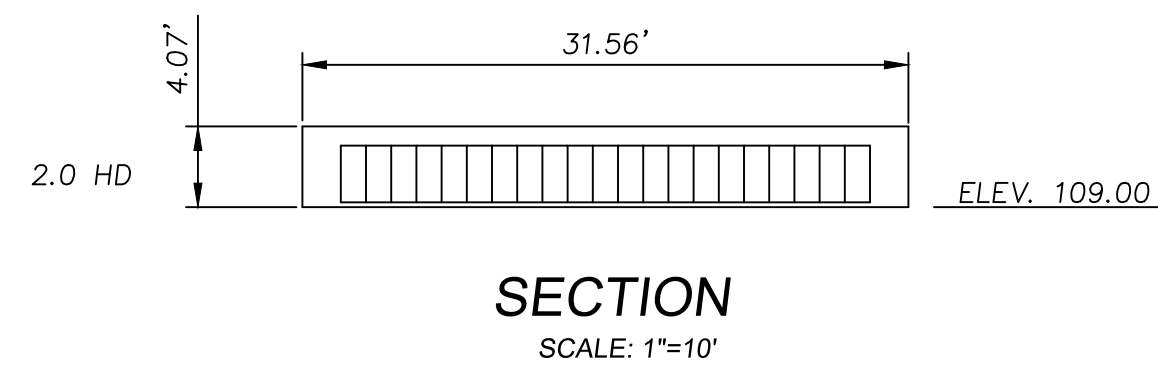
**SUBSURFACE INFILTRATION CHAMBER BASINS:**

- DO NOT ALLOW CONSTRUCTION TRAFFIC ON EXPOSED SOIL SURFACE IN AREA OF THE INFILTRATION SYSTEMS. IF FEASIBLE, PERFORM EXCAVATIONS AND ERECTION OUTSIDE THE LIMITS OF THE INFILTRATION SYSTEM
- AFTER THE INFILTRATION SYSTEM AREA IS EXCAVATED TO THE FINAL DESIGN ELEVATION, THE FLOOR SHOULD BE DEEPLY TILLED WITH A ROTARY TILLER OR A DISC HARROW TO RESTORE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.
- DO NOT PLACE INFILTRATION SYSTEMS INTO SERVICE UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.



**INFILTRATION SYSTEM 4 (INFIL-4)**  
TOTAL OF 170 2.0 HD CHAMBERS

**34 R-TANK INFILTRATION SYSTEM**

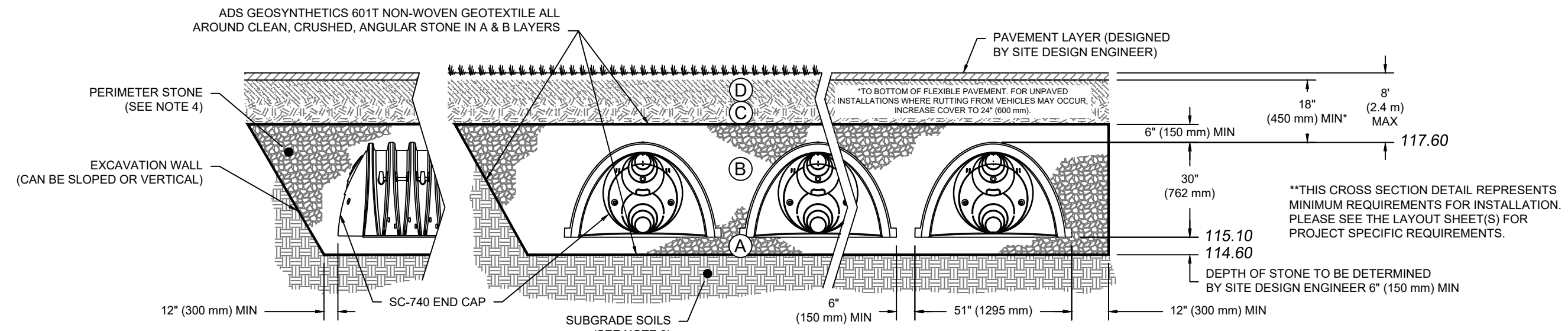


**ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS**

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	<b>FINAL FILL:</b> FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	<b>INITIAL FILL:</b> FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL-GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	<b>EMBEDMENT STONE:</b> FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	NO COMPACTION REQUIRED.
A	<b>FOUNDATION STONE:</b> FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. <sup>2,3</sup>

**PLEASE NOTE:**

1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

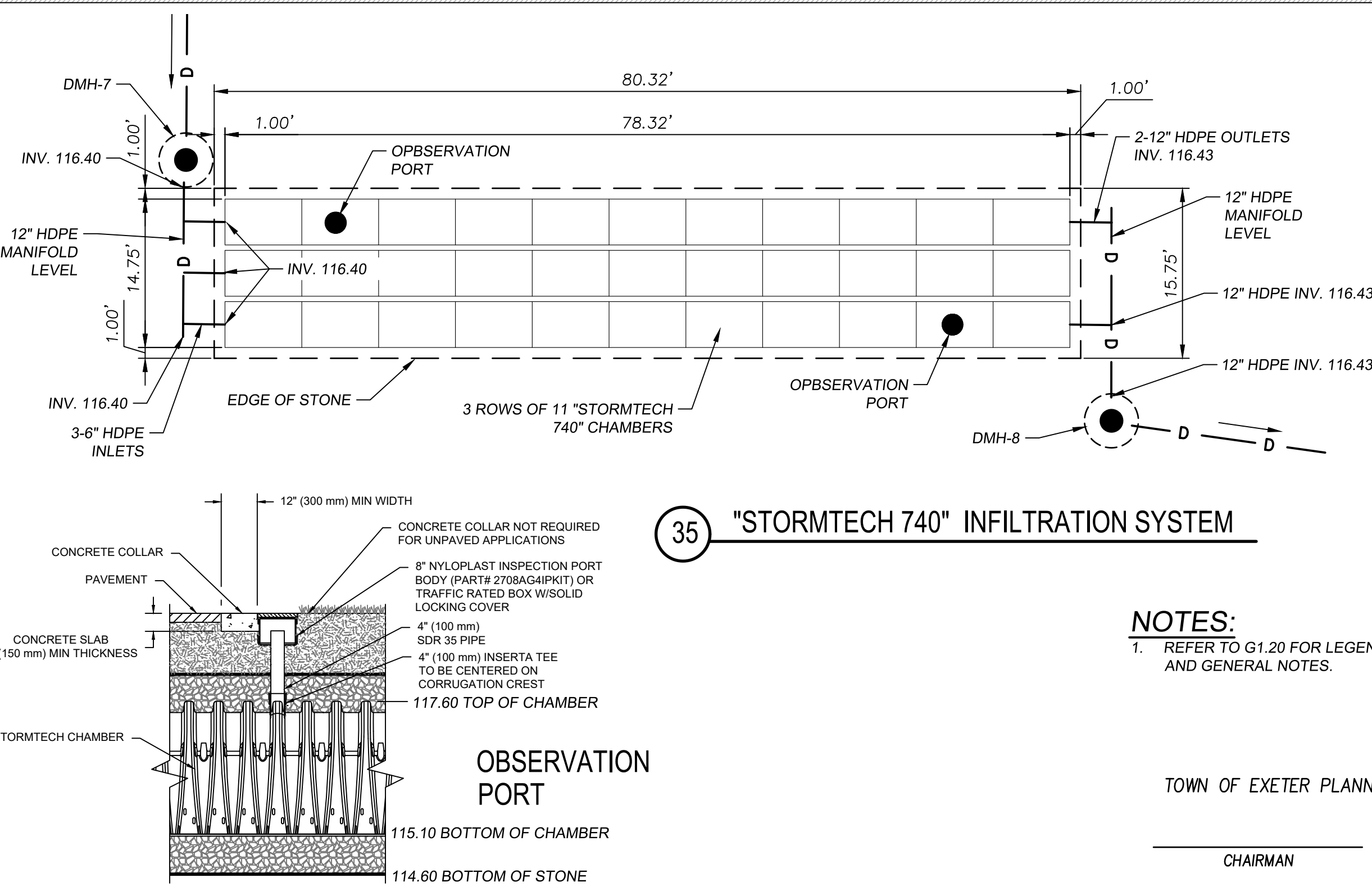


**NOTES:**

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 650 LBS/(MIN. AND B) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C). CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

1

**SC-740 CROSS SECTION DETAIL**



6 CHESTNUT STREET, AMESBURY, MA.

Phone: (978) 388-2157  
CONSULTING ENGINEERS & LAND SURVEYORS SINCE 1988  
www.gm2inc.com

Sheet Title:

**DETAILS**

Project Title:

**Ray Farm Condominium**  
Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

Applicant/Owner:

**Ray Farm, LLC**  
158 Shattuck Way  
Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY
1	5.10.22	TRC COMMENTS	DH

PROJ. MGR.: D. HAMEL
FIELD: J. SALVAGGIO / R. SMITH
DESIGN: D. HAMEL
DRAWN: D. HAMEL
CHECKED: D. GIANGRANDE
DATE: 01-11-2022
FILE: 16042 D.DT.DWG
FBK:
JOB #: 16042 D

SHEET C5.16

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## **Stormwater Analysis**

**“Ray Farm” Building D  
Ray Farmstead Road  
Exeter, New Hampshire**

**Date: March 22, 2022  
Revised May 13, 2022**

Project #16042 Bldg D  
GM2 Associates  
6 Chestnut Street, Amesbury, MA

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### Stormwater Analysis

Project Narrative / Results / Summary  
Rainfall Table – Northeast Regional Climate Center  
Pre-Development Analysis: Drainage Diagram  
Pre-Development Analysis: 2-year, 10-year, 25-year, 50-year, 100-year  
Post-Development Analysis: Drainage Diagram  
Post Development Analysis: 2-year, 10-year, 25-year 50-year, 100-year

## PROJECT NARRATIVE

### GENERAL

The Parcel is located off Ray Farmstead Road in Exeter, New Hampshire. It is situated in the “Commercial” zoning district. A variance was granted by the Exeter Zoning Board of Adjustments in November 2021 to allow the relocated Building D to have 32 multifamily units in the Commercial Zone. This project is part of the Ray Farm Condominium development approved in 2017. The previously approved plan showed a Building D near the abutting Mobil Station. This proposal is to re-locate Building D to land beyond Building C on land owned by the developer. That land will be combined with the original Ray Farm parcel. The area where Building D was previously approved will be open space and not developed.

The site is wooded with sloping knolls and a intrmittent stream and running from the East of the site to the West. There is another stream that runs from Noith to the South and becomes perinial at the right of way easement to the Carlisle property and is known as Watson Brook. Upland soils on the site are mainly Newfields with some Canton soils on a couple of the knolls. There are wetland soils associated with the streams and swales that cross the site and are mapped as Walpoe. Soil Mapping prepared by Gove Environmental Services located in Exeter, NH. See the accompanying design plans and the Pre-Development Drainage Zones plan in the rear pocket.

## PRE-DEVELOPMENT DRAINAGE CONDITIONS

The Site consists of undeveloped land with subcatchments E1 and E2. See (*Pre-Development Drainage Zones*) and the calculation data for a detailed description of subcatchment data.

## PROPOSED

The proposed development includes the construction of one, four story building with thirty two housing units. The building will have garage located in the basement. Associated utilities, surface parking, stormwater management systems, and landscaping are located onsite. The project will be serviced by municipal water and sewer. Natural gas service will be utilized for the energy source.. See the accompanying design plans for a detailed description of the proposed development.

## STORMWATER MANAGEMENT SYSTEM

The proposed stormwater management system includes; Bio-Treatment systems known as “Focal Point” will treat all the runoff from the paved areas onsite, Subsurface infiltration chambers, Sediment Forebays, Detention Basins, and grass treatment swales, level spreaders, and rip-rap outlet protection. The stormwater systems outlet to the wetland system associated with the stream.

## POST-DEVELOPMENT DRAINAGE CONDITIONS

Drainage patterns resulting from the proposed development are delineated on (*Post-Development Drainage Zones*). Subcatchments D1 and D2 by-passes the Stormwater treatment systems, and comprise of natural landscape and the side slopes of the stormwater systems, drives and buildings.. Subcatchment D8 is a small area flows to the existing Focal Point associated with Building C. D2 thru D7 represents the proposed developed area which flows to the stormwater treatment systems. See (*Post-Development Drainage Zones*) and the calculation data for a detailed description of subcatchment data.

# DESIGN OBJECTIVES / METHODOLOGY

## STORMWATER MANAGEMENT SYSTEM

The design objectives for the on-site storm water drainage system were to safely control, treat, and infiltrate stormwater runoff from the proposed development and to maintain the

overall stormwater runoff conditions of the Site. The drainage system was designed to accommodate runoff resulting from a 2, 10, 25, 50 and 100 year frequency design storm. The general drainage patterns of the Site will remain essentially unaltered. The stormwater flows from offsite a diverted around developed area and does not mix with the stormwater from the developed area.

## RUNOFF QUANTIFICATION

A drainage analysis was performed using pre- and post-development site criteria to estimate the effects of the proposed development on stormwater runoff conditions. Stormwater runoff rates were calculated for the 2, 10, 25, 50 and 100 year design storm events. The analysis was performed using HydroCAD™, a computerized stormwater modeling system that combines SCS hydrology techniques with standard hydraulic equations.

Total site runoff figures were obtained by summing hydrographs and not by direct addition of peak flows from individual subcatchments. Since peak flows from the individual subcatchments occur at different times, the total runoff figure listed may not equal the sum of the individual peak flows from the various subcatchments. This method provides a more realistic total flow figure than that obtained by direct addition of peak flows.

The Rainfall amounts used are from Extreme Precipitation Tables by Northeast Regional Climate Center. The amounts have increased from this table by 15% as suggested by the NHDES Alteration of Terrain regulations.

Rainfall	NRCC	+15%	Total
2 Year	3.18	0.48	3.66
10 Year	4.85	0.73	5.58
25 Year	6.17	0.93	7.10
50 Year	7.41	1.11	8.52
100 Year	8.90	1.34	10.24



## RESULTS

### STORMWATER RUNOFF COMPARISON

The following table summarize hydrologic and hydraulic conditions resulting from pre and post development peak storm water runoff that flow to the southerly property line and shown as Design Point "A".

<b>RESULTS ARE ANALYZED AT SUMMARY REACH "A"</b>		
<b>Storm Event</b>	<b>Pre-Development CFS (Vol. af)</b>	<b>Post-Development CFS (Vol. af)</b>
2	1.50 (0.242 af)	1.16 (0.308 af)
10	6.05 (0.719 af)	5.95 (0.867 af)
25	10.71 (1.197 af)	10.70 (1.391 af)
50	15.56 (1.696 af)	15.04 (1.924 af)
100	21.85 (2.350 af)	20.30 (2.607 af)

### SUMMARY

Existing stormwater runoff drainage patterns will remain essentially unchanged under post-development conditions. The site will continue to drain to the wetland area and stream at the western portion of the site and beyond. Peak discharge rates are slightly lower in the post-developed conditions through the use of the stormwater management systems. The stormwater management system does allow the 100 year storm event to safely pass though without overtopping the berms.

# Extreme Precipitation Tables

## Northeast Regional Climate Center

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

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.975 degrees West
Latitude	43.000 degrees North
Elevation	0 feet
Date/Time	Thu, 27 Jan 2022 11:29:10 -0500

### Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.66	0.82	1.04	1yr	0.71	0.99	1.22	1.57	2.03	2.66	2.86	1yr	2.35	2.75	3.16	3.87	4.48	1yr
2yr	0.32	0.50	0.62	0.81	1.02	1.30	2yr	0.88	1.18	1.51	1.93	2.47	3.18	3.53	2yr	2.82	3.39	3.90	4.63	5.27	2yr
5yr	0.37	0.58	0.73	0.98	1.25	1.61	5yr	1.08	1.46	1.89	2.43	3.13	4.05	4.53	5yr	3.58	4.36	4.98	5.91	6.68	5yr
10yr	0.41	0.65	0.82	1.12	1.46	1.89	10yr	1.26	1.72	2.24	2.89	3.75	4.85	5.49	10yr	4.30	5.28	6.00	7.11	7.99	10yr
25yr	0.48	0.76	0.97	1.34	1.78	2.35	25yr	1.54	2.14	2.79	3.64	4.75	6.17	7.07	25yr	5.46	6.80	7.67	9.10	10.13	25yr
50yr	0.54	0.87	1.11	1.55	2.09	2.78	50yr	1.80	2.53	3.31	4.35	5.69	7.41	8.56	50yr	6.56	8.23	9.25	10.96	12.14	50yr
100yr	0.60	0.97	1.26	1.79	2.44	3.28	100yr	2.11	2.98	3.94	5.19	6.81	8.90	10.38	100yr	7.88	9.98	11.14	13.22	14.55	100yr
200yr	0.68	1.11	1.44	2.07	2.86	3.88	200yr	2.47	3.53	4.66	6.19	8.15	10.69	12.57	200yr	9.46	12.09	13.43	15.95	17.44	200yr
500yr	0.81	1.33	1.74	2.52	3.52	4.83	500yr	3.04	4.40	5.84	7.80	10.34	13.63	16.22	500yr	12.06	15.59	17.20	20.46	22.18	500yr

### Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.37	0.45	0.61	0.75	0.89	1yr	0.64	0.87	0.95	1.25	1.53	2.21	2.52	1yr	1.95	2.43	2.87	3.42	3.95	1yr
2yr	0.32	0.49	0.60	0.81	1.00	1.19	2yr	0.87	1.16	1.37	1.81	2.33	3.07	3.43	2yr	2.72	3.30	3.79	4.49	5.05	2yr
5yr	0.35	0.55	0.68	0.93	1.19	1.41	5yr	1.02	1.38	1.62	2.12	2.74	3.74	4.16	5yr	3.31	4.00	4.59	5.55	6.19	5yr
10yr	0.39	0.60	0.75	1.05	1.35	1.62	10yr	1.17	1.59	1.82	2.41	3.08	4.29	4.81	10yr	3.80	4.62	5.30	6.49	7.08	10yr
25yr	0.45	0.69	0.86	1.22	1.61	1.94	25yr	1.39	1.90	2.12	2.79	3.59	4.81	5.81	25yr	4.26	5.59	6.40	7.96	8.84	25yr
50yr	0.50	0.76	0.95	1.37	1.84	2.23	50yr	1.59	2.18	2.36	3.14	4.03	5.42	6.68	50yr	4.80	6.42	7.37	9.31	10.24	50yr
100yr	0.56	0.85	1.07	1.54	2.11	2.56	100yr	1.82	2.51	2.65	3.51	4.51	6.10	7.66	100yr	5.40	7.37	8.49	10.88	11.84	100yr
200yr	0.63	0.95	1.20	1.74	2.42	2.94	200yr	2.09	2.88	2.95	3.93	5.05	6.82	9.69	200yr	6.04	9.31	9.79	12.73	13.72	200yr
500yr	0.74	1.10	1.41	2.06	2.92	3.55	500yr	2.52	3.47	3.42	4.55	5.89	7.88	11.89	500yr	6.98	11.44	11.80	15.67	16.62	500yr

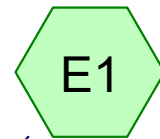
### Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.53	0.72	0.88	1.08	1yr	0.76	1.05	1.26	1.71	2.16	2.94	3.13	1yr	2.60	3.01	3.55	4.22	4.96	1yr
2yr	0.33	0.51	0.63	0.85	1.05	1.26	2yr	0.91	1.23	1.48	1.94	2.48	3.37	3.65	2yr	2.99	3.51	4.04	4.81	5.59	2yr
5yr	0.40	0.62	0.77	1.05	1.34	1.61	5yr	1.15	1.57	1.87	2.47	3.15	4.36	4.93	5yr	3.86	4.74	5.41	6.28	7.20	5yr
10yr	0.47	0.73	0.90	1.26	1.63	1.96	10yr	1.40	1.91	2.25	3.01	3.79	5.43	6.21	10yr	4.81	5.97	6.78	7.76	8.91	10yr
25yr	0.58	0.89	1.11	1.58	2.08	2.54	25yr	1.79	2.48	2.91	3.90	4.84	7.57	8.46	25yr	6.70	8.14	9.12	10.30	11.35	25yr
50yr	0.68	1.04	1.30	1.86	2.51	3.08	50yr	2.16	3.01	3.54	4.74	5.85	9.48	10.71	50yr	8.39	10.30	11.45	12.76	13.94	50yr
100yr	0.81	1.22	1.52	2.20	3.02	3.74	100yr	2.61	3.66	4.31	5.78	7.08	11.88	13.56	100yr	10.51	13.03	14.35	15.83	17.14	100yr
200yr	0.95	1.42	1.80	2.61	3.64	4.56	200yr	3.14	4.45	5.25	7.05	8.55	14.93	15.71	200yr	13.21	15.11	18.02	19.61	21.09	200yr
500yr	1.17	1.75	2.25	3.27	4.65	5.89	500yr	4.01	5.76	6.81	9.19	11.00	20.23	21.10	500yr	17.90	20.28	24.32	26.08	27.79	500yr

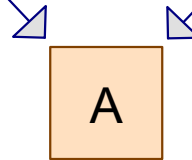




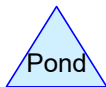
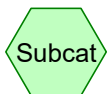
to channel



Exist Watershed



Dsign Point A



## 16042 D Pre Development

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### Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.096	61	>75% Grass cover, Good, HSG B (E2)
0.160	82	Dirt roads, HSG B (E1, E2)
0.029	98	Paved parking, HSG B (E2)
5.107	55	Woods, Good, HSG B (E1, E2)
0.569	70	Woods, Good, HSG C (E1, E2)
0.100	77	Woods, Good, HSG D (E2)

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## Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
5.392	HSG B	E1, E2
0.569	HSG C	E1, E2
0.100	HSG D	E2
0.000	Other	

**16042 D Pre Development**

Type III 24-hr 2 Year Rainfall=3.66"

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**Summary for Subcatchment E1: Exist Watershed**

Runoff = 0.48 cfs @ 12.29 hrs, Volume= 0.066 af, Depth&gt; 0.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

Area (ac)	CN	Description
1.123	55	Woods, Good, HSG B
0.265	70	Woods, Good, HSG C
0.065	82	Dirt roads, HSG B
1.453	59	Weighted Average
1.453		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	58	0.0700	4.26		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	105	0.1800	6.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
1.2	257	0.0600	3.67		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
4.3	275	0.0050	1.06		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
15.4	720	Total			

**Summary for Subcatchment E2: to channel**

Runoff = 1.07 cfs @ 12.45 hrs, Volume= 0.177 af, Depth&gt; 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

Area (ac)	CN	Description
0.029	98	Paved parking, HSG B
3.984	55	Woods, Good, HSG B
0.304	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.095	82	Dirt roads, HSG B
0.096	61	>75% Grass cover, Good, HSG B
4.608	57	Weighted Average
4.579		99.37% Pervious Area
0.029		0.63% Impervious Area

**16042 D Pre Development**

Type III 24-hr 2 Year Rainfall=3.66"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.3	88	0.0800	4.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	70	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	168	0.0400	3.22		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	90	0.1600	6.44		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	22	0.0050	1.14		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
10.5	745	0.0020	1.18	3.55	<b>Channel Flow, Stream Channel</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Earth, cobble bottom, clean sides
21.8	1,208	Total			

**Summary for Reach A: Dsign Point A**

Inflow Area = 6.061 ac, 0.48% Impervious, Inflow Depth > 0.48" for 2 Year event  
 Inflow = 1.50 cfs @ 12.42 hrs, Volume= 0.242 af  
 Outflow = 1.50 cfs @ 12.42 hrs, Volume= 0.242 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

**16042 D Pre Development**

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Type III 24-hr 10 Year Rainfall=5.58"

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**Summary for Subcatchment E1: Exist Watershed**

Runoff = 1.81 cfs @ 12.24 hrs, Volume= 0.186 af, Depth&gt; 1.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

Area (ac)	CN	Description
1.123	55	Woods, Good, HSG B
0.265	70	Woods, Good, HSG C
0.065	82	Dirt roads, HSG B
1.453	59	Weighted Average
1.453		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	58	0.0700	4.26		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	105	0.1800	6.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
1.2	257	0.0600	3.67		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
4.3	275	0.0050	1.06		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
15.4	720	Total			

**Summary for Subcatchment E2: to channel**

Runoff = 4.43 cfs @ 12.35 hrs, Volume= 0.533 af, Depth&gt; 1.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

Area (ac)	CN	Description
0.029	98	Paved parking, HSG B
3.984	55	Woods, Good, HSG B
0.304	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.095	82	Dirt roads, HSG B
0.096	61	>75% Grass cover, Good, HSG B
4.608	57	Weighted Average
4.579		99.37% Pervious Area
0.029		0.63% Impervious Area



**16042 D Pre Development**

Type III 24-hr 10 Year Rainfall=5.58"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.3	88	0.0800	4.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	70	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	168	0.0400	3.22		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	90	0.1600	6.44		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	22	0.0050	1.14		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
10.5	745	0.0020	1.18	3.55	<b>Channel Flow, Stream Channel</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Earth, cobble bottom, clean sides
21.8	1,208	Total			

**Summary for Reach A: Dsign Point A**

Inflow Area = 6.061 ac, 0.48% Impervious, Inflow Depth > 1.42" for 10 Year event  
 Inflow = 6.05 cfs @ 12.32 hrs, Volume= 0.719 af  
 Outflow = 6.05 cfs @ 12.32 hrs, Volume= 0.719 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

**16042 D Pre Development**

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Type III 24-hr 25 Year Rainfall=7.10"

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**Summary for Subcatchment E1: Exist Watershed**

Runoff = 3.13 cfs @ 12.23 hrs, Volume= 0.305 af, Depth&gt; 2.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

Area (ac)	CN	Description
1.123	55	Woods, Good, HSG B
0.265	70	Woods, Good, HSG C
0.065	82	Dirt roads, HSG B
1.453	59	Weighted Average
1.453		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	58	0.0700	4.26		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	105	0.1800	6.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
1.2	257	0.0600	3.67		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
4.3	275	0.0050	1.06		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
15.4	720	Total			

**Summary for Subcatchment E2: to channel**

Runoff = 7.90 cfs @ 12.33 hrs, Volume= 0.892 af, Depth&gt; 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

Area (ac)	CN	Description
0.029	98	Paved parking, HSG B
3.984	55	Woods, Good, HSG B
0.304	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.095	82	Dirt roads, HSG B
0.096	61	>75% Grass cover, Good, HSG B
4.608	57	Weighted Average
4.579		99.37% Pervious Area
0.029		0.63% Impervious Area

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Type III 24-hr 25 Year Rainfall=7.10"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.3	88	0.0800	4.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	70	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	168	0.0400	3.22		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	90	0.1600	6.44		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	22	0.0050	1.14		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
10.5	745	0.0020	1.18	3.55	<b>Channel Flow, Stream Channel</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Earth, cobble bottom, clean sides
21.8	1,208	Total			

**Summary for Reach A: Dsign Point A**

Inflow Area = 6.061 ac, 0.48% Impervious, Inflow Depth > 2.37" for 25 Year event  
 Inflow = 10.71 cfs @ 12.30 hrs, Volume= 1.197 af  
 Outflow = 10.71 cfs @ 12.30 hrs, Volume= 1.197 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

**16042 D Pre Development**

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Type III 24-hr 50 Year Rainfall=8.52"

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**Summary for Subcatchment E1: Exist Watershed**

Runoff = 4.51 cfs @ 12.22 hrs, Volume= 0.429 af, Depth&gt; 3.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

Area (ac)	CN	Description
1.123	55	Woods, Good, HSG B
0.265	70	Woods, Good, HSG C
0.065	82	Dirt roads, HSG B
1.453	59	Weighted Average
1.453		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	58	0.0700	4.26		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	105	0.1800	6.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
1.2	257	0.0600	3.67		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
4.3	275	0.0050	1.06		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
15.4	720	Total			

**Summary for Subcatchment E2: to channel**

Runoff = 11.54 cfs @ 12.32 hrs, Volume= 1.268 af, Depth&gt; 3.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

Area (ac)	CN	Description
0.029	98	Paved parking, HSG B
3.984	55	Woods, Good, HSG B
0.304	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.095	82	Dirt roads, HSG B
0.096	61	>75% Grass cover, Good, HSG B
4.608	57	Weighted Average
4.579		99.37% Pervious Area
0.029		0.63% Impervious Area

**16042 D Pre Development**

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Type III 24-hr 50 Year Rainfall=8.52"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.3	88	0.0800	4.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	70	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	168	0.0400	3.22		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	90	0.1600	6.44		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	22	0.0050	1.14		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
10.5	745	0.0020	1.18	3.55	<b>Channel Flow, Stream Channel</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Earth, cobble bottom, clean sides
21.8	1,208	Total			

**Summary for Reach A: Dsign Point A**

Inflow Area = 6.061 ac, 0.48% Impervious, Inflow Depth > 3.36" for 50 Year event  
 Inflow = 15.56 cfs @ 12.29 hrs, Volume= 1.696 af  
 Outflow = 15.56 cfs @ 12.29 hrs, Volume= 1.696 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

**16042 D Pre Development**

Type III 24-hr 100 Year Rainfall=10.24"

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**Summary for Subcatchment E1: Exist Watershed**

Runoff = 6.27 cfs @ 12.22 hrs, Volume= 0.589 af, Depth&gt; 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

Area (ac)	CN	Description
1.123	55	Woods, Good, HSG B
0.265	70	Woods, Good, HSG C
0.065	82	Dirt roads, HSG B
1.453	59	Weighted Average
1.453		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	58	0.0700	4.26		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	105	0.1800	6.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
1.2	257	0.0600	3.67		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
4.3	275	0.0050	1.06		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
15.4	720	Total			

**Summary for Subcatchment E2: to channel**

Runoff = 16.26 cfs @ 12.31 hrs, Volume= 1.761 af, Depth&gt; 4.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

Area (ac)	CN	Description
0.029	98	Paved parking, HSG B
3.984	55	Woods, Good, HSG B
0.304	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.095	82	Dirt roads, HSG B
0.096	61	>75% Grass cover, Good, HSG B
4.608	57	Weighted Average
4.579		99.37% Pervious Area
0.029		0.63% Impervious Area

**16042 D Pre Development**

Type III 24-hr 100 Year Rainfall=10.24"

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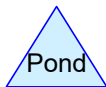
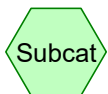
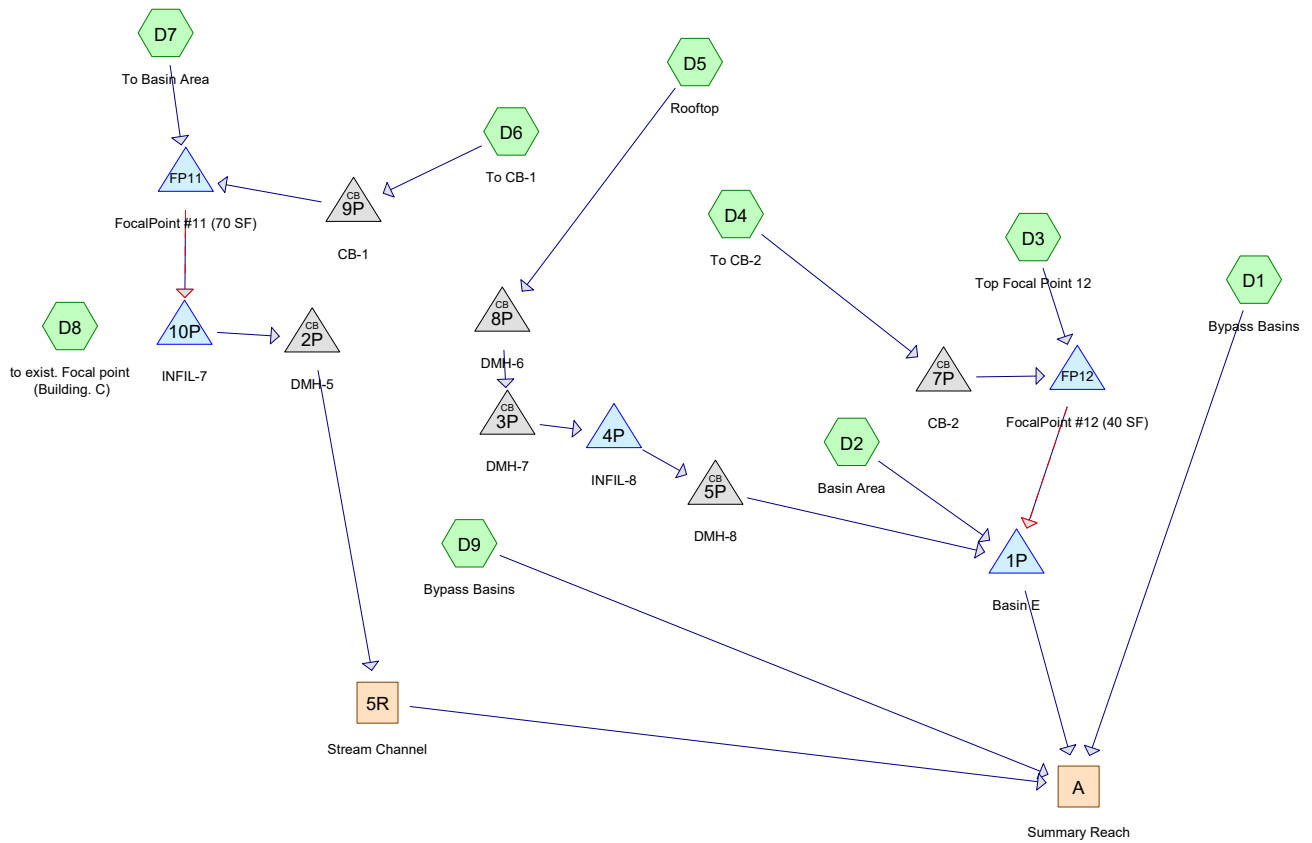
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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.3	88	0.0800	4.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	70	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	168	0.0400	3.22		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	90	0.1600	6.44		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	22	0.0050	1.14		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
10.5	745	0.0020	1.18	3.55	<b>Channel Flow, Stream Channel</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Earth, cobble bottom, clean sides
21.8	1,208	Total			

**Summary for Reach A: Dsign Point A**

Inflow Area = 6.061 ac, 0.48% Impervious, Inflow Depth > 4.65" for 100 Year event  
 Inflow = 21.85 cfs @ 12.28 hrs, Volume= 2.350 af  
 Outflow = 21.85 cfs @ 12.28 hrs, Volume= 2.350 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs



**Routing Diagram for 16042 D Post Development**  
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## 16042 D Post Development

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### Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.286	61	>75% Grass cover, Good, HSG B (D1, D2, D4, D6, D7, D9)
0.061	82	Dirt roads, HSG B (D1, D9)
0.012	96	Gravel surface, HSG B (D3)
0.578	98	Paved parking, HSG B (D3, D4, D6, D7, D8)
0.365	98	Roofs, HSG B (D5)
3.236	55	Woods, Good, HSG B (D1, D3, D9)
0.423	70	Woods, Good, HSG C (D1, D9)
0.100	77	Woods, Good, HSG D (D9)

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**Soil Listing (all nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
5.538	HSG B	D1, D2, D3, D4, D5, D6, D7, D8, D9
0.423	HSG C	D1, D9
0.100	HSG D	D9
0.000	Other	

**16042 D Post Development**

Type III 24-hr 2 Year Rainfall=3.66"

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**Summary for Subcatchment D1: Bypass Basins**

Runoff = 0.45 cfs @ 12.23 hrs, Volume= 0.055 af, Depth&gt; 0.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

Area (ac)	CN	Description
0.762	55	Woods, Good, HSG B
0.305	70	Woods, Good, HSG C
0.055	61	>75% Grass cover, Good, HSG B
0.011	82	Dirt roads, HSG B
1.133	60	Weighted Average
1.133		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	71	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	88	0.1700	6.64		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
3.1	551	0.0380	2.92		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
12.9	735	Total			

**Summary for Subcatchment D2: Basin Area**

Runoff = 0.11 cfs @ 12.11 hrs, Volume= 0.010 af, Depth&gt; 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

Area (ac)	CN	Description
0.199	61	>75% Grass cover, Good, HSG B
0.199		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D3: Top Focal Point 12**

Runoff = 0.07 cfs @ 12.11 hrs, Volume= 0.006 af, Depth&gt; 0.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

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Type III 24-hr 2 Year Rainfall=3.66"

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Area (ac)	CN	Description
0.007	98	Paved parking, HSG B
0.012	96	Gravel surface, HSG B
0.062	55	Woods, Good, HSG B
0.081	65	Weighted Average
0.074		91.36% Pervious Area
0.007		8.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D4: To CB-2**

Runoff = 0.81 cfs @ 12.10 hrs, Volume= 0.060 af, Depth> 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

Area (ac)	CN	Description
0.187	98	Paved parking, HSG B
0.381	61	>75% Grass cover, Good, HSG B
0.568	73	Weighted Average
0.381		67.08% Pervious Area
0.187		32.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	15	0.5000	0.29		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.18"
2.0	245	0.0160	2.04		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	28	0.4000	10.18		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.7	100	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
2.4					<b>Direct Entry, Adjustment to 6 min</b>
6.0	388	Total			

**Summary for Subcatchment D5: Rooftop**

Runoff = 1.27 cfs @ 12.09 hrs, Volume= 0.103 af, Depth> 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

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Type III 24-hr 2 Year Rainfall=3.66"

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Area (ac)	CN	Description
0.365	98	Roofs, HSG B
0.365		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D6: To CB-1**

Runoff = 1.26 cfs @ 12.09 hrs, Volume= 0.090 af, Depth&gt; 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

Area (ac)	CN	Description
0.330	98	Paved parking, HSG B
0.180	61	>75% Grass cover, Good, HSG B
0.510	85	Weighted Average
0.180		35.29% Pervious Area
0.330		64.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D7: To Basin Area**

Runoff = 0.15 cfs @ 12.10 hrs, Volume= 0.012 af, Depth&gt; 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

Area (ac)	CN	Description
0.028	98	Paved parking, HSG B
0.110	61	>75% Grass cover, Good, HSG B
0.138	69	Weighted Average
0.110		79.71% Pervious Area
0.028		20.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

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**Summary for Subcatchment D8: to exist. Focal point (Building. C)**

Runoff = 0.09 cfs @ 12.09 hrs, Volume= 0.007 af, Depth> 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

Area (ac)	CN	Description
0.026	98	Paved parking, HSG B
0.026		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D9: Bypass Basins**

Runoff = 0.71 cfs @ 12.45 hrs, Volume= 0.117 af, Depth> 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

Area (ac)	CN	Description
0.050	82	Dirt roads, HSG B
2.412	55	Woods, Good, HSG B
0.118	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.361	61	>75% Grass cover, Good, HSG B
3.041	57	Weighted Average
3.041		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.9	257	0.0860	4.72		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	235	0.0550	4.19	4.19	<b>Channel Flow,</b> Area= 1.0 sf Perim= 3.0' r= 0.33' n= 0.040 Mountain streams
10.5	745	0.0020	1.18	3.55	<b>Channel Flow,</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Winding stream, pools & shoals
21.7	1,262	Total			

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## Summary for Reach 5R: Stream Channel

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 1.41" for 2 Year event  
 Inflow = 0.40 cfs @ 12.54 hrs, Volume= 0.076 af  
 Outflow = 0.31 cfs @ 12.71 hrs, Volume= 0.075 af, Atten= 22%, Lag= 10.3 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 1.09 fps, Min. Travel Time= 11.4 min  
 Avg. Velocity = 0.59 fps, Avg. Travel Time= 21.4 min

Peak Storage= 216 cf @ 12.71 hrs  
 Average Depth at Peak Storage= 0.10'  
 Bank-Full Depth= 1.50' Flow Area= 4.5 sf, Capacity= 20.16 cfs

3.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding  
 Length= 750.0' Slope= 0.0120 '  
 Inlet Invert= 101.00', Outlet Invert= 92.00'



## Summary for Reach A: Summary Reach

Inflow Area = 6.035 ac, 15.19% Impervious, Inflow Depth > 0.61" for 2 Year event  
 Inflow = 1.16 cfs @ 12.55 hrs, Volume= 0.308 af  
 Outflow = 1.16 cfs @ 12.55 hrs, Volume= 0.308 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

## Summary for Pond 1P: Basin E

Inflow Area = 1.213 ac, 46.08% Impervious, Inflow Depth > 1.25" for 2 Year event  
 Inflow = 1.49 cfs @ 12.21 hrs, Volume= 0.127 af  
 Outflow = 0.15 cfs @ 14.09 hrs, Volume= 0.076 af, Atten= 90%, Lag= 113.0 min  
 Discarded = 0.02 cfs @ 14.09 hrs, Volume= 0.015 af  
 Primary = 0.13 cfs @ 14.09 hrs, Volume= 0.061 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 103.43' @ 14.09 hrs Surf.Area= 2,387 sf Storage= 2,960 cf

Plug-Flow detention time= 235.2 min calculated for 0.076 af (60% of inflow)  
 Center-of-Mass det. time= 137.0 min ( 983.9 - 846.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	101.75'	16,886 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
101.75	1,000	165.0	0	0	1,000
102.00	1,387	180.0	297	297	1,414
104.00	2,863	387.0	4,162	4,459	10,771
106.00	4,468	413.0	7,272	11,731	12,610
107.00	5,875	439.0	5,155	16,886	14,423

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	<b>12.0" Round Culvert</b> L= 33.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.00' / 99.67' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	103.00'	<b>3.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	104.35'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Device 1	106.50'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Discarded	101.75'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.02 cfs @ 14.09 hrs HW=103.43' (Free Discharge)

↳ **5=Exfiltration** (Exfiltration Controls 0.02 cfs)

**Primary OutFlow** Max=0.13 cfs @ 14.09 hrs HW=103.43' TW=0.00' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.13 cfs of 6.47 cfs potential flow)  
 ↳ **2=Orifice/Grate** (Orifice Controls 0.13 cfs @ 2.65 fps)  
 ↳ **3=Orifice/Grate** ( Controls 0.00 cfs)  
 ↳ **4=Orifice/Grate** ( Controls 0.00 cfs)

**Summary for Pond 2P: DMH-5**

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 1.41" for 2 Year event  
 Inflow = 0.40 cfs @ 12.54 hrs, Volume= 0.076 af  
 Outflow = 0.40 cfs @ 12.54 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.40 cfs @ 12.54 hrs, Volume= 0.076 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 109.31' @ 12.54 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	109.00'	<b>12.0" Round Culvert</b> L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 109.00' / 106.50' S= 0.1136 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.40 cfs @ 12.54 hrs HW=109.31' TW=101.07' (Dynamic Tailwater)

↳ **1=Culvert** (Inlet Controls 0.40 cfs @ 1.90 fps)



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## Summary for Pond 3P: DMH-7

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 3.39" for 2 Year event  
 Inflow = 1.27 cfs @ 12.09 hrs, Volume= 0.103 af  
 Outflow = 1.27 cfs @ 12.09 hrs, Volume= 0.103 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.27 cfs @ 12.09 hrs, Volume= 0.103 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 117.21' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	116.40'	<b>12.0" Round Culvert</b> L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.40' / 116.40' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.24 cfs @ 12.09 hrs HW=117.20' TW=116.65' (Dynamic Tailwater)  
 ←1=Culvert (Barrel Controls 1.24 cfs @ 2.51 fps)

## Summary for Pond 4P: INFIL-8

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 3.39" for 2 Year event  
 Inflow = 1.27 cfs @ 12.09 hrs, Volume= 0.103 af  
 Outflow = 0.82 cfs @ 12.20 hrs, Volume= 0.066 af, Atten= 36%, Lag= 6.5 min  
 Discarded = 0.01 cfs @ 5.45 hrs, Volume= 0.015 af  
 Primary = 0.81 cfs @ 12.20 hrs, Volume= 0.051 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 116.84' @ 12.20 hrs Surf.Area= 0.030 ac Storage= 0.044 af

Plug-Flow detention time= 164.7 min calculated for 0.066 af (64% of inflow)  
 Center-of-Mass det. time= 67.8 min ( 814.5 - 746.8 )

Volume	Invert	Avail.Storage	Storage Description
#1A	114.60'	0.028 af	<b>15.75'W x 81.94'L x 3.50'H Field A</b> 0.104 af Overall - 0.035 af Embedded = 0.069 af x 40.0% Voids
#2A	115.10'	0.035 af	<b>ADS_StormTech SC-740 +Cap</b> x 33 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 33 Chambers in 3 Rows
		0.062 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.60'	<b>0.300 in/hr Exfiltration over Surface area</b>
#2	Primary	116.43'	<b>12.0" Round Culvert X 2.00</b> L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.43' / 116.43' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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**Discarded OutFlow** Max=0.01 cfs @ 5.45 hrs HW=114.64' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=0.80 cfs @ 12.20 hrs HW=116.83' TW=114.46' (Dynamic Tailwater)

↑**2=Culvert** (Barrel Controls 0.80 cfs @ 1.99 fps)

### Summary for Pond 5P: DMH-8

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 1.67" for 2 Year event  
Inflow = 0.81 cfs @ 12.20 hrs, Volume= 0.051 af  
Outflow = 0.81 cfs @ 12.20 hrs, Volume= 0.051 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.81 cfs @ 12.20 hrs, Volume= 0.051 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 114.46' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.00'	<b>12.0" Round Culvert</b> L= 68.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.00' / 104.00' S= 0.1471 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.80 cfs @ 12.20 hrs HW=114.46' TW=102.33' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 0.80 cfs @ 2.30 fps)

### Summary for Pond 7P: CB-2

Inflow Area = 0.568 ac, 32.92% Impervious, Inflow Depth > 1.26" for 2 Year event  
Inflow = 0.81 cfs @ 12.10 hrs, Volume= 0.060 af  
Outflow = 0.81 cfs @ 12.10 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.81 cfs @ 12.10 hrs, Volume= 0.060 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 108.46' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	108.00'	<b>12.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.00' / 107.50' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.81 cfs @ 12.10 hrs HW=108.46' TW=107.34' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 0.81 cfs @ 2.31 fps)

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## Summary for Pond 8P: DMH-6

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 3.39" for 2 Year event  
Inflow = 1.27 cfs @ 12.09 hrs, Volume= 0.103 af  
Outflow = 1.27 cfs @ 12.09 hrs, Volume= 0.103 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.27 cfs @ 12.09 hrs, Volume= 0.103 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 118.59' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.00'	<b>12.0" Round Culvert</b> L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.00' / 117.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.24 cfs @ 12.09 hrs HW=118.58' TW=117.20' (Dynamic Tailwater)  
↑1=Culvert (Inlet Controls 1.24 cfs @ 2.60 fps)

## Summary for Pond 9P: CB-1

Inflow Area = 0.510 ac, 64.71% Impervious, Inflow Depth > 2.13" for 2 Year event  
Inflow = 1.26 cfs @ 12.09 hrs, Volume= 0.090 af  
Outflow = 1.26 cfs @ 12.09 hrs, Volume= 0.090 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.26 cfs @ 12.09 hrs, Volume= 0.090 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 115.49' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.82'	<b>12.0" Round Culvert</b> L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.82' / 114.68' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.24 cfs @ 12.09 hrs HW=115.48' TW=114.67' (Dynamic Tailwater)  
↑1=Culvert (Barrel Controls 1.24 cfs @ 3.18 fps)

## Summary for Pond 10P: INFIL-7

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 1.89" for 2 Year event  
Inflow = 0.50 cfs @ 12.40 hrs, Volume= 0.102 af  
Outflow = 0.41 cfs @ 12.54 hrs, Volume= 0.083 af, Atten= 19%, Lag= 8.1 min  
Discarded = 0.01 cfs @ 9.25 hrs, Volume= 0.007 af  
Primary = 0.40 cfs @ 12.54 hrs, Volume= 0.076 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 110.87' @ 12.54 hrs Surf.Area= 0.017 ac Storage= 0.024 af

Plug-Flow detention time= 107.9 min calculated for 0.083 af (81% of inflow)  
Center-of-Mass det. time= 45.7 min ( 895.4 - 849.7 )

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Volume	Invert	Avail.Storage	Storage Description
#1A	109.00'	0.015 af	<b>17.12'W x 43.88'L x 4.07'H Field A</b> 0.070 af Overall - 0.034 af Embedded = 0.036 af x 40.0% Voids
#2A	109.25'	0.032 af	<b>ACF R-Tank HD 2 x 170 Inside #1</b> Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 170 Chambers in 10 Rows
		0.047 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	110.50'	<b>12.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.50' / 110.44' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	109.00'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.01 cfs @ 9.25 hrs HW=109.05' (Free Discharge)

↳ **2=Exfiltration** (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=0.40 cfs @ 12.54 hrs HW=110.86' TW=109.31' (Dynamic Tailwater)

↳ **1=Culvert** (Barrel Controls 0.40 cfs @ 2.29 fps)

**Summary for Pond FP11: FocalPoint #11 (70 SF)**

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 1.89" for 2 Year event  
 Inflow = 1.42 cfs @ 12.09 hrs, Volume= 0.102 af  
 Outflow = 0.50 cfs @ 12.40 hrs, Volume= 0.102 af, Atten= 65%, Lag= 18.5 min  
 Primary = 0.20 cfs @ 11.70 hrs, Volume= 0.095 af  
 Secondary = 0.30 cfs @ 12.40 hrs, Volume= 0.008 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 115.09' @ 12.40 hrs Surf.Area= 88 sf Storage= 1,159 cf

Plug-Flow detention time= 32.9 min calculated for 0.102 af (100% of inflow)  
 Center-of-Mass det. time= 32.8 min ( 849.7 - 816.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	111.95'	40 cf	<b>8.00'W x 11.00'L x 2.25'H FocalPoint</b> 198 cf Overall x 20.0% Voids
#2	114.20'	3,745 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		3,785 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.20	1,033	0	0
116.00	1,913	2,651	2,651
116.50	2,462	1,094	3,745

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Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	<b>8.0" Round Culvert</b> L= 41.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 110.79' S= 0.0051 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	111.95'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	115.00'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.20 cfs @ 11.70 hrs HW=112.16' TW=109.81' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.20 cfs of 1.22 cfs potential flow)

↳ **2=Exfiltration** (Exfiltration Controls 0.20 cfs)

**Secondary OutFlow** Max=0.30 cfs @ 12.40 hrs HW=115.09' TW=110.78' (Dynamic Tailwater)

↳ **3=Orifice/Grate** (Weir Controls 0.30 cfs @ 1.00 fps)

**Summary for Pond FP12: FocalPoint #12 (40 SF)**

Inflow Area =	0.649 ac, 29.89% Impervious, Inflow Depth > 1.21" for 2 Year event
Inflow =	0.88 cfs @ 12.10 hrs, Volume= 0.065 af
Outflow =	0.61 cfs @ 12.22 hrs, Volume= 0.065 af, Atten= 31%, Lag= 7.1 min
Primary =	0.25 cfs @ 11.95 hrs, Volume= 0.060 af
Secondary =	0.36 cfs @ 12.22 hrs, Volume= 0.006 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 107.61' @ 12.22 hrs Surf.Area= 108 sf Storage= 335 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 5.2 min ( 853.5 - 848.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	104.75'	49 cf	<b>9.00'W x 12.00'L x 2.25'H FocalPoint</b> 243 cf Overall x 20.0% Voids
#2	107.00'	1,363 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		1,412 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
107.00	380	0	0
108.00	678	529	529
109.00	990	834	1,363

Device	Routing	Invert	Outlet Devices
#1	Primary	104.00'	<b>8.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 104.00' / 103.50' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	104.75'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	107.50'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

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**Primary OutFlow** Max=0.25 cfs @ 11.95 hrs HW=105.07' TW=101.94' (Dynamic Tailwater)

└─**1=Culvert** (Passes 0.25 cfs of 1.44 cfs potential flow)

└─**2=Exfiltration** (Exfiltration Controls 0.25 cfs)

**Secondary OutFlow** Max=0.32 cfs @ 12.22 hrs HW=107.60' TW=102.40' (Dynamic Tailwater)

└─**3=Orifice/Grate** (Weir Controls 0.32 cfs @ 1.03 fps)

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**Summary for Subcatchment D1: Bypass Basins**

Runoff = 1.61 cfs @ 12.20 hrs, Volume= 0.152 af, Depth&gt; 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

Area (ac)	CN	Description
0.762	55	Woods, Good, HSG B
0.305	70	Woods, Good, HSG C
0.055	61	>75% Grass cover, Good, HSG B
0.011	82	Dirt roads, HSG B
1.133	60	Weighted Average
1.133		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	71	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	88	0.1700	6.64		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
3.1	551	0.0380	2.92		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
12.9	735	Total			

**Summary for Subcatchment D2: Basin Area**

Runoff = 0.37 cfs @ 12.10 hrs, Volume= 0.028 af, Depth&gt; 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

Area (ac)	CN	Description
0.199	61	>75% Grass cover, Good, HSG B
0.199		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D3: Top Focal Point 12**

Runoff = 0.19 cfs @ 12.10 hrs, Volume= 0.014 af, Depth&gt; 2.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

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Area (ac)	CN	Description
0.007	98	Paved parking, HSG B
0.012	96	Gravel surface, HSG B
0.062	55	Woods, Good, HSG B
0.081	65	Weighted Average
0.074		91.36% Pervious Area
0.007		8.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D4: To CB-2**

Runoff = 1.79 cfs @ 12.09 hrs, Volume= 0.128 af, Depth> 2.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

Area (ac)	CN	Description
0.187	98	Paved parking, HSG B
0.381	61	>75% Grass cover, Good, HSG B
0.568	73	Weighted Average
0.381		67.08% Pervious Area
0.187		32.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	15	0.5000	0.29		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.18"
2.0	245	0.0160	2.04		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	28	0.4000	10.18		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.7	100	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
2.4					<b>Direct Entry, Adjustment to 6 min</b>
6.0	388	Total			

**Summary for Subcatchment D5: Rooftop**

Runoff = 1.95 cfs @ 12.09 hrs, Volume= 0.161 af, Depth> 5.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"



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Area (ac)	CN	Description
0.365	98	Roofs, HSG B
0.365		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D6: To CB-1**

Runoff = 2.25 cfs @ 12.09 hrs, Volume= 0.164 af, Depth&gt; 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

Area (ac)	CN	Description
0.330	98	Paved parking, HSG B
0.180	61	>75% Grass cover, Good, HSG B
0.510	85	Weighted Average
0.180		35.29% Pervious Area
0.330		64.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D7: To Basin Area**

Runoff = 0.37 cfs @ 12.10 hrs, Volume= 0.027 af, Depth&gt; 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

Area (ac)	CN	Description
0.028	98	Paved parking, HSG B
0.110	61	>75% Grass cover, Good, HSG B
0.138	69	Weighted Average
0.110		79.71% Pervious Area
0.028		20.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

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**Summary for Subcatchment D8: to exist. Focal point (Building. C)**

Runoff = 0.14 cfs @ 12.09 hrs, Volume= 0.011 af, Depth> 5.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

Area (ac)	CN	Description
0.026	98	Paved parking, HSG B
0.026		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D9: Bypass Basins**

Runoff = 2.93 cfs @ 12.35 hrs, Volume= 0.352 af, Depth> 1.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

Area (ac)	CN	Description
0.050	82	Dirt roads, HSG B
2.412	55	Woods, Good, HSG B
0.118	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.361	61	>75% Grass cover, Good, HSG B
3.041	57	Weighted Average
3.041		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.9	257	0.0860	4.72		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	235	0.0550	4.19	4.19	<b>Channel Flow,</b> Area= 1.0 sf Perim= 3.0' r= 0.33' n= 0.040 Mountain streams
10.5	745	0.0020	1.18	3.55	<b>Channel Flow,</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Winding stream, pools & shoals
21.7	1,262	Total			

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## Summary for Reach 5R: Stream Channel

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 3.03" for 10 Year event  
 Inflow = 1.76 cfs @ 12.23 hrs, Volume= 0.164 af  
 Outflow = 1.52 cfs @ 12.32 hrs, Volume= 0.163 af, Atten= 13%, Lag= 5.4 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 1.97 fps, Min. Travel Time= 6.4 min  
 Avg. Velocity = 0.75 fps, Avg. Travel Time= 16.7 min

Peak Storage= 578 cf @ 12.32 hrs  
 Average Depth at Peak Storage= 0.26'  
 Bank-Full Depth= 1.50' Flow Area= 4.5 sf, Capacity= 20.16 cfs

3.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding  
 Length= 750.0' Slope= 0.0120 '/'  
 Inlet Invert= 101.00', Outlet Invert= 92.00'



## Summary for Reach A: Summary Reach

Inflow Area = 6.035 ac, 15.19% Impervious, Inflow Depth > 1.72" for 10 Year event  
 Inflow = 5.95 cfs @ 12.31 hrs, Volume= 0.867 af  
 Outflow = 5.95 cfs @ 12.31 hrs, Volume= 0.867 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

## Summary for Pond 1P: Basin E

Inflow Area = 1.213 ac, 46.08% Impervious, Inflow Depth > 2.74" for 10 Year event  
 Inflow = 4.04 cfs @ 12.12 hrs, Volume= 0.277 af  
 Outflow = 0.41 cfs @ 13.56 hrs, Volume= 0.220 af, Atten= 90%, Lag= 86.5 min  
 Discarded = 0.02 cfs @ 13.56 hrs, Volume= 0.020 af  
 Primary = 0.39 cfs @ 13.56 hrs, Volume= 0.200 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 104.55' @ 13.56 hrs Surf.Area= 3,267 sf Storage= 6,135 cf

Plug-Flow detention time= 229.6 min calculated for 0.220 af (79% of inflow)  
 Center-of-Mass det. time= 160.4 min ( 986.3 - 825.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	101.75'	16,886 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
101.75	1,000	165.0	0	0	1,000
102.00	1,387	180.0	297	297	1,414
104.00	2,863	387.0	4,162	4,459	10,771
106.00	4,468	413.0	7,272	11,731	12,610
107.00	5,875	439.0	5,155	16,886	14,423

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	<b>12.0" Round Culvert</b> L= 33.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.00' / 99.67' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	103.00'	<b>3.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	104.35'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Device 1	106.50'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Discarded	101.75'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.02 cfs @ 13.56 hrs HW=104.55' (Free Discharge)

↳ **5=Exfiltration** (Exfiltration Controls 0.02 cfs)

**Primary OutFlow** Max=0.39 cfs @ 13.56 hrs HW=104.55' TW=0.00' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.39 cfs of 7.61 cfs potential flow)

↳ **2=Orifice/Grate** (Orifice Controls 0.28 cfs @ 5.74 fps)

↳ **3=Orifice/Grate** (Orifice Controls 0.11 cfs @ 1.51 fps)

↳ **4=Orifice/Grate** ( Controls 0.00 cfs)

**Summary for Pond 2P: DMH-5**

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 3.03" for 10 Year event

Inflow = 1.76 cfs @ 12.23 hrs, Volume= 0.164 af

Outflow = 1.76 cfs @ 12.23 hrs, Volume= 0.164 af, Atten= 0%, Lag= 0.0 min

Primary = 1.76 cfs @ 12.23 hrs, Volume= 0.164 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 109.72' @ 12.23 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	109.00'	<b>12.0" Round Culvert</b> L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 109.00' / 106.50' S= 0.1136 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.73 cfs @ 12.23 hrs HW=109.72' TW=101.22' (Dynamic Tailwater)

↳ **1=Culvert** (Inlet Controls 1.73 cfs @ 2.88 fps)

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**Summary for Pond 3P: DMH-7**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 5.29" for 10 Year event  
 Inflow = 1.95 cfs @ 12.09 hrs, Volume= 0.161 af  
 Outflow = 1.95 cfs @ 12.09 hrs, Volume= 0.161 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.95 cfs @ 12.09 hrs, Volume= 0.161 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 117.45' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	116.40'	<b>12.0" Round Culvert</b> L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.40' / 116.40' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.90 cfs @ 12.09 hrs HW=117.44' TW=117.01' (Dynamic Tailwater)  
 ←1=Culvert (Barrel Controls 1.90 cfs @ 2.90 fps)

**Summary for Pond 4P: INFIL-8**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 5.29" for 10 Year event  
 Inflow = 1.95 cfs @ 12.09 hrs, Volume= 0.161 af  
 Outflow = 1.76 cfs @ 12.13 hrs, Volume= 0.123 af, Atten= 10%, Lag= 2.3 min  
 Discarded = 0.01 cfs @ 3.40 hrs, Volume= 0.016 af  
 Primary = 1.75 cfs @ 12.13 hrs, Volume= 0.107 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 117.04' @ 12.13 hrs Surf.Area= 0.030 ac Storage= 0.048 af

Plug-Flow detention time= 139.3 min calculated for 0.123 af (77% of inflow)  
 Center-of-Mass det. time= 60.7 min ( 800.2 - 739.5 )

Volume	Invert	Avail.Storage	Storage Description
#1A	114.60'	0.028 af	<b>15.75'W x 81.94'L x 3.50'H Field A</b> 0.104 af Overall - 0.035 af Embedded = 0.069 af x 40.0% Voids
#2A	115.10'	0.035 af	<b>ADS_StormTech SC-740 +Cap</b> x 33 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 33 Chambers in 3 Rows
		0.062 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.60'	<b>0.300 in/hr Exfiltration over Surface area</b>
#2	Primary	116.43'	<b>12.0" Round Culvert X 2.00</b> L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.43' / 116.43' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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**Discarded OutFlow** Max=0.01 cfs @ 3.40 hrs HW=114.64' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=1.71 cfs @ 12.13 hrs HW=117.04' TW=114.71' (Dynamic Tailwater)

↑2=Culvert (Barrel Controls 1.71 cfs @ 2.47 fps)

### Summary for Pond 5P: DMH-8

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 3.53" for 10 Year event  
Inflow = 1.75 cfs @ 12.13 hrs, Volume= 0.107 af  
Outflow = 1.75 cfs @ 12.13 hrs, Volume= 0.107 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.75 cfs @ 12.13 hrs, Volume= 0.107 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 114.72' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.00'	<b>12.0" Round Culvert</b> L= 68.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.00' / 104.00' S= 0.1471 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.71 cfs @ 12.13 hrs HW=114.71' TW=103.33' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 1.71 cfs @ 2.87 fps)

### Summary for Pond 7P: CB-2

Inflow Area = 0.568 ac, 32.92% Impervious, Inflow Depth > 2.70" for 10 Year event  
Inflow = 1.79 cfs @ 12.09 hrs, Volume= 0.128 af  
Outflow = 1.79 cfs @ 12.09 hrs, Volume= 0.128 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.79 cfs @ 12.09 hrs, Volume= 0.128 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 108.73' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	108.00'	<b>12.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.00' / 107.50' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.76 cfs @ 12.09 hrs HW=108.72' TW=107.79' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 1.76 cfs @ 2.90 fps)

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### Summary for Pond 8P: DMH-6

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 5.29" for 10 Year event  
Inflow = 1.95 cfs @ 12.09 hrs, Volume= 0.161 af  
Outflow = 1.95 cfs @ 12.09 hrs, Volume= 0.161 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.95 cfs @ 12.09 hrs, Volume= 0.161 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 118.77' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.00'	<b>12.0" Round Culvert</b> L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.00' / 117.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.90 cfs @ 12.09 hrs HW=118.76' TW=117.44' (Dynamic Tailwater)  
↑1=Culvert (Inlet Controls 1.90 cfs @ 2.97 fps)

### Summary for Pond 9P: CB-1

Inflow Area = 0.510 ac, 64.71% Impervious, Inflow Depth > 3.86" for 10 Year event  
Inflow = 2.25 cfs @ 12.09 hrs, Volume= 0.164 af  
Outflow = 2.25 cfs @ 12.09 hrs, Volume= 0.164 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.25 cfs @ 12.09 hrs, Volume= 0.164 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 115.79' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.82'	<b>12.0" Round Culvert</b> L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.82' / 114.68' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.20 cfs @ 12.09 hrs HW=115.78' TW=115.21' (Dynamic Tailwater)  
↑1=Culvert (Barrel Controls 2.20 cfs @ 3.64 fps)

### Summary for Pond 10P: INFIL-7

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 3.54" for 10 Year event  
Inflow = 2.08 cfs @ 12.16 hrs, Volume= 0.191 af  
Outflow = 1.76 cfs @ 12.23 hrs, Volume= 0.171 af, Atten= 15%, Lag= 3.9 min  
Discarded = 0.01 cfs @ 7.55 hrs, Volume= 0.007 af  
Primary = 1.76 cfs @ 12.23 hrs, Volume= 0.164 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 111.36' @ 12.23 hrs Surf.Area= 0.017 ac Storage= 0.030 af

Plug-Flow detention time= 73.3 min calculated for 0.171 af (90% of inflow)  
Center-of-Mass det. time= 30.8 min ( 860.9 - 830.1 )

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Volume	Invert	Avail.Storage	Storage Description
#1A	109.00'	0.015 af	<b>17.12'W x 43.88'L x 4.07'H Field A</b> 0.070 af Overall - 0.034 af Embedded = 0.036 af x 40.0% Voids
#2A	109.25'	0.032 af	<b>ACF R-Tank HD 2 x 170 Inside #1</b> Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 170 Chambers in 10 Rows
		0.047 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	110.50'	<b>12.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.50' / 110.44' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	109.00'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.01 cfs @ 7.55 hrs HW=109.04' (Free Discharge)

↳ **2=Exfiltration** (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=1.73 cfs @ 12.23 hrs HW=111.35' TW=109.72' (Dynamic Tailwater)

↳ **1=Culvert** (Barrel Controls 1.73 cfs @ 3.26 fps)

**Summary for Pond FP11: FocalPoint #11 (70 SF)**

Inflow Area =	0.648 ac, 55.25% Impervious, Inflow Depth > 3.54" for 10 Year event
Inflow =	2.62 cfs @ 12.09 hrs, Volume= 0.191 af
Outflow =	2.08 cfs @ 12.16 hrs, Volume= 0.191 af, Atten= 21%, Lag= 4.4 min
Primary =	0.20 cfs @ 11.45 hrs, Volume= 0.137 af
Secondary =	1.88 cfs @ 12.16 hrs, Volume= 0.054 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 115.32' @ 12.17 hrs Surf.Area= 88 sf Storage= 1,507 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 29.3 min ( 830.1 - 800.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	111.95'	40 cf	<b>8.00'W x 11.00'L x 2.25'H FocalPoint</b> 198 cf Overall x 20.0% Voids
#2	114.20'	3,745 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		3,785 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.20	1,033	0	0
116.00	1,913	2,651	2,651
116.50	2,462	1,094	3,745



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Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	<b>8.0" Round Culvert</b> L= 41.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 110.79' S= 0.0051 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	111.95'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	115.00'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.20 cfs @ 11.45 hrs HW=112.14' TW=110.59' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.20 cfs of 1.20 cfs potential flow)

↳ **2=Exfiltration** (Exfiltration Controls 0.20 cfs)

**Secondary OutFlow** Max=1.81 cfs @ 12.16 hrs HW=115.31' TW=111.25' (Dynamic Tailwater)

↳ **3=Orifice/Grate** (Weir Controls 1.81 cfs @ 1.83 fps)

**Summary for Pond FP12: FocalPoint #12 (40 SF)**

Inflow Area =	0.649 ac, 29.89% Impervious, Inflow Depth > 2.61" for 10 Year event
Inflow =	1.97 cfs @ 12.09 hrs, Volume= 0.141 af
Outflow =	1.92 cfs @ 12.12 hrs, Volume= 0.141 af, Atten= 3%, Lag= 1.3 min
Primary =	0.25 cfs @ 11.70 hrs, Volume= 0.101 af
Secondary =	1.67 cfs @ 12.12 hrs, Volume= 0.041 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 107.80' @ 12.12 hrs Surf.Area= 108 sf Storage= 447 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 5.0 min ( 832.0 - 827.0 )

Volume	Invert	Avail.Storage	Storage Description
#1	104.75'	49 cf	<b>9.00'W x 12.00'L x 2.25'H FocalPoint</b> 243 cf Overall x 20.0% Voids
#2	107.00'	1,363 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		1,412 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
107.00	380	0	0
108.00	678	529	529
109.00	990	834	1,363

Device	Routing	Invert	Outlet Devices
#1	Primary	104.00'	<b>8.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 104.00' / 103.50' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	104.75'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	107.50'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

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**Primary OutFlow** Max=0.25 cfs @ 11.70 hrs HW=105.01' TW=102.10' (Dynamic Tailwater)

└─**1=Culvert** (Passes 0.25 cfs of 1.38 cfs potential flow)

└─**2=Exfiltration** (Exfiltration Controls 0.25 cfs)

**Secondary OutFlow** Max=1.61 cfs @ 12.12 hrs HW=107.79' TW=103.28' (Dynamic Tailwater)

└─**3=Orifice/Grate** (Weir Controls 1.61 cfs @ 1.76 fps)

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**Summary for Subcatchment D1: Bypass Basins**

Runoff = 2.73 cfs @ 12.19 hrs, Volume= 0.247 af, Depth&gt; 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

Area (ac)	CN	Description
0.762	55	Woods, Good, HSG B
0.305	70	Woods, Good, HSG C
0.055	61	>75% Grass cover, Good, HSG B
0.011	82	Dirt roads, HSG B
1.133	60	Weighted Average
1.133		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	71	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	88	0.1700	6.64		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
3.1	551	0.0380	2.92		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
12.9	735	Total			

**Summary for Subcatchment D2: Basin Area**

Runoff = 0.62 cfs @ 12.10 hrs, Volume= 0.045 af, Depth&gt; 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

Area (ac)	CN	Description
0.199	61	>75% Grass cover, Good, HSG B
0.199		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D3: Top Focal Point 12**

Runoff = 0.29 cfs @ 12.10 hrs, Volume= 0.021 af, Depth&gt; 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

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Area (ac)	CN	Description
0.007	98	Paved parking, HSG B
0.012	96	Gravel surface, HSG B
0.062	55	Woods, Good, HSG B
0.081	65	Weighted Average
0.074		91.36% Pervious Area
0.007		8.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D4: To CB-2**

Runoff = 2.62 cfs @ 12.09 hrs, Volume= 0.188 af, Depth> 3.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

Area (ac)	CN	Description
0.187	98	Paved parking, HSG B
0.381	61	>75% Grass cover, Good, HSG B
0.568	73	Weighted Average
0.381		67.08% Pervious Area
0.187		32.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	15	0.5000	0.29		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.18"
2.0	245	0.0160	2.04		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	28	0.4000	10.18		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.7	100	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
2.4					<b>Direct Entry, Adjustment to 6 min</b>
6.0	388	Total			

**Summary for Subcatchment D5: Rooftop**

Runoff = 2.48 cfs @ 12.09 hrs, Volume= 0.207 af, Depth> 6.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

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Area (ac)	CN	Description
0.365	98	Roofs, HSG B
0.365		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D6: To CB-1**

Runoff = 3.04 cfs @ 12.09 hrs, Volume= 0.224 af, Depth&gt; 5.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

Area (ac)	CN	Description
0.330	98	Paved parking, HSG B
0.180	61	>75% Grass cover, Good, HSG B
0.510	85	Weighted Average
0.180		35.29% Pervious Area
0.330		64.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D7: To Basin Area**

Runoff = 0.57 cfs @ 12.09 hrs, Volume= 0.041 af, Depth&gt; 3.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

Area (ac)	CN	Description
0.028	98	Paved parking, HSG B
0.110	61	>75% Grass cover, Good, HSG B
0.138	69	Weighted Average
0.110		79.71% Pervious Area
0.028		20.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

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**Summary for Subcatchment D8: to exist. Focal point (Building. C)**

Runoff = 0.18 cfs @ 12.09 hrs, Volume= 0.015 af, Depth> 6.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

Area (ac)	CN	Description
0.026	98	Paved parking, HSG B
0.026		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D9: Bypass Basins**

Runoff = 5.23 cfs @ 12.32 hrs, Volume= 0.589 af, Depth> 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

Area (ac)	CN	Description
0.050	82	Dirt roads, HSG B
2.412	55	Woods, Good, HSG B
0.118	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.361	61	>75% Grass cover, Good, HSG B
3.041	57	Weighted Average
3.041		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.9	257	0.0860	4.72		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	235	0.0550	4.19	4.19	<b>Channel Flow,</b> Area= 1.0 sf Perim= 3.0' r= 0.33' n= 0.040 Mountain streams
10.5	745	0.0020	1.18	3.55	<b>Channel Flow,</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Winding stream, pools & shoals
21.7	1,262	Total			

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## Summary for Reach 5R: Stream Channel

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 4.40" for 25 Year event  
 Inflow = 2.69 cfs @ 12.22 hrs, Volume= 0.237 af  
 Outflow = 2.51 cfs @ 12.29 hrs, Volume= 0.236 af, Atten= 7%, Lag= 3.9 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 2.36 fps, Min. Travel Time= 5.3 min  
 Avg. Velocity = 0.84 fps, Avg. Travel Time= 15.0 min

Peak Storage= 797 cf @ 12.29 hrs  
 Average Depth at Peak Storage= 0.35'  
 Bank-Full Depth= 1.50' Flow Area= 4.5 sf, Capacity= 20.16 cfs

3.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding  
 Length= 750.0' Slope= 0.0120 '/'  
 Inlet Invert= 101.00', Outlet Invert= 92.00'



## Summary for Reach A: Summary Reach

Inflow Area = 6.035 ac, 15.19% Impervious, Inflow Depth > 2.77" for 25 Year event  
 Inflow = 10.70 cfs @ 12.29 hrs, Volume= 1.391 af  
 Outflow = 10.70 cfs @ 12.29 hrs, Volume= 1.391 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

## Summary for Pond 1P: Basin E

Inflow Area = 1.213 ac, 46.08% Impervious, Inflow Depth > 4.02" for 25 Year event  
 Inflow = 5.63 cfs @ 12.12 hrs, Volume= 0.406 af  
 Outflow = 1.06 cfs @ 12.62 hrs, Volume= 0.341 af, Atten= 81%, Lag= 29.9 min  
 Discarded = 0.03 cfs @ 12.62 hrs, Volume= 0.022 af  
 Primary = 1.04 cfs @ 12.62 hrs, Volume= 0.319 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 105.15' @ 12.62 hrs Surf.Area= 3,742 sf Storage= 8,244 cf

Plug-Flow detention time= 183.2 min calculated for 0.340 af (84% of inflow)  
 Center-of-Mass det. time= 124.5 min ( 940.8 - 816.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	101.75'	16,886 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
101.75	1,000	165.0	0	0	1,000
102.00	1,387	180.0	297	297	1,414
104.00	2,863	387.0	4,162	4,459	10,771
106.00	4,468	413.0	7,272	11,731	12,610
107.00	5,875	439.0	5,155	16,886	14,423

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	<b>12.0" Round Culvert</b> L= 33.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.00' / 99.67' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	103.00'	<b>3.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	104.35'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Device 1	106.50'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Discarded	101.75'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.03 cfs @ 12.62 hrs HW=105.15' (Free Discharge)

↳ **5=Exfiltration** (Exfiltration Controls 0.03 cfs)

**Primary OutFlow** Max=1.04 cfs @ 12.62 hrs HW=105.15' TW=0.00' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 1.04 cfs of 8.15 cfs potential flow)  
 ↳ **2=Orifice/Grate** (Orifice Controls 0.34 cfs @ 6.85 fps)  
 ↳ **3=Orifice/Grate** (Orifice Controls 0.70 cfs @ 3.57 fps)  
 ↳ **4=Orifice/Grate** ( Controls 0.00 cfs)

**Summary for Pond 2P: DMH-5**

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 4.40" for 25 Year event  
 Inflow = 2.69 cfs @ 12.22 hrs, Volume= 0.237 af  
 Outflow = 2.69 cfs @ 12.22 hrs, Volume= 0.237 af, Atten= 0%, Lag= 0.0 min  
 Primary = 2.69 cfs @ 12.22 hrs, Volume= 0.237 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 110.01' @ 12.22 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	109.00'	<b>12.0" Round Culvert</b> L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 109.00' / 106.50' S= 0.1136 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.67 cfs @ 12.22 hrs HW=110.00' TW=101.33' (Dynamic Tailwater)

↳ **1=Culvert** (Inlet Controls 2.67 cfs @ 3.40 fps)



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**Summary for Pond 3P: DMH-7**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 6.79" for 25 Year event  
 Inflow = 2.48 cfs @ 12.09 hrs, Volume= 0.207 af  
 Outflow = 2.48 cfs @ 12.09 hrs, Volume= 0.207 af, Atten= 0%, Lag= 0.0 min  
 Primary = 2.48 cfs @ 12.09 hrs, Volume= 0.207 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 117.68' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	116.40'	<b>12.0" Round Culvert</b> L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.40' / 116.40' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.42 cfs @ 12.09 hrs HW=117.65' TW=117.11' (Dynamic Tailwater)  
 ←1=Culvert (Barrel Controls 2.42 cfs @ 3.16 fps)

**Summary for Pond 4P: INFIL-8**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 6.79" for 25 Year event  
 Inflow = 2.48 cfs @ 12.09 hrs, Volume= 0.207 af  
 Outflow = 2.29 cfs @ 12.12 hrs, Volume= 0.169 af, Atten= 8%, Lag= 2.1 min  
 Discarded = 0.01 cfs @ 2.50 hrs, Volume= 0.016 af  
 Primary = 2.29 cfs @ 12.12 hrs, Volume= 0.153 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 117.14' @ 12.12 hrs Surf.Area= 0.030 ac Storage= 0.050 af

Plug-Flow detention time= 126.1 min calculated for 0.169 af (82% of inflow)  
 Center-of-Mass det. time= 58.2 min ( 794.4 - 736.2 )

Volume	Invert	Avail.Storage	Storage Description
#1A	114.60'	0.028 af	<b>15.75'W x 81.94'L x 3.50'H Field A</b> 0.104 af Overall - 0.035 af Embedded = 0.069 af x 40.0% Voids
#2A	115.10'	0.035 af	<b>ADS_StormTech SC-740 +Cap</b> x 33 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 33 Chambers in 3 Rows
		0.062 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.60'	<b>0.300 in/hr Exfiltration over Surface area</b>
#2	Primary	116.43'	<b>12.0" Round Culvert X 2.00</b> L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.43' / 116.43' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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**Discarded OutFlow** Max=0.01 cfs @ 2.50 hrs HW=114.64' (Free Discharge)

↳ **1=Exfiltration** (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=2.22 cfs @ 12.12 hrs HW=117.13' TW=114.85' (Dynamic Tailwater)

↳ **2=Culvert** (Barrel Controls 2.22 cfs @ 2.66 fps)

## Summary for Pond 5P: DMH-8

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 5.02" for 25 Year event  
Inflow = 2.29 cfs @ 12.12 hrs, Volume= 0.153 af  
Outflow = 2.29 cfs @ 12.12 hrs, Volume= 0.153 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.29 cfs @ 12.12 hrs, Volume= 0.153 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 114.86' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.00'	<b>12.0" Round Culvert</b> L= 68.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.00' / 104.00' S= 0.1471 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.22 cfs @ 12.12 hrs HW=114.85' TW=104.14' (Dynamic Tailwater)

↳ **1=Culvert** (Inlet Controls 2.22 cfs @ 3.13 fps)

## Summary for Pond 7P: CB-2

Inflow Area = 0.568 ac, 32.92% Impervious, Inflow Depth > 3.96" for 25 Year event  
Inflow = 2.62 cfs @ 12.09 hrs, Volume= 0.188 af  
Outflow = 2.62 cfs @ 12.09 hrs, Volume= 0.188 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.62 cfs @ 12.09 hrs, Volume= 0.188 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 108.97' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	108.00'	<b>12.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.00' / 107.50' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.58 cfs @ 12.09 hrs HW=108.96' TW=107.90' (Dynamic Tailwater)

↳ **1=Culvert** (Inlet Controls 2.58 cfs @ 3.33 fps)

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**Summary for Pond 8P: DMH-6**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 6.79" for 25 Year event  
 Inflow = 2.48 cfs @ 12.09 hrs, Volume= 0.207 af  
 Outflow = 2.48 cfs @ 12.09 hrs, Volume= 0.207 af, Atten= 0%, Lag= 0.0 min  
 Primary = 2.48 cfs @ 12.09 hrs, Volume= 0.207 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 118.92' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.00'	<b>12.0" Round Culvert</b> L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.00' / 117.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.42 cfs @ 12.09 hrs HW=118.90' TW=117.65' (Dynamic Tailwater)  
 ↑1=Culvert (Inlet Controls 2.42 cfs @ 3.24 fps)

**Summary for Pond 9P: CB-1**

Inflow Area = 0.510 ac, 64.71% Impervious, Inflow Depth > 5.28" for 25 Year event  
 Inflow = 3.04 cfs @ 12.09 hrs, Volume= 0.224 af  
 Outflow = 3.04 cfs @ 12.09 hrs, Volume= 0.224 af, Atten= 0%, Lag= 0.0 min  
 Primary = 3.04 cfs @ 12.09 hrs, Volume= 0.224 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 116.07' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.82'	<b>12.0" Round Culvert</b> L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.82' / 114.68' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.97 cfs @ 12.09 hrs HW=116.04' TW=115.42' (Dynamic Tailwater)  
 ↑1=Culvert (Barrel Controls 2.97 cfs @ 3.94 fps)

**Summary for Pond 10P: INFIL-7**

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 4.91" for 25 Year event  
 Inflow = 2.85 cfs @ 12.15 hrs, Volume= 0.265 af  
 Outflow = 2.70 cfs @ 12.22 hrs, Volume= 0.245 af, Atten= 5%, Lag= 3.9 min  
 Discarded = 0.01 cfs @ 6.50 hrs, Volume= 0.008 af  
 Primary = 2.69 cfs @ 12.22 hrs, Volume= 0.237 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 111.66' @ 12.22 hrs Surf.Area= 0.017 ac Storage= 0.034 af

Plug-Flow detention time= 59.6 min calculated for 0.245 af (92% of inflow)  
 Center-of-Mass det. time= 26.3 min ( 846.2 - 820.0 )

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Volume	Invert	Avail.Storage	Storage Description
#1A	109.00'	0.015 af	<b>17.12'W x 43.88'L x 4.07'H Field A</b> 0.070 af Overall - 0.034 af Embedded = 0.036 af x 40.0% Voids
#2A	109.25'	0.032 af	<b>ACF R-Tank HD 2 x 170 Inside #1</b> Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 170 Chambers in 10 Rows
		0.047 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	110.50'	<b>12.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.50' / 110.44' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	109.00'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.01 cfs @ 6.50 hrs HW=109.04' (Free Discharge)

↳ **2=Exfiltration** (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=2.67 cfs @ 12.22 hrs HW=111.65' TW=110.00' (Dynamic Tailwater)

↳ **1=Culvert** (Barrel Controls 2.67 cfs @ 3.69 fps)

**Summary for Pond FP11: FocalPoint #11 (70 SF)**

Inflow Area =	0.648 ac, 55.25% Impervious, Inflow Depth > 4.91" for 25 Year event
Inflow =	3.61 cfs @ 12.09 hrs, Volume= 0.265 af
Outflow =	2.85 cfs @ 12.15 hrs, Volume= 0.265 af, Atten= 21%, Lag= 3.9 min
Primary =	0.20 cfs @ 11.10 hrs, Volume= 0.166 af
Secondary =	2.65 cfs @ 12.15 hrs, Volume= 0.099 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 115.49' @ 12.15 hrs Surf.Area= 88 sf Storage= 1,779 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 27.5 min ( 820.0 - 792.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	111.95'	40 cf	<b>8.00'W x 11.00'L x 2.25'H FocalPoint</b> 198 cf Overall x 20.0% Voids
#2	114.20'	3,745 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		3,785 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.20	1,033	0	0
116.00	1,913	2,651	2,651
116.50	2,462	1,094	3,745

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Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	<b>8.0" Round Culvert</b> L= 41.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 110.79' S= 0.0051 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	111.95'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	115.00'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.20 cfs @ 11.10 hrs HW=112.09' TW=110.74' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.20 cfs of 1.16 cfs potential flow)

↳ **2=Exfiltration** (Exfiltration Controls 0.20 cfs)

**Secondary OutFlow** Max=2.64 cfs @ 12.15 hrs HW=115.49' TW=111.60' (Dynamic Tailwater)

↳ **3=Orifice/Grate** (Orifice Controls 2.64 cfs @ 3.36 fps)

**Summary for Pond FP12: FocalPoint #12 (40 SF)**

Inflow Area =	0.649 ac, 29.89% Impervious, Inflow Depth > 3.86" for 25 Year event
Inflow =	2.92 cfs @ 12.09 hrs, Volume= 0.209 af
Outflow =	2.74 cfs @ 12.12 hrs, Volume= 0.209 af, Atten= 6%, Lag= 1.7 min
Primary =	0.25 cfs @ 11.60 hrs, Volume= 0.132 af
Secondary =	2.49 cfs @ 12.12 hrs, Volume= 0.077 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 107.92' @ 12.12 hrs Surf.Area= 108 sf Storage= 527 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 5.3 min ( 821.7 - 816.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	104.75'	49 cf	<b>9.00'W x 12.00'L x 2.25'H FocalPoint</b> 243 cf Overall x 20.0% Voids
#2	107.00'	1,363 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		1,412 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
107.00	380	0	0
108.00	678	529	529
109.00	990	834	1,363

Device	Routing	Invert	Outlet Devices
#1	Primary	104.00'	<b>8.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 104.00' / 103.50' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	104.75'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	107.50'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

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**Primary OutFlow** Max=0.25 cfs @ 11.60 hrs HW=105.00' TW=102.56' (Dynamic Tailwater)

└─**1=Culvert** (Passes 0.25 cfs of 1.38 cfs potential flow)

└─**2=Exfiltration** (Exfiltration Controls 0.25 cfs)

**Secondary OutFlow** Max=2.43 cfs @ 12.12 hrs HW=107.91' TW=104.15' (Dynamic Tailwater)

└─**3=Orifice/Grate** (Orifice Controls 2.43 cfs @ 3.09 fps)

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## Summary for Subcatchment D1: Bypass Basins

Runoff = 3.87 cfs @ 12.19 hrs, Volume= 0.345 af, Depth> 3.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

Area (ac)	CN	Description
0.762	55	Woods, Good, HSG B
0.305	70	Woods, Good, HSG C
0.055	61	>75% Grass cover, Good, HSG B
0.011	82	Dirt roads, HSG B
1.133	60	Weighted Average
1.133		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	71	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	88	0.1700	6.64		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
3.1	551	0.0380	2.92		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
12.9	735	Total			

## Summary for Subcatchment D2: Basin Area

Runoff = 0.87 cfs @ 12.10 hrs, Volume= 0.063 af, Depth> 3.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

Area (ac)	CN	Description
0.199	61	>75% Grass cover, Good, HSG B
0.199		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

## Summary for Subcatchment D3: Top Focal Point 12

Runoff = 0.40 cfs @ 12.09 hrs, Volume= 0.029 af, Depth> 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

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Area (ac)	CN	Description
0.007	98	Paved parking, HSG B
0.012	96	Gravel surface, HSG B
0.062	55	Woods, Good, HSG B
0.081	65	Weighted Average
0.074		91.36% Pervious Area
0.007		8.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D4: To CB-2**

Runoff = 3.43 cfs @ 12.09 hrs, Volume= 0.246 af, Depth> 5.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

Area (ac)	CN	Description
0.187	98	Paved parking, HSG B
0.381	61	>75% Grass cover, Good, HSG B
0.568	73	Weighted Average
0.381		67.08% Pervious Area
0.187		32.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	15	0.5000	0.29		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.18"
2.0	245	0.0160	2.04		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	28	0.4000	10.18		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.7	100	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
2.4					<b>Direct Entry, Adjustment to 6 min</b>
6.0	388	Total			

**Summary for Subcatchment D5: Rooftop**

Runoff = 2.98 cfs @ 12.09 hrs, Volume= 0.249 af, Depth> 8.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"



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Area (ac)	CN	Description
0.365	98	Roofs, HSG B
0.365		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D6: To CB-1**

Runoff = 3.77 cfs @ 12.09 hrs, Volume= 0.282 af, Depth&gt; 6.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

Area (ac)	CN	Description
0.330	98	Paved parking, HSG B
0.180	61	>75% Grass cover, Good, HSG B
0.510	85	Weighted Average
0.180		35.29% Pervious Area
0.330		64.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D7: To Basin Area**

Runoff = 0.76 cfs @ 12.09 hrs, Volume= 0.054 af, Depth&gt; 4.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

Area (ac)	CN	Description
0.028	98	Paved parking, HSG B
0.110	61	>75% Grass cover, Good, HSG B
0.138	69	Weighted Average
0.110		79.71% Pervious Area
0.028		20.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

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**Summary for Subcatchment D8: to exist. Focal point (Building. C)**

Runoff = 0.21 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 8.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

Area (ac)	CN	Description
0.026	98	Paved parking, HSG B
0.026		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D9: Bypass Basins**

Runoff = 7.63 cfs @ 12.32 hrs, Volume= 0.837 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

Area (ac)	CN	Description
0.050	82	Dirt roads, HSG B
2.412	55	Woods, Good, HSG B
0.118	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.361	61	>75% Grass cover, Good, HSG B
3.041	57	Weighted Average
3.041		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.9	257	0.0860	4.72		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	235	0.0550	4.19	4.19	<b>Channel Flow,</b> Area= 1.0 sf Perim= 3.0' r= 0.33' n= 0.040 Mountain streams
10.5	745	0.0020	1.18	3.55	<b>Channel Flow,</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Winding stream, pools & shoals
21.7	1,262	Total			

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## Summary for Reach 5R: Stream Channel

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 5.71" for 50 Year event  
 Inflow = 3.16 cfs @ 12.24 hrs, Volume= 0.308 af  
 Outflow = 3.06 cfs @ 12.30 hrs, Volume= 0.307 af, Atten= 3%, Lag= 3.6 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 2.53 fps, Min. Travel Time= 4.9 min  
 Avg. Velocity = 0.90 fps, Avg. Travel Time= 13.9 min

Peak Storage= 908 cf @ 12.30 hrs  
 Average Depth at Peak Storage= 0.40'  
 Bank-Full Depth= 1.50' Flow Area= 4.5 sf, Capacity= 20.16 cfs

3.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding  
 Length= 750.0' Slope= 0.0120 '/'  
 Inlet Invert= 101.00', Outlet Invert= 92.00'



## Summary for Reach A: Summary Reach

Inflow Area = 6.035 ac, 15.19% Impervious, Inflow Depth > 3.82" for 50 Year event  
 Inflow = 15.04 cfs @ 12.28 hrs, Volume= 1.924 af  
 Outflow = 15.04 cfs @ 12.28 hrs, Volume= 1.924 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

## Summary for Pond 1P: Basin E

Inflow Area = 1.213 ac, 46.08% Impervious, Inflow Depth > 5.27" for 50 Year event  
 Inflow = 6.92 cfs @ 12.12 hrs, Volume= 0.533 af  
 Outflow = 1.44 cfs @ 12.59 hrs, Volume= 0.459 af, Atten= 79%, Lag= 28.1 min  
 Discarded = 0.03 cfs @ 12.59 hrs, Volume= 0.024 af  
 Primary = 1.41 cfs @ 12.59 hrs, Volume= 0.435 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 105.78' @ 12.59 hrs Surf.Area= 4,274 sf Storage= 10,770 cf

Plug-Flow detention time= 163.1 min calculated for 0.458 af (86% of inflow)  
 Center-of-Mass det. time= 109.8 min ( 919.2 - 809.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	101.75'	16,886 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
101.75	1,000	165.0	0	0	1,000
102.00	1,387	180.0	297	297	1,414
104.00	2,863	387.0	4,162	4,459	10,771
106.00	4,468	413.0	7,272	11,731	12,610
107.00	5,875	439.0	5,155	16,886	14,423

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	<b>12.0" Round Culvert</b> L= 33.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.00' / 99.67' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	103.00'	<b>3.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	104.35'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Device 1	106.50'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Discarded	101.75'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.03 cfs @ 12.59 hrs HW=105.78' (Free Discharge)

↳ **5=Exfiltration** (Exfiltration Controls 0.03 cfs)

**Primary OutFlow** Max=1.41 cfs @ 12.59 hrs HW=105.78' TW=0.00' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 1.41 cfs of 8.69 cfs potential flow)

↳ **2=Orifice/Grate** (Orifice Controls 0.39 cfs @ 7.84 fps)

↳ **3=Orifice/Grate** (Orifice Controls 1.03 cfs @ 5.23 fps)

↳ **4=Orifice/Grate** ( Controls 0.00 cfs)

**Summary for Pond 2P: DMH-5**

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 5.71" for 50 Year event

Inflow = 3.16 cfs @ 12.24 hrs, Volume= 0.308 af

Outflow = 3.16 cfs @ 12.24 hrs, Volume= 0.308 af, Atten= 0%, Lag= 0.0 min

Primary = 3.16 cfs @ 12.24 hrs, Volume= 0.308 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 110.20' @ 12.24 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	109.00'	<b>12.0" Round Culvert</b> L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 109.00' / 106.50' S= 0.1136 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.15 cfs @ 12.24 hrs HW=110.19' TW=101.39' (Dynamic Tailwater)

↳ **1=Culvert** (Inlet Controls 3.15 cfs @ 4.01 fps)

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**Summary for Pond 3P: DMH-7**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 8.19" for 50 Year event  
 Inflow = 2.98 cfs @ 12.09 hrs, Volume= 0.249 af  
 Outflow = 2.98 cfs @ 12.09 hrs, Volume= 0.249 af, Atten= 0%, Lag= 0.0 min  
 Primary = 2.98 cfs @ 12.09 hrs, Volume= 0.249 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 117.88' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	116.40'	<b>12.0" Round Culvert</b> L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.40' / 116.40' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.90 cfs @ 12.09 hrs HW=117.85' TW=117.19' (Dynamic Tailwater)  
 ←1=Culvert (Barrel Controls 2.90 cfs @ 3.70 fps)

**Summary for Pond 4P: INFIL-8**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 8.19" for 50 Year event  
 Inflow = 2.98 cfs @ 12.09 hrs, Volume= 0.249 af  
 Outflow = 2.79 cfs @ 12.12 hrs, Volume= 0.211 af, Atten= 7%, Lag= 1.9 min  
 Discarded = 0.01 cfs @ 1.95 hrs, Volume= 0.016 af  
 Primary = 2.78 cfs @ 12.12 hrs, Volume= 0.195 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 117.23' @ 12.12 hrs Surf.Area= 0.030 ac Storage= 0.051 af

Plug-Flow detention time= 116.4 min calculated for 0.211 af (85% of inflow)  
 Center-of-Mass det. time= 55.6 min ( 789.6 - 734.1 )

Volume	Invert	Avail.Storage	Storage Description
#1A	114.60'	0.028 af	<b>15.75'W x 81.94'L x 3.50'H Field A</b> 0.104 af Overall - 0.035 af Embedded = 0.069 af x 40.0% Voids
#2A	115.10'	0.035 af	<b>ADS_StormTech SC-740 +Cap</b> x 33 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 33 Chambers in 3 Rows
		0.062 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.60'	<b>0.300 in/hr Exfiltration over Surface area</b>
#2	Primary	116.43'	<b>12.0" Round Culvert X 2.00</b> L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.43' / 116.43' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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**Discarded OutFlow** Max=0.01 cfs @ 1.95 hrs HW=114.64' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=2.70 cfs @ 12.12 hrs HW=117.21' TW=115.01' (Dynamic Tailwater)

↑2=Culvert (Barrel Controls 2.70 cfs @ 2.82 fps)

### Summary for Pond 5P: DMH-8

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 6.41" for 50 Year event  
Inflow = 2.78 cfs @ 12.12 hrs, Volume= 0.195 af  
Outflow = 2.78 cfs @ 12.12 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.78 cfs @ 12.12 hrs, Volume= 0.195 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 115.04' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.00'	<b>12.0" Round Culvert</b> L= 68.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.00' / 104.00' S= 0.1471 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.70 cfs @ 12.12 hrs HW=115.01' TW=104.76' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 2.70 cfs @ 3.43 fps)

### Summary for Pond 7P: CB-2

Inflow Area = 0.568 ac, 32.92% Impervious, Inflow Depth > 5.20" for 50 Year event  
Inflow = 3.43 cfs @ 12.09 hrs, Volume= 0.246 af  
Outflow = 3.43 cfs @ 12.09 hrs, Volume= 0.246 af, Atten= 0%, Lag= 0.0 min  
Primary = 3.43 cfs @ 12.09 hrs, Volume= 0.246 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 109.32' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	108.00'	<b>12.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.00' / 107.50' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.36 cfs @ 12.09 hrs HW=109.29' TW=108.08' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 3.36 cfs @ 4.28 fps)

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### Summary for Pond 8P: DMH-6

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 8.19" for 50 Year event  
Inflow = 2.98 cfs @ 12.09 hrs, Volume= 0.249 af  
Outflow = 2.98 cfs @ 12.09 hrs, Volume= 0.249 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.98 cfs @ 12.09 hrs, Volume= 0.249 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 119.12' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.00'	<b>12.0" Round Culvert</b> L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.00' / 117.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.90 cfs @ 12.09 hrs HW=119.09' TW=117.85' (Dynamic Tailwater)  
↑1=Culvert (Inlet Controls 2.90 cfs @ 3.70 fps)

### Summary for Pond 9P: CB-1

Inflow Area = 0.510 ac, 64.71% Impervious, Inflow Depth > 6.64" for 50 Year event  
Inflow = 3.77 cfs @ 12.09 hrs, Volume= 0.282 af  
Outflow = 3.77 cfs @ 12.09 hrs, Volume= 0.282 af, Atten= 0%, Lag= 0.0 min  
Primary = 3.77 cfs @ 12.09 hrs, Volume= 0.282 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 116.42' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.82'	<b>12.0" Round Culvert</b> L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.82' / 114.68' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.44 cfs @ 12.09 hrs HW=116.39' TW=115.56' (Dynamic Tailwater)  
↑1=Culvert (Inlet Controls 3.44 cfs @ 4.38 fps)

### Summary for Pond 10P: INFIL-7

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 6.23" for 50 Year event  
Inflow = 3.34 cfs @ 12.17 hrs, Volume= 0.336 af  
Outflow = 3.17 cfs @ 12.24 hrs, Volume= 0.316 af, Atten= 5%, Lag= 4.5 min  
Discarded = 0.01 cfs @ 5.65 hrs, Volume= 0.008 af  
Primary = 3.16 cfs @ 12.24 hrs, Volume= 0.308 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 111.87' @ 12.24 hrs Surf.Area= 0.017 ac Storage= 0.037 af

Plug-Flow detention time= 51.9 min calculated for 0.316 af (94% of inflow)  
Center-of-Mass det. time= 23.6 min ( 836.2 - 812.6 )

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Volume	Invert	Avail.Storage	Storage Description
#1A	109.00'	0.015 af	<b>17.12'W x 43.88'L x 4.07'H Field A</b> 0.070 af Overall - 0.034 af Embedded = 0.036 af x 40.0% Voids
#2A	109.25'	0.032 af	<b>ACF R-Tank HD 2 x 170 Inside #1</b> Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 170 Chambers in 10 Rows
		0.047 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	110.50'	<b>12.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.50' / 110.44' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	109.00'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.01 cfs @ 5.65 hrs HW=109.04' (Free Discharge)

↳ **2=Exfiltration** (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=3.15 cfs @ 12.24 hrs HW=111.86' TW=110.19' (Dynamic Tailwater)

↳ **1=Culvert** (Barrel Controls 3.15 cfs @ 4.01 fps)

**Summary for Pond FP11: FocalPoint #11 (70 SF)**

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 6.23" for 50 Year event  
 Inflow = 4.53 cfs @ 12.09 hrs, Volume= 0.336 af  
 Outflow = 3.34 cfs @ 12.17 hrs, Volume= 0.336 af, Atten= 26%, Lag= 4.6 min  
 Primary = 0.20 cfs @ 10.60 hrs, Volume= 0.189 af  
 Secondary = 3.13 cfs @ 12.17 hrs, Volume= 0.147 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 115.69' @ 12.17 hrs Surf.Area= 88 sf Storage= 2,113 cf

Plug-Flow detention time= 26.3 min calculated for 0.336 af (100% of inflow)  
 Center-of-Mass det. time= 26.3 min ( 812.6 - 786.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	111.95'	40 cf	<b>8.00'W x 11.00'L x 2.25'H FocalPoint</b> 198 cf Overall x 20.0% Voids
#2	114.20'	3,745 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		3,785 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.20	1,033	0	0
116.00	1,913	2,651	2,651
116.50	2,462	1,094	3,745



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Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	<b>8.0" Round Culvert</b> L= 41.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 110.79' S= 0.0051 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	111.95'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	115.00'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.20 cfs @ 10.60 hrs HW=112.13' TW=110.74' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.20 cfs of 1.19 cfs potential flow)

↳ **2=Exfiltration** (Exfiltration Controls 0.20 cfs)

**Secondary OutFlow** Max=3.10 cfs @ 12.17 hrs HW=115.67' TW=111.79' (Dynamic Tailwater)

↳ **3=Orifice/Grate** (Orifice Controls 3.10 cfs @ 3.95 fps)

**Summary for Pond FP12: FocalPoint #12 (40 SF)**

Inflow Area =	0.649 ac, 29.89% Impervious, Inflow Depth > 5.08" for 50 Year event
Inflow =	3.83 cfs @ 12.09 hrs, Volume= 0.275 af
Outflow =	3.33 cfs @ 12.14 hrs, Volume= 0.275 af, Atten= 13%, Lag= 2.8 min
Primary =	0.25 cfs @ 11.35 hrs, Volume= 0.158 af
Secondary =	3.08 cfs @ 12.14 hrs, Volume= 0.116 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 108.16' @ 12.14 hrs Surf.Area= 108 sf Storage= 693 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 5.5 min ( 814.4 - 808.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	104.75'	49 cf	<b>9.00'W x 12.00'L x 2.25'H FocalPoint</b> 243 cf Overall x 20.0% Voids
#2	107.00'	1,363 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		1,412 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
107.00	380	0	0
108.00	678	529	529
109.00	990	834	1,363

Device	Routing	Invert	Outlet Devices
#1	Primary	104.00'	<b>8.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 104.00' / 103.50' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	104.75'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	107.50'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

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**Primary OutFlow** Max=0.25 cfs @ 11.35 hrs HW=104.90' TW=102.82' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.25 cfs of 1.27 cfs potential flow)

↳ **2=Exfiltration** (Exfiltration Controls 0.25 cfs)

**Secondary OutFlow** Max=3.05 cfs @ 12.14 hrs HW=108.15' TW=104.89' (Dynamic Tailwater)

↳ **3=Orifice/Grate** (Orifice Controls 3.05 cfs @ 3.88 fps)

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**Summary for Subcatchment D1: Bypass Basins**

Runoff = 5.34 cfs @ 12.18 hrs, Volume= 0.472 af, Depth&gt; 5.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

Area (ac)	CN	Description
0.762	55	Woods, Good, HSG B
0.305	70	Woods, Good, HSG C
0.055	61	>75% Grass cover, Good, HSG B
0.011	82	Dirt roads, HSG B
1.133	60	Weighted Average
1.133		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	71	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	88	0.1700	6.64		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
3.1	551	0.0380	2.92		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
12.9	735	Total			

**Summary for Subcatchment D2: Basin Area**

Runoff = 1.20 cfs @ 12.09 hrs, Volume= 0.085 af, Depth&gt; 5.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

Area (ac)	CN	Description
0.199	61	>75% Grass cover, Good, HSG B
0.199		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D3: Top Focal Point 12**

Runoff = 0.54 cfs @ 12.09 hrs, Volume= 0.038 af, Depth&gt; 5.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

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Area (ac)	CN	Description
0.007	98	Paved parking, HSG B
0.012	96	Gravel surface, HSG B
0.062	55	Woods, Good, HSG B
0.081	65	Weighted Average
0.074		91.36% Pervious Area
0.007		8.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D4: To CB-2**

Runoff = 4.42 cfs @ 12.09 hrs, Volume= 0.319 af, Depth> 6.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

Area (ac)	CN	Description
0.187	98	Paved parking, HSG B
0.381	61	>75% Grass cover, Good, HSG B
0.568	73	Weighted Average
0.381		67.08% Pervious Area
0.187		32.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	15	0.5000	0.29		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.18"
2.0	245	0.0160	2.04		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	28	0.4000	10.18		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.7	100	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
2.4					<b>Direct Entry, Adjustment to 6 min</b>
6.0	388	Total			

**Summary for Subcatchment D5: Rooftop**

Runoff = 3.59 cfs @ 12.09 hrs, Volume= 0.301 af, Depth> 9.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

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Area (ac)	CN	Description
0.365	98	Roofs, HSG B
0.365		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D6: To CB-1**

Runoff = 4.65 cfs @ 12.09 hrs, Volume= 0.352 af, Depth&gt; 8.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

Area (ac)	CN	Description
0.330	98	Paved parking, HSG B
0.180	61	>75% Grass cover, Good, HSG B
0.510	85	Weighted Average
0.180		35.29% Pervious Area
0.330		64.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D7: To Basin Area**

Runoff = 1.00 cfs @ 12.09 hrs, Volume= 0.072 af, Depth&gt; 6.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

Area (ac)	CN	Description
0.028	98	Paved parking, HSG B
0.110	61	>75% Grass cover, Good, HSG B
0.138	69	Weighted Average
0.110		79.71% Pervious Area
0.028		20.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

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**Summary for Subcatchment D8: to exist. Focal point (Building. C)**

Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 9.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

Area (ac)	CN	Description
0.026	98	Paved parking, HSG B
0.026		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D9: Bypass Basins**

Runoff = 10.75 cfs @ 12.31 hrs, Volume= 1.162 af, Depth> 4.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

Area (ac)	CN	Description
0.050	82	Dirt roads, HSG B
2.412	55	Woods, Good, HSG B
0.118	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.361	61	>75% Grass cover, Good, HSG B
3.041	57	Weighted Average
3.041		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.9	257	0.0860	4.72		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	235	0.0550	4.19	4.19	<b>Channel Flow,</b> Area= 1.0 sf Perim= 3.0' r= 0.33' n= 0.040 Mountain streams
10.5	745	0.0020	1.18	3.55	<b>Channel Flow,</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Winding stream, pools & shoals
21.7	1,262	Total			

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## Summary for Reach 5R: Stream Channel

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 7.32" for 100 Year event  
 Inflow = 3.74 cfs @ 12.24 hrs, Volume= 0.395 af  
 Outflow = 3.65 cfs @ 12.30 hrs, Volume= 0.393 af, Atten= 2%, Lag= 3.5 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 2.68 fps, Min. Travel Time= 4.7 min  
 Avg. Velocity = 0.97 fps, Avg. Travel Time= 12.9 min

Peak Storage= 1,019 cf @ 12.30 hrs  
 Average Depth at Peak Storage= 0.45'  
 Bank-Full Depth= 1.50' Flow Area= 4.5 sf, Capacity= 20.16 cfs

3.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding  
 Length= 750.0' Slope= 0.0120 '/'  
 Inlet Invert= 101.00', Outlet Invert= 92.00'



## Summary for Reach A: Summary Reach

Inflow Area = 6.035 ac, 15.19% Impervious, Inflow Depth > 5.18" for 100 Year event  
 Inflow = 20.30 cfs @ 12.27 hrs, Volume= 2.607 af  
 Outflow = 20.30 cfs @ 12.27 hrs, Volume= 2.607 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

## Summary for Pond 1P: Basin E

Inflow Area = 1.213 ac, 46.08% Impervious, Inflow Depth > 6.82" for 100 Year event  
 Inflow = 8.49 cfs @ 12.12 hrs, Volume= 0.690 af  
 Outflow = 1.77 cfs @ 12.59 hrs, Volume= 0.606 af, Atten= 79%, Lag= 28.1 min  
 Discarded = 0.04 cfs @ 12.59 hrs, Volume= 0.026 af  
 Primary = 1.73 cfs @ 12.59 hrs, Volume= 0.579 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 106.49' @ 12.59 hrs Surf.Area= 5,131 sf Storage= 14,072 cf

Plug-Flow detention time= 152.5 min calculated for 0.604 af (88% of inflow)  
 Center-of-Mass det. time= 103.4 min ( 906.0 - 802.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	101.75'	16,886 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
101.75	1,000	165.0	0	0	1,000
102.00	1,387	180.0	297	297	1,414
104.00	2,863	387.0	4,162	4,459	10,771
106.00	4,468	413.0	7,272	11,731	12,610
107.00	5,875	439.0	5,155	16,886	14,423

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	<b>12.0" Round Culvert</b> L= 33.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.00' / 99.67' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	103.00'	<b>3.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	104.35'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Device 1	106.50'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Discarded	101.75'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.04 cfs @ 12.59 hrs HW=106.49' (Free Discharge)

↳ **5=Exfiltration** (Exfiltration Controls 0.04 cfs)

**Primary OutFlow** Max=1.73 cfs @ 12.59 hrs HW=106.49' TW=0.00' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 1.73 cfs of 9.25 cfs potential flow)  
 ↳ **2=Orifice/Grate** (Orifice Controls 0.43 cfs @ 8.83 fps)  
 ↳ **3=Orifice/Grate** (Orifice Controls 1.30 cfs @ 6.61 fps)  
 ↳ **4=Orifice/Grate** ( Controls 0.00 cfs)

**Summary for Pond 2P: DMH-5**

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 7.32" for 100 Year event  
 Inflow = 3.74 cfs @ 12.24 hrs, Volume= 0.395 af  
 Outflow = 3.74 cfs @ 12.24 hrs, Volume= 0.395 af, Atten= 0%, Lag= 0.0 min  
 Primary = 3.74 cfs @ 12.24 hrs, Volume= 0.395 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 110.48' @ 12.24 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	109.00'	<b>12.0" Round Culvert</b> L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 109.00' / 106.50' S= 0.1136 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.72 cfs @ 12.24 hrs HW=110.47' TW=101.44' (Dynamic Tailwater)

↳ **1=Culvert** (Inlet Controls 3.72 cfs @ 4.74 fps)



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**Summary for Pond 3P: DMH-7**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 9.89" for 100 Year event  
 Inflow = 3.59 cfs @ 12.09 hrs, Volume= 0.301 af  
 Outflow = 3.59 cfs @ 12.09 hrs, Volume= 0.301 af, Atten= 0%, Lag= 0.0 min  
 Primary = 3.59 cfs @ 12.09 hrs, Volume= 0.301 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 118.09' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	116.40'	<b>12.0" Round Culvert</b> L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.40' / 116.40' S= 0.0000 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.32 cfs @ 12.09 hrs HW=118.06' TW=117.29' (Dynamic Tailwater)  
 ↑1=Culvert (Inlet Controls 3.32 cfs @ 4.23 fps)

**Summary for Pond 4P: INFIL-8**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 9.89" for 100 Year event  
 Inflow = 3.59 cfs @ 12.09 hrs, Volume= 0.301 af  
 Outflow = 3.39 cfs @ 12.12 hrs, Volume= 0.263 af, Atten= 5%, Lag= 1.7 min  
 Discarded = 0.01 cfs @ 1.55 hrs, Volume= 0.016 af  
 Primary = 3.38 cfs @ 12.12 hrs, Volume= 0.247 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 117.32' @ 12.12 hrs Surf.Area= 0.030 ac Storage= 0.053 af

Plug-Flow detention time= 107.0 min calculated for 0.263 af (87% of inflow)  
 Center-of-Mass det. time= 52.1 min ( 784.4 - 732.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	114.60'	0.028 af	<b>15.75'W x 81.94'L x 3.50'H Field A</b> 0.104 af Overall - 0.035 af Embedded = 0.069 af x 40.0% Voids
#2A	115.10'	0.035 af	<b>ADS_StormTech SC-740 +Cap</b> x 33 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 33 Chambers in 3 Rows
		0.062 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.60'	<b>0.300 in/hr Exfiltration over Surface area</b>
#2	Primary	116.43'	<b>12.0" Round Culvert X 2.00</b> L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.43' / 116.43' S= 0.0000 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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**Discarded OutFlow** Max=0.01 cfs @ 1.55 hrs HW=114.64' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=3.29 cfs @ 12.12 hrs HW=117.31' TW=115.26' (Dynamic Tailwater)

↑2=Culvert (Barrel Controls 3.29 cfs @ 3.00 fps)

## Summary for Pond 5P: DMH-8

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 8.11" for 100 Year event  
Inflow = 3.38 cfs @ 12.12 hrs, Volume= 0.247 af  
Outflow = 3.38 cfs @ 12.12 hrs, Volume= 0.247 af, Atten= 0%, Lag= 0.0 min  
Primary = 3.38 cfs @ 12.12 hrs, Volume= 0.247 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 115.30' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.00'	<b>12.0" Round Culvert</b> L= 68.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.00' / 104.00' S= 0.1471 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.29 cfs @ 12.12 hrs HW=115.26' TW=105.36' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 3.29 cfs @ 4.19 fps)

## Summary for Pond 7P: CB-2

Inflow Area = 0.568 ac, 32.92% Impervious, Inflow Depth > 6.75" for 100 Year event  
Inflow = 4.42 cfs @ 12.09 hrs, Volume= 0.319 af  
Outflow = 4.42 cfs @ 12.09 hrs, Volume= 0.319 af, Atten= 0%, Lag= 0.0 min  
Primary = 4.42 cfs @ 12.09 hrs, Volume= 0.319 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 109.86' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	108.00'	<b>12.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.00' / 107.50' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=4.32 cfs @ 12.09 hrs HW=109.81' TW=108.34' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 4.32 cfs @ 5.50 fps)

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**Summary for Pond 8P: DMH-6**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 9.89" for 100 Year event  
 Inflow = 3.59 cfs @ 12.09 hrs, Volume= 0.301 af  
 Outflow = 3.59 cfs @ 12.09 hrs, Volume= 0.301 af, Atten= 0%, Lag= 0.0 min  
 Primary = 3.59 cfs @ 12.09 hrs, Volume= 0.301 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 119.40' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.00'	<b>12.0" Round Culvert</b> L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.00' / 117.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.49 cfs @ 12.09 hrs HW=119.35' TW=118.06' (Dynamic Tailwater)  
 ↑1=Culvert (Inlet Controls 3.49 cfs @ 4.44 fps)

**Summary for Pond 9P: CB-1**

Inflow Area = 0.510 ac, 64.71% Impervious, Inflow Depth > 8.29" for 100 Year event  
 Inflow = 4.65 cfs @ 12.09 hrs, Volume= 0.352 af  
 Outflow = 4.65 cfs @ 12.09 hrs, Volume= 0.352 af, Atten= 0%, Lag= 0.0 min  
 Primary = 4.65 cfs @ 12.09 hrs, Volume= 0.352 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 117.06' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.82'	<b>12.0" Round Culvert</b> L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.82' / 114.68' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=4.20 cfs @ 12.09 hrs HW=116.97' TW=115.73' (Dynamic Tailwater)  
 ↑1=Culvert (Inlet Controls 4.20 cfs @ 5.35 fps)

**Summary for Pond 10P: INFIL-7**

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 7.85" for 100 Year event  
 Inflow = 3.85 cfs @ 12.18 hrs, Volume= 0.424 af  
 Outflow = 3.74 cfs @ 12.24 hrs, Volume= 0.404 af, Atten= 3%, Lag= 3.7 min  
 Discarded = 0.01 cfs @ 4.85 hrs, Volume= 0.008 af  
 Primary = 3.74 cfs @ 12.24 hrs, Volume= 0.395 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 112.03' @ 12.24 hrs Surf.Area= 0.017 ac Storage= 0.039 af

Plug-Flow detention time= 45.0 min calculated for 0.404 af (95% of inflow)  
 Center-of-Mass det. time= 21.2 min ( 827.0 - 805.8 )

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Volume	Invert	Avail.Storage	Storage Description
#1A	109.00'	0.015 af	<b>17.12'W x 43.88'L x 4.07'H Field A</b> 0.070 af Overall - 0.034 af Embedded = 0.036 af x 40.0% Voids
#2A	109.25'	0.032 af	<b>ACF R-Tank HD 2 x 170 Inside #1</b> Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 170 Chambers in 10 Rows
		0.047 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	110.50'	<b>12.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.50' / 110.44' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	109.00'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.01 cfs @ 4.85 hrs HW=109.04' (Free Discharge)

↳ **2=Exfiltration** (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=3.72 cfs @ 12.24 hrs HW=112.03' TW=110.47' (Dynamic Tailwater)

↳ **1=Culvert** (Barrel Controls 3.72 cfs @ 4.74 fps)

**Summary for Pond FP11: FocalPoint #11 (70 SF)**

Inflow Area =	0.648 ac, 55.25% Impervious, Inflow Depth > 7.85" for 100 Year event
Inflow =	5.65 cfs @ 12.09 hrs, Volume= 0.424 af
Outflow =	3.85 cfs @ 12.18 hrs, Volume= 0.424 af, Atten= 32%, Lag= 5.4 min
Primary =	0.20 cfs @ 10.10 hrs, Volume= 0.213 af
Secondary =	3.65 cfs @ 12.18 hrs, Volume= 0.211 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 115.93' @ 12.18 hrs Surf.Area= 88 sf Storage= 2,558 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 25.3 min ( 805.8 - 780.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	111.95'	40 cf	<b>8.00'W x 11.00'L x 2.25'H FocalPoint</b> 198 cf Overall x 20.0% Voids
#2	114.20'	3,745 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		3,785 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.20	1,033	0	0
116.00	1,913	2,651	2,651
116.50	2,462	1,094	3,745

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Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	<b>8.0" Round Culvert</b> L= 41.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 110.79' S= 0.0051 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	111.95'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	115.00'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.20 cfs @ 10.10 hrs HW=112.12' TW=110.75' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.20 cfs of 1.19 cfs potential flow)

↳ **2=Exfiltration** (Exfiltration Controls 0.20 cfs)

**Secondary OutFlow** Max=3.63 cfs @ 12.18 hrs HW=115.92' TW=111.98' (Dynamic Tailwater)

↳ **3=Orifice/Grate** (Orifice Controls 3.63 cfs @ 4.62 fps)

**Summary for Pond FP12: FocalPoint #12 (40 SF)**

Inflow Area =	0.649 ac, 29.89% Impervious, Inflow Depth > 6.61" for 100 Year event
Inflow =	4.95 cfs @ 12.09 hrs, Volume= 0.358 af
Outflow =	4.05 cfs @ 12.15 hrs, Volume= 0.358 af, Atten= 18%, Lag= 3.6 min
Primary =	0.25 cfs @ 11.10 hrs, Volume= 0.187 af
Secondary =	3.80 cfs @ 12.15 hrs, Volume= 0.171 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 108.51' @ 12.15 hrs Surf.Area= 108 sf Storage= 962 cf

Plug-Flow detention time= 5.7 min calculated for 0.358 af (100% of inflow)  
Center-of-Mass det. time= 5.7 min ( 807.5 - 801.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	104.75'	49 cf	<b>9.00'W x 12.00'L x 2.25'H FocalPoint</b> 243 cf Overall x 20.0% Voids
#2	107.00'	1,363 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		1,412 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
107.00	380	0	0
108.00	678	529	529
109.00	990	834	1,363

Device	Routing	Invert	Outlet Devices
#1	Primary	104.00'	<b>8.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 104.00' / 103.50' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	104.75'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	107.50'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

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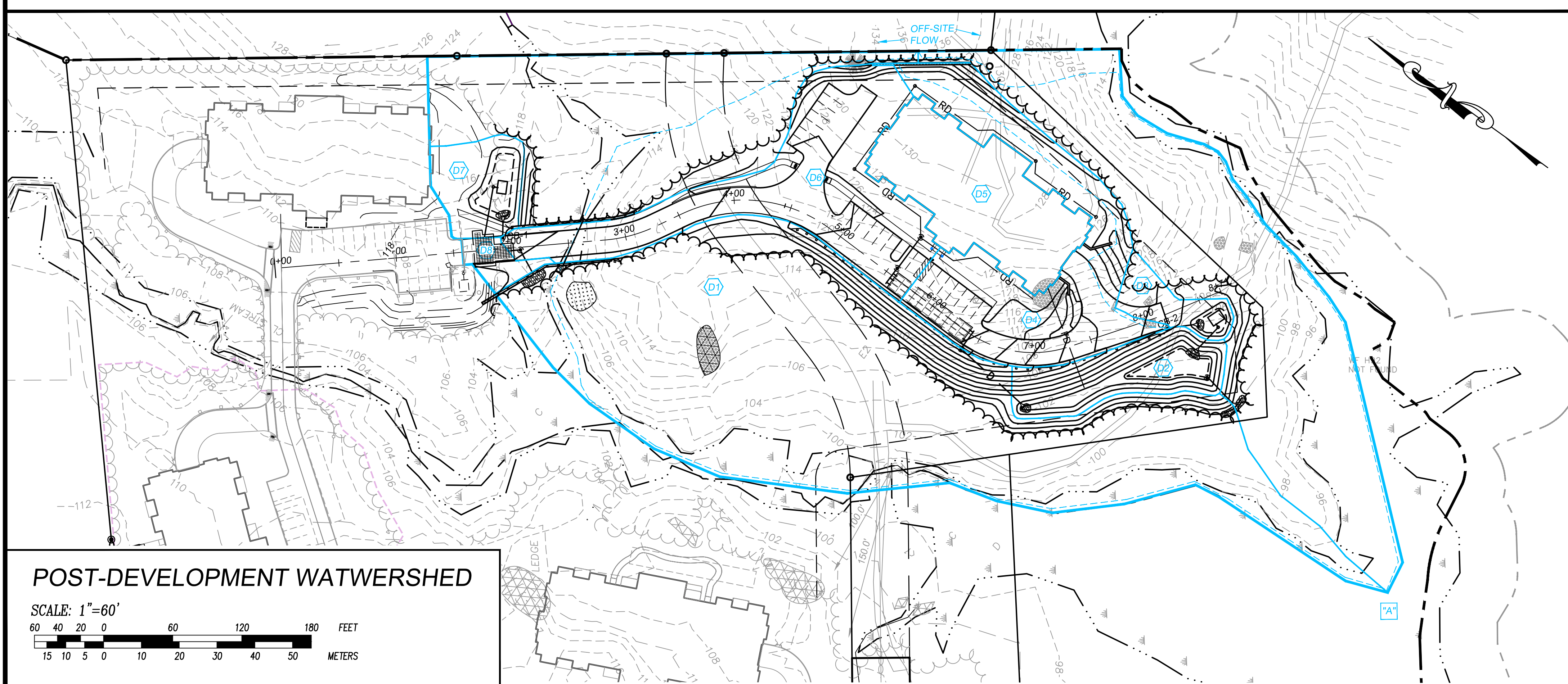
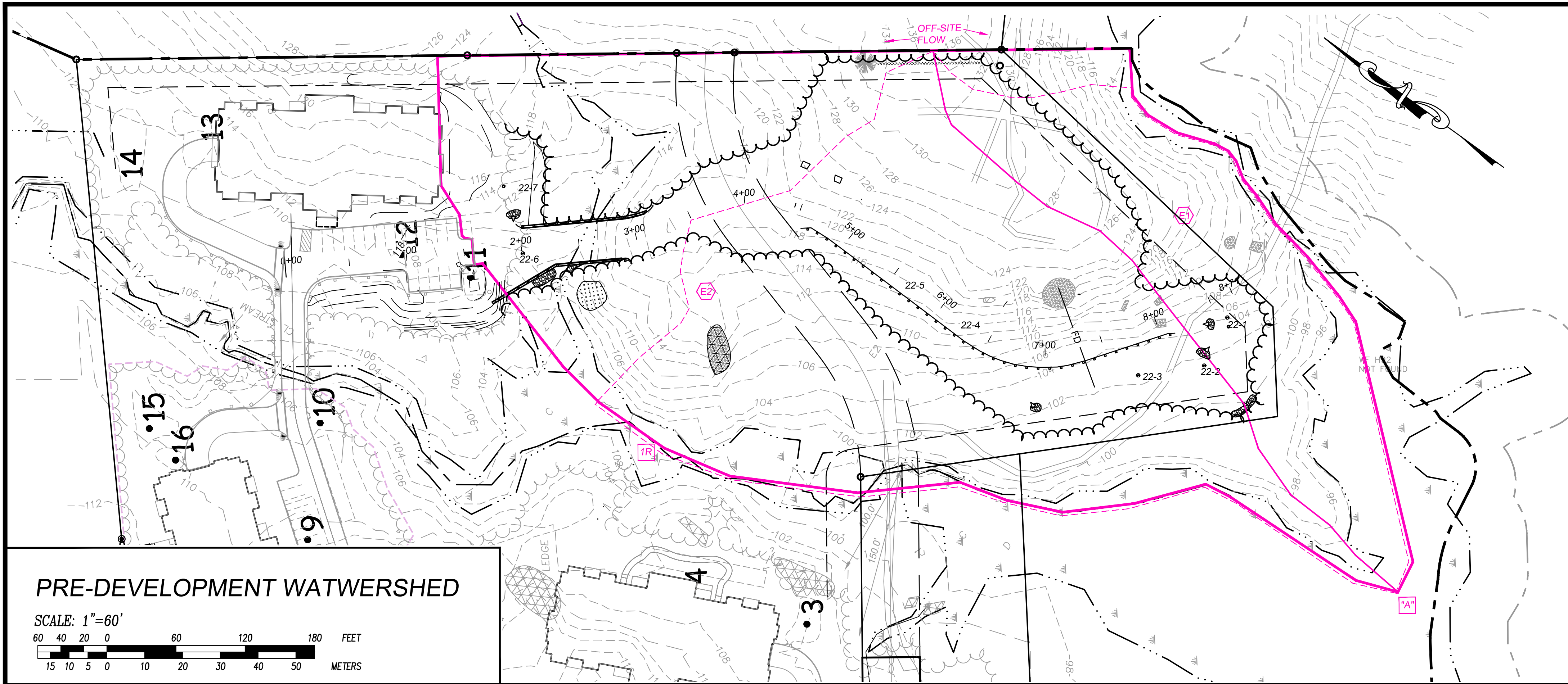
**Primary OutFlow** Max=0.25 cfs @ 11.10 hrs HW=104.95' TW=103.14' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.25 cfs of 1.32 cfs potential flow)

↳ **2=Exfiltration** (Exfiltration Controls 0.25 cfs)

**Secondary OutFlow** Max=3.79 cfs @ 12.15 hrs HW=108.51' TW=105.58' (Dynamic Tailwater)

↳ **3=Orifice/Grate** (Orifice Controls 3.79 cfs @ 4.83 fps)



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**WATERSHED  
PLANS**

**Ray Farm  
Condominium**

Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:

Ray Farm, LLC  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK				
NO.	DATE	DESC	BY	
1	4.26-22	REVISE WET IMPACTS	DH	

**NOTES:**  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

TOWN OF EXETER PLANNING BOARD

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

PROJ. MGR: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D GR.DWG  
 FBK:  
 JOB #: 16042 D



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Sheet Title:

# WETLAND IMPACT PLAN

Project Title:

## Ray Farm Condominium

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 Exeter, NH 03833  
 Rockingham County

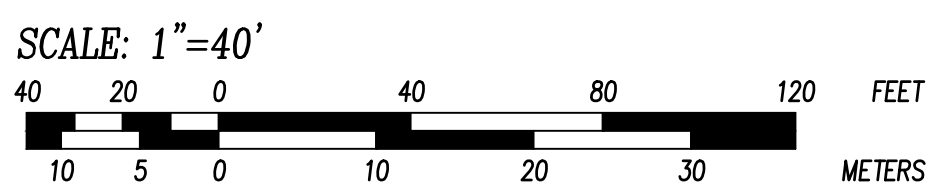
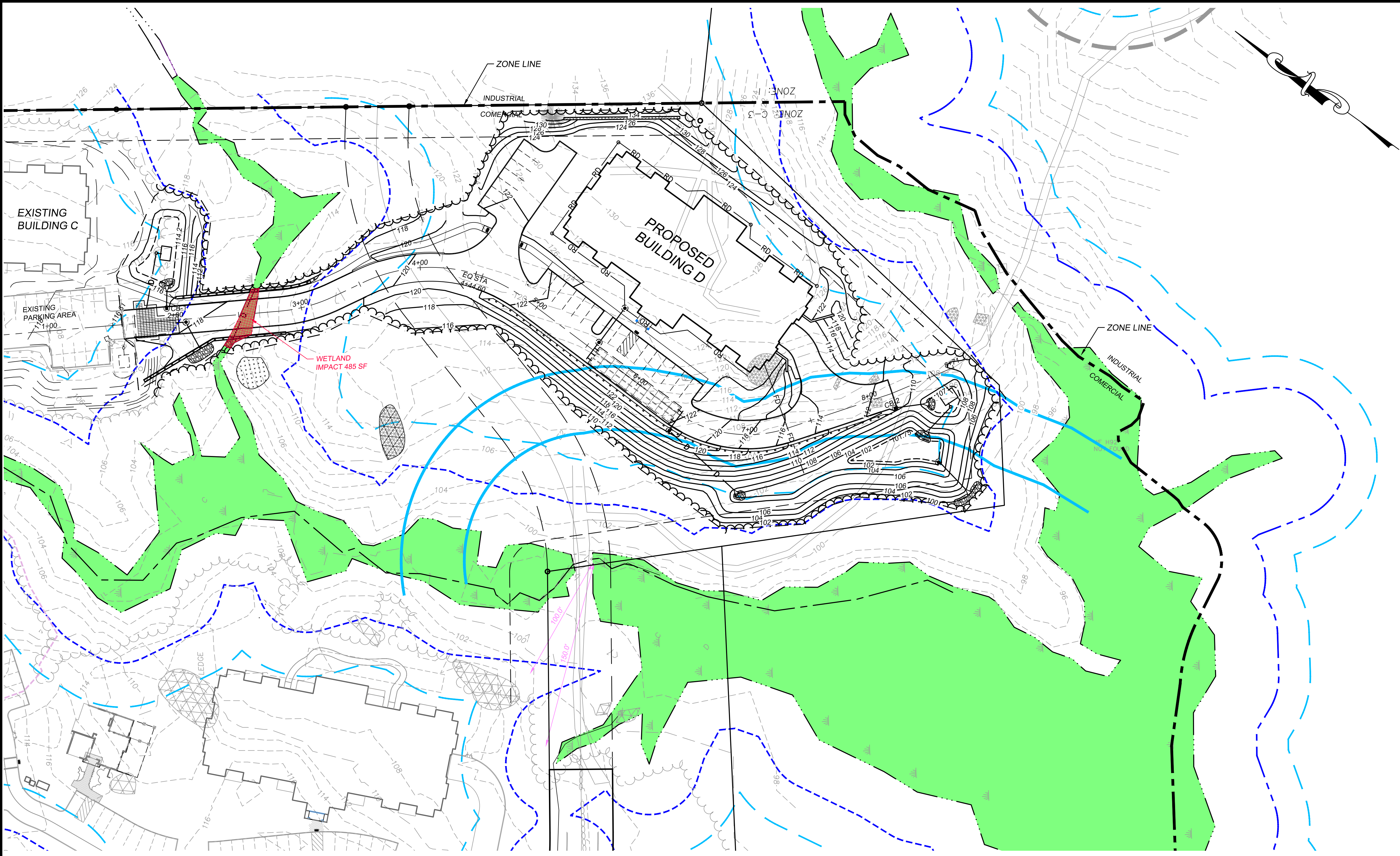
Applicant/Owner:

Ray Farm, LLC  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK				
NO.	DATE	DESC	BY	
1	4.26-22	REVISE WET IMPACTS	DH	

PROJ. MGR.: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D GR.DWG  
 FBK:  
 JOB #: 16042 D

SHEET C1.24



### DIRECT WETLAND IMPACTS

WETLAND IMPACT - AREA 1 485 SF

TOTAL WETLAND IMPACT 485 SF

NOTES:  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

TOWN OF EXETER PLANNING BOARD

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

K:\PROJ\CIVIL\_3D\2016\16042 BLDG DIV.0 SHEET FILES\16042 D GR.DWG D:\hmel 5/16/2022 7:36 PM





6 CHESTNUT STREET, AMESBURY, MA.  
 Phone: (978) 388-2157  
 CONSULTING ENGINEERS &  
 LAND SURVEYORS SINCE 1988  
 www.gm2inc.com

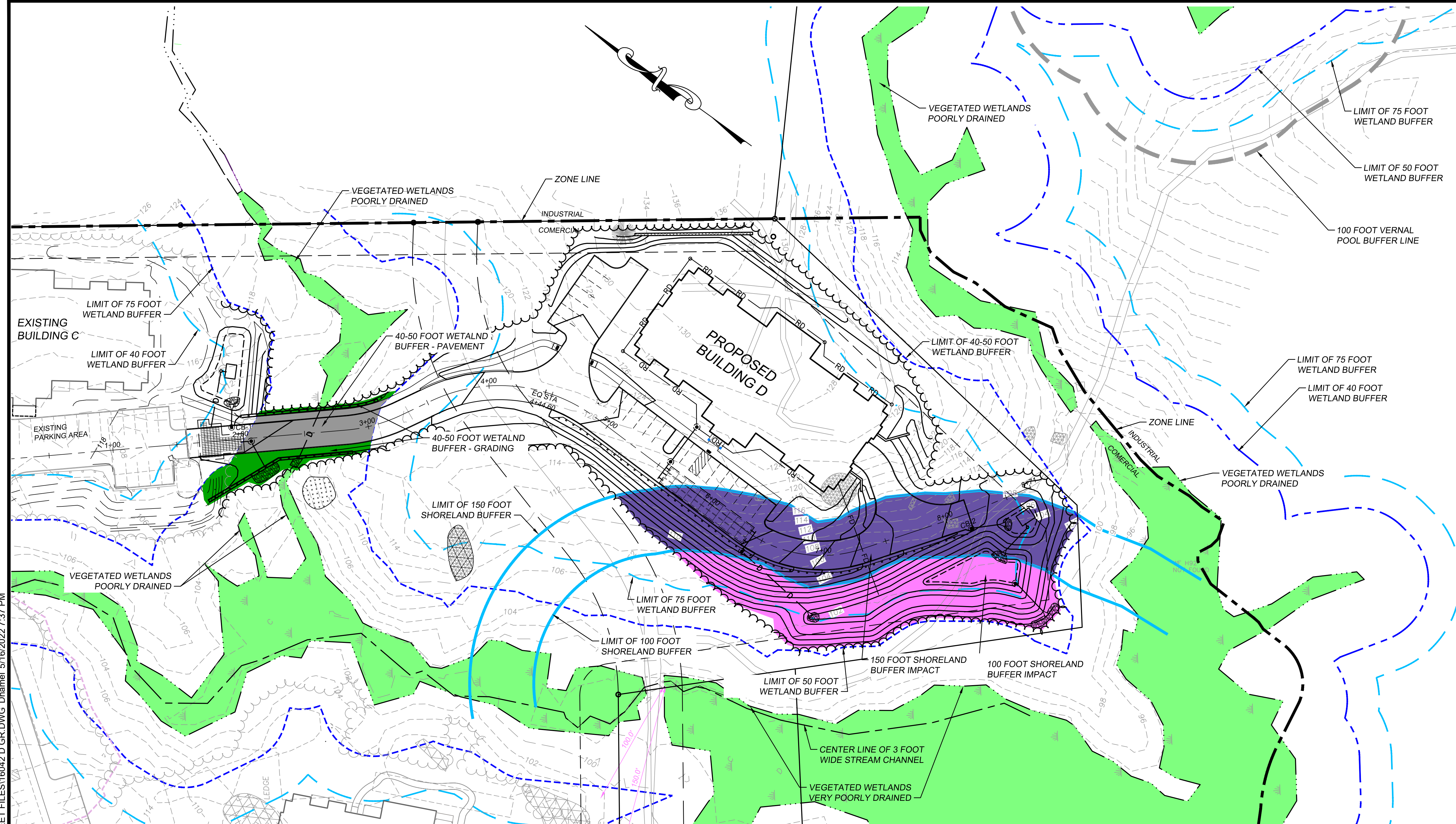
# WETLAND AND SHORELAND BUFFER IMPACT PLAN

## Ray Farm Condominium

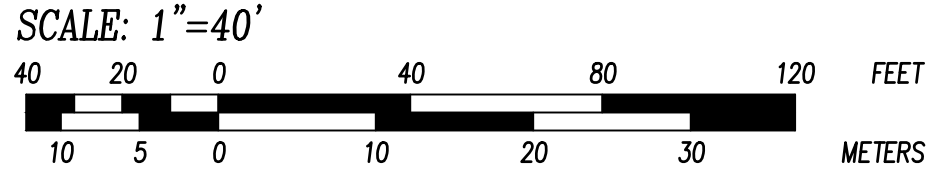
Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK				
NO.	DATE	DESC	BY	
1	4.26-22	REVISE WET IMPACTS	DH	



K:\PROJ\CIVIL\_3D\2016\16042 BLDG D\1.0 SHEET FILES\16042 D GR.DWG D:\1.0 SHEET FILES\16042 D GR.DWG D:\1.0 SHEET FILES\16042 D GR.DWG 5/16/2022 7:37 PM



### WETLAND BUFFER IMPACTS

	40-50 FOOT WETLAND BUFFER IMPACT - PAVEMENT	2858 SF
	40-50 FOOT WETLAND BUFFER IMPACT - GRAVEL	0 SF
	40-50 FOOT WETLAND BUFFER IMPACT - GRADING	2489 SF
	75 FOOT WETLAND BUFFER IMPACT	0 SF
<b>TOTAL WETLAND BUFFER IMPACTS</b>		<b>5,347 SF</b>

### SHORELAND BUFFER IMPACTS

	100 FOOT SHORELAND BUFFER IMPACT	9128 SF
	150 FOOT SHORELAND BUFFER IMPACT	16,560 SF
<b>TOTAL SHORELAND BUFFER IMPACT</b>		<b>25,688 SF SF</b>

**NOTES:**  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

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

PROJ. MGR.: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D GR.DWG  
 FBK:  
 JOB #: 16042 D

Russell F. Hilliard  
James F. Raymond  
Barton L. Mayer  
Heather M. Burns  
Lauren Simon Irwin  
Michael S. McGrath\*  
Jeanne S. Saffan\*\*  
Susan Aileen Lowry  
Michael P. Courtney\*  
Peter W. Leberman  
Nathan C. Midolo\*\*\*  
Brooke Lovett Shilo  
Stephanie J. Thomson\*\*\*\*



Serving New Hampshire since 1908

*Of Counsel*  
Norman H. Makechnie  
Jeffrey R. Crocker

\* Also admitted in MA  
\*\* Also admitted in MA & NY  
\*\*\* Also admitted in MN  
\*\*\*\* Also admitted in VT

May 16, 2022

RECEIVED

MAY 17 2022

EXETER PLANNING OFFICE

Via Fax and U.S. Mail

Langdon Plumer, Chair  
Exeter Planning Board  
10 Front Street  
Exeter, NH 03833-3792

Re: Application of CKT Associates for Site Plan Review (May 26, 2022 Hearing)  
Planning Board Case #22-3

Dear Chair Plumer:

I represent W. Scott Carlisle, III, owner of property adjoining the parcel that is the subject of this application.

Mr. Carlisle has a right-of-way over the CKT property as depicted on the enclosed road design (prepared by CKT) that has been approved by the Town, as well as the subdivision of his property shown on the enclosed plan and approval letter. This right-of-way is also part of the Town's TIF District, to be constructed in accordance with the approved road design (as has CKT's portion of the road).

The application's supporting documents depict ways, parking, and site work associated with the proposed relocation of the building being placed directly on the layout of the TIF road accessing his property.

CKT's proposed road crossing interferes with the approved TIF road design: it is several feet higher than the TIF road, designed to continue from the existing road to Mr. Carlisle's land, and includes incompatible sidewalks and utilities.

Mr. Carlisle wants your Board to be aware that he does not consent to this, or any interference with, the Town's TIF road and his right-of-way.

Mr. Carlisle and I plan to attend the hearing on the application and will answer any questions the Board may have.

159 Middle Street, Portsmouth, NH 03801  
Concord – Hillsborough – Peterborough – Portsmouth

May 16, 2022  
Page 2

Thank you for your consideration.

Very truly yours,



Russell F. Hilliard  
rhilliard@uptonhatfield.com  
(603) 436-7046

RFH/sem  
Enclosures

cc: W. Scott Carlisle, III (w/ Enclosures)(via Electronic Mail only)  
Justin L. Pasay, Esq. (w/ Enclosures)(via Electronic Mail only)  
Walter L. Mitchell (w/ Enclosures)(via Electronic Mail only)



## TOWN OF EXETER, NEW HAMPSHIRE

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

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

August 25, 2017

W. Scott Carlisle, III  
14 Cass Street  
Exeter, New Hampshire 03833

Re: PB Case #17-26 W. Scott Carlisle, III  
Minor Subdivision - Property off of Epping Road, Exeter, N.H  
Tax Map Parcel #40-12

Dear Mr. Carlisle:

Please be advised that at the meeting of August 24<sup>th</sup>, 2017, the Exeter Planning Board voted to **APPROVE** the above-captioned application for a minor subdivision, as presented, subject to the following conditions:

1. A dwg file of the subdivision plan shall be provided to the Town Planner showing all property lines and monumentation prior to signing the final plans;
2. This approval shall not be final until the applicant presents to the Board, and the Board and its engineers approve, a design for both the un-built portion of the so-called TIF road to the applicant's property, and the roadway and cul-de-sac within the property;
3. The potential discrepancy regarding the location of the common boundary line between the subject parcel and the abutting parcel (Tax Map 47 Lot 8) shall be resolved between the property owners; and,
4. These conditions shall be met prior to recording the subdivision plan.

The Board also approved the following waivers from the Site Plan Review and Subdivision Regulations in conjunction with the minor subdivision plan:

- Section 7.4.7 – Natural Features for significant trees - 16" diameter (caliper) or greater
- Section 7.5.4 – High Intensity Soil Survey (HISS) information

Both of the above waivers shall be specific to this subdivision application and shall not apply to any subsequent application submitted for the property.

Please feel free to contact the Planning Department at 773-6114 with any questions.

Sincerely,

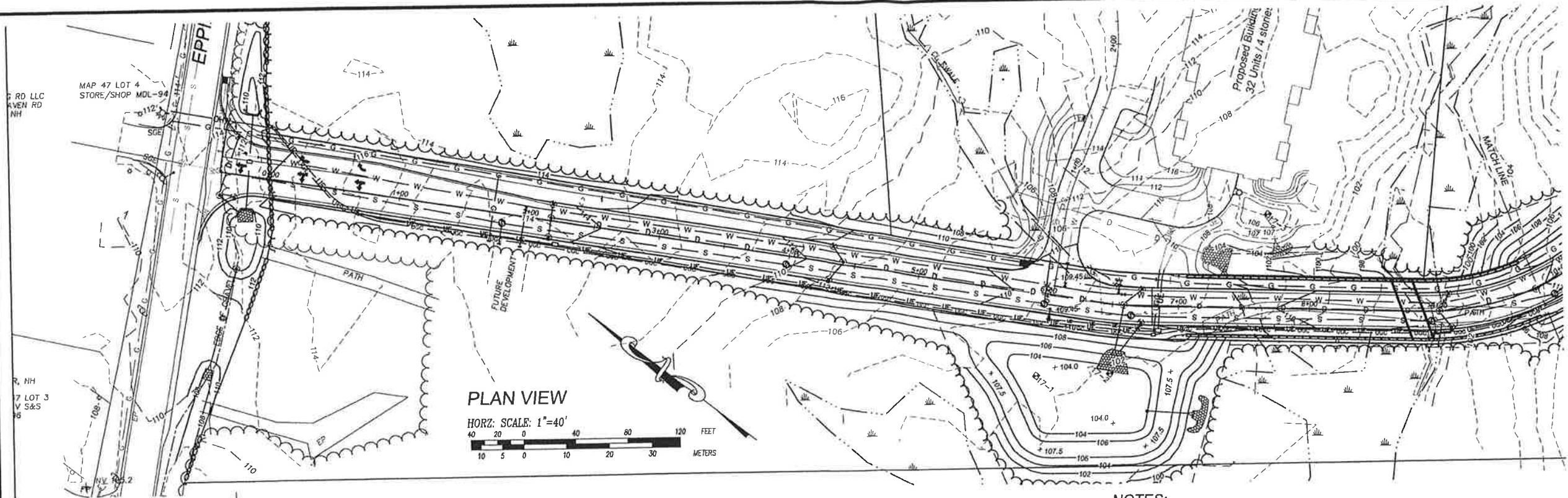
Langdon J. Plumer  
Chairman  
Exeter Planning Board

cc: ✓ Jonathan S. Ring, P.E., President, Jones & Beach Engineers, Inc.  
Douglas Eastman, Building Inspector/Code Enforcement Officer

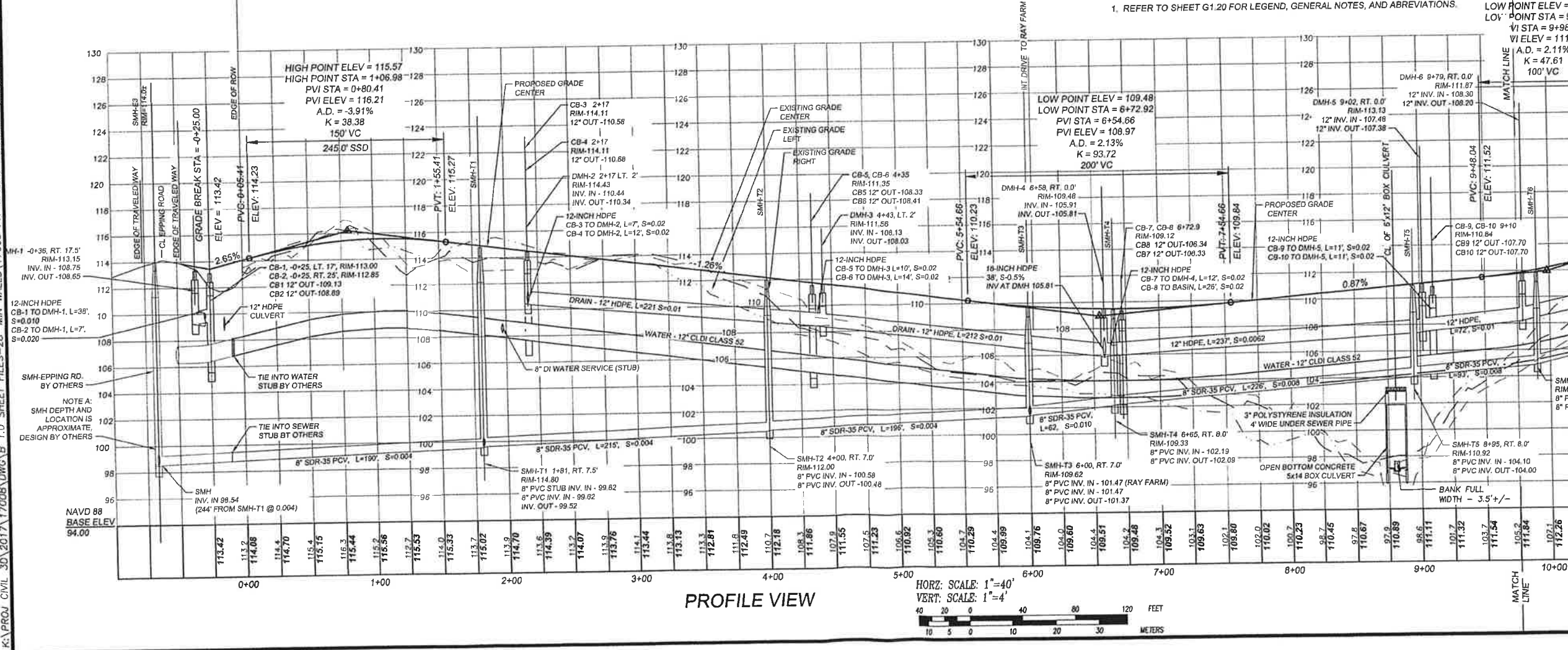
LJP:bsm

f:\town planner\planning\decision letters\pb #17-26 carlisle subdivision -epping road-let.docx

K:\PROJ\CIVIL\_3D\2017\17006\DWG\B.1.0 SHEET FILES\17006 PR-TIF.DWG D:\Home 7/17/2018 3:07 PM



**NOTES:**  
 1. REFER TO SHEET G120 FOR LEGEND, GENERAL NOTES, AND ABBREVIATIONS.



APPROVED BY THE TOWN OF EXETER  
 DEPARTMENT OF PUBLIC WORKS

DATE: \_\_\_\_\_



297 ELM STREET, AMESBURY, MA.  
 Phone: (978) 388-2157 Fax: (978) 388-0428  
 CONSULTING ENGINEERS &  
 LAND SURVEYORS SINCE 1975  
 Visit us on the WEB at www.cammett.com

Sheet Title:  
**Plan / Profile**

Project Title:  
**"TIF Road"**  
 Proposed Road  
 off Epping Road  
 Exeter, NH 03833  
 Rockingham County

Applicant:  
**Town of Exeter**  
 10 Front Street  
 Exeter NH 03833

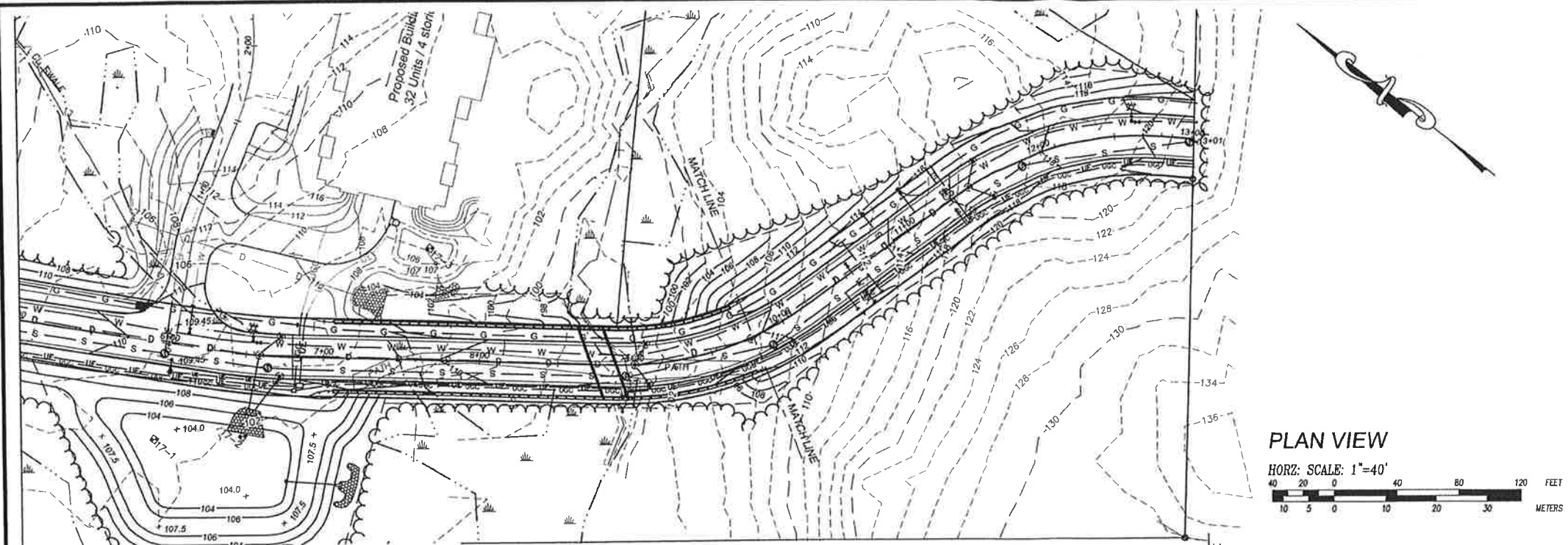
Owner:  
**CKT & Associates**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION			
NO.	DATE	DESCRIPTION	BY
1	2-26-18	SUBMIT TO TOWN	DH
2	4-20-18	WIDEN ROAD TO 28'	DH
3	7-02-18	REVISE PHASE II	DH
4	7-18-18	FINAL SUBMISSION	DH

PROFESSIONAL ENGINEER  
 STATE OF NEW HAMPSHIRE  
 ROBERT B. BLANCHETTE, JR.  
 No. 15369  
 10 July 2018

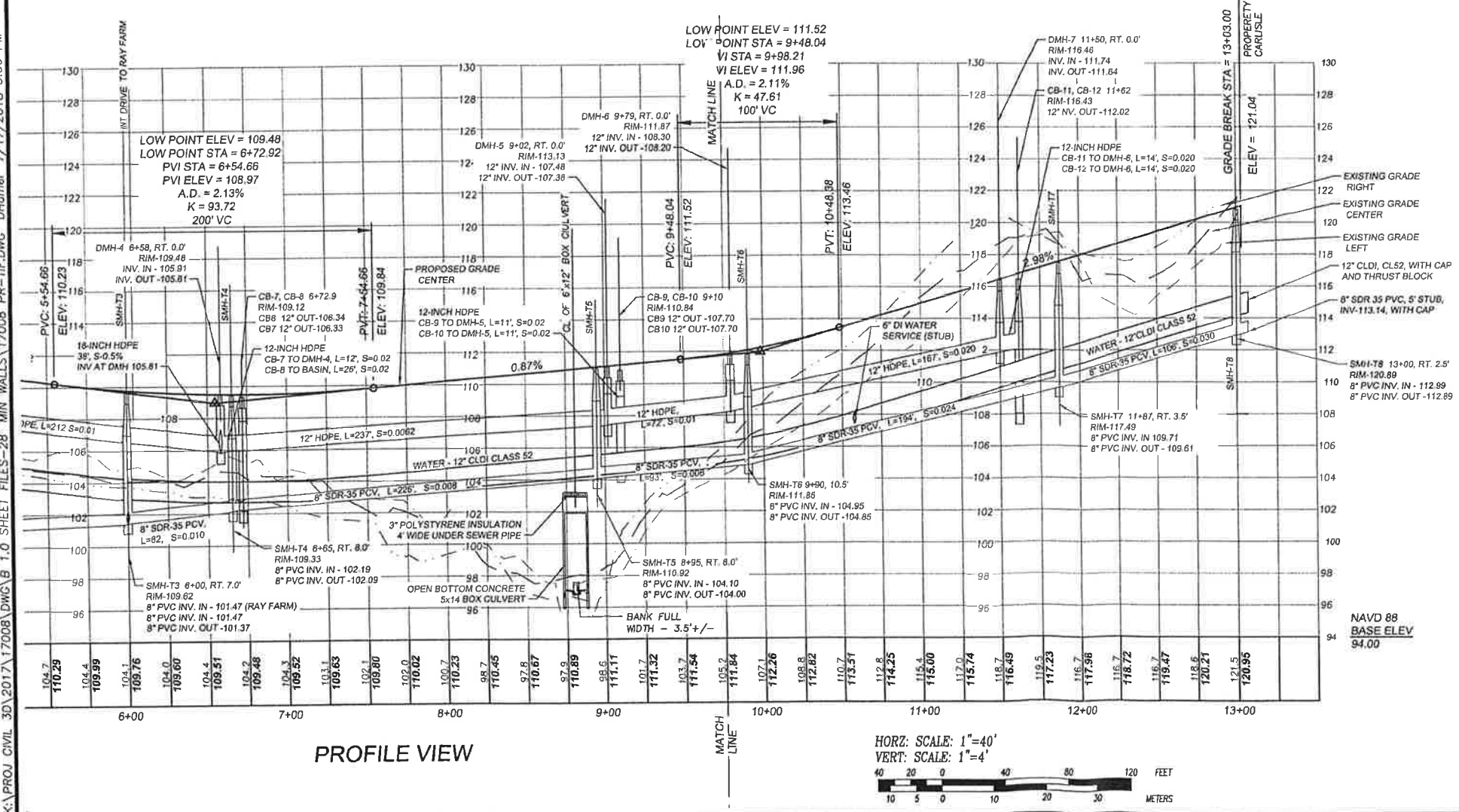
PROJ MGR: D. HAMEL  
 FIELD: M. MICHAUD / A. BICK  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: W. CAMMETT / R. BALNCHETTE  
 DATE: 2/20/2018  
 FILE: 17006 PR-TIF.DWG  
 FBK:  
 JOB #: 17006

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**PLAN VIEW**  
 HORZ. SCALE: 1"=40'  
 40 20 0 40 80 120 FEET  
 10 5 0 10 20 30 METERS

**NOTES:**  
 1. REFER TO SHEET G1.20 FOR LEGEND, GENERAL NOTES, AND ABBREVIATIONS.



APPROVED BY THE TOWN OF EXETER  
 DEPARTMENT OF PUBLIC WORKS  
 DATE: \_\_\_\_\_



297 ELM STREET, AMESBURY, MA.  
 Phone: (978) 388-2157 Fax: (978) 388-0428  
 CONSULTING ENGINEERS &  
 LAND SURVEYORS SINCE 1975  
 Visit us on the WEB at www.cammett.com

Sheet Title:  
**Plan / Profile**

Project Title:  
**"TIF Road"**  
 Proposed Road  
 off Epping Road  
 Exeter, NH 03833  
 Rockingham County

Applicant:  
 Town of Exeter  
 10 Front Street  
 Exeter NH 03833

Owner:  
 CKT & Associates  
 158 Shattuck Way  
 Newington, NH 03801

REVISION			
NO.	DATE	DESCRIPTION	BY
1	2-26-18	SUBMIT TO TOWN	DH
2	4-20-18	WIDEN ROAD TO 28'	DH
3	7-02-18	REVISE PHASE II	DH
4	7-16-18	FINAL SUBMISSION	DH



Date: 10 JULY 2018  
 PROJ. MGR.: D. HAMEL  
 FIELD: M. MICHAUD / A. BICK  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: W. CAMMETT / R. BALANCHETTE  
 DATE: 2/20/2018  
 FILE: 17008\_PR-TIF.DWG  
 FBK:  
 JOB #: 17008

**PLAN REFERENCES**

1. "FLAT OF LAND EXETER, N.H. FOR W. SCOTT CARLISLE, III" BY DURGIN-SCHOFIELD ASSOCIATES, DATED FEBRUARY 23, 1969, RECORDED AT RCRO AS PLAN D-19078.
2. "FLAT OF LAND EXETER, N.H. FOR W. SCOTT CARLISLE, III" BY DURGIN-SCHOFIELD ASSOCIATES, DATED APRIL 26, 1988, RECORDED AT RCRO AS PLAN D-17892.
3. "A SURVEY AND LAYOUT OF A RIGHT-OF-WAY SEE NOTE #7 PREPARED FOR W. SCOTT CARLISLE III AND SITUATED IN THE TOWN OF EXETER, N.H.," DATED MARCH 17, 2003, PREPARED BY RSL LAYOUT & DESIGN, INC., RECORDED AT RCRO AS PLAN D-30523.
4. "SUBDIVISION PLAN OF LAND WATSON BROOK WOOD CO. EXETER, NH," PREPARED BY HOLDEN ENGINEERING & SURVEYING, INC., DATED DECEMBER 24, 1985, RECORDED AT THE RCRO AS PLAN D-16287.
5. "PLAN OF LAND ASSESSORS MAP 40 LOT 11 PREPARED FOR ALLIANCE ENERGY," PREPARED BY MHF DESIGN CONSULTANTS, INC., DATED MAY 14, 2012, RECORDED AT THE RCRO AS PLAN D-37224.
6. "PLANS OF PROPOSED F.A.P. PROJECT NO. F018-2(8) NH PROJECT NO P-3380 SOUTH SIDE ROAD," DATED JUNE 1, 1959.
7. "MINOR SUBDIVISION PLAN FOR RAY FARM ACTIVE ADULT COMMUNITY," PREPARED BY CAMMETT ENGINEERING, DATED MAY 8, 2017, AS LAST REVISED, AND TO BE RECORDED.

**LEGEND**

EXISTING	PROPOSED	DESCRIPTION
—	—	PROPERTY LINES
○	○	IRON PIPE/IRON ROD
○	○	DRILL HOLE FOUND
○	○	BOUND FOUND
○	○	ROW FENCE POST
○	○	TREE W/ WIRE
○	○	STUMPS W/ WIRE
○	○	MAJOR CONTOUR
○	○	MINOR CONTOUR
○	○	FRESHWATER WETLANDS LINE
○	○	IRON ROD/DRILL HOLE
○	○	STONE/GRANITE BOUND FENCE POST

**ABUTTERS**

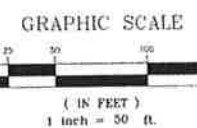
- TAX MAP 40 LOT 13  
TOWN OF EXETER CONSERVATION COMMISSION  
10 FRONT STREET  
EXETER, NH 03833  
BK: 3667 PG: 2469
- TAX MAP 40 LOT 14  
STATE OF NEW HAMPSHIRE  
PO BOX 463  
CONCORD, NH 03302  
BK: 2368 PG: 1332
- TAX MAP 47 LOT 4  
164 EPPING ROAD, LLC  
3 BROOKHAVEN ROAD  
KINGSTON, NH 03848  
BK: 3775 PG: 0784
- TAX MAP 40 LOT 8  
STATE OF NEW HAMPSHIRE  
PO BOX 483  
CONCORD, NH 03302  
BK: 2992 PG: 896

6"x6" BOUND FND  
0.8' EXPOSED  
N14°15'24"E  
(S14°15'24"E  
0.27')  
SURVEY TIE-LINE

IRON PIN FND  
1.2' EXPOSED  
RSL #490

STATE OF N.H. ROUTE 101 EASTBOUND

TAX MAP 40 LOT 11  
NET LEASE REALTY I, INC.  
ATTN: INGRID IRVAN  
450 S ORANGE AVE., SUITE 90  
ORLANDO, FL 32801  
BK: 5731 PG: 1874



**TAX MAP 40 LOT 13**

TAX MAP 40 LOT 12  
PROPOSED EXISTING AREA  
802,124 S.F.  
18.41 AC.  
(AREA PER PROPERTY LINES  
FROM PLAN, REF. 1 D-19078  
18.55 AC.)

LOT 2  
241,379 S.F.  
5.54 ACRES

LOT 3  
190,312 S.F.  
4.36 ACRES

LOT 1  
350,058 S.F.  
8.04 ACRES

CUL-DE-SAC  
20,576 S.F.  
0.47 ACRES

AREA "C"  
2,780 S.F.  
0.06 AC.

AREA "A"  
2,386 S.F.  
0.06 AC.

AREA "B"  
480 S.F.  
0.01 AC.

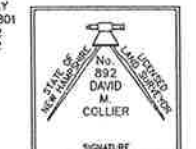
**SUBDIVISION NOTES:**

1. THE INTENT OF THIS PLAN IS TO PROVIDE A LOT LINE ADJUSTMENT WITH MAP 40 LOT 12 AND MAP 47 LOT 8, AND THEN TO SUBDIVIDE MAP 40 LOT 12 INTO THREE (3) LOTS FOR COMMERCIAL DEVELOPMENT PURPOSES, TO BE SERVICED BY MUNICIPAL WATER AND SEWER WITH ACCESS VIA THE PROPOSED TOWN OF EXETER T.I.F. ROAD.
2. ZONING DISTRICT: INDUSTRIAL  
LOT AREA MINIMUM = 40,000 S.F.  
LOT FRONTAGE MINIMUM = 150'  
BUILDING SETBACKS (MINIMUM):  
FRONT SETBACK = 50'  
SIDE SETBACK = 20'  
REAR SETBACK = 50'  
WETLAND NO CUT/NO DISTURB SETBACK = 40'  
WETLAND PARKING/BUILDING SETBACK = 75'  
MAX. BUILDING HEIGHT = 50'  
MAX. BUILDING COVERAGE = 40%  
OPEN SPACE MINIMUM = 25%
3. SUBJECT PROPERTY IS NOT LOCATED WITHIN FEDERALLY DESIGNATED 100 YEAR FLOOD HAZARD ZONE, REFERENCE FEMA COMMUNITY PANEL NUMBERS: 33015C0238E, 33015C0401E, 33015C0239E, AND 33015C0402E, DATED MAY 17, 2005.
4. GRANITE BOUNDS TO BE SET AT ALL ROADWAY POINTS OF CURVATURE AND TANGENCY. IRON RODS WITH SURVEY CAPS TO BE SET AT ALL PROPERTY CORNERS AND ANGLE POINTS, UNLESS OTHERWISE INDICATED. ALL MONUMENTS SET ARE 5/8" IRON RODS WITH ALUMINUM CAPS MARKED "JONES & BEACH ENGINEERS BOUNDARY, DO NOT DISTURB STRATHAM, N.H." AS SHOWN.
5. WETLANDS WERE DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. DURING SUMMER, 2015, AND LOCATED BY JONES & BEACH ENGINEERS, INC.
6. LANDOWNERS ARE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING PERMITTING REQUIRED UNDER THESE REGULATIONS.
7. UPON APPROVAL BY THE TOWN, THE PROPOSED ROAD WILL BE CONVEYED TO THE TOWN.
8. ALL BOOK AND PAGE NUMBERS REFER TO THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
9. THE TAX MAP AND LOT NUMBERS AND ABUTTING OWNERS ARE BASED ON THE TOWN OF EXETER TAX RECORDS AND ARE SUBJECT TO CHANGE.
10. THIS SURVEY IS NOT A CERTIFICATION TO OWNERSHIP OR TITLE OF LANDS SHOWN. OWNERSHIP AND ENCUMBRANCES ARE MATTERS OF TITLE EXAMINATION NOT OF A BOUNDARY SURVEY. THE INTENT OF THIS PLAN IS TO RETRACE THE BOUNDARY LINES OF DEEDS REFERENCED HEREON. OWNERSHIP OF ADJOINING PROPERTIES IS ACCORDING TO ASSESSOR'S RECORDS. THIS PLAN MAY OR MAY NOT INDICATE ALL ENCUMBRANCES EXPRESSED, IMPLIED OR PRESCRIPTIVE.
11. ANY USE OF THIS PLAN AND/OR ACCOMPANYING DESCRIPTIONS SHOULD BE DONE WITH LEGAL COUNSEL TO BE CERTAIN THAT TITLES ARE CLEAR, THAT INFORMATION IS CURRENT, AND THAT ANY NECESSARY CERTIFICATES ARE IN PLACE FOR A PARTICULAR CONVEYANCE, OR OTHER USES.
12. PARCEL "1" TO BE DEEDED FROM MAP 40, LOT 12 TO MAP 47, LOT 8, AND IS THE TOTAL OF AREA "A", PLUS AREA "B", AND AREA "C".

**CERTIFICATION:**

I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEEDS BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

THIS SURVEY CONFORMS TO A CATEGORY 1 CONDITION 1 SURVEY AS DEFINED IN SECTION 4.1 OF THE N.H.L.S.A. ETHICS AND STANDARDS.



DAVID M. COLLIER, LLS 892 DATE:  
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

**PROJECT PARCEL**  
TOWN OF EXETER  
TAX MAP 40, LOT 12

**APPLICANT/OWNER**  
W. SCOTT CARLISLE, III  
14 CASS STREET  
EXETER, NH 03833  
BK 4244, PG 1653

TOWN OF EXETER PLANNING BOARD CASE NO. 17-26  
CHAIRPERSON DATE:

**TOTAL PROPOSED LOT AREA**  
802,124 SQ. FT.  
18.41 ACRES

Design: JSR Draft: PLB Date: 8/1/16  
Checked: JSR Scale: 1"=50' Project No.: 15098  
Drawing Name: 15098-CONCEPT.dwg  
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

REV.	DATE	REVISION	BY
5	8/28/19	ISSUED ROAD DESIGN FOR REVIEW	PLB
4	1/29/19	REVISED FOR CONCEPTUAL ROAD DESIGN	PLB
3	12/20/17	MINOR REVISIONS	PLB
2	9/20/17	REVISED PER PLANNING BOARD CONDITIONS	PLB
1	7/11/17	ISSUED FOR PLANNING BOARD	PLB
REV.	DATE	REVISION	BY

Designed and Produced in NH  
**J/B Jones & Beach Engineers, Inc.**  
Civil Engineering Services  
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885  
603-772-4746  
FAX: 603-772-0227  
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: **LOT LINE ADJUSTMENT & SUBDIVISION PLAN TAX MAP 40 LOT 12 & TAX MAP 47 LOT 8**  
Project: **CARLISLE SUBDIVISION OFF EPPING ROAD, EXETER, NH**  
Owner of Record: W. SCOTT CARLISLE, III & CKT ASSOCIATES  
14 CASS STREET, EXETER, NH 03833 158 SHATTUCK WAY, NEWINGTON, NH 03801

DRAWING No.  
**A1**  
SHEET 1 OF 4  
JBE PROJECT NO. 15098

**PLAN REFERENCES**

- "PLAT OF LAND EXETER, N.H. FOR W. SCOTT CARLISLE, III," BY DURON-SCHOFIELD ASSOCIATES, DATED FEBRUARY 23, 1989, RECORDED AT RCRD AS PLAN D-19078.
- "PLAT OF LAND EXETER, N.H. FOR W. SCOTT CARLISLE, III," BY DURON-SCHOFIELD ASSOCIATES, DATED APRIL 26, 1988, RECORDED AT RCRD AS PLAN D-17892.
- "A SURVEY AND LAYOUT OF A RIGHT-OF-WAY SEE NOTE #7 PREPARED FOR W. SCOTT CARLISLE III AND SITUATED IN THE TOWN OF EXETER, N.H.," DATED MARCH 17, 2003, PREPARED BY RSL LAYOUT & DESIGN, INC., RECORDED AT RCRD AS PLAN D-30523.
- "SUBDIVISION PLAN OF LAID WATSON BROOK WOOD CO. EXETER, NH," PREPARED BY HOLDEN ENGINEERING & SURVEYING, INC., DATED DECEMBER 24, 1986, RECORDED AT THE RCRD AS PLAN D-16267.
- "PLAN OF LAND ASSESSORS MAP 40 LOT 11 PREPARED FOR ALLIANCE ENERGY," PREPARED BY MHF DESIGN CONSULTANTS, INC., DATED MAY 14, 2012, RECORDED AT THE RCRD AS PLAN D-37224.
- "PLANS OF PROPOSED F.A.P. PROJECT NO. F018-2(8) NH PROJECT NO P-3380 SOUTH SIDE ROAD," DATED JUNE 1, 1959.
- "MINOR SUBDIVISION PLAN FOR RAY FARM ACTIVE ADULT COMMUNITY," PREPARED BY CAMMETT ENGINEERING, DATED MAY 9, 2017, AS LAST REVISED, AND TO BE RECORDED.

**LEGEND**

EXISTING	PROPOSED	DESCRIPTION
—	—	PROPERTY LINES
○	○	IRON PIPE/ROD END
○	○	DRILL HOLE FOUND
○	○	BOUND FOUND
○	○	ROW FENCE POST
○	○	TREE W/ WIRE
○	○	STUMPS W/ WIRE
○	○	MAJOR CONTOUR
○	○	MINOR CONTOUR
○	○	FRESHWATER WETLANDS LINE
○	○	IRON ROD/DRILL HOLE
○	○	STONE/GRANITE BOUND
○	○	FENCE POST

**ABUTTERS**

- TAX MAP 40 LOT 13  
TOWN OF EXETER CONSERVATION COMMISSION  
10 FRONT STREET  
EXETER, NH 03833  
BK: 3687 PG: 2469
- TAX MAP 40 LOT 14  
STATE OF NEW HAMPSHIRE  
PO BOX 453  
CONCORD, NH 03302  
BK: 2368 PG: 1332
- TAX MAP 47 LOT 4  
164 EPPING ROAD, LLC  
3 BROOKHAVEN ROAD  
KINGSTON, NH 03848  
BK: 3775 PG: 0784

TAX MAP 40 LOT 8  
STATE OF NEW HAMPSHIRE  
PO BOX 483  
CONCORD, NH 03302  
BK: 2992 PG: 899

6" x 6" ROUND END  
0.8' EXPOSED  
IRON  
(S14°34'24"E  
0.27')

SURVEY TIE-LINE

EXISTING  
HIGHWAY  
FENCE

IRON PIN END  
1.2' EXPOSED  
RSL #490

WETLAND 2  
17,020 S.F.

OLD FENCE  
POST  
W/ WIRE  
(TYP)

TAX MAP 40 LOT 11  
NET LEASE REALTY 1 INC.  
ATTN: RIGOLD IRVIN  
450 S ORANGE AVE., SUITE 90  
ORLANDO, FL 32801  
BK: 5731 PG: 1874

IRON REBAR END  
0.5' EXPOSED

PROPERTY LINE  
#0-19078

AREA "A"  
2,388 S.F.  
0.05 AC

LOT LINE TO BE  
ABANDONED

15" PINE  
W/BARB  
WIRE

BOULDERS

IRON REBAR  
END FLUSH  
CAMMETT  
ENGINEERING

20" PINE  
W/BARB  
WIRE

OLD FENCE  
POST  
W/ WIRE

TAX MAP 47 LOT 8  
CKT ASSOCIATES  
158 SHATTUCK WAY  
NEWINGTON, NH 03801  
BK: 3231 PG: 2722  
SEE PLAN REF. 2

28" PINE  
W/BARB  
WIRE

50' FRONT  
SETBACK  
(TYP)

AREA "B"  
480 S.F.  
0.01 AC

AREA "C"  
2,780 S.F.  
0.06 AC

AREA "D"  
5,847 S.F.  
SEE NOTE  
#12 0.13 AC

STUMP  
W/ BARB  
WIRE  
(TYP)

20' SIDE  
SETBACK  
(TYP)

IRON REBAR END  
0.1' EXPOSED  
JAMES VERRA  
L.L.S. #625

REV.	DATE	REVISION	BY
5	6/28/19	ISSUED ROAD DESIGN FOR REVIEW	PLB
4	1/29/19	REVISED FOR CONCEPTUAL ROAD DESIGN	PLB
3	12/20/17	MINOR REVISIONS	PLB
2	9/20/17	REVISED PER PLANNING BOARD CONDITIONS	PLB
1	7/11/17	ISSUED FOR PLANNING BOARD	PLB

Designed and Produced in NH

**J/B Jones & Beach Engineers, Inc.**

85 Portsmouth Ave.  
PO Box 219  
Stratham, NH 03885

Civil Engineering Services

603-772-4748  
FAX: 603-772-0227  
E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **EXISTING CONDITIONS PLAN - SUBDIVISION**

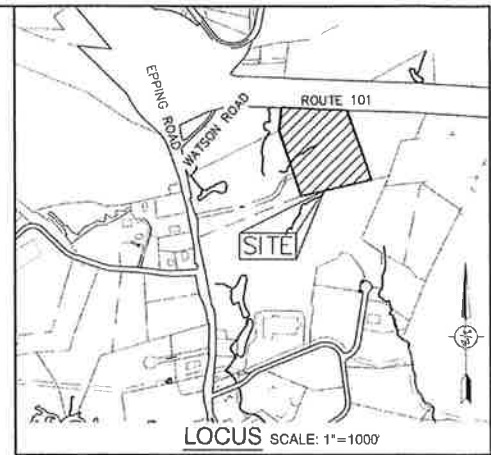
Project: **CARLISLE SUBDIVISION  
OFF EPPING ROAD, EXETER, NH**

Owner of Record: **W. SCOTT CARLISLE, III  
14 CASS STREET, EXETER, NH 03833** & **CKT ASSOCIATES  
158 SHATTUCK WAY, NEWINGTON, NH 03801**

DRAWING No.

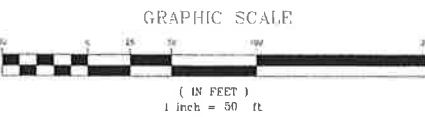
**C1**

SHEET 2 OF 4  
JBE PROJECT NO. 15098



**EXISTING CONDITIONS NOTES:**

- THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS OF EXETER TAX MAP 40 LOT 12.
- UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC. NOR ANY OF THEIR EMPLOYEES TAKE 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 STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 1-888-DIG-SAFE (1-888-341-7233).
- VERTICAL DATUM: ASSUMED. HORIZONTAL DATUM: MAGNETIC PER REFERENCE PLAN 7.
- SUBJECT PROPERTY IS NOT LOCATED WITHIN FEDERALLY DESIGNATED 100 YEAR FLOOD HAZARD ZONE. REFERENCE FEMA COMMUNITY PANEL NUMBERS: 33015C0238E, 33015C0401E, 33015C0238E, AND 33015C0402E, DATED MAY 17, 2003.
- THE LIMITS OF JURISDICTIONAL WETLANDS WERE DELINEATED BY JAMES GOVE, OF GOVE ENVIRONMENTAL SERVICES, INC. DURING SUMMER, 2015 IN ACCORDANCE WITH THE FOLLOWING GUIDANCE DOCUMENTS:
  - THE CORPS OF ENGINEERS FEDERAL MANUAL FOR IDENTIFYING AND DELINEATING JURISDICTIONAL WETLANDS.
  - THE NORTH CENTRAL & NORTHERAL REGIONAL SUPPLEMENT TO THE FEDERAL MANUAL.
  - THE CURRENT VERSION OF THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, AS PUBLISHED BY THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION AND/OR THE CURRENT VERSION OF THE FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, AS PUBLISHED BY THE USDA, NRCS, AS APPROPRIATE.
  - THE CURRENT NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS, AS PUBLISHED BY THE US FISH AND WILDLIFE SERVICE.
- WETLAND IMPACTS SHALL NOT OCCUR UNTIL ALL PERMITS HAVE BEEN ACQUIRED AND IMPACT MITIGATION REQUIREMENTS HAVE BEEN SATISFIED.
- WETLAND BOUNDARIES AND CONSTRUCTION LIMITS ARE TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION.
- ALL WATER, SEWER, ROAD (INCLUDING PARKING LOTS), AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 9.5 GRADING, DRAINAGE, AND EROSION & SEDIMENT CONTROL, AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER, NH.
- VERY POORLY GRAINED SOILS ARE EVIDENT 10 FEET OR MORE INSIDE CENTRAL EDGE OF WETLAND LINE.

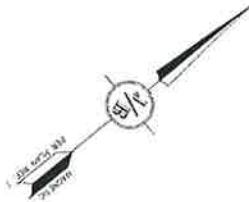


Design: JSR Draft: PLB Date: 8/1/16  
 Checked: JSR Scale: 1"=50' Project No.: 15098  
 Drawing Name: 15098-CONCEPT.dwg  
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**PLAN REFERENCE**

1. "IF ROAD" PROPOSED ROAD OFF EPPING ROAD, EXETER, NH 03833 FOR THE TOWN OF EXETER AT 10 FRONT STREET, EXETER NH 03833 BY CHAMMETT ENGINEERING AT 287 ELM STREET, AMESBURY, MA, DATED FEBRUARY 26, 2018, LAST REVISED 7-16-18

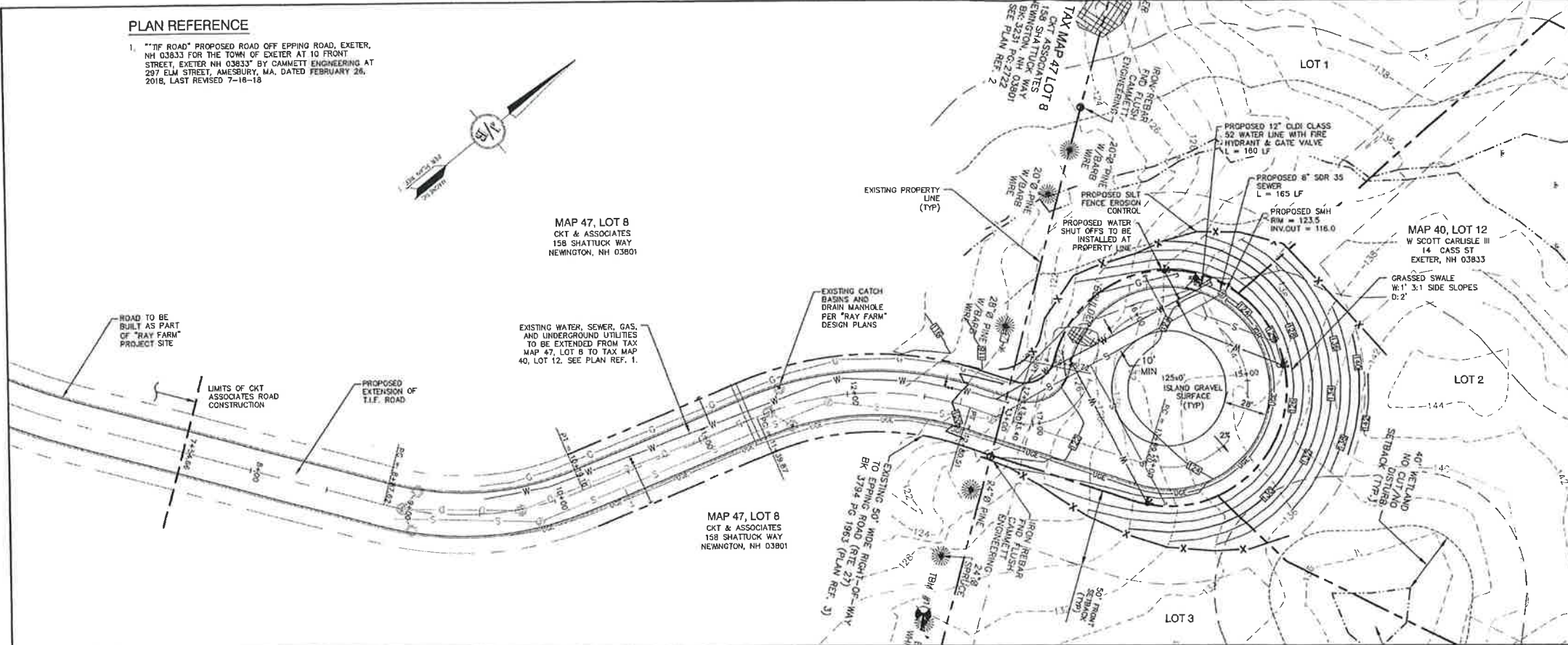


MAP 47, LOT 8  
CKT & ASSOCIATES  
158 SHATTUCK WAY  
NEWINGTON, NH 03801

EXISTING WATER, SEWER, GAS,  
AND UNDERGROUND UTILITIES  
TO BE EXTENDED FROM TAX  
MAP 47, LOT 8 TO TAX MAP  
40, LOT 12. SEE PLAN REF. 1.

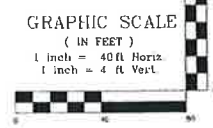
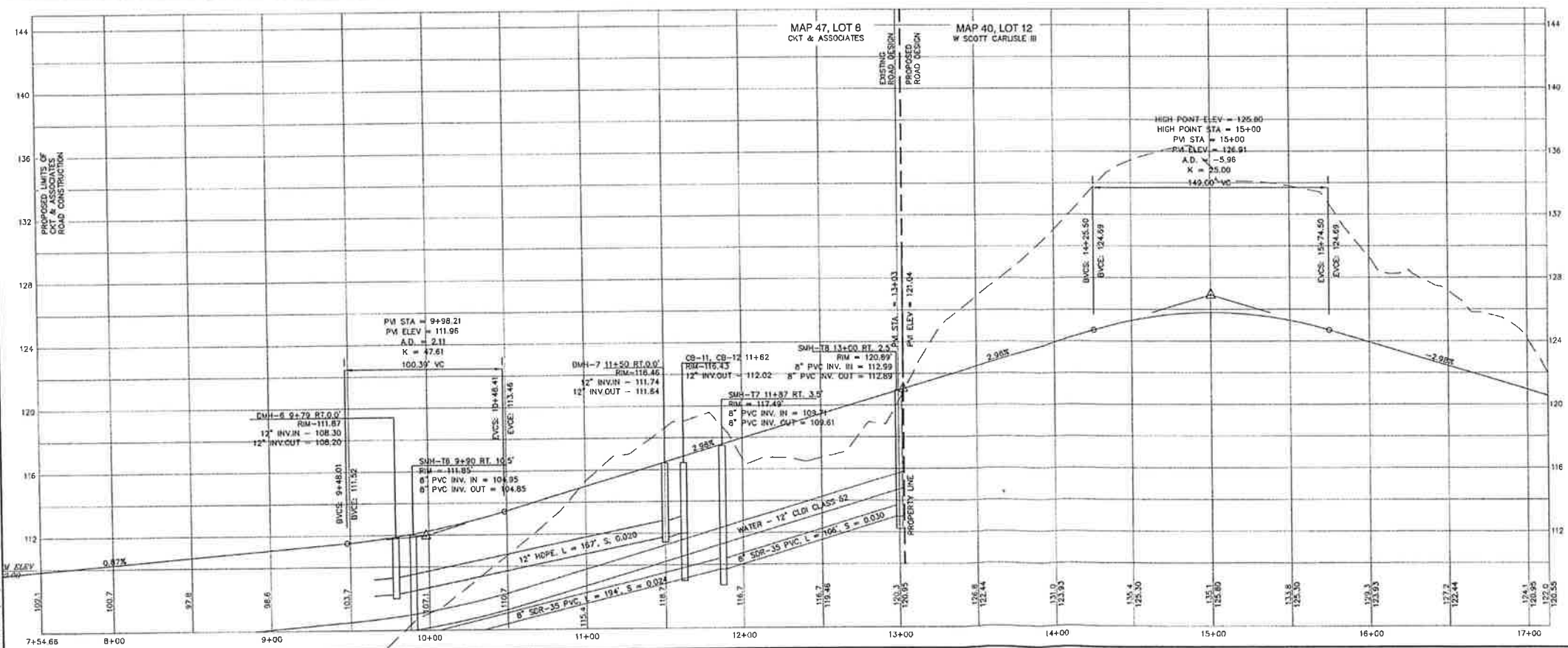
MAP 47, LOT 8  
CKT & ASSOCIATES  
158 SHATTUCK WAY  
NEWINGTON, NH 03801

MAP 40, LOT 12  
W SCOTT CARLISLE III  
14 CASS ST  
EXETER, NH 03833



**NOTES:**

- THIS SITE WILL REQUIRE A USEPA NPDES PERMIT FOR STORMWATER DISCHARGE FOR THE CONSTRUCTION SITE. THE CONSTRUCTION SITE OPERATOR SHALL DEVELOP AND IMPLEMENT A CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN (SWPPP), WHICH SHALL REMAIN ON SITE AND BE MADE ACCESSIBLE TO THE PUBLIC. THE CONSTRUCTION SITE OPERATOR SHALL SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA REGIONAL OFFICE SEVEN DAYS PRIOR TO COMMENCEMENT OF ANY WORK ON SITE. EPA WILL POST THE NOI AT [HTTP://CFPUB.EPA.GOV/NPDES/STORMWATER/NOI/NOISEARCH.CFM](http://cfpub.epa.gov/npdes/stormwater/NOI/NOISEARCH.CFM). AUTHORIZATION IS GRANTED UNDER THE PERMIT ONCE THE NOI IS SHOWN IN "ACTIVE" STATUS ON THIS WEBSITE. A COMPLETED NOTICE OF TERMINATION SHALL BE SUBMITTED TO THE NPDES PERMITTING AUTHORITY WITHIN 30 DAYS AFTER EITHER OF THE FOLLOWING CONDITIONS HAVE BEEN MET:
  - FINAL STABILIZATION HAS BEEN ACHIEVED ON ALL PORTIONS OF THE SITE FOR WHICH THE PERMITTEE IS RESPONSIBLE; OR
  - ANOTHER OPERATOR/PERMITTEE HAS ASSUMED CONTROL OVER ALL AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED. PROVIDE DPW WITH A COPY OF THE NOTICE OF TERMINATION (NOT).
- ALL ROAD AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR THE TOWN, AND NHDOT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
- AS-BUILT PLANS TO BE SUBMITTED TO THE TOWN PRIOR TO ACCEPTANCE OF THE ROADWAY.
- DEVELOPER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
- CONTRACTOR TO COORDINATE AND COMPLETE ALL WORK REQUIRED FOR THE RELOCATION AND/OR INSTALLATION OF ELECTRIC, CATV, TELEPHONE, AND FIRE ALARM PER UTILITY DESIGN AND STANDARDS. LOCATIONS SHOWN ARE APPROXIMATE. LOW PROFILE STRUCTURES SHALL BE USED TO THE GREATEST EXTENT POSSIBLE.
- THIS PLAN HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC. 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 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.
- SILTATION AND EROSION CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION, SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN UNTIL SITE HAS BEEN STABILIZED WITH PERMANENT VEGETATION. SEE DETAIL SHEET E1 FOR ADDITIONAL NOTES ON EROSION CONTROL.
- ALL DISTURBED AREAS NOT STABILIZED BY NOVEMBER 1st SHALL BE COVERED WITH AN EROSION CONTROL BLANKET. PRODUCT TO BE SPECIFIED BY THE ENGINEER.
- FINAL DRAINAGE, GRADING AND EROSION PROTECTION MEASURES SHALL CONFORM TO REGULATIONS OF THE PUBLIC WORKS DEPARTMENT.
- CONTRACTOR TO VERIFY EXISTING UTILITIES AND TO NOTIFY ENGINEER OF ANY DISCREPANCY IMMEDIATELY.
- FUTURE DRIVEWAYS TO BE REVIEWED AND APPROVED BY PUBLIC WORKS. ALL DRIVEWAYS TO HAVE CULVERTS UNLESS APPROVED BY THE TOWN ROAD AGENT.
- RETAINING WALLS SHALL BE DESIGNED AND STAMPED BY A LICENSED PROFESSIONAL ENGINEER. CONTRACTOR SHALL COORDINATE WITH MANUFACTURER PRIOR TO INSTALLATION.
- DRAINAGE INSPECTION AND MAINTENANCE SCHEDULE: SILT 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 SWALES WILL BE REMOVED IF IT IS DEEPER THAN SIX INCHES, AND IS TO BE REMOVED FROM SWALES BELOW THE INLET OF CULVERTS SEMIANNUALLY, AS WELL AS FROM CATCH BASINS. FOLLOWING MAJOR STORM EVENTS, THE STAGE DISCHARGE CUTLET STRUCTURES ARE TO BE INSPECTED AND ANY DEBRIS REMOVED FROM THE ORIFICE, TRASH TRAP AND EMERGENCY SPILL WAY. INFREQUENTLY, SEDIMENT MAY ALSO HAVE TO BE REMOVED FROM THE SUMP OF THE STRUCTURE.
- CONTRACTOR MUST HAVE A VALID PIPE INSTALLER'S LICENSE FROM THE PUBLIC WORKS DEPARTMENT BEFORE WORKING ON ANY DRAINAGE AND/OR UTILITY CONSTRUCTION.
- ALL DRAINAGE INFRASTRUCTURE SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING ANY RUNOFF TO IT.
- COMPACTION TESTING SERVICES (I.E. NUCLEAR DENSITY TESTS) ARE TO BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER RETAINED BY THE CONTRACTOR FOR ROADWAY CONSTRUCTION.
- ROADWAY TO BE CONSTRUCTED PER DETAILS BY OTHERS. SEE PLAN REF. 1.



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Design: JSR    Draft: PLB    Date: 8/1/18  
 Checked: JSR    Scale: 1"=50'    Project No.: 15098  
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REV	DATE	REVISION	BY
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3	12/20/17	MINOR REVISIONS	PLB
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Designed and Produced in NH

**J/B Jones & Beach Engineers, Inc.**  
 Civil Engineering Services

85 Portsmouth Ave.    603-772-4746  
 PO Box 219    FAX: 603-772-0227  
 Stratham, NH 03885    E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	<b>PLAN AND PROFILE</b>
Project:	<b>CARLISLE SUBDIVISION OFF EPPING ROAD, EXETER, NH</b>
Owner of Record:	W. SCOTT CARLISLE, III    &    CKT ASSOCIATES 14 CASS STREET, EXETER, NH 03833    158 SHATTUCK WAY, NEWINGTON, NH 03801

DRAWING No.  
**P1**  
SHEET 3 OF 4  
JBE PROJECT NO. 15098

**TEMPORARY EROSION CONTROL NOTES**

- THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME. AT NO TIME SHALL AN AREA IN EXCESS OF 5 ACRES BE EXPOSED AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
- EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED, DIRECTED BY THE ENGINEER.
- ALL DISTURBED AREAS (INCLUDING POUD AREAS BELOW THE PROPOSED WATERLINE) SHALL BE RETURNED TO PROPOSED GRADES AND ELEVATIONS. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 6" OF SCREENED ORGANIC LOAM AND SEEDED WITH SEED MIXTURE 'C' AT A RATE NOT LESS THAN 1.10 POUNDS OF SEED PER 1,000 S.F. OF AREA (48 LBS. / ACRE).
- SILT FENCES AND OTHER BARRIERS SHALL BE INSPECTED EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 0.25" OR GREATER. ALL DAMAGED AREAS SHALL BE REPAIRED, AND SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
- AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND RE-VEGETATED.
- AREAS MUST BE SEEDED AND MULCHED OR OTHERWISE PERMANENTLY STABILIZED WITHIN 3 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 14 DAYS OF THE INITIAL DISTURBANCE OF SOIL. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
- ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER) 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 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
- AFTER NOVEMBER 15th, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3" OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.
- 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 STONE OR RIPRAP HAS BEEN INSTALLED, OR
  - EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
- FUGITIVE DUST CONTROL IS REQUIRED TO BE CONTROLLED IN ACCORDANCE WITH ENV-A 1000, AND THE PROJECT IS TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
- PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR'S NAME, ADDRESS, AND PHONE NUMBER SHALL BE SUBMITTED TO DES VIA EMAIL (SEE BELOW).
- PRIOR TO CONSTRUCTION, A PHASING PLAN THAT DELINEATES EACH PHASE OF THE PROJECT SHALL BE SUBMITTED. ALL TEMPORARY SEDIMENT BASINS THAT WILL BE NEEDED FOR DEWATERING WORK AREAS SHALL BE LOCATED AND IDENTIFIED ON THIS PLAN.
- IN ORDER TO ENSURE THE STABILITY OF THE SITE AND EFFECTIVE IMPLEMENTATION OF THE SEDIMENT AND EROSION CONTROL MEASURES SPECIFIED IN THE PLANS FOR THE DURATION OF CONSTRUCTION, THE CONTRACTOR SHALL BE IN STRICT COMPLIANCE WITH THE FOLLOWING INSPECTION AND MAINTENANCE REQUIREMENTS IN ADDITION TO THOSE CALLED FOR IN THE SMPPP:
  - A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL OR A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE ("MONITOR") SHALL BE EMPLOYED TO INSPECT THE SITE FROM THE START OF ALTERATION OF TERRAIN ACTIVITIES UNTIL THE SITE IS IN FULL COMPLIANCE WITH THE SITE SPECIFIC PERMIT ("PERMIT").
  - DURING THIS PERIOD, THE MONITOR SHALL INSPECT THE SUBJECT SITE AT LEAST ONCE A WEEK, AND IF POSSIBLE, DURING ANY 1/2 INCH OR GREATER RAIN EVENT (I.E. 1/2 INCH OF PRECIPITATION OR MORE WITHIN A 24 HOUR PERIOD). IF UNABLE TO BE PRESENT DURING SUCH A STORM, THE MONITOR SHALL INSPECT THE SITE WITHIN 24 HOURS OF THIS EVENT.
  - THE MONITOR SHALL PROVIDE TECHNICAL ASSISTANCE AND RECOMMENDATIONS TO THE CONTRACTOR ON THE APPROPRIATE BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROLS REQUIRED TO MEET THE REQUIREMENTS OF RSA 485 A:17 AND ALL APPLICABLE DES PERMIT CONDITIONS.
  - WITHIN 24 HOURS OF EACH INSPECTION, THE MONITOR SHALL SUBMIT A REPORT TO DES VIA EMAIL (RIDGELY MAUCK AT: RIDGELY.MAUCK@DES.NH.GOV).
  - THE MONITOR SHALL MEET WITH DES TO DECIDE UPON A REPORT FORMAT. THE REPORT FORMAT SHALL BE REVIEWED AND APPROVED BY DES PRIOR TO THE START OF CONSTRUCTION.

**SEEDING SPECIFICATIONS**

- GRADING AND SHAPING**
  - SLOPES SHALL NOT BE STEEPER THAN 2:1 WITHOUT APPROPRIATE EROSION CONTROL MEASURES AS SPECIFIED ON THE PLANS (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 FERTILIZER AND LIME MIXED INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A 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. TYPES 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.)
  - SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDRASEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH 2/8 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
  - REFER TO THE "SEEDING GUIDE" AND "SEEDING RATES" TABLES ON THIS SHEET FOR APPROPRIATE SEED MIXTURES AND RATES OF SEEDING. ALL LEGUMES (CROWN VETCH, BIRDSFOOT, TREFOL AND FLATPEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT PRIOR TO THEIR INTRODUCTION TO THE SITE.
  - 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 20th OR FROM AUGUST 10th TO SEPTEMBER 1st.
- 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 S.F.
- MAINTENANCE TO ESTABLISH A STAND**
  - PLANTED AREAS 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 PERENNIALS TAKE 2 TO 3 YEARS TO BECOME FULLY ESTABLISHED.
  - IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, ANNUAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

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	FAIR	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	EXCELLENT	EXCELLENT	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, GOLF AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
PLAY AREAS AND ATHLETIC FIELDS (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	E	FAIR	EXCELLENT	EXCELLENT	2/
	F	FAIR	EXCELLENT	EXCELLENT	2/
GRAVEL PIT, SEE NH-PM-24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.					

1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE BELOW.  
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.

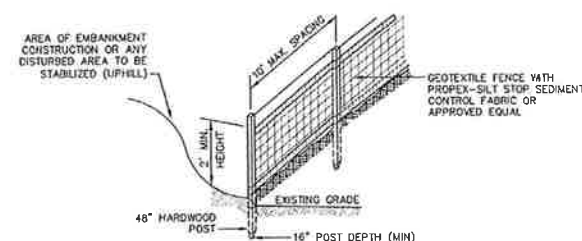
NOTE: TEMPORARY SEED MIX FOR STABILIZATION OF TURF SHALL BE WINTER RYE OR OATS AT A RATE OF 3.5 LBS. PER 1000 S.F. AND SHALL BE PLACED PRIOR TO OCTOBER 15th, IF PERMANENT SEEDING NOT YET COMPLETE.

**SEEDING GUIDE**

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	0.35
CREeping RED FESCUE	10	0.25
CROWN VETCH	15	0.35
OR FLAT PEA	30	0.75
TOTAL	40 OR 55	0.95 OR 1.35
C TALL FESCUE	20	0.45
CREeping RED FESCUE	20	0.45
BIRDS FOOT TREFOL	8	0.20
TOTAL	48	1.10
D TALL FESCUE	20	0.45
FLAT PEA	30	0.75
TOTAL	50	1.20
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

1/ FOR HEAVY USE ATHLETIC FIELDS CONSULT THE UNIVERSITY OF NEW HAMPSHIRE COOPERATIVE EXTENSION TURF SPECIALIST FOR CURRENT VARIETIES AND SEEDING RATES.

**SEEDING RATES**

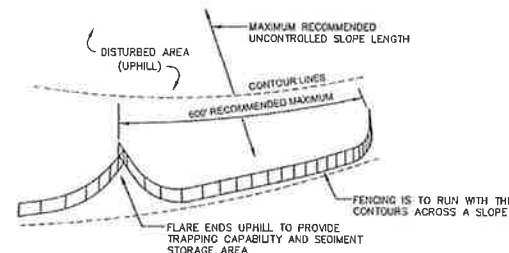


**CONSTRUCTION SPECIFICATIONS:**

- WOVEN FABRIC FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP, MID AND BOTTOM AND EMBEDDED IN THE GROUND A MINIMUM OF 8" AND THEN COVERED WITH SOIL.
- THE FENCE POSTS SHALL BE A MINIMUM OF 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 6", FOLDED AND STAPLED TO PREVENT SEDIMENT FROM BY-PASSING.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED AND PROPERLY DISPOSED OF WHEN IT IS 6" DEEP OR VISIBLE 'BULGES' DEVELOP IN THE SILT FENCE.
- PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE FOR SEDIMENT STORAGE.

**SILT FENCE**

NOT TO SCALE



- 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.

**MAINTENANCE:**

- SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE DONE 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.

Design: JSR	Draft: PLB	Date: 8/1/18
Checked: JSR	Scale: AS NOTED	Project No.: 15098
Drawing Name: 15098-CONCEPT.dwg		
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.		



REV.	DATE	REVISION	BY
5	6/28/19	ISSUED ROAD DESIGN FOR REVIEW	PLB
4	1/29/19	REVISED FOR CONCEPTUAL ROAD DESIGN	PLB
3	12/20/17	MINOR REVISIONS	PLB
2	9/20/17	REVISED PER PLANNING BOARD CONDITIONS	PLB
1	7/11/17	ISSUED FOR PLANNING BOARD	PLB

Designed and Produced in NH

**J/B Jones & Beach Engineers, Inc.**

85 Portsmouth Ave. PO Box 219 Stratham, NH 03885

Civil Engineering Services

603-772-4746  
FAX: 603-772-0227  
E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	<b>EROSION AND SEDIMENT CONTROL DETAILS</b>
Project:	<b>CARLISLE SUBDIVISION OFF EPPING ROAD, EXETER, NH</b>
Owner of Record:	W. SCOTT CARLISLE, III & CKT ASSOCIATES 14 CASS STREET, EXETER, NH 03833 & 158 SHATTUCK WAY, NEWINGTON, NH 03801

DRAWING No.

**E1**

SHEET 4 OF 4  
JBE PROJECT NO. 15098

**Lot Line Adjustment**

**Multi-family Site Plan Review**

**Ray Farm – Re-location of Building D**

**Date: March 28- 2022**

Prepared by GM2 Associates  
6 Chestnut Street Suite 110  
Amesbury, MA

## Table of Contents

Cover Letter of explanation

Lot Line Adjustment Application

Lot Line Adjustment Plan (7 full size plans and 15 11x17 plans under separate cover)

Multi-Family Site Plan Review Application and Checklist

Application to Connect – Sewer, Water, Stormwater

List of Abutters

Abutters Mailing stickers (3 sets)

Filling Fee Calculations

Application Fee

Waiver Requests – Parking Setbacks, Parking Spaces, Wetland impacts, Roadway Design

Site – Civil Plans (7 sets of 23 full size Sheets and 15 sets of 11x17 size under separate cover)

Architectural Plans (7 sets of 2 full size Sheets and 15 sets of 11x17 size under separate cover)

Lighting Plan (7 full size plans and 15 11x17 Plans under separate cover)

Wetland impact, Wetland Buffer Impact, and Stormwater Water plans

(7 color sets of 3 full size sheet and 15 color sets of 3 11x17 sheets under separate cover)

Stormwater Analysis (7 booklets 8.5x11 sheets under separate cover)

Stormwater BMP Maintenance Manual



March 22, 2022

Langdon Plumer, Chair  
Exeter Planning Board  
10 Front Street  
Exeter, NH 03833

Re: Site Plan Review Application  
Ray Farm – Building D re-location

Dear Chair Plumer and Board Members:

*Headquarters*  
115 GLASTONBURY BLVD  
GLASTONBURY CT 06033  
860.659.1416

10 CABOT ROAD  
SUITE 101B  
MEDFORD MA 02155  
617.776.3350

6 CHESTNUT ST  
SUITE 110  
AMESBURY MA 01913  
978.388.2157

197 LOUDON RD  
SUITE 310  
CONCORD NH 03301  
603.856.7854

200 MAIN ST  
PAWTUCKET RI 02860  
401.726.4084

This Firm represents Ray Farm, LLC (the “Applicant”), which is the declarant of the Ray Farm Condominium, a 55+ senior living development in Exeter located on property off of Ray Farmstead Road which is further identified as Town Tax Map 47, Lot 8 (the “Ray Farm Property” or the “Project”). By this letter, the Applicant requests a Site Plan Review with the Planning Board on 12 May 2022 pursuant to Section 6.1.1 of the Site Plan Review and Subdivision Regulations of the Town of Exeter.

By way of brief background, the Project, as approved by the Planning Board on 27 July 2017, consists of four distinct residential buildings (Buildings A – D) containing 116 units, a 2,000 sf clubhouse, and corresponding site improvements, all serviced by a private driveway accessed via Ray Farmstead Road. As approved, Buildings A, B and C are identical in design, size and footprint, and each contains 32 dwelling units. Building D was approved to be located in close proximity to Epping Road and the Mobil Gas Station and has a different design than Buildings A, B and C, containing only 20 dwelling units.

Since the Project’s approval, Ray Farmstead Road was built and accepted by the Town as Town Road, and Buildings A and B, as well as the clubhouse, are finished and completely occupied. Building C is being constructed and will be completed shortly in the spring of 2022. More than 40% of the units in Building C are pre-sold.

As the Applicant considered the completion of the Project via construction of Building D as originally approved, a more attractive alternative emerged. Specifically, the Applicant now proposes the relocation of Building D to abutting property to the southeast of the Ray Farm Property identified as Tax Map 47, Lot 8.1 (the “Applicant’s Abutting Property”). The Applicant proposes to construct the relocated Building D in the identical manner as Buildings A, B and C, inclusive of 32 units instead of the 20 units Building D was approved for in 2017. The proposed relocation of Building D is depicted on the plans provided herewith by GM2 Engineering (formally W.C. Cammett Engineering). The relocated Building D would be accessed via an extended internal roadway from Building C, which would require minor wetland crossing.

To accomplish its redesign, the Applicant proposes to consolidate approximately 4.29-acres of the upland area of the Applicant's Abutting Property and combine the same with the Ray Farm Property (Town Tax Map 47, Lot 8). The additional 4.29 acres added to the Ray Farm Property would be the site of the relocated Building D.

The net result of the Applicant's proposal would be a Ray Farm Property that is approximately 15.76 acres in size rather than the existing 11.46 acres. Reconfigured as proposed, the Ray Farm Property would continue to comply in all respects with all local Zoning regulations and would have less density than what was approved by the Planning Board in 2017. The area of the Ray Farm Property which was originally approved to accommodate Building D, will remain an open space area of the Ray Farm Project.

In support of its proposal, the Applicant received approval from the Zoning Board of Adjustment on November 17, 2021 to permit an age-restricted use for the proposed relocation of Building D on the Applicant's Abutting Property, which is Zoned in the C-3 Zoning District, and to increase the total number of residential units in the Project from 116 to 128.

The remnant area of the Applicant's Abutting Property post-subdivision and consultation will be approximately 3.16 acres in size, will have ample frontage along Epping Road and Ray Farmstead Road, will remain in the C-3 Zoning District, will comply in all respects with applicable Zoning regulations and could accommodate viable C-3 commercial development in the future.

The Applicant's proposal will require a Wetlands Conservation District Conditional Use Permit and Shoreland Protection District Conditional Use Permit and the Applicant welcomes any comments the Planning Board may have regarding these prospective applications.

In the meantime, if you have any questions do not hesitate to contact me.

Very truly yours,

GM2 Associates



Denis M. Hamel, CPESC

Project Manager

cc: Jonathan Shafmaster  
Justin Pasay, Esq. DT&C. PLLC  
Brendan Quigley, Gove Environmental

# Town of Exeter



## Planning Board Application for

- Minor Site Plan Review
  - Minor Subdivision
  - Lot Line Adjustment

*January 2019*



## **Town of Exeter Application for Minor Subdivision, Minor Site Plan, and/or Lot Line Adjustment**

**Date:** January 2019

**Memo To:** Applicants for Minor Subdivision, Minor Site Plan, and/or Lot Line Adjustment

**From:** Planning Department

**Re:** Guidelines for Processing Applications

The goal of the Planning Board is to process applications as quickly and efficiently as possible. To this end, we have designed an application procedure which is simple and easy to follow (see attached). If some of the information being requested seems irrelevant, please check with the Planning Department office, it may be that your particular proposal does not warrant such information.

It is strongly recommended that prior to submitting an application you discuss your proposal informally with the Town Planner. The Town Planner will review your proposal for conformance with the applicable Town regulations and advise you as to the procedures for obtaining Planning Board approval. Please contact the Planning Department office at (603) 773-6112 to schedule an appointment.

The key to receiving a prompt decision from the Planning Board is to adhere closely to the Board's procedures. A chart outlining the "Planning Board Review Process" is attached for your information. Please be aware that a technical review of your proposal by the Technical Review Committee (TRC) will likely precede Planning Board determination. Staff will gladly review the Application process with you so that you understand the various milestones in the process. A checklist is attached to this application to assist you in preparing your plans.

Copies of the applicable "Site Review and Subdivision Regulations" are available on-line on the Town's web site ([www.exeternh.gov](http://www.exeternh.gov)) or maybe purchased at the Planning Department office on the second floor to the Town Office Building located at 10 Front Street.

It is strongly recommended that you become familiar with these regulations, as they are the basis for review and approval.





**TOWN OF EXETER, NH**  
**APPLICATION FOR MINOR SITE PLAN REVIEW,**  
**MINOR SUBDIVISION and/or LOT LINE ADJUSTMENT**

A completed application shall contain the following items, although please note that some items may not apply such as waivers or conditional use permit:

- |  |       |
|--|-------|
| 1. Application for Hearing   | ( X ) |
| 2. Abutter's List Keyed to the Tax Map (including name and business address of all professionals responsible for the submission (engineer, landscape architect, wetland scientist, etc.) | ( X ) |
| 3. Checklist for plan requirements   | ( X ) |
| 4. Letter of Explanation   | ( X ) |
| 5. Written request and justification for waiver(s) from Site Plan/Sub Regulations  |       |
| 6. Application to Connect and/or Discharge to Town of Exeter Sewer, Water, or Storm Water Drainage System(s) - if applicable   | ( )   |
| 7. Application Fees  | ( X ) |
| 8. Seven (7) copies of 24'x36' plan set  | ( X ) |
| 9. Fifteen (15) 11"x 17" copies of the plan set  | ( X ) |
| 10. Three (3) pre-printed 1"x 2 5/8" labels for each abutter, the applicant and all consultants.   | ( X ) |

**NOTES:** All required submittals must be presented to the Planning Department Office for distribution to other Town departments. Any material submitted directly to other departments will not be considered.



**TOWN OF EXETER  
MINOR SUBDIVISION, MINOR  
SITE PLAN, AND/OR LOT LINE  
ADJUSTMENT APPLICATION**

**OFFICE USE ONLY**

**THIS IS AN APPLICATION FOR:**

MINOR SITE PLAN  
 MINOR (3lots or less)  
SUBDIVISION                       LOTS  
 LOT LINE ADJUSTMENT

_____	<b>APPLICATION</b>
_____	<b>DATE RECEIVED</b>
_____	<b>APPLICATION FEE</b>
_____	<b>PLAN REVIEW FEE</b>
_____	<b>ABUTTER FEE</b>
_____	<b>LEGAL NOTICE FEE</b>
_____	<b>INSPECTION FEE</b>
_____	<b>TOTAL FEES</b>
_____	<b>AMOUNT REFUNDED</b>

1. **NAME OF LEGAL OWNER OF RECORD:** CKT Associate

**ADDRESS:** 158 Shattuck Way Newington NH 03801

**TELEPHONE:** (603) 431-3170

2. **NAME OF APPLICANT:** Willey Creek Company

**ADDRESS:** 158 Shattuck Way Newington, NH 03801

**TELEPHONE:** (603) 431-3170

3. **RELATIONSHIP OF APPLICANT TO PROPERTY IF OTHER THAN OWNER:** \_\_\_\_\_

Same

(Written permission from Owner is required, please attach.)

4. **DESCRIPTION OF PROPERTY:**

**ADDRESS:** off Rayfarmstead Road

**TAX MAP:** 47      **PARCEL #:** 8-1, 9      **ZONING DISTRICT:** C3

**AREA OF ENTIRE TRACT:** 15.75 Acres      **PORTION BEING DEVELOPED:** 2.55 Acres



5. **EXPLANATION OF PROPOSAL:** Add land the the Rasy Farm project to re-locate Buil,dinf D

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6. **ARE MUNICIPAL SERVICES AVAILABLE? (YES/NO)** Yes  
**IF YES, WATER AND SEWER SUPERINTENDENT MUST GRANT WRITTEN APPROVAL FOR CONNECTION. IF NO, SEPTIC SYSTEM MUST COMPLY WITH W.S.P.C.C. REQUIREMENTS.**

7. **LIST ALL MAPS, PLANS AND OTHER ACCOMPANYING MATERIAL SUBMITTED WITH THIS APPLICATION:**

<u>ITEM:</u>	<u>NUMBER OF COPIES</u>
A. <u>Lot Line Adjustment Plan</u>	
B. _____	
C. _____	
D. _____	
E. _____	
F. _____	

8. **ANY DEED RESTRICTIONS AND COVENANTS THAT APPLY OR ARE CONTEMPLATED (YES/NO)** Yes exist ROW easement IF YES, ATTACH COPY.

9. **NAME AND PROFESSION OF PERSON DESIGNING PLAN:**

**NAME:** Robert E. Smith jr  
**ADDRESS:** 6 Chestnut Street Suite 110 Amesbury, MA  
**PROFESSION:** Profesional Land Surveyor **TELEPHONE:** (978) 572-6431

10. **LIST ALL IMPROVEMENTS AND UTILITIES TO BE INSTALLED:** \_\_\_\_\_

water, sewer, gas, underground electric, underground com

---



**11. HAVE ANY SPECIAL EXCEPTIONS OR VARIANCES BEEN GRANTED BY THE ZONING BOARD OF ADJUSTMENT TO THIS PROPERTY PREVIOUSLY?**

(Please check with the Planning Department Office to verify) (YES/NO) Yes IF YES, LIST BELOW AND NOTE ON PLAN.

---

Variance from Zoning Board of Adjustment to allow 32 Unit Residential building in the C3 district

---

**NOTICE:**

I CERTIFY THAT THIS APPLICATION AND THE ACCOMPANYING PLANS AND SUPPORTING INFORMATION HAVE BEEN PREPARED IN CONFORMANCE WITH ALL APPLICABLE TOWN REGULATIONS, INCLUDING BUT NOT LIMITED TO THE "SITE PLAN REVIEW AND SUBDIVISION REGULATION" AND THE ZONING ORDINANCE. FURTHERMORE, IN ACCORDANCE WITH THE REQUIREMENTS OF THE "SITE PLAN REVIEW AND SUBDIVISION REGULATIONS", I AGREE TO PAY ALL COSTS ASSOCIATED WITH THE REVIEW OF THIS APPLICATION.

DATE 3-28-2022 APPLICANT'S SIGNATURE

ACCORDING TO RSA 676.4.I (c), THE PLANNING BOARD MUST DETERMINE WHETHER THE APPLICATION IS COMPLETE WITHIN 30 DAYS OF SUBMISSION. THE PLANNING BOARD MUST ACT TO EITHER APPROVE, CONDITIONALLY APPROVE, OR DENY AN APPLICATION WITHIN SIXTY FIVE (65) DAYS OF ITS ACCEPTANCE BY THE BOARD AS A COMPLETE APPLICATION. A SEPARATE FORM ALLOWING AN EXTENSION OR WAIVER TO THIS REQUIREMENT MAY BE SUBMITTED BY THE APPLICANT.



**ABUTTERS:** PLEASE LIST ALL PERSONS WHOSE PROPERTY IS LOCATED IN NEW HAMPSHIRE AND ADJOINS OR IS DIRECTLY ACROSS THE STREET OR STREAM FROM THE LAND UNDER CONSIDERATION BY THE BOARD. THIS LIST SHALL BE COMPILED FROM THE EXETER TAX ASSESSOR'S RECORDS.

**See Attached List**

TAX MAP \_\_\_\_\_  
NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_

TAX MAP \_\_\_\_\_  
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**Please attach additional sheets if needed**



## **CHECKLIST FOR LOT LINE ADJUSTMENT, MINOR SITE PLAN, or MINOR SUBDIVISION PLAN PREPARATION**

The checklist on the following page has been prepared to assist you in the preparation of your subdivision plan. The checklist items listed correspond to the subdivision plan requirements set forth in Section 7 of the "Site Plan Review and Subdivision Regulations". Unless otherwise indicated, all section references within this checklist refer to these regulations. Each of the items listed on this checklist must be addressed prior to the technical review of subdivision plans by the Technical Review Committee (TRC). See Section 6.5 of the "Site Plan Review and Subdivision Regulations". This checklist **DOES NOT** include all of the detailed information required for subdivision and lot line adjustment plans and therefore should not be the sole basis for the preparation of these plans. For a complete listing of subdivision plan requirements, please refer to Section 7 of the "Site Plan Review and Subdivision Regulations". In addition to these required plan items, the Planning Board will review subdivision plans based upon the standards set forth in Sections 8 and 9 of the "Site Plan Review and Subdivision Regulations". As the applicant, it is **YOUR RESPONSIBILITY** to familiarize yourself with these standards and to prepare your plans in conformance with them.

Please complete this checklist by marking each item listed in the column labeled "Applicant" with one of the following: "X" (information provided); "NA" (note applicable); "W" (waiver requested). For all checklist items marked "NA", a final determination regarding applicability will be made by the TRC. For all items marked "W", please refer to Section 11 of the "Site Plan Review and Subdivision Regulations" for the proper waiver request procedure. All waiver requests will be acted upon by the Planning Board at a public hearing. Please contact the Planning Department office, if you have any questions concerning the proper completion of this checklist.

All of the required information for the plans listed in the checklist must be provided on separate sheets, unless otherwise approved by the TRC.

**NOTE: AN INCOMPLETE CHECKLIST WILL BE GROUNDS FOR REJECTION OF YOUR APPLICATION.**



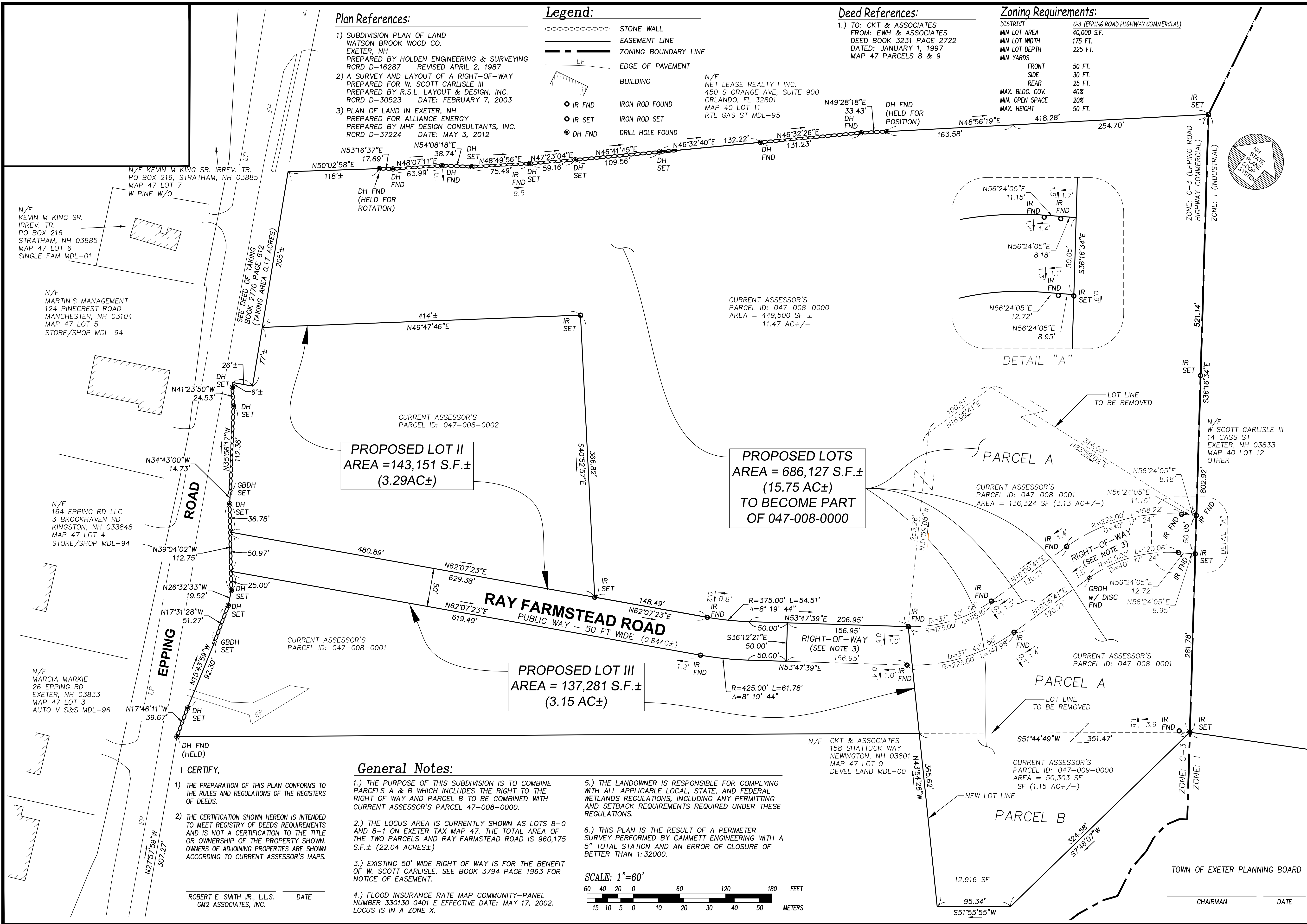
## CHECK LIST FOR MINOR SITE PLAN REVIEW, MINOR SUBDIVISION AND LOT LINE ADJUSTMENT

APPLICANT	TRC	REQUIRED EXHIBITS, SEE REGULATION 6.6.2.4
<input checked="" type="checkbox"/>	<input type="checkbox"/>	a) The name and address of the property owner, authorized agent, the person or firm preparing the plan, and the person or firm preparing any other data to be included in the plan.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	b) Title of the site plan, subdivision or lot line adjustment, including Planning Board Case Number.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	c) Scale, north arrow, and date prepared.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	d) Location of the land/site under consideration together with the names and address of all owners of record of abutting properties and their existing use.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	e) Tax map reference for the land/site under consideration, together with those of abutting properties.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	f) Zoning (including overlay) district references.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	g) A vicinity sketch showing the location of the land/site in relation to the surrounding public street system and other pertinent location features within a distance of 1,000-feet.
<input type="checkbox"/>	<input type="checkbox"/>	h) For minor site plan review only, a description of the existing site and proposed changes thereto, including, but not limited to, buildings and accessory structures, parking and loading areas, signage, lighting, landscaping, and the amount of land to be disturbed.
<input type="checkbox"/>	<input type="checkbox"/>	i) If deemed necessary by the Town Planner, natural features including watercourses and water bodies, tree lines, and other significant vegetative cover, topographic features and any other environmental features which are significant to the site plan review or subdivision design process.
<input type="checkbox"/>	<input type="checkbox"/>	j) If deemed necessary by the Town Planner, existing contours at intervals not to exceed 2-feet with spot elevations provided when the grade is less than 5%. All datum provided shall reference the latest applicable US Coast and Geodetic Survey datum and should be noted on the plan.
<input type="checkbox"/>	<input type="checkbox"/>	k) If deemed necessary by the Town Planner for proposed lots not served by municipal water and sewer utilities, a High Intensity Soil Survey (HISS) of the entire site, or portion thereof. Such soil surveys shall be prepared and stamped by a certified soil scientist in accordance with the standards established by the Rockingham County Conservation District. Any cover letters or explanatory data provided by the certified soil scientist shall also be submitted.
<input type="checkbox"/>	<input type="checkbox"/>	l) State and federal jurisdictional wetlands, including delineation of required setbacks.
<input type="checkbox"/>	<input type="checkbox"/>	m) A note as follows: "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."
<input checked="" type="checkbox"/>	<input type="checkbox"/>	n) Surveyed exterior property lines including angles and bearings, distances, monument locations, and size of the entire parcel. A professional land surveyor licensed in New Hampshire must attest to said plan.





K:\PROJ\CIVIL 3D\2016\16042\DWG\16042.1 SHEET FILES\16042 SUB\_NOV 2021.DWG Dhamel 3/26/2022 1:53 PM

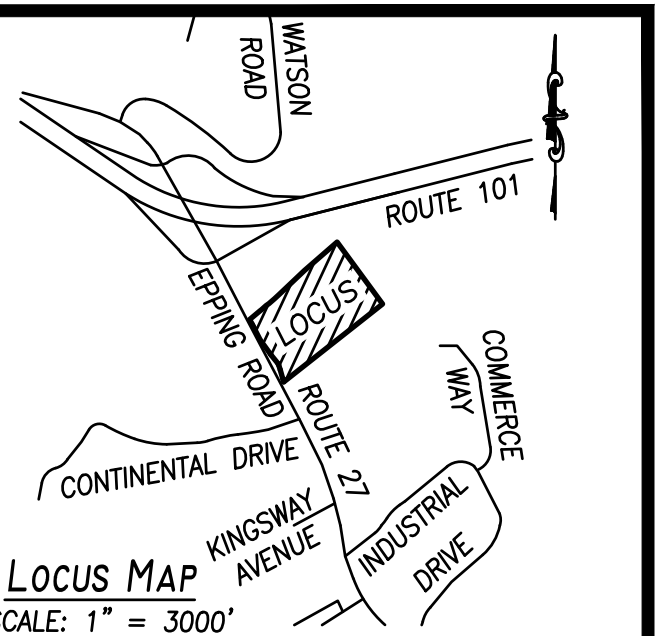
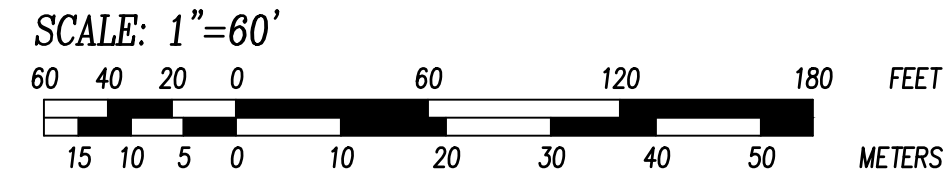


I CERTIFY,

- THE PREPARATION OF THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.
- THE CERTIFICATION SHOWN HEREON IS INTENDED TO MEET REGISTRY OF DEEDS REQUIREMENTS AND IS NOT A CERTIFICATION TO THE TITLE OR OWNERSHIP OF THE PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE SHOWN ACCORDING TO CURRENT ASSESSOR'S MAPS.

**General Notes:**

- THE PURPOSE OF THIS SUBDIVISION IS TO COMBINE PARCELS A & B WHICH INCLUDES THE RIGHT TO THE RIGHT OF WAY AND PARCEL B TO BE COMBINED WITH CURRENT ASSESSOR'S PARCEL 47-008-0000.
- THE LOCUS AREA IS CURRENTLY SHOWN AS LOTS 8-0 AND 8-1 ON EXETER TAX MAP 47. THE TOTAL AREA OF THE TWO PARCELS AND RAY FARMSTEAD ROAD IS 960,175 S.F.± (22.04 ACRES±)
- EXISTING 50' WIDE RIGHT OF WAY IS FOR THE BENEFIT OF W. SCOTT CARLISLE. SEE BOOK 3794 PAGE 1963 FOR NOTICE OF EASEMENT.
- FLOOD INSURANCE RATE MAP COMMUNITY-PANEL NUMBER 330130 0401 E EFFECTIVE DATE: MAY 17, 2002. LOCUS IS IN A ZONE X.
- 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.
- THIS PLAN IS THE RESULT OF A PERIMETER SURVEY PERFORMED BY CAMMETT ENGINEERING WITH A 5" TOTAL STATION AND AN ERROR OF CLOSURE OF BETTER THAN 1:32000.



**G&M2**

6 CHESTNUT STREET, AMESBURY, MA.  
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Sheet Title:  
**Lot Line Adjustment Plan**  
 Project Title:  
**"Ray Farm" Active Adult Community**  
 Epping Road  
 Exeter, NH 03833  
 Rockingham County

Applicant:  
**Willey Creek Company**  
 158 Shattuck Way  
 Newington, NH 03801

Owner:  
**CKT & Associates**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION			
NO.	DATE	DESCRIPTION	BY
1	11.23.21	MINOR EDITS	RS
2	02.01.22	MINOR EDITS	RS

PROJ. MGR.: D. HAMEL  
 FIELD: M. MICHAUD / A. BICK  
 DESIGN: D. HAMEL  
 DRAWN: J. SALVAGGIO  
 CHECKED: R. SMITH  
 DATE: 11-03-21  
 FILE: 16042 SUB NOV 2021.DWG  
 FBK:  
 JOB #: 16042

# **Town of Exeter**



## **Planning Board Application for Site Plan Review**

*October 2019*



## SITE PLAN REVIEW APPLICATION CHECKLIST

A COMPLETED APPLICATION FOR SITE PLAN REVIEW MUST CONTAIN THE FOLLOWING

1. Application for Hearing ( X )
2. Abutter's List Keyed to Tax Map ( X )  
(including the name and business address of every engineer, architect,  
land surveyor, or soils scientist whose professional seal appears on any  
plan submitted to the Board)
3. Completed- " Checklist for Site Plan Review" ( X )
4. Letter of Explanation ( X )
5. Written Request for Waiver (s) from " Site Plan Review and Subdivision  
Regulations" ( X )  
(if applicable)
6. Completed "Preliminary Application to Connect and /or Discharge to Town  
of Exeter- Sewer, Water or Storm Water Drainage System(s)"( if applicable) ( X )
7. Planning Board Fees ( X )
8. Seven (7) full-sized copies of Site Plan ( X )
9. Fifteen (15) 11"x17" copies of the final plan to be submitted **TEN DAYS**  
**PRIOR** to the public hearing date. ( X )
10. Three (3) pre-printed 1"x 2 5/8" labels for each abutter, the applicant and  
all consultants. ( X )

**NOTES:** All required submittals must be presented to the Planning Department office for distribution to other Town departments. Any material submitted directly to other departments will not be considered.



# TOWN OF EXETER, NH APPLICATION FOR SITE PLAN REVIEW

### OFFICE USE ONLY

**THIS IS AN APPLICATION FOR:**

- COMMERCIAL SITE PLAN REVIEW
- INDUSTRIAL SITE PLAN REVIEW
- MULTI-FAMILY SITE PLAN REVIEW
- MINOR SITE PLAN REVIEW
- INSTITUTIONAL/NON-PROFIT SPR

_____	APPLICATION #
_____	DATE RECEIVED
_____	APPLICATION FEE
_____	PLAN REVIEW FEE
_____	ABUTTERS FEE
_____	LEGAL NOTICE FEE
_____	TOTAL FEES

_____	INSPECTION FEE
_____	INSPECTION COST
_____	REFUND (IF ANY)

1. NAME OF LEGAL OWNER OF RECORD: CKT Associates

\_\_\_\_\_ TELEPHONE: ( 603 ) 431-3170

ADDRESS: 158 Shattuck Way Newington, NH 03801

2. NAME OF APPLICANT: Willey Creek Co.

ADDRESS: 158 Shattuck Way Newington NH 03801

\_\_\_\_\_ TELEPHONE: ( 603 ) 431-3170

3. RELATIONSHIP OF APPLICANT TO PROPERTY IF OTHER THAN OWNER: \_\_\_\_\_

Same

(Written permission from Owner is required, please attach.)

4. DESCRIPTION OF PROPERTY: Wooded with variable slopes with areas of wetlands

ADDRESS: off Ray Farmstead Road

TAX MAP: 47 PARCEL #: 8-1, 9 ZONING DISTRICT: C3

AREA OF ENTIRE TRACT: 15.75 Acres PORTION BEING DEVELOPED: 2.55 Acres



5. **ESTIMATED TOTAL SITE DEVELOPMENT COST \$** \$1.2 million+/-
6. **EXPLANATION OF PROPOSAL:** Re-locate previopusly approved Building D to new location shown on the attached plans along will all required apputances
7. **ARE MUNICIPAL SERVICES AVAILABLE? (YES/NO)** Yes

If yes, Water and Sewer Superintendent must grant written approval for connection.  
If no, septic system must comply with W.S.P.C.C. requirements.

8. **LIST ALL MAPS, PLANS AND OTHER ACCOMPANYING MATERIAL SUBMITTED WITH THIS APPLICATION:**

<u>ITEM:</u>	<u>NUMBER OF COPIES</u>
A. <u>Site - Civil Plans (23 Sheets)</u>	<u>7 full size, 15 11x17</u>
B. <u>Architectural (2 Sheets)</u>	<u>7 Full size, 15 11x17</u>
C. <u>Wetaland impact plans (3 Sheets)</u>	<u>7 Full size, 15 11x17</u>
D. <u>Stormwater Analysis booklet</u>	<u>7 sets</u>
E. _____	_____
F. _____	_____

9. **ANY DEED RESTRICTIONS AND COVENANTS THAT APPLY OR ARE CONTEMPLATED (YES/NO)** Yes, exist ROW Easement **IF YES, ATTACH COPY.**

10. **NAME AND PROFESSION OF PERSON DESIGNING PLAN:**

**NAME:** David Giangrande, PE Denis Hamel, CPESC

**ADDRESS:** 6 Chestnut Street Suite 110 Amesbury, MA 01903

**PROFESSION:** Civil Engineer **TELEPHONE:** ( 978 ) 572-6429

11. **LIST ALL IMPROVEMENTS AND UTILITIES TO BE INSTALLED:**

Tie into existing water and sewer lines of the Ray Farm project, new stormwater mitigation BMP's.

Paved access drive from near existing Building C to the re-located Building D along with parking, lighting landscappings and walkways. Temporary construction access to Commerce Way.



**12. HAVE ANY SPECIAL EXCEPTIONS OR VARIANCES BEEN GRANTED BY THE ZONING BOARD OF ADJUSTMENT TO THIS PROPERTY PREVIOUSLY?**

IF YES, DESCRIBE BELOW. (Please check with the Planning Department Office to verify)

A Variance was granted by the Zoning Board of Adjustment to allow a 32 unit multifamily building in the C3 Commercial Zone.

**13. WILL THE PROPOSED PROJECT INVOLVE DEMOLITION OF ANY EXISTING BUILDINGS OR APPURTENANCES? IF YES, DESCRIBE BELOW.**

(Please note that any proposed demolition may require review by the Exeter Heritage Commission in accordance with Article 5, Section 5.3.5 of the Exeter Zoning Ordinance).

No

**14. WILL THE PROPOSED PROJECT REQUIRE A "NOTICE OF INTENT TO EXCAVATE" (State of NH Form PA-38)? IF YES, DESCRIBE BELOW.**

No

**NOTICE:** I CERTIFY THAT THIS APPLICATION AND THE ACCOMPANYING PLANS AND SUPPORTING INFORMATION HAVE BEEN PREPARED IN CONFORMANCE WITH ALL APPLICABLE REGULATIONS; INCLUDING BUT NOT LIMITED TO THE "SITE PLAN REVIEW AND SUBDIVISION REGULATIONS" AND THE ZONING ORDINANCE. FURTHERMORE, IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 15.2 OF THE "SITE PLAN REVIEW AND SUBDIVISION REGULATIONS", I AGREE TO PAY ALL COSTS ASSOCIATED WITH THE REVIEW OF THIS APPLICATION.

DATE 3-24-22 OWNER'S SIGNATURE [Signature]

ACCORDING TO RSA 676.4.I ( c ), THE PLANNING BOARD MUST DETERMINE WHETHER THE APPLICATION IS COMPLETE WITHIN 30 DAYS OF SUBMISSION. THE PLANNING BOARD MUST ACT TO APPROVE, CONDITIONALLY APPROVE, OR DENY AN APPLICATION WITHIN SIXTY FIVE (65) DAYS OF ITS ACCEPTANCE BY THE BOARD AS A COMPLETE APPLICATION. A SEPARATE FORM ALLOWING AN EXTENSION OR WAIVER TO THIS REQUIREMENT MAY BE SUBMITTED BY THE APPLICANT.



**ABUTTERS:** PLEASE LIST ALL PERSONS WHOSE PROPERTY IS LOCATED IN NEW HAMPSHIRE AND ADJOINS OR IS DIRECTLY ACROSS THE STREET OR STREAM FROM THE LAND UNDER CONSIDERATION BY THE BOARD. THIS LIST SHALL BE COMPILED FROM THE EXETER TAX ASSESSOR'S RECORDS.

**See Attached List**

TAX MAP \_\_\_\_\_  
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**Please attach additional sheets, if needed**



## **CHECKLIST FOR SITE PLAN REVIEW**

The checklist on the following page has been prepared to assist you in the preparation of your site plan. The checklist items listed correspond to the site plan requirements set forth in Section 7 of the "Site Plan Review and Subdivision Regulations". Unless otherwise indicated, all section references within this checklist refer to these regulations. Each of the items listed on this checklist must be addressed by the applicant prior to technical review of the site plan by the Technical Review Committee (TRC) See section 6.5. of the "Site Plan Review and Subdivision Regulations". This checklist **DOES NOT** include all of the detailed information required for site plan preparation and therefore should not be the sole basis for the preparation of these plans. For a complete listing of site plan requirements, please refer to Section 7 of the "Site Plan Review and Subdivision Regulations". In addition to these required plan items, the Planning Board will review site plans based upon the standards set forth in Sections 8 and 9 of the "Site Plan Review and Subdivision Regulations". As the applicant, it is **YOUR RESPONSIBILITY** to familiarize yourself with these standards and to prepare your plans in conformance with them.

Please complete this checklist by marking each item in the column labeled "Applicant" with one of the following: "X: (information provided); "NA" (not applicable); "W: (waiver requested). For all checklist items marked "NA", a final determination regarding applicability will be made by the TRC. For all items marked "W", please refer to Section 13 of the "Site Plan Review and Subdivision Regulations" for the proper request procedure to be followed. If waivers are requested, a justification letter for requested waivers is strongly suggested. All waiver requests will be acted upon by the Planning Board at a public hearing. Please contact the Planning Department office if you have any questions concerning the proper completion of this checklist.

All of the required information for the plans listed in the checklist must be provided on separate sheets, unless otherwise approved by the TRC.

**NOTE: AN INCOMPLETE CHECKLIST WILL BE GROUNDS FOR REJECTION OF YOUR APPLICATION.**





# SITE PLAN REQUIREMENTS

## 7.4 Existing Site Conditions Plan

Submission of this plan will not be applicable in all cases. The applicability of such a plan will be considered by the TRC during its review process as outlined in Section 6.5 Technical Review Committee (TRC) of these regulations. The purpose of this plan is to provide general information on the site, its existing conditions, and to provide the base data from which the site plan or subdivision will be designed. The plan shall show the following:

APPLICANT	TRC	REQUIRED EXHIBITS
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.1 Names, addresses, and telephone numbers of the owner, applicant, and person(s) or firm(s) preparing the plan.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.2 Location of the site under consideration, together with the current names and addresses of owners of record, of abutting properties and their existing land use.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.3 Title, date, north arrow, scale, and Planning Board Case Number.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.4 Tax map reference for the site under consideration, together with those of abutting properties.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.5 Zoning (including overlay) district references.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.6 A vicinity sketch or aerial photo showing the location of the land/site in relation to the surrounding public street system and other pertinent location features within a distance of 2,000-feet, or larger area if deemed necessary by the Town Planner.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.7 Natural features including watercourses and water bodies, tree lines, significant trees (20-inches or greater in diameter at breast height) and other significant vegetative cover, topographic features, and any other environmental features that are important to the site design process.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.8 Man-made features such as, but not limited to, existing roads, structures, and stone walls. The plan shall also indicate which features are to be retained and which are to be removed or altered.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.9 Existing contours at intervals not to exceed 2-feet with spot elevations provided when the grade is less than 5%. All datum provided shall reference the latest applicable US Coast and Geodetic Survey datum and should be noted on the plan.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.10 A High Intensity Soil Survey (HISS) of the entire site, or appropriate portion thereof. Such soil surveys shall be prepared by a certified soil scientist in accordance with the standards established by the Rockingham County Conservation District. Any cover letters or explanatory data provided by the certified soil scientist shall also be submitted.



<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.11 State and Federally designated wetlands, setback information, total wetlands proposed to be filled, other pertinent information and the following wetlands note: "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."
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.12 Surveyed property lines including angles and bearings, distances, monument locations, and size of the entire parcel. A professional land surveyor licensed in New Hampshire must attest to said plan.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.13 The lines of existing abutting streets and driveway locations within 200-feet of the site.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.14 The location, elevation, and layout of existing catch basins and other surface drainage features.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.15 The shape, size, height, location, and use of all existing structures on the site and approximate location of structures within 200-feet of the site.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.16 The size and location of all existing public and private utilities, including off-site utilities to which connection is planned.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.17 The location of all existing easements, rights-of-way, and other encumbrances.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.18 All floodplain information, including the contours of the 100-year flood elevation, based upon the Flood Insurance Rate Map for Exeter, as prepared by the Federal Emergency Management Agency, dated May 17, 1982.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.19 All other features which would fully explain the existing conditions of the site.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.20 Name of the site plan or subdivision.



### 7.5 Proposed Site Conditions Plan (Pertains to Site Plans Only)

The purpose of this plan is to illustrate and fully explain the proposed changes taking place within the site. The proposed site conditions plan shall depict the following:

APPLICANT	TRC	REQUIRED EXHIBITS
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.1 Proposed grades and topographic contours at intervals not to exceed 2-feet with spot elevations where grade is less than 5%. All datum provided shall reference the latest applicable US Coast and Geodetic Survey datum and should be noted on the plan.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.2 The location and layout of proposed drainage systems and structures including elevations for catch basins.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.3 The shape, size, height, and location of all proposed structures, including expansion of existing structures on the site and first floor elevation(s). Building elevation(s) and a rendering of the proposed structure(s).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.4 High Intensity Soil Survey (HISS) information for the site, including the total area of wetlands proposed to be filled.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.5 State and Federally designated wetlands, setback information, total wetlands proposed to be filled, other pertinent information and the following wetlands note: "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."
<input type="checkbox"/> N/A	<input type="checkbox"/>	7.5.6 Location and timing patterns of proposed traffic control devices.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.7 The location, width, curbing and paving of all existing and proposed streets, street rights-of-way, easements, alleys, driveways, sidewalks and other public ways. The plan shall indicate the direction of travel for one-way streets. See Section 9.14 – Roadways, Access Points, and Fire Lanes for further guidance.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.8 The location, size and layout of off-street parking, including loading zones. The plan shall indicate the calculations used to determine the number of parking spaces required and provided. See Section 9.13 – Parking Areas for further guidance.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.9 The size and location of all proposed public and private utilities, including but not limited to: water lines, sewage disposal facilities, gas lines, power lines, telephone lines, cable lines, fire alarm connection, and other utilities.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.10 The location, type, and size of all proposed landscaping, screening, green space, and open space areas.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.11 The location and type of all site lighting, including the cone(s) of illumination to a measurement of 0.5-foot-candle.
<input type="checkbox"/>	<input type="checkbox"/>	7.5.12 The location, size, and exterior design of all proposed signs to be located on the site.
<input type="checkbox"/>	<input type="checkbox"/>	7.5.13 The type and location of all solid waste disposal facilities and accompanying screening.



<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.14 Location of proposed on-site snow storage.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.15 Location and description of all existing and proposed easement(s) and/or right-of-way.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.16 A note indicating that: "All water, sewer, road (including parking lot), and drainage work shall be constructed in accordance with Section 9.5 Grading, Drainage, and Erosion & 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.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.17 Signature block for Board approval

**OTHER PLAN REQUIREMENTS (See Section Indicated)**

- 7.7 Construction plan
- 7.8 Utilities plan
- 7.9 Grading, drainage and erosion & sediment control plan
- 7.10 Landscape plan
- 7.11 Drainage Improvements and Storm Water Management Plan
- 7.12 Natural Resources Plan
- 7.13 Yield Plan

Abutter List for Ray Farm - Parcels 47-8 & 47-9

March 20, 2022

<b>abutters_id_fiel</b>	<b>abutters_owner1</b>	<b>abutters_address</b>	<b>abutters_town</b>	<b>abuta</b>	<b>abutte</b>	<b>abutters_location</b>
047-008-0001	CKT ASSOCIATES	158 SHATTUCK WAY	NEWINGTON	NH	03801	RAY FARMSTEAD RD
047-008-0002	CKT ASSOCIATES	158 SHATTUCK WAY	NEWINGTON	NH	03801	RAY FARMSTEAD RD
047-011-0000	BOATOFGARTEN LLC	PO BOX 4430	MANCHESTER	NH	03108	32 INDUSTRIAL DR
040-012-0000	CARLISLE W SCOTT III	14 CASS ST	EXETER	NH	03833	ROUTE 101
047-005-0000	GLADSTONE REALTY LLC	12 BILLS WAY	BEDFORD	NH	03110	166 EPPING RD
040-011-0000	NET LEASE REALTY I INC	450 S ORANGE AVE SUITE 900	ORLANDO	FL	32801	191 EPPING RD
049-008-0000	EXETER TOWN OF	10 FRONT STREET	EXETER	NH	03833	0 ROUTE 101
039-003-0000	EXETER TOWN OF	10 FRONT STREET	EXETER	NH	03833	FORT ROCK TOWN FOREST
055-058-0000	STOCKBRIDGE REAL ESTATE LLC	141 EPPING RD	EXETER	NH	03833	141 EPPING RD
055-055-0000	BARR PROPERTIES REALTY TRUST	143 GILES RD	EAST KINGSTON	NH	03827	150 EPPING RD
055-056-0002	EXETER CROWN PROPERTY LLC	PO BOX 216	STRATHAM	NH	03885	2 KINGS WAY AVE
047-006-0000	GATEWAY AT EXETER LLC	20 TRAFALGAR SQUARE SUITE 610	NASHUA	NH	03063	170 EPPING RD
047-010-0000	DRAGONFLY REALTY LLC	101 EMERSON RD	MILFORD	NH	03055	151 EPPING RD
047-001-0001	156 EPPING ROAD LLC	156 EPPING RD UNIT 1	EXETER	NH	03833	156 EPPING RD
047-001-0002	158 EPPING ROAD LLC	156 EPPING ROAD	EXETER	NH	03833	158 EPPING RD
048-002-0000	NORTHEAST DISTRIBUTION LTD	11 COMMERCE WAY	EXETER	NH	03833	11 COMMERCE WAY
048-003-0000	C MARINE DYNAMICS REALTY LLC	8 COMMERCE WAY	EXETER	NH	03833	8 COMMERCE WAY
055-056-0001	GRANITE GROUP PROPERTIES LLC	6 STORRS ST	CONCORD	NH	03301	152 EPPING RD
047-007-0000	GATEWAY AT EXETER LLC	20 TRAFALGAR SQUARE SUITE 610	NASHUA	NH	03063	EPPING RD
047-012-0000	SIDNEY TRUST	C/O WALL INDUSTRIES	WESTFORD	MA	01886	37 INDUSTRIAL DR
047-002-0000	DABROWSKI REALTY HOLDINGS OF NH LLC	6920 POINTE INVERNESS WAY 301	FT WAYNE	IN	46804	160 EPPING RD
047-003-0000	MARKIE MARCIA	26 EPPING RD	EXETER	NH	03833	162 EPPING RD
040-013-0000	EXETER TOWN OF	10 FRONT STREET	EXETER	NH	03833	0 ROUTE 101
055-057-0000	EPPING RD 149 LLC	12 KINGSTON RD UNIT D	EXETER	NH	03833	149 EPPING RD
047-009-0000	CKT ASSOCIATES	158 SHATTUCK WAY	NEWINGTON	NH	03801	159 EPPING RD
047-009-0001	BEZIO SCHULTZ STPIERRE	40 INDUSTRIAL DR	EXETER	NH	03833	40 INDUSTRIAL DR
047-004-0000	BAKERPROP LLC	953 ISLINGTON ST #230	PORTSMOUTH	NH	03801	164 EPPING RD
047-008-0000	RAY FARM LLC	158 SHATTUCK WAY	NEWINGTON	NH	03108	15 WLLEY CREEK RD
	David Giangrande, PE	6 Chestnut Street Suite 110	Amesbury	MA	01913	
	Robert E. Smith Jr. LLS	6 Chestnut Street Suite 110	Amesbury	MA	01913	
	James Gove, CSS, CWS	8 Continental Drive Unit H	EXETER	NH	03833	
	Brendan Quigley, CWS	8 Continental Drive Unit H	EXETER	NH	03833	

**WAIVER FOR PARKING SETBACKS FROM BUILDING**

The Applicant requests a waiver from the requirements of Section 11.3.1.2 of the Site Plan Review and Subdivision Regulations to allow less than 25 feet between Building D and the driveway as follows:

Closest Distance	Furthest Distance	Average Distance
14.9'	30.0'	25.5'

**SITE PLAN REVIEW REGULATIONS WAIVER REQUIREMENTS:**

**13.1.1 Where the Board finds that extraordinary hardships, practical difficulties, or unnecessary expense would result from strict compliance with the foregoing regulations or the purposes of these regulations may be served to a greater extent by an alternative proposal, it may approve waivers to these regulations. The purpose of granting waivers under provisions of these regulation shall be to insure that an applicant is not unduly burdened, as opposed to merely inconvenienced, by said regulations. The Board shall not approve any waiver(s) unless a majority of those present shall fine that:**

**13.1.2. The granting of the waiver will not be detrimental to the public safety, health and welfare or injurious to other property, and will promote the public interest.**

The site has been designed to allow for safe pedestrian and vehicular traffic notwithstanding its location within the setback. Allowing the reduced setback allows less impact to the wetland buffers on the site. There is a substantial amount of landscaping proposed for the areas between the buildings and the parking and/or access drives which will achieve the objective of the regulation.

**13.1.3 The waiver will not, in any manner, vary the provisions of the Exeter Zoning Ordinance, Exeter Master Plan, or official maps.**

Allowing this reduced setback will not violate the spirit of the Zoning Ordinance or Exeter Master Plan and will allow less impact in the wetland buffer.

**13.1.4 Such waiver(s) will substantially secure the objectives, standards and requirements of these regulations.**

Granting this waiver would secure the objectives, standards and requirements of the Town's regulation by reducing impacts on the wetland buffer without impacting public safety or the aesthetics of the project which will be thoroughly landscaped.

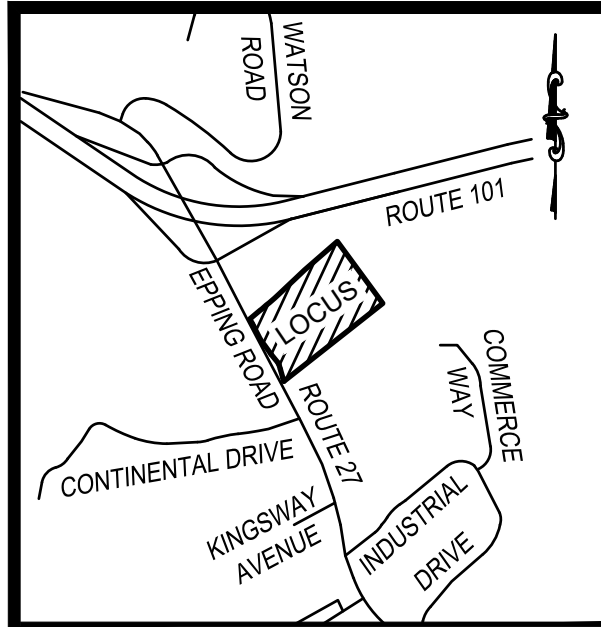
**13.1.5 A particular and identifiable hardship exists or a specific circumstance warrants the granting of a waiver. Factors to be considered in determining the existence of the hardship shall include, but not be limited to: topography; existing site features; geographic location of the property; and size/magnitude of project being evaluated.**

Given the site's existing topography and wetlands, granting this waiver offers greater protection to allow more of the site to remain in its nature state and further protects the wetlands.

Respectfully submitted,  
WILLEY CREEK CO., LLC

---

Johnathan Shafmaster



LOCUS MAP  
SCALE: 1" = 3000'

# Ray Farm

## Active Adult Community

### Site Development Plans for Building D off Ray Farmstead Road, Exeter, NH

#### SHEET INDEX

G1.10	TITLE SHEET
G1.20	GENERAL NOTES, LEGEND, & ABBREVIATIONS
V1.10	MINOR SUBDIVISION PLAN
V1.11, V1.12	EXISTING CONDITIONS
C1.10	OVERALL SITE PLAN
C1.11, C1.12	SITE PLANS
C1.21 TO C1.23	GRADING AND DRAINAGE PLANS
C1.31, 1.32	UTILITY PLANS
C1.41, 1.42	PLAN & PROFILES
C1.51, 1.52	EROSION AND SEDIMENT CONTROL PLANS
C5.11 TO C5.16	DETAILS
C1.24	WETLAND IMPACTS
C1.25	WETLAND BUFFER IMPACT PLAN
C1.26	WATERSHED PLAN



6 CHESTNUT STREET, AMESBURY, MA.  
Phone: (978) 388-2157  
CONSULTING ENGINEERS &  
LAND SURVEYORS SINCE 1988  
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Sheet Title:  
**TITLE SHEET**

Project Title:  
**Ray Farm  
Condominium**  
Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
158 Shattuck Way  
Newington, NH 03801

#### DIMENSIONAL REQUIREMENTS (C-3 DISTRICT)

	REQUIRED
MINIMUM LOT AREA	40,000 SF
MINIMUM LOT WIDTH	175 FEET
MINIMUM LOT DEPTH	225 FEET
MINIMUM YARD SETBACKS	
FRONT	50 FEET
SIDE	30 FEET
REAR	25 FEET
MAXIMUM BUILDING COVERAGE	40 %
MINIMUM OPEN SPACE	20 %
MAXIMUM HEIGHT	50 FEET

#### LOCUS PARCEL

OKT ASSOCIATES  
MAP 47, PARCELS, 8 & 9  
(SEE MINOR SUBDIVISION PLAN V1.10)

#### TOTAL SITE DENSITY

TOTAL PARCEL AREA  
15.75 Acres (686,127 SF)  
TOTAL NUMBER OF UNITS - 128  
DENSITY = 5,360.4 SF PER UNIT

#### TOTAL SITE DATA

PROPOSED USE - ACTIVE ADULT COMMUNITY (VARIANCE GRANTED)  
4 BUILDINGS WITH 4-32 UNIT BUILDINGS, = 128 UNITS

PARKING REQUIRED - 128 UNITS x 2 SPACES PER UNIT +  
1 SPACE PER 4 UNITS = 288 SPACES REQUIRED

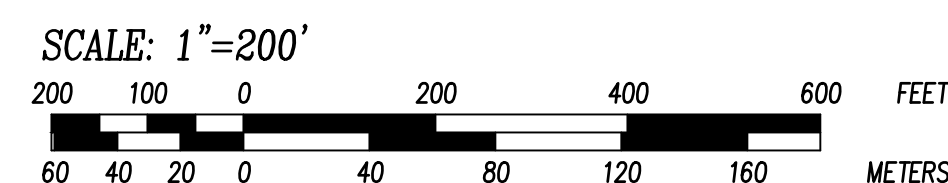
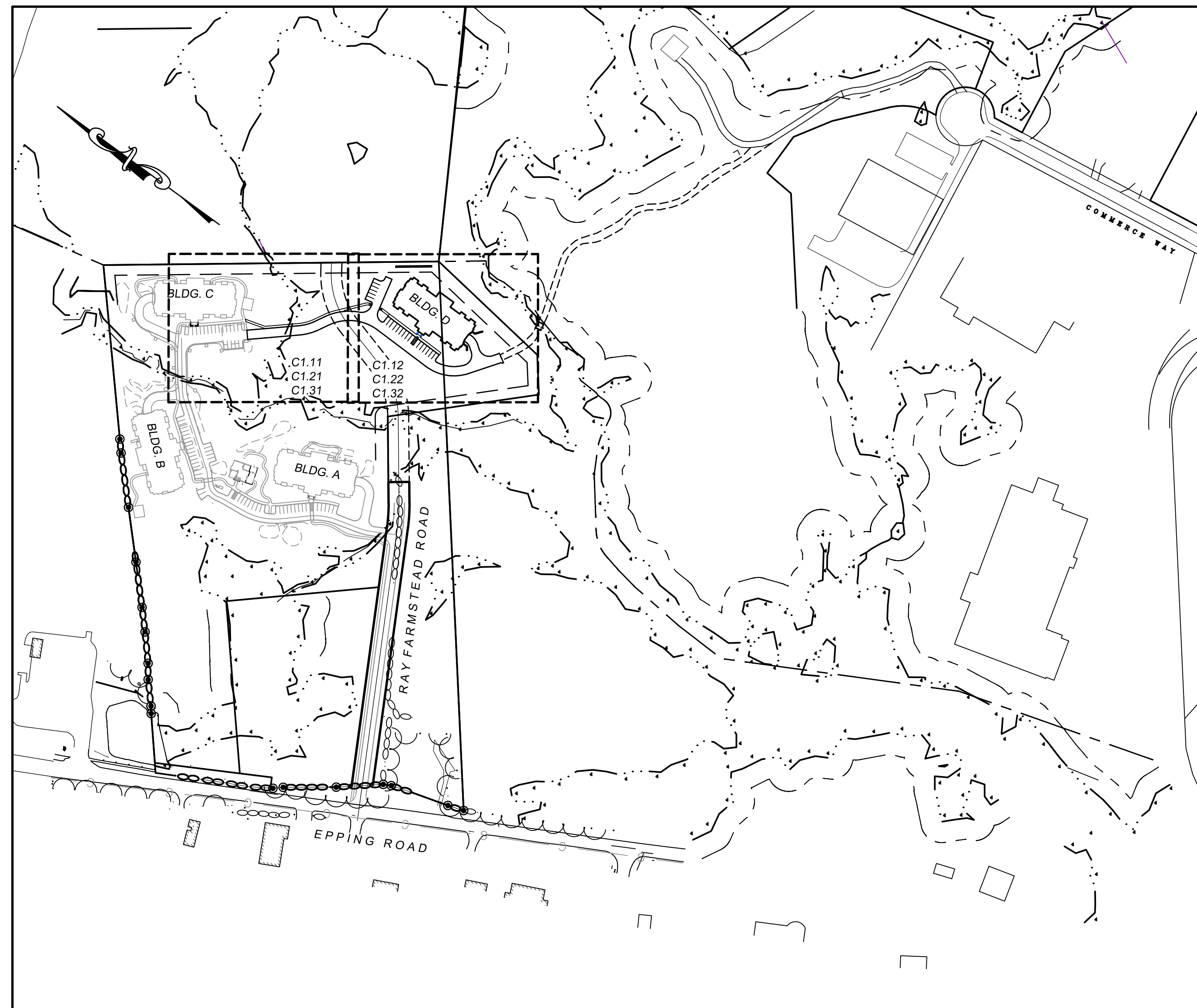
PARKING PROVIDED - 1233 TOTAL (1.82 SPACES/UNIT) (WAIVER  
REQUESTED) 144 IN PARKING GARAGE BELOW BUILDINGS  
89 SURFACE PARKING

#### WAIVERS

1. WAIVER FOR WETLAND IMPACTS - 9.9.2 SITE PLAN REVIEW REGULATIONS
2. WAIVER FOR PARKING - 5.6.5 ZONING ORDINANCE
3. WAIVER FOR ROADWAY DESIGN PLANS - 7.5.7 AND 7.7 SITE PLAN REVIEW REGULATIONS
4. WAIVER FOR PARKING SETBACKS - 11.3.1.2 SITE PLAN REVIEW REGULATIONS
5. WAIVER FOR RECREATIONAL AREAS - 11.3.4 SITE PLAN REVIEW REGULATIONS

#### PERMITS

ALTERATION OF TERRAIN - AOT 1335 (PREVIOUSLY APPROVED)  
ALTERATION OF TERRAIN - AOT XXXX (FOR BUILDING D)  
DREDGE AND FILL - FILE NO. 2017-01530 (PREVIOUSLY APPROVED)  
DREDGE AND FILL - FILE NO. XXXX-XXX (ASSOCIATED WITH BUILDING D)



TOWN OF EXETER PLANNING BOARD

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

REVISION BLOCK			
NO.	DATE	DESC	BY

PROJ. MGR: D. HAMEL  
FIELD: J. SALVAGGIO / R. SMITH  
DESIGN: D. HAMEL  
DRAWN: D. HAMEL  
CHECKED: D. GIANGRANDE  
DATE: 01-11-2022  
FILE: 16042 D T1.DWG  
FBK:  
JOB #: 16042 D

SHEET G1.10

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## GENERAL NOTES

- ELEVATIONS BASED ON NAVD 1988. PLANS ARE NH STATE PLAIN NAD83 COORDINATE SYSTEM.
- OWNERS OF ADJOINING PROPERTIES ARE SHOWN ACCORDING TO CURRENT ASSESSOR'S MAPS AND DO NOT CONSTITUTE CERTIFICATION TO TITLE OR OWNERSHIP.
- EXISTING CONDITIONS DATA FROM AN ON THE GROUND SURVEY CONDUCTED BY W.C. CAMMETT ENG., NOVEMBER OF 2016 THROUGH APRIL OF 2017, AND GM2 ASSOCIATES IN DECEMBER OF 2021.
- WETLANDS AND SOILS INFORMATION PROVIDED BY GOVE ENVIRONMENTAL SERVICES.
- THERE IS NO FLOOD PLAIN ON THIS SITE ACCORDING TO THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NUMBER 330130 0401 E.
- THE ORIGINAL PARCEL IS LOCATED AT 183 EPPING ROAD AND IS SHOWN AS LOT 8 ON EXETER TAX MAP 47. IT HAS AN AREA OF 960,175 S.F.± (22.04 ACRES±).
- EXISTING 50' WIDE RIGHT OF WAY IS FOR THE BENEFIT OF N. SCOTT CARLISLE. SEE BOOK 3794 PAGE 1963 FOR NOTICE OF EASEMENT.
- THE PERIMETER SURVEY PERFORMED BY W.C. CAMMETT ENG. WITH A 5" TOTAL STATION AND AN ERROR OF CLOSURE OF BETTER THAN 1:32,000.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, WATER AND ANY OTHER PRIVATE OR MUNICIPAL UTILITIES WITH THE APPROPRIATE UTILITY COMPANY.
- WHERE EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER OF RECORD FOR RESOLUTION OF THE CONFLICT.
- EXISTING UTILITY POLES, WILL BE RELOCATED BY OTHERS, IF NECESSARY.
- EXCAVATION SHALL ONLY OCCUR WITHIN THE LIMIT OF WORK, AS SHOWN.
- IF AREAS OUTSIDE THE LIMIT OF PROPOSED WORK IS DISTURBED BY THE CONTRACTOR'S OPERATIONS, THE AREAS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
- JOINTS BETWEEN NEW BITUMINOUS CONCRETE ROADWAY PAVEMENT AND SAW CUT EXISTING PAVEMENT SHALL BE SEALED WITH BITUMEN, INFRARED SEAL, AND BACK SANDED.
- EXISTING SIGNS AND/OR MAILBOXES WITHIN THE PROJECT LIMITS THAT ARE DISTURBED SHALL BE REMOVED AND RELOCATED AS APPLICABLE.
- ALL DISTURBED AREAS OUTSIDE OF THE NEW PAVEMENT LIMITS SHALL BE LOAMED (4" MINIMUM DEPTH) AND SEEDED.
- A MINIMUM OF 10' HORIZONTAL AND 18" VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN WATER MAINS AND SEWER LINES.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE EXETER WATER AND SEWER DEPARTMENT WHEN MAKING THE CONNECTIONS.
- ALL WORK SHALL COMPLY WITH EXETER'S "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER" NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.

## MATERIAL NOTES

- CRUSHED GRAVEL - NHDOT 304.3
- GRAVEL - NHDOT 304.2
- SAND - NHDOT 304.1
- BACKFIL MATERIAL - EARTH MATERIAL FREE FROM ROCKS LARGER THAN 3", DEBRIS, STUMPS, CLAY, ORGANIC MATTER, ICE, FROZEN SOIL, AND EXCESSIVE MOISTURE.
- LOAM - NHDOT 641.2.1
- CRUSHED STONE - GRADED CRUSHED ROCK TO THE SIZE SPECIFIED, WITH LESS THAN 2% FINES PASSING THE #200 SIEVE.
- PLACING AND COMPACTION OF FILL MATERIALS SHALL COMPLY WITH NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SECTION 304.3.4, 304.3.5, AND 304.3.6.
- PAVEMENTS SHALL COMPLY WITH SECTIONS 401, 403, AND 410 OF NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

## CONSTRUCTION NOTES

- PRIOR TO ANY EXCAVATION, DIG-SAFE AND EXETER DPW (603-773-6157) SHALL BE NOTIFIED TO LOCATE ALL PERTINENT UTILITIES INCLUDING WATER, SEWER, AND DRAINAGE.
- THIS PROJECT IS BE TO MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF rsa 430:53 AND CHAPTER Agr 3800 RELATIVE TO INVASIVE SPECIES.
- ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY RAINFALL OF ONE HALF INCH OR MORE.
- DO NOT CLEAR AND STRIP THE ENTIRE SITE AT ONE TIME. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION. IN NO CASE SHALL MORE THAN 3 ACRES BE DISTURBED AT ONE TIME. STABILIZE THE AREA BEFORE MOVING ON TO THE NEXT AREA. DISTURBED AREAS REMAINING OPEN FOR MORE THAN 30 DAYS, SHALL BE STABILIZED.
- WOODY MATERIAL REMOVED DURING THE CLEARING PROCESS MAY BE GROUND UP AND USED AS MULCH FOR EROSION CONTROL TO STABILIZE APPROPRIATE AREAS.
- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
  - BASE COURSE GRAVEL HAS BEEN INSTALLED IN AREAS TO BE PAVED
  - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
  - A MINIMUM OF 3 INCH OF NON EROSION MATERIAL SUCH AS RIP-RAP HAS BEEN INSTALLED
  - OR EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED
- ALL AREAS SHALL BE STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE SEEDING SPECIFICATIONS ARE AS FOLLOWS:

### TEMPORARY SEEDING FOR EROSION CONTROL DURING CONSTRUCTION:

SPECIES	POUNDS/1000 SF	REMARKS
WINTER RYE	2.5	BEST FOR FALL SEEDING. AUG. 15 TO SEPT. 15. SEED TO A DEPTH OF 1"
OATS	2.0	BEST FOR SPRING SEEDING. NO LATER THAN MAY 15. SEED TO A DEPTH OF 1"
ANNUAL RYEGRASS	1.0	SEED EARLY SPRING. AUG. 15 TO SEPT. 15. SEED TO A DEPTH OF 0.25"
PERNIAL RYEGRASS	0.7	SEED BETWEEN APRIL 1 TO AUG. 15. SEED TO A DEPTH OF 0.5"

### PERMANENT VEGETATION SEED MIXTURE:

SPECIES	POUNDS/1000 SF
TALL FESCUE	0.45
CREeping RED FESCUE	0.45
BIRDSFOOT TREFoil	0.20
TOTAL	1.10

- ALL RE-VEGETATED AREAS THAT DO NOT EXHIBIT 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS (ON 3:1 SLOPES OR GREATER). SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, OR SECURING WITH ANCHORED NETTING. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER SNOW OR FROZEN GROUND AND SHALL BE COMPLETED PRIOR TO AN ACCUMULATION OF SNOW AND/OR FROST.
- ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
- AFTER NOVEMBER 15, INCOMPLETE ROADS 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.
- CONCRETE WASH OUT SHALL BE CONDUCTED IN THE AREAS SHOWN ON SHEET C1.51" AND USE THE CONCRETE WASH OUT DETAIL SHOWN ON SHEET C5.11.
- NO STUMPS OR DEBRIS SHALL BE BURIED ONSITE. ALL STUMPS AND CONSTRUCTION DEBRIS SHALL BE STORED ONSITE UNTIL THEY CAN BE DISPOSED OFF SITE IN A FACILITY CAPABLE OF HANDLING SUCH MATERIALS.
- TEMPORARY PORTABLE TOILETS SHALL BE PROVIDED AND PROPERLY MAINTAINED ONSITE FOR THE DURATION OF THE PROJECT.
- VEHICLE MAINTENANCE SHALL BE PERFORMED OFF SITE. ANY VEHICLE LEAKING OIL OR GREASE SHALL BE IMMEDIATELY REPAIRED OR REMOVED FROM THE SITE. FUEL AND OILS SHALL BE STORED IN AN APPROVED LOCATION AND COMPLY WITH LOCAL, STATE, AND FEDERAL REGULATIONS. IN NO CASE SHALL THEY BE STORED WITHIN 100' OF WETLAND AREAS.

## LEGEND

### EXISTING

	EXISTING CONTOURS
	SPOT GRADE
	WETLAND BOUNDARY
	WETLAND FLAG
	CENTER LINE STREAM
	SIGN
	LIGHT POLE
	FLARED END SECTION
	GUY WIRE
	UTILITY POLE
	CATCH BASIN
	DRAIN MANHOLE
	SEWER MANHOLE
	FIRE HYDRANT
	WATER VALVE
	GAS VALVE
	DRAINAGE LINE
	GAS LINE (APPROX.)
	OVERHEAD WIRE
	TREE LINE
	STONE WALL
	DECIDUOUS TREE
	CONIFEROUS TREE
	SIDEWALK
	EDGE OF PAVEMENT
	BUILDING
	TEST PIT
	IRON ROD FOUND
	IRON ROD SET
	DRILL HOLE FOUND
	MAIL BOX
	CONCRETE SURFACE
	METAL GUARD RAIL
	EASEMENT LINE
	ZONING BOUNDARY LINE
	PROPERTY LINE
	LEDGE
	FLAG POLE
	POST (METAL)
	40' WETLAND BUFFER
	50' WETLAND BUFFER
	75' WETLAND BUFFER
	BIKE TRAIL LINE (APPROX.)
	WATERSHED (FROM GIS)
	DRAIN ZONE LINE
	SOIL LINE (BY GOVE)
	SOIL TYPE (BY GOVE)

### CONSTRUCTION LAYOUT CONTROL

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL VERTICAL AND HORIZONTAL LOCATIONS OF SITE ELEMENTS INCLUDING BUT NOT LIMITED BUILDINGS, UTILITIES, ROADS, AND GRADING. THE OWNER WILL PROVIDE HORIZONTAL AND VERTICAL CONTROL POINT DESCRIPTIONS AND LOCATIONS TO THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN, PROTECT, AND ESTABLISH NEW IF NECESSARY, ALL CONTROL POINTS DURING THE DURATION OF THE PROJECT.

### GEOTECHNICAL TESTING

THE OWNER MAY RETAIN A GEOTECHNICAL ENGINEER TO PERFORM TESTING OF COMPLETED SITE WORK INCLUDING BUT NOT LIMITED TO THE INSTALLATION OF; GRAVEL, CRUSHED STONE, SAND, COMMON FILL, COMPACTION, AND CONCRETE. THE CONTRACTOR SHALL COOPERATE WITH THE HIRED GEOTECHNICAL ENGINEER AND ALLOW FULL ACCESS TO THE SITE AND DELIVERY RECEIPTS OF MATERIALS DELIVERED. WHEN TESTING RESULTS INDICATE NON-COMPLIANCE WITH THE CONTRACT DOCUMENTS AND/OR STANDARD CONSTRUCTION PRACTICES, THE CONTRACTOR SHALL CORRECT THE DEFICIENCY AT NO COST TO THE OWNER.

### PROPOSED

	CONTOUR
	SPOT GRADE
	RIP-RAP
	EROSION CONTROL
	SIGN
	LIGHT POLE
	GUY WIRE
	UTILITY POLE
	CATCH BASIN
	DRAIN MANHOLE
	FLARED END SECTION
	SEWER MANHOLE
	FIRE HYDRANT
	WATER VALVE
	WELL
	TELEPHONE AND CATV PEDESTAL
	TREE
	SHRUB
	PERCOLATION TEST
	DEEP HOLE TEST
	DRAIN PIPE
	UNDERGROUND COMMUNICATION (TELEPHONE, CATV)
	UNDERGROUND ELECTRIC
	SEWER PIPE (GRAVITY)
	SEWER PIPE (FORCE MAIN)
	ROOF DRAIN
	FOUNDATION DRAIN
	WATER PIPE
	GAS PIPE
	OVERHEAD WIRES
	FENCE
	CURBING
	GUARD RAIL
	RETAINING WALL
	TREE LINE
	DETAIL CALL
	BUILDING
	PORTLAND CEMENT CONCRETE
	GRAVEL
	BITUMINOUS CONCRETE
	LANDSCAPING

### CONTRACTOR RESPONSIBILITIES

THE OWNER SHALL PROVIDE THE CONTRACTOR COPIES OF ALL PERMITS ISSUED FOR THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL PERMIT REQUIREMENTS THAT HAVE BEEN ISSUED FOR THIS PROJECT INCLUDING BUT NOT LIMITED TO: NPDES CONSTRUCTION GENERAL PERMIT ISSUED BY THE EPA, ALTERATION OF TERRAIN PERMIT ISSUED BY NHDES, SITE PLAN REVIEW PERMIT ISSUED BY THE TOWN OF EXETER, AND THE DREDGE AND FILL PERMIT ISSUED BY NHDES WETLANDS BUREAU. CONTRACTOR SHALL MAINTAIN THE SITE IN AN ORDERLY FASHION. ALL CONSTRUCTION EQUIPMENT SHALL BE PROPERLY MAINTAINED AND SECURED WHEN NOT IN USE. THE CONTRACTOR SHALL MAINTAIN RECORDS OF THE SIZE AND LOCATION (INCLUDING SWING TIES), OF ALL UNDERGROUND UTILITIES INSTALLED. THE RECORDS SHALL BE MADE AVAILABLE TO THE OWNER UPON REQUEST. THE CONTRACTOR SHALL PROVIDE A CONSTRUCTION SCHEDULE TO THE OWNER FOR REVIEW AND APPROVAL PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES. THE SCHEDULE SHALL BE UPDATED ON A WEEKLY BASIS AT A MINIMUM.

## ABBREVIATIONS

UTILITIES	
RCP	REINFORCED CONCRETE PIPE
PVC	POLYVINYLCHLORIDE PIPE
C.I.	CAST IRON PIPE
COND	CONDUIT
D.I.	DUCTILE IRON PIPE
HYD.	HYDRANT
INV.	INVERT ELEVATION
UP	UTILITY POLE
TSV & B	TAPPING SLEEVE, VALVE AND BOX

### GENERAL

PROP.	PROPOSED
MIN.	MINIMUM
MAX.	MAXIMUM
EXIST.	EXISTING
STA	STATION
GRAN.	GRANITE
DRIVE	DRIVEWAY
ELEV.	ELEVATION
N.T.S.	NOT TO SCALE
TYP.	TYPICAL
APPROX.	APPROXIMATE
CEM. CONC.	CEMENT CONCRETE
BIT. CONC.	BITUMINOUS CONCRETE
ROW	RIGHT OF WAY
CL	CENTERLINE
WALK	SIDEWALK
TBM	TEMPORARY BENCH MARK
SGE	SLOPED GRANITE EDGING

### TREES

12" B	12" BIRCH
12" C	12" CEDAR
12" M	12" MAPLE
12" O	12" OAK
12" P	12" PINE

### ROADWAY

H.P.	HIGH POINT
L.P.	LOW POINT
A.D.	ALGEBRAIC DIFFERENCE
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
PRC	POINT OF REVERSE CURVATURE
PCC	POINT OF COMPOUND CURVATURE
CC	CENTER OF CURVE
PVC	POINT OF VERTICAL CURVATURE
PVT	POINT OF VERTICAL TANGENCY
PVRC	POINT OF VERTICAL REVERSE CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
OD	OUTSIDE DIAMETER
ID	INSIDE DIAMETER
DIA. Ø	DIAMETER
R	RADIUS
TYP.	TYPICAL
L	LENGTH
DP.	DEPTH
EQ.	EQUIVALENT

### TOWN OF EXETER PLANNING BOARD

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



6 CHESTNUT STREET, AMESBURY, MA.

Phone: (978) 388-2157  
CONSULTING ENGINEERS &  
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Sheet Title:

# General Notes

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

Applicant/Owner:

Ray Farm, LLC  
158 Shattuck Way  
Newington, NH 03801

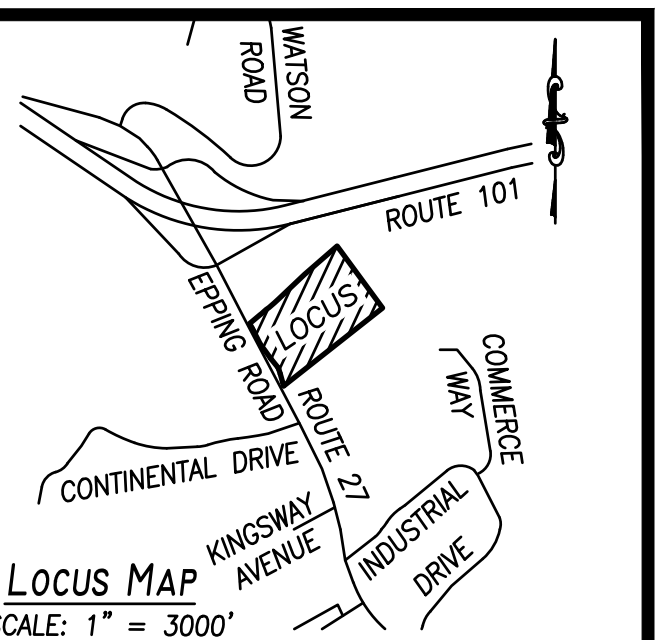
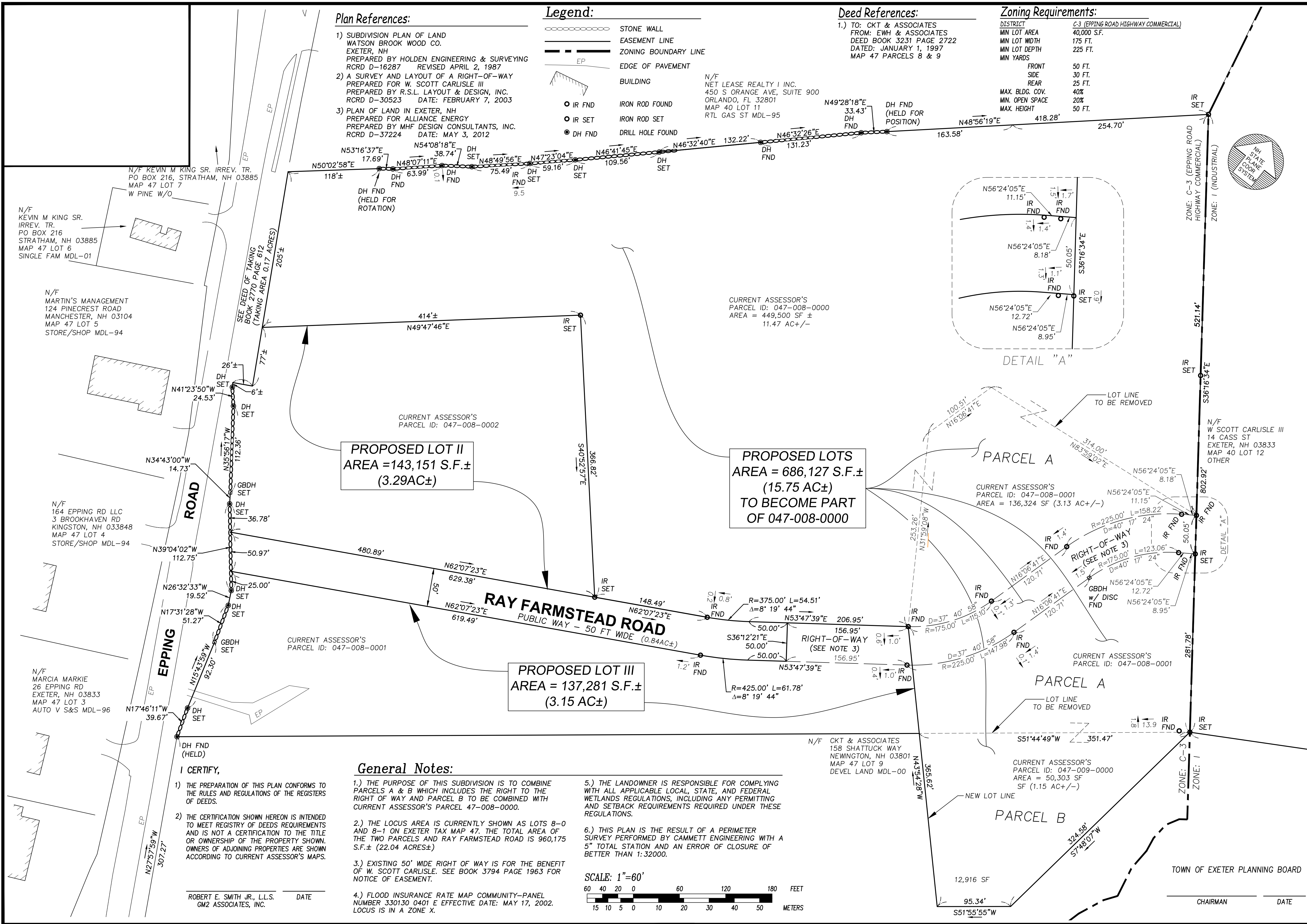
### REVISION BLOCK

NO.	DATE	DESC	BY

PROJ. MGR.:	D. HAMEL
FIELD:	J. SALVAGGIO / R. SMITH
DESIGN:	D. HAMEL
DRAWN:	D. HAMEL
CHECKED:	D. GIANGRANDE
DATE:	01-11-2022
FILE:	16042 D.GN.DWG
FBK:	
JOB #:	16042 D

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**G&M2**

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 Phone: (978) 388-2157  
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Sheet Title:  
**Lot Line Adjustment Plan**  
 Project Title:  
**"Ray Farm" Active Adult Community**  
 Epping Road  
 Exeter, NH 03833  
 Rockingham County

Applicant:  
**Willey Creek Company**  
 158 Shattuck Way  
 Newington, NH 03801

Owner:  
**CKT & Associates**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION			
NO.	DATE	DESCRIPTION	BY
1	11.23.21	MINOR EDITS	RS
2	02.01.22	MINOR EDITS	RS

PROJ. MGR.: D. HAMEL  
 FIELD: M. MICHAUD / A. BICK  
 DESIGN: D. HAMEL  
 DRAWN: J. SALVAGGIO  
 CHECKED: R. SMITH  
 DATE: 11-03-21  
 FILE: 16042 SUB NOV 2021.DWG  
 FBK:  
 JOB #: 16042



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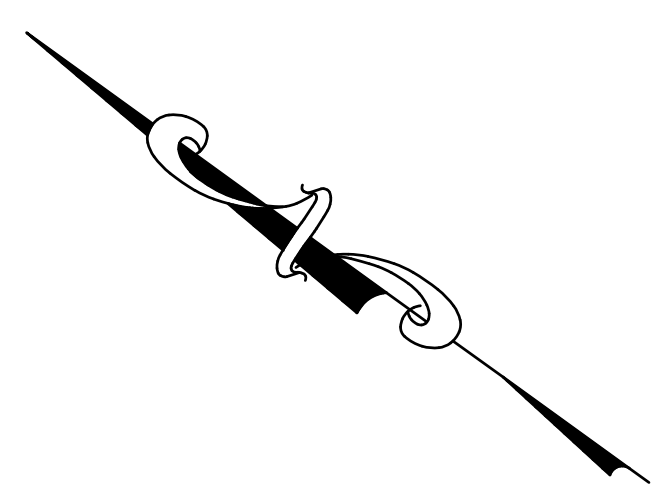
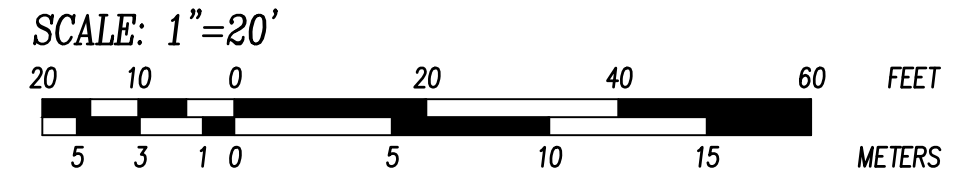
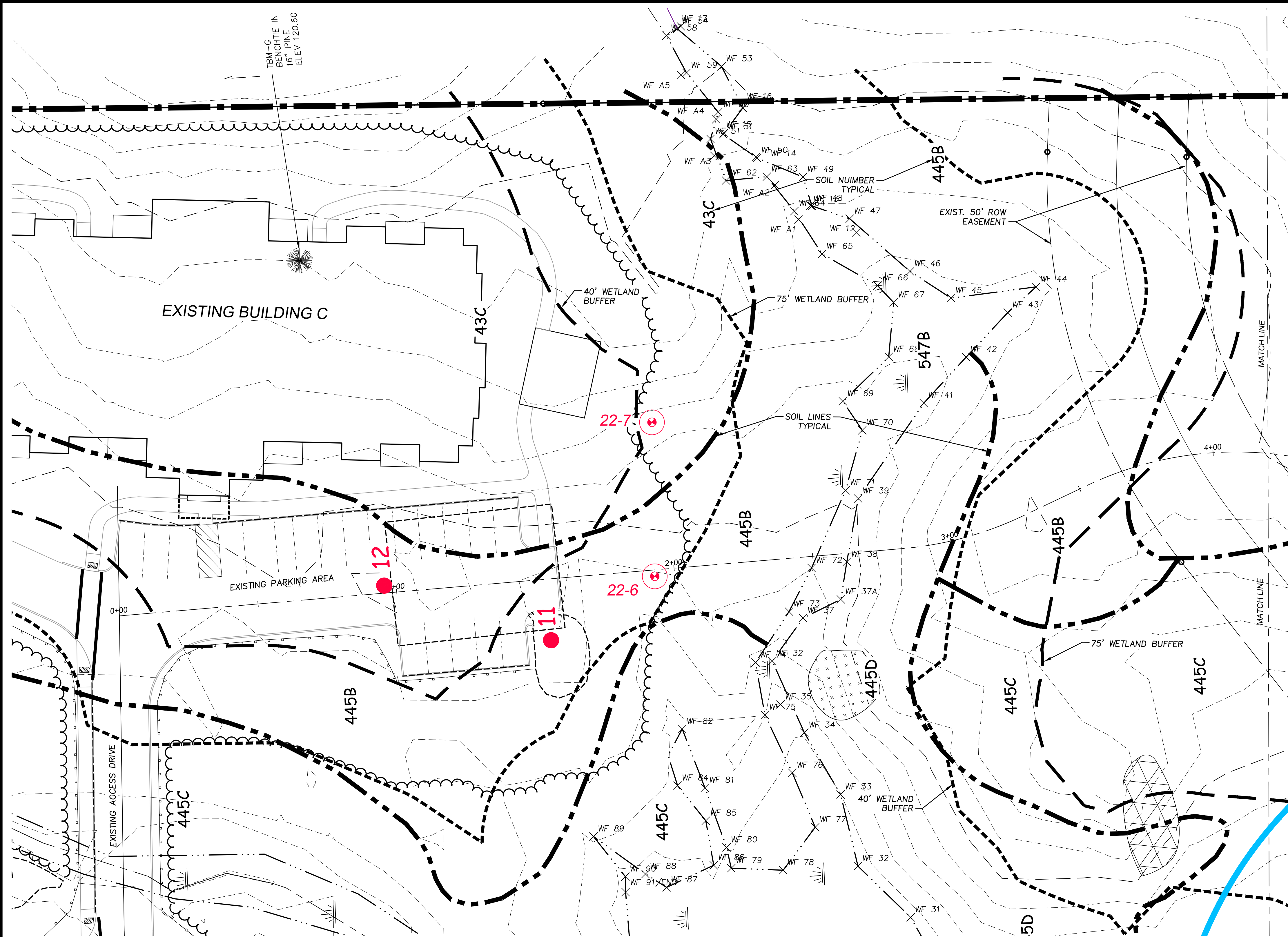
Sheet Title:  
**EXISTING  
 CONDITIONS**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY

PROJ. MGR.: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D EC.DWG  
 FBK:  
 JOB #: 16042 D



**SOILS DATA**

43	CANTON, VERY STONY : HYDROLOGIC GROUP - B
115	SCARBORO MUCK : HYDROLOGIC GROUP - D
343	CANTON, EXTREMELY BOULDERY : HYDROLOGIC GROUP - B
445	NEWFIELDS, VERY STONY : HYDROLOGIC GROUP - B
500	UDORTHENTS, LOAMY : HYDROLOGIC GROUP - B
547	WALPOLE, VERY STONY : HYDROLOGIC GROUP - C

**SLOPES**

B	0 - 8%
C	8 - 15%
D	15 - 25%

**WETLAND NOTES:**

The limits of jurisdictional wetlands as shown on this plan were delineated by Gove Environmental Services, Inc., between November 2014 to April 2015 AND November 2021 in accordance with:

- US Army Corps of Engineers Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Technical Report ERDC/EL TR-12-1, January 2012, Version 2.0
- Field Indicators of Hydric Soils in the United States, Version 7.0, 2010 AND (for disturbed site) Field Indicators for Identifying Hydric Soils in New England, Version 3. NEIWPCC Wetlands Work Group (April 2004)
- North American Digital Flora: National Wetland Plant List, current version.

**SOIL NOTES:**

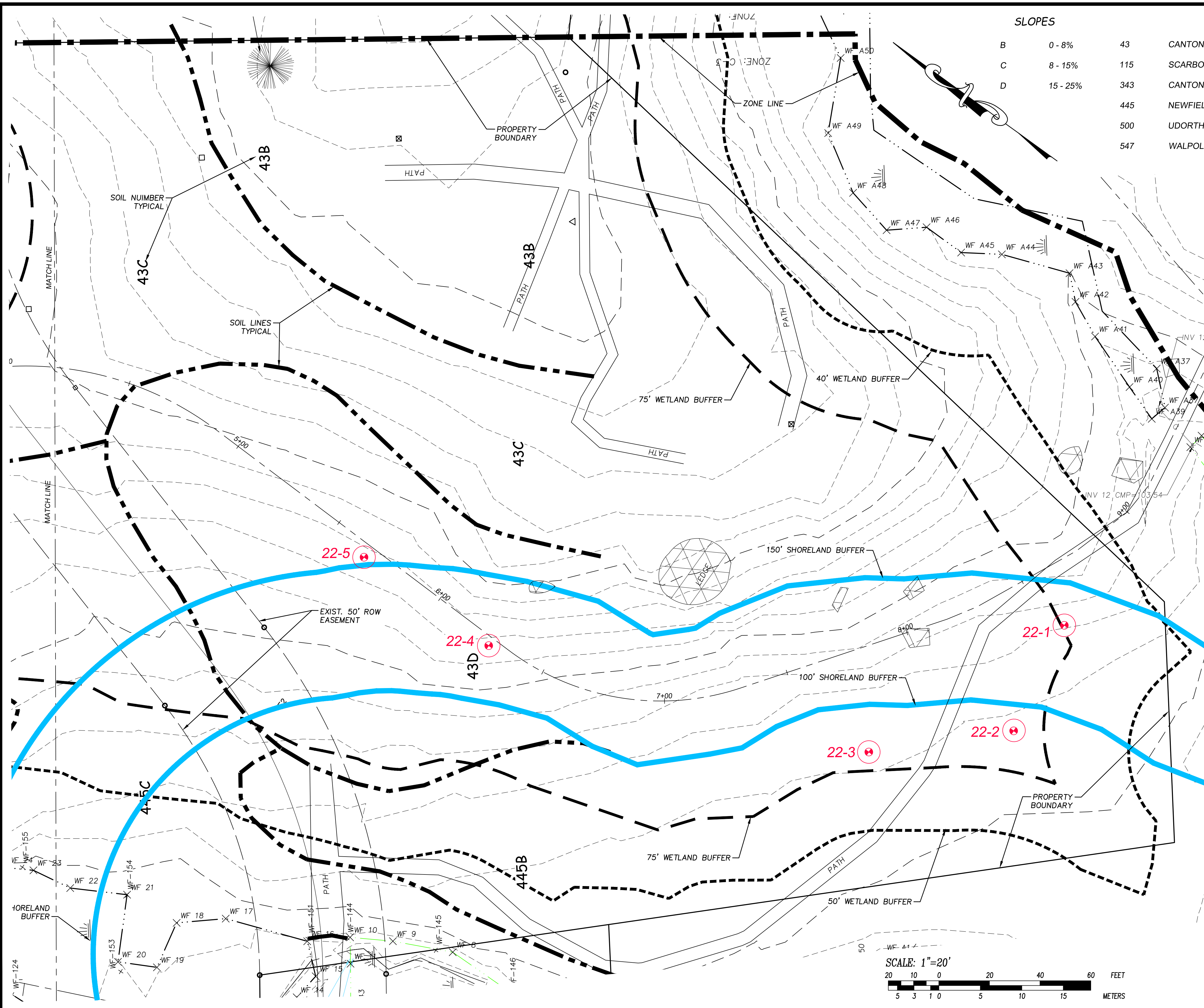
The soils mapping is within the technical standards of the National Cooperative Soil Survey. It is a special purpose product, intended for infiltration requirements by the NH DES Alteration of Terrain Bureau. It was produced by a professional soil scientist, and is not a product of the USDA Natural Resources Conservation Service. There is a report that accompanies this mapping.

The site specific soil survey was produced October 20, 2016, and was prepared by James P. Gove, CSS # 004, Gove Environmental Services, Inc..

Soils were identified with the New Hampshire State-wide Numerical Soils Legend, USDA NRCS, Durham, NH. Issue # 10, January 2011.

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**SLOPES**

B	0 - 8%	43
C	8 - 15%	115
D	15 - 25%	343

**SOILS DATA**

CANTON, VERY STONY	: HYDROLOGIC GROUP - B
SCARBORO MUCK	: HYDROLOGIC GROUP - D
CANTON, EXTREMELY BOULDERY	: HYDROLOGIC GROUP - B
NEWFIELDS, VERY STONY	: HYDROLOGIC GROUP - B
UDORTHENTS, LOAMY	: HYDROLOGIC GROUP - B
WALPOLE, VERY STONY	: HYDROLOGIC GROUP - C

**WETLAND NOTES:**

The limits of jurisdictional wetlands as shown on this plan were delineated by Gove Environmental Services, Inc., between November 2014 to April 2015 AND November 2021 in accordance with:

- US Army Corps of Engineers Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Technical Report ERDC/EL TR-12-1, January 2012, Version 2.0
- Field Indicators of Hydric Soils in the United States, Version 7.0, 2010 AND (for disturbed site) Field Indicators for Identifying Hydric Soils in New England, Version 3. NEIWPCC Wetlands Work Group (April 2004)
- North American Digital Flora: National Wetland Plant List, current version.

**SOIL NOTES:**

The soils mapping is within the technical standards of the National Cooperative Soil Survey. It is a special purpose product, intended for infiltration requirements by the NH DES Alteration of Terrain Bureau. It was produced by a professional soil scientist, and is not a product of the USDA Natural Resources Conservation Service. There is a report that accompanies this mapping.

The site specific soil survey was produced October 20, 2016, and was prepared by James P. Gove, CSS # 004, Gove Environmental Services, Inc..

Soils were identified with the New Hampshire State-wide Numerical Soils Legend, USDA NRCS, Durham, NH. Issue # 10, January 2011.



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Sheet Title:  
**EXISTING  
 CONDITIONS**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

**REVISION BLOCK**

NO.	DATE	DESC	BY

PROJ. MGR.: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
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 FILE: 16042 D.EC.DWG  
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Sheet Title:

# OVERALL SITE PLAN

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:

Ray Farm, LLC  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK

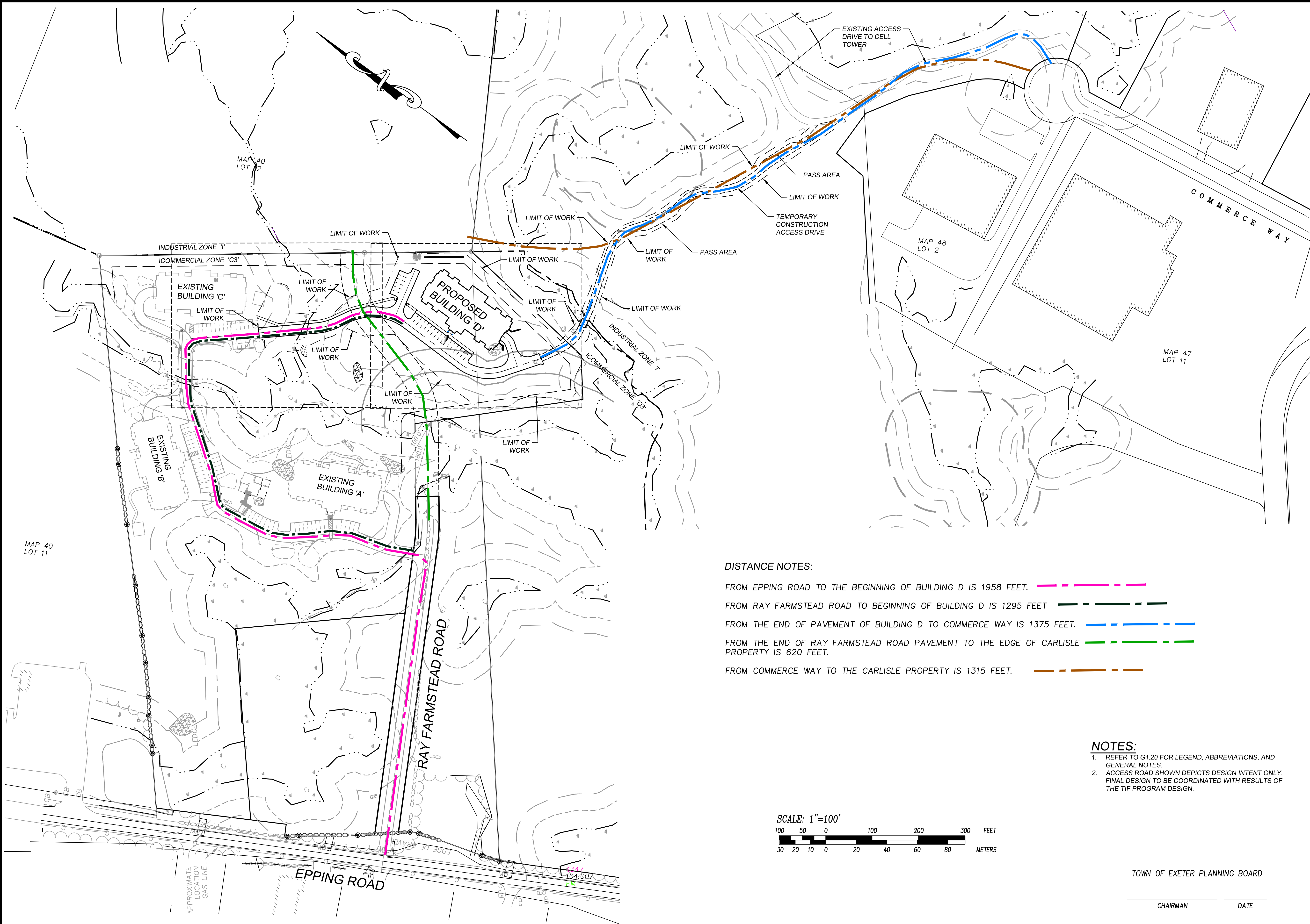
NO.	DATE	DESC	BY

PROJ. MGR: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D 5P.DWG  
 FBK:  
 JOB #: 16042 D

TOWN OF EXETER PLANNING BOARD

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

SHEET C1.10

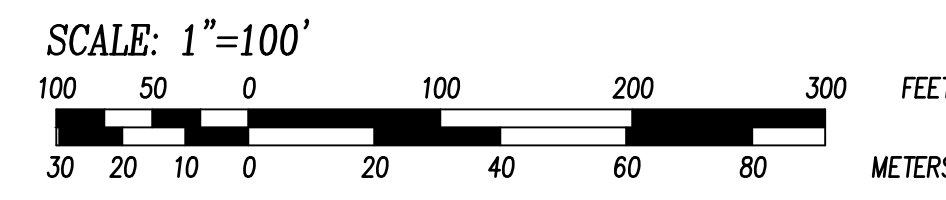


DISTANCE NOTES:

- FROM EPPING ROAD TO THE BEGINNING OF BUILDING D IS 1958 FEET. -----
- FROM RAY FARMSTEAD ROAD TO BEGINNING OF BUILDING D IS 1295 FEET -----
- FROM THE END OF PAVEMENT OF BUILDING D TO COMMERCE WAY IS 1375 FEET. -----
- FROM THE END OF RAY FARMSTEAD ROAD PAVEMENT TO THE EDGE OF CARLISLE PROPERTY IS 620 FEET. -----
- FROM COMMERCE WAY TO THE CARLISLE PROPERTY IS 1315 FEET. -----

NOTES:

1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. ACCESS ROAD SHOWN DEPICTS DESIGN INTENT ONLY. FINAL DESIGN TO BE COORDINATED WITH RESULTS OF THE TIF PROGRAM DESIGN.



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Sheet Title:

# SITE PLAN

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
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 Rockingham County

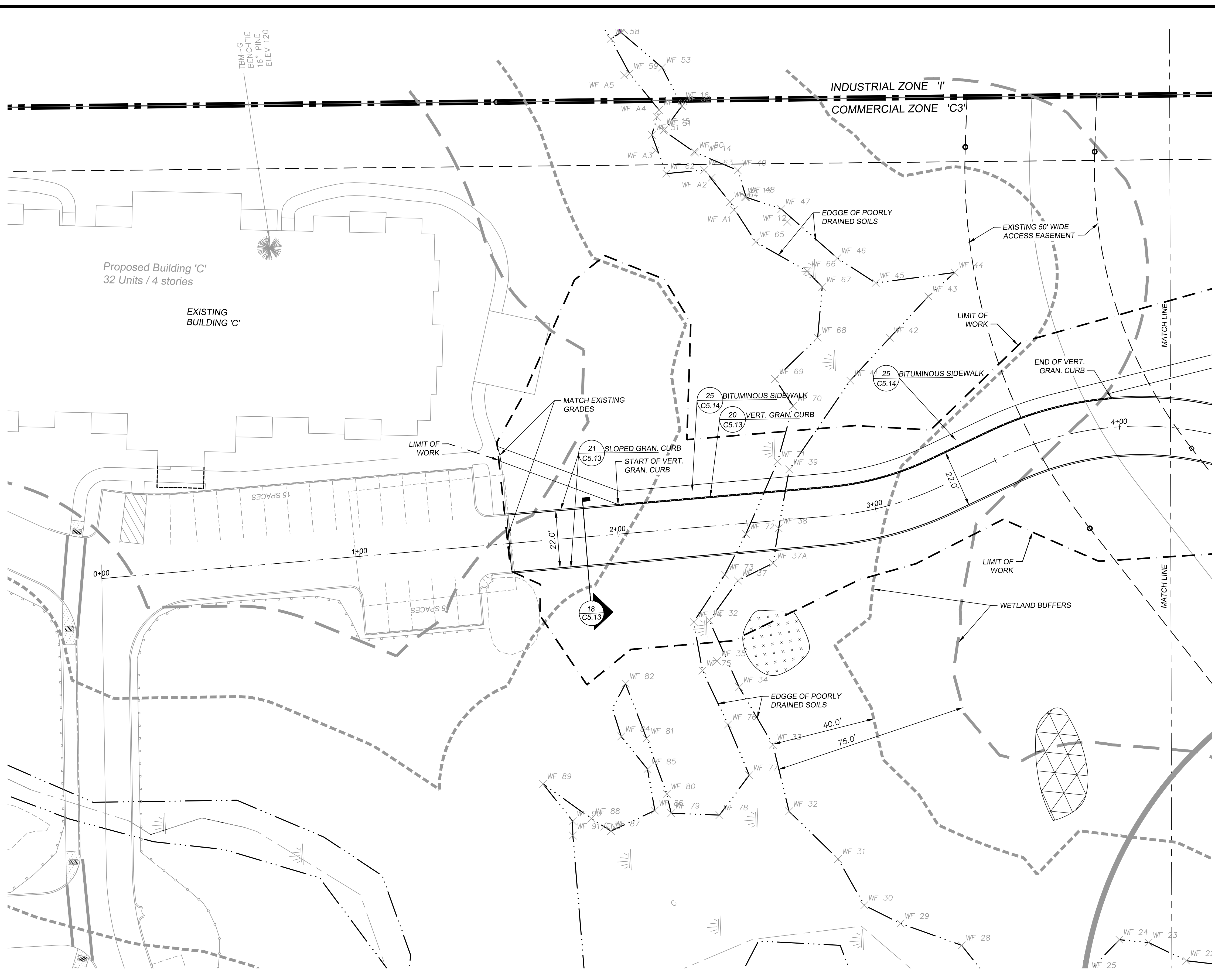
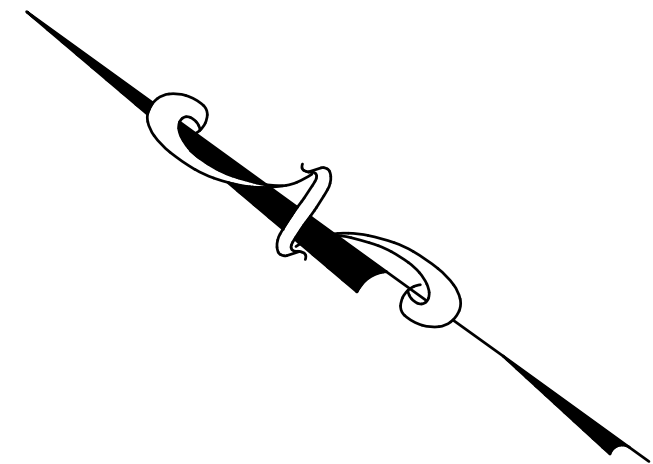
Applicant/Owner:

Ray Farm, LLC  
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 Newington, NH 03801

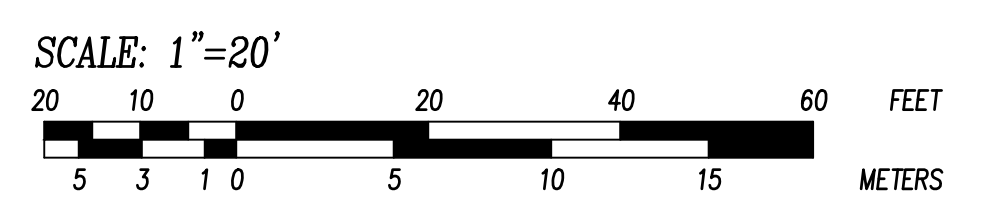
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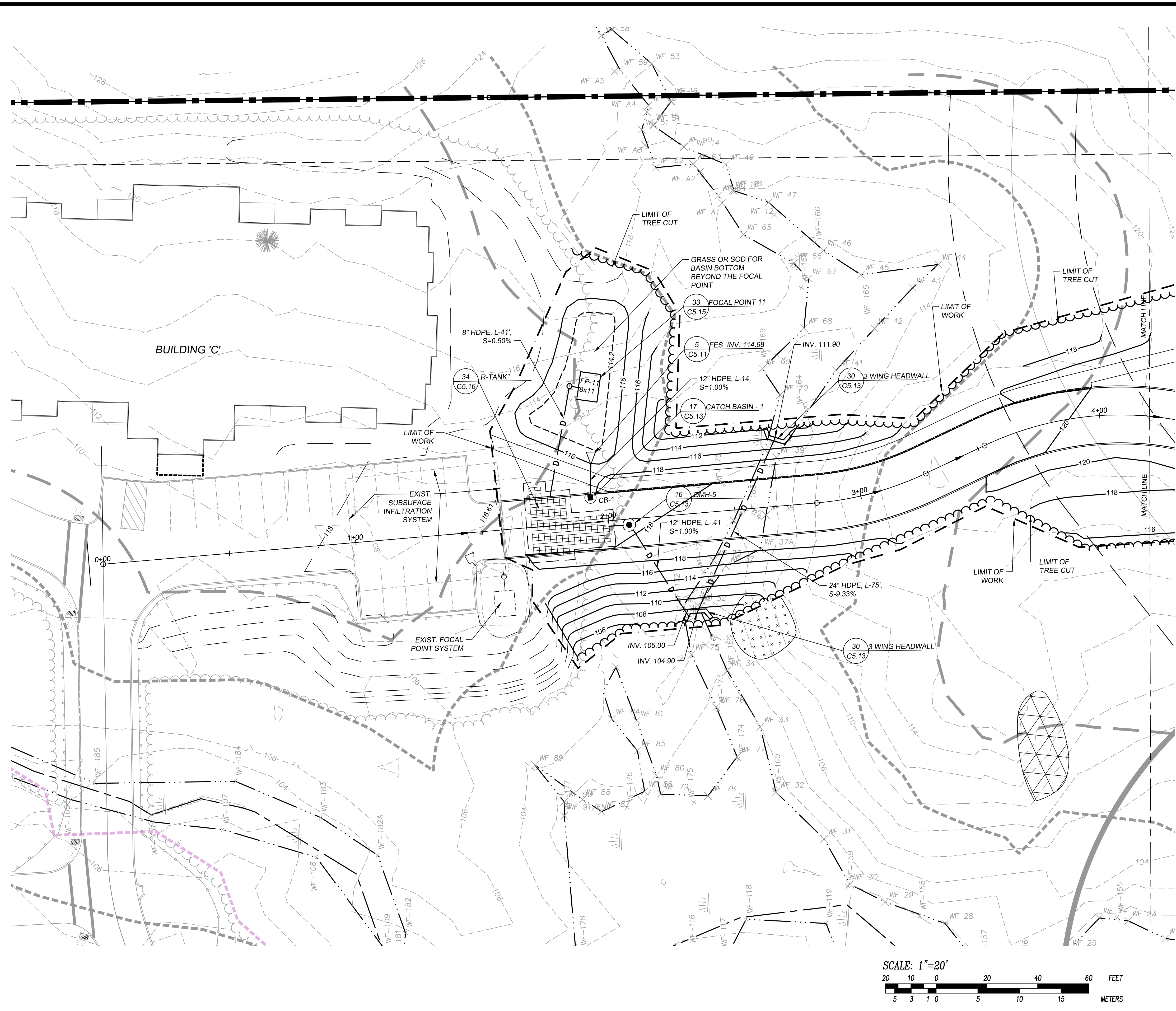


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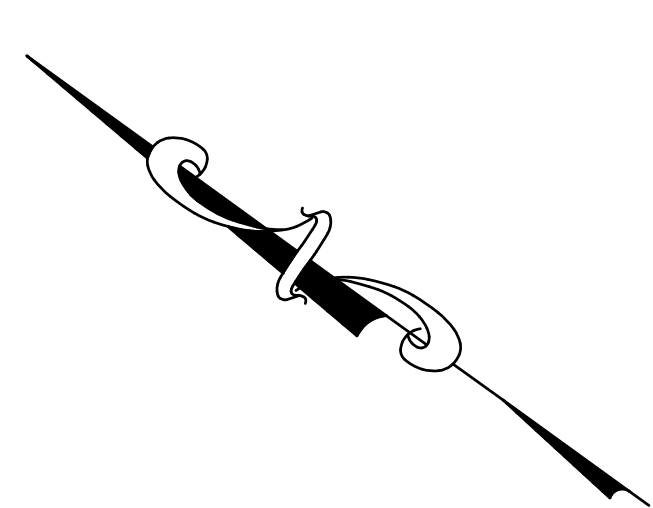
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**DRAINAGE STRUCTURES**  
 CB-1 R-117.15  
 12" INV. OUT 114.82  
  
 DMH-5 R-117.90  
 12" INV. IN - 110.44  
 12" INV. OUT - 109.00



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Sheet Title:  
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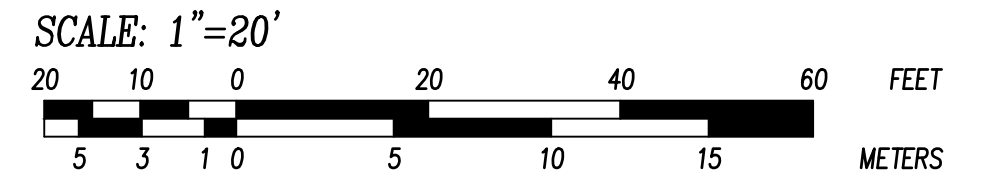
Project Title:  
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 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
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 158 Shattuck Way  
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REVISION BLOCK			
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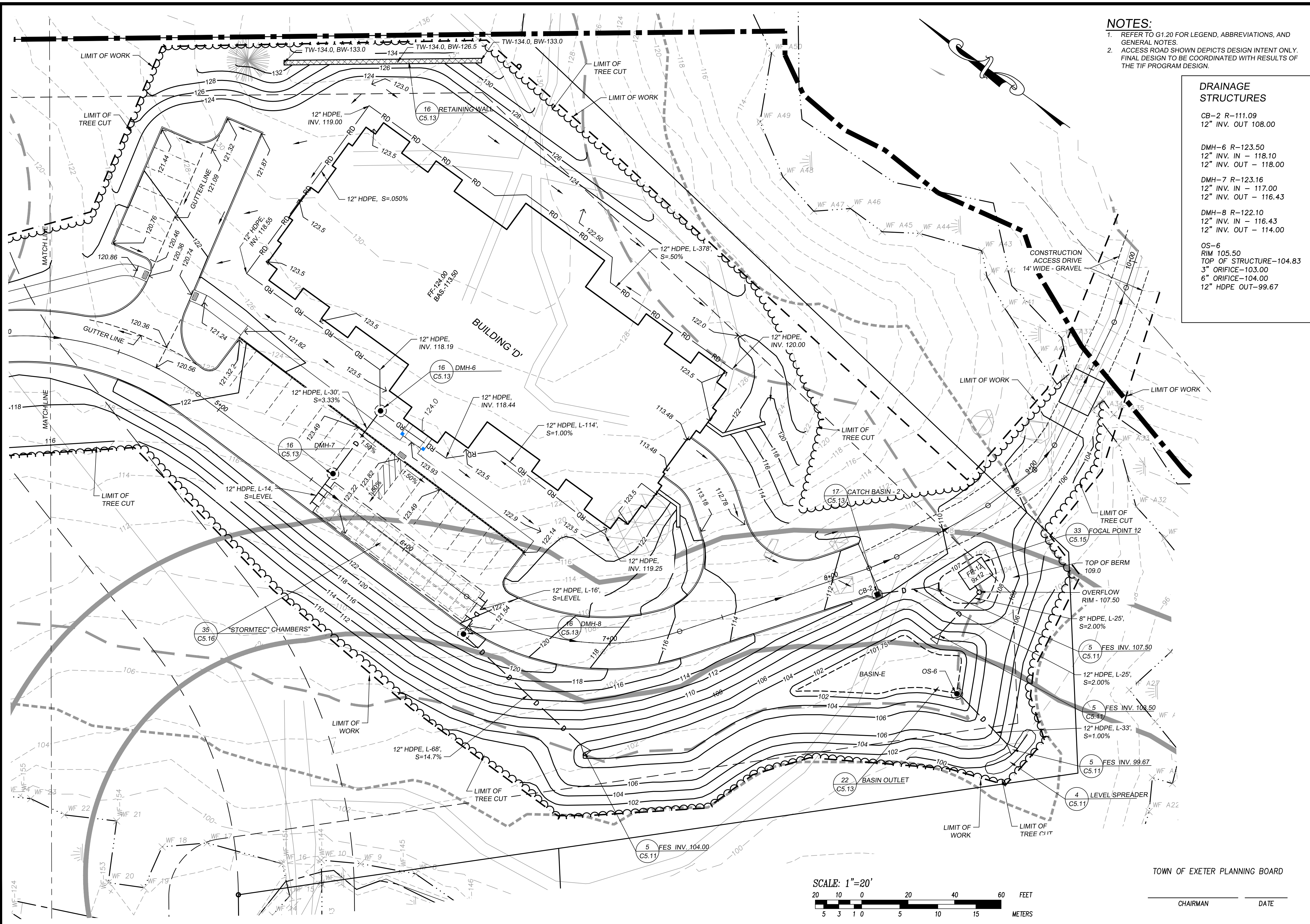
TOWN OF EXETER PLANNING BOARD  
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**DRAINAGE STRUCTURES**

CB-2	R-111.09	12" INV. OUT - 108.00
DMH-6	R-123.50	12" INV. IN - 118.10 12" INV. OUT - 118.00
DMH-7	R-123.16	12" INV. IN - 117.00 12" INV. OUT - 116.43
DMH-8	R-122.10	12" INV. IN - 116.43 12" INV. OUT - 114.00
OS-6	RIM 105.50	TOP OF STRUCTURE-104.83 3" ORIFICE-103.00 6" ORIFICE-104.00 12" HDPE OUT-99.67



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**GRADING AND DRAINAGE PLAN**

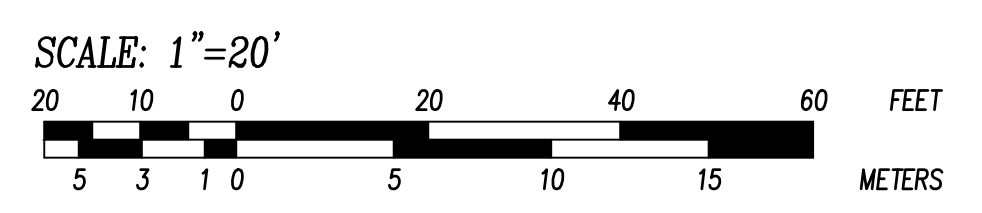
Project Title:  
**Ray Farm Condominium**  
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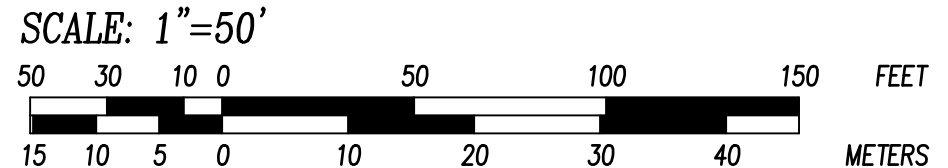
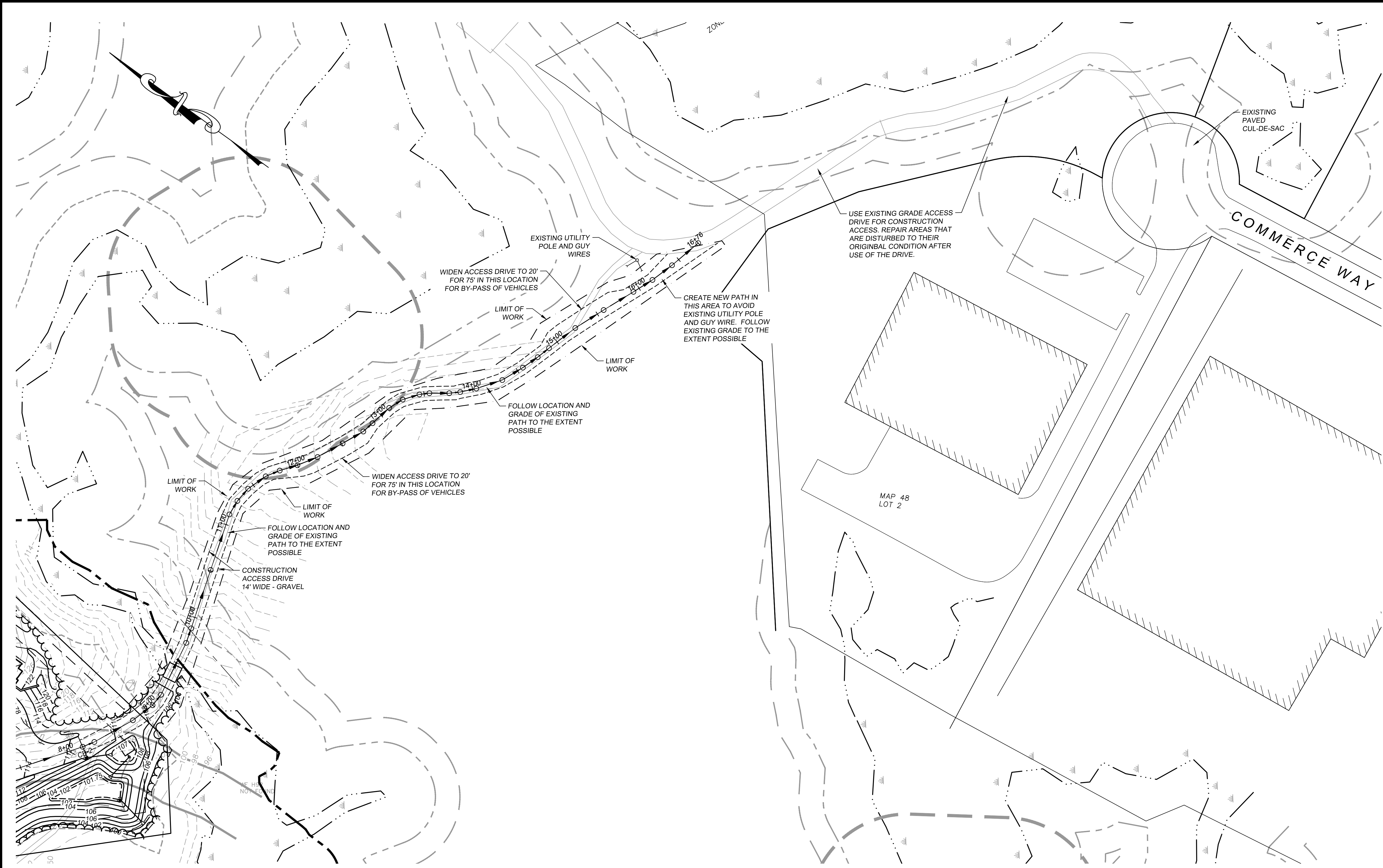
Sheet Title:  
**GRADING  
 AND DRAINAGE  
 PLAN**

Project Title:  
**Ray Farm  
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Applicant/Owner:  
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TOWN OF EXETER PLANNING BOARD  
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Sheet Title:

# UTILITY PLAN

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:

Ray Farm, LLC  
 158 Shattuck Way  
 Newington, NH 03801

### REVISION BLOCK

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 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D UT.DWG  
 FBK:  
 JOB #: 16042 D

SHEET C1.31

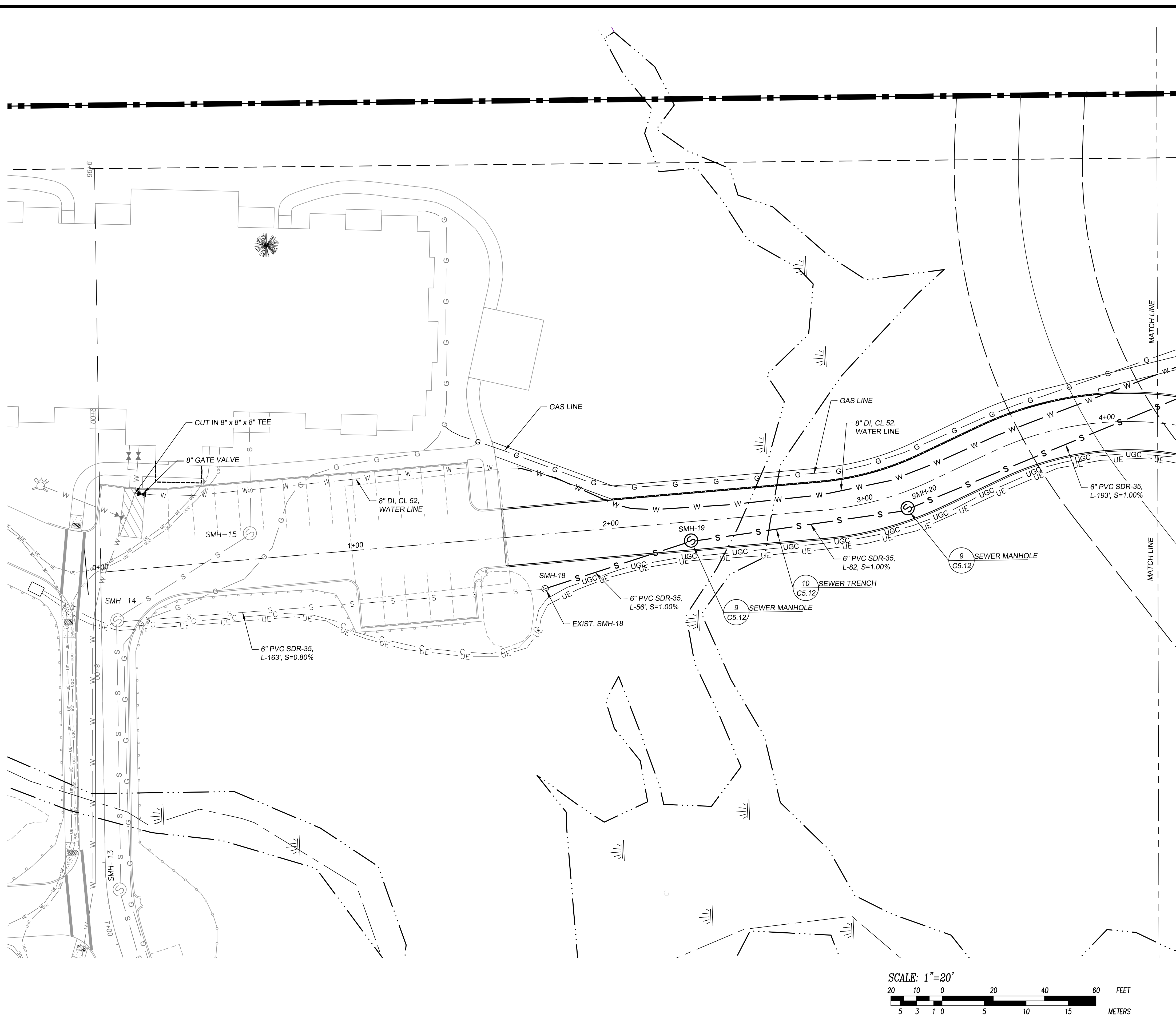
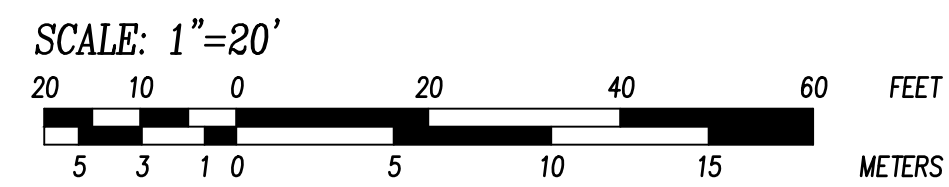
### SEWER STRUCTURES

SMH-14 EXISTING 6" INV. IN 110.60 (EX) 6" INV. OUT 110.50 (EX)	SMH-15 EXISTING 6" INV. IN 111.28 (EX) 6" INV. OUT 111.20 (EX)
SMH-18 EXISTING 6" INV. IN 111.97 (PROP) INV. OUT 111.87 (EX)	SMH-19 R-118.27 6" INV. IN 112.63 6" INV. OUT 112.53
SMH-20 R-119.10 6" INV. IN 113.55 6" INV. OUT 113.45	SMH-21 R-123.00 6" INV. IN 115.58 6" INV. OUT 115.48

- ### NOTES:
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TOWN OF EXETER PLANNING BOARD

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Sheet Title:

# UTILITY PLAN

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

Applicant/Owner:

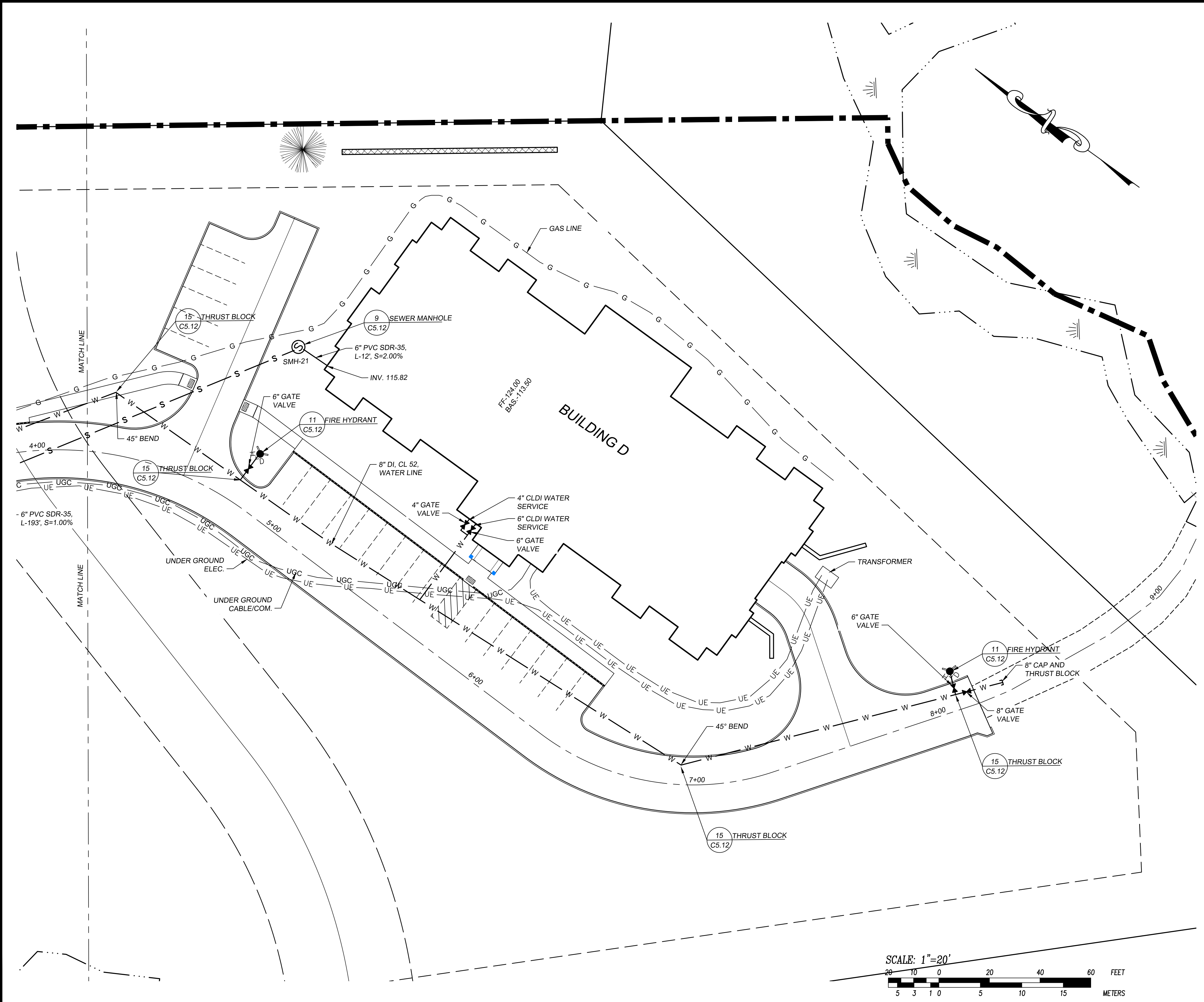
Ray Farm, LLC  
158 Shattuck Way  
Newington, NH 03801

### REVISION BLOCK

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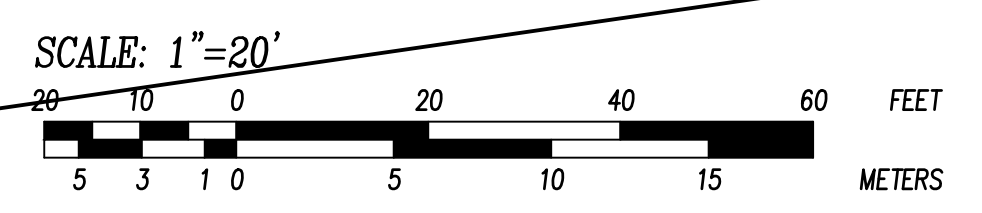
**SEWER STRUCTURES**

SMH-20 R-119.10	SMH-21 R-123.00
6" INV. IN 113.55	6" INV. IN 115.58
6" INV. OUT 113.45	6" INV. OUT 115.48



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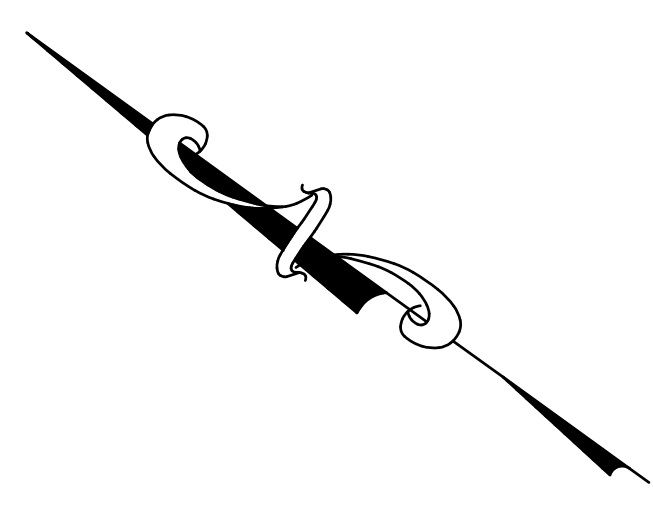
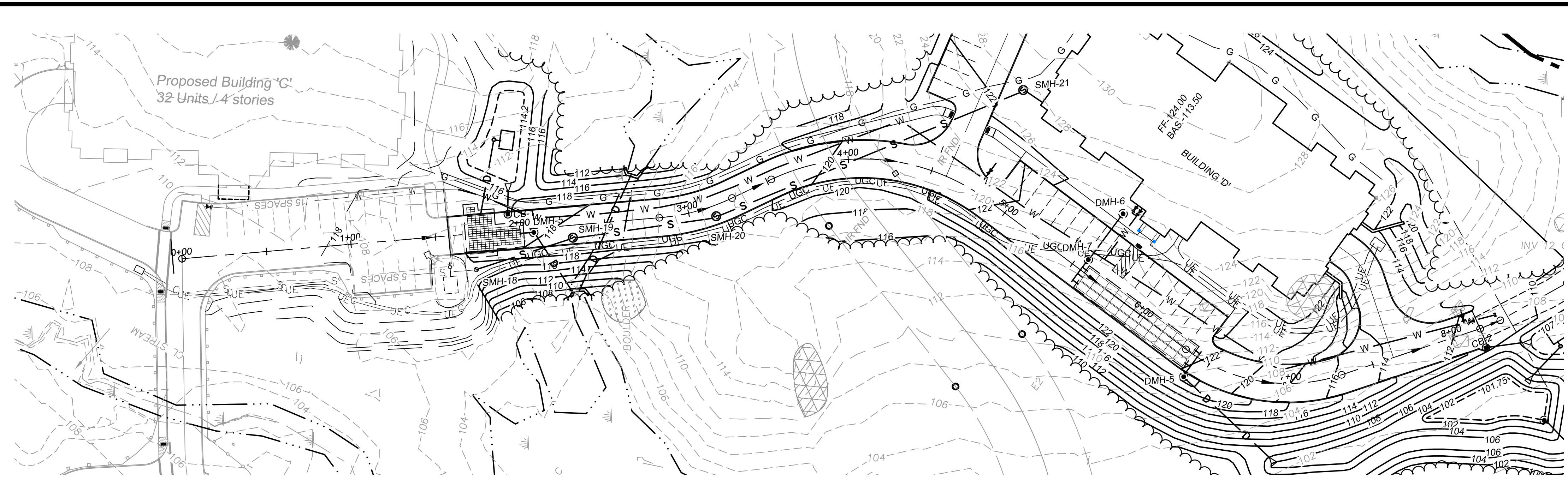
TOWN OF EXETER PLANNING BOARD

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PROJ. MGR.: D. HAMEL  
FIELD: J. SALVAGGIO / R. SMITH  
DESIGN: D. HAMEL  
DRAWN: D. HAMEL  
CHECKED: D. GIANGRANDE  
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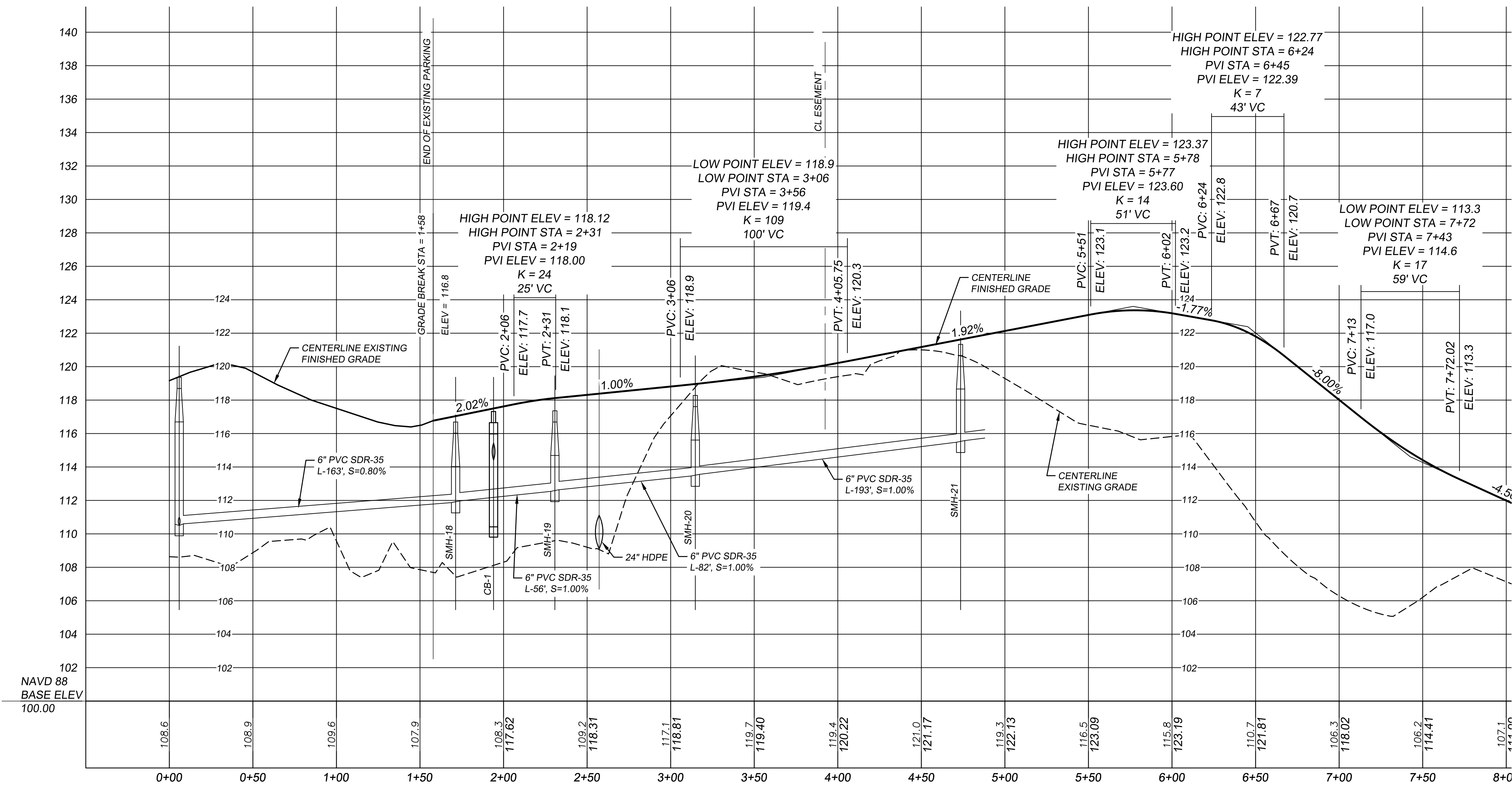
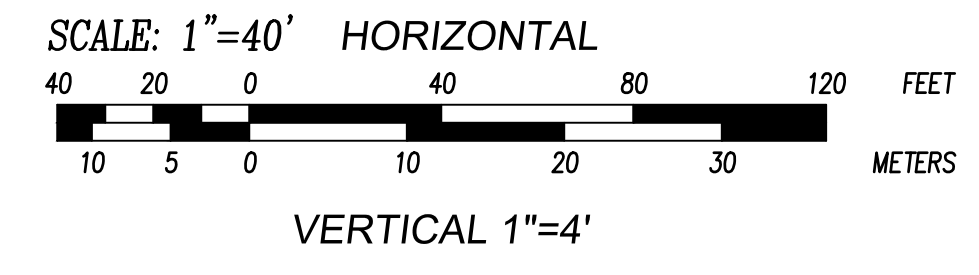


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Sheet Title:  
**PLAN  
 PROFILE**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801



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Sheet Title:

# PLAN PROFILE

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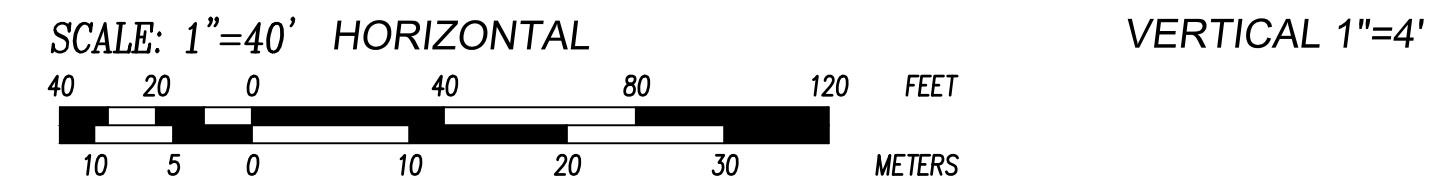
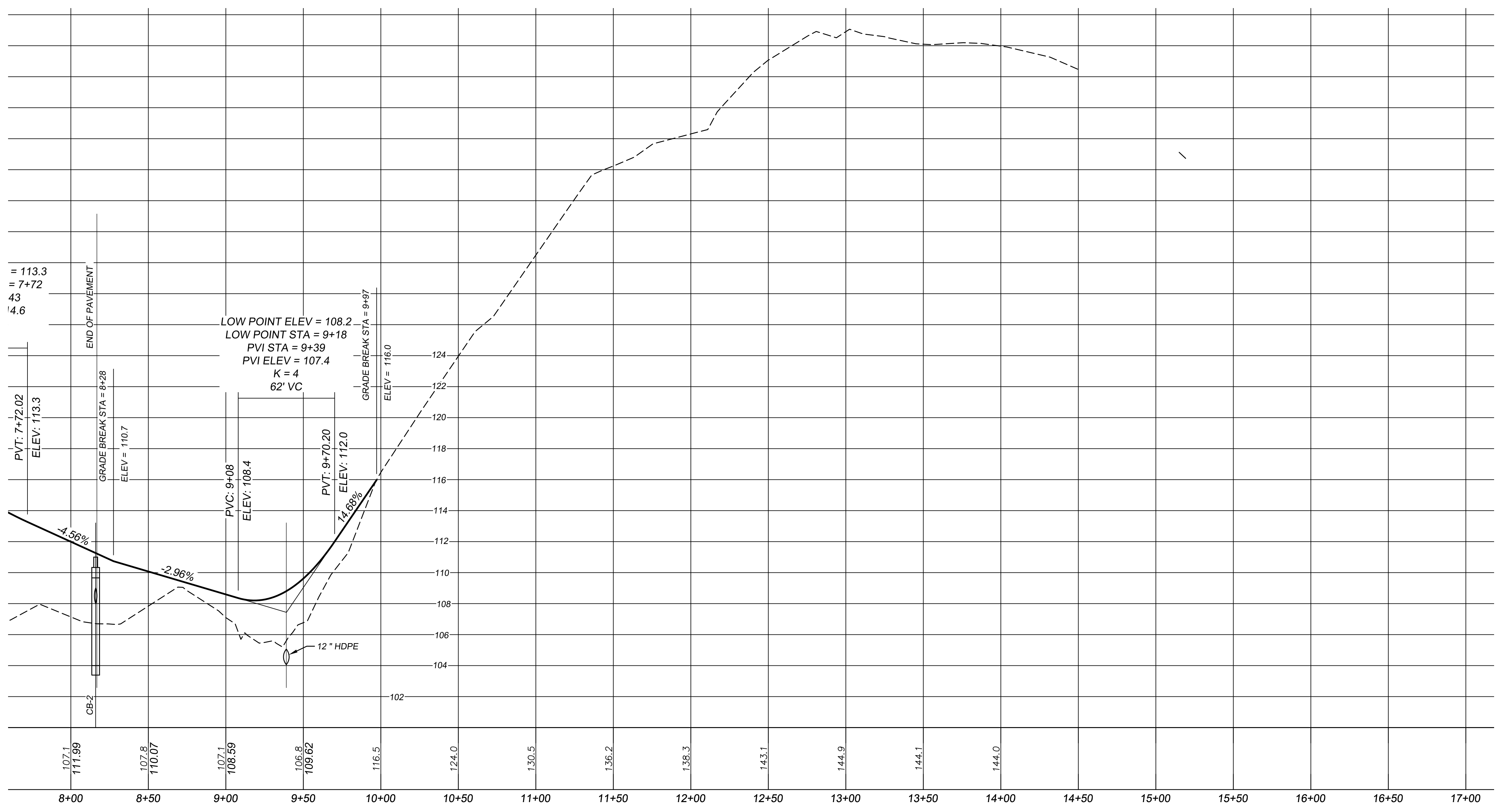
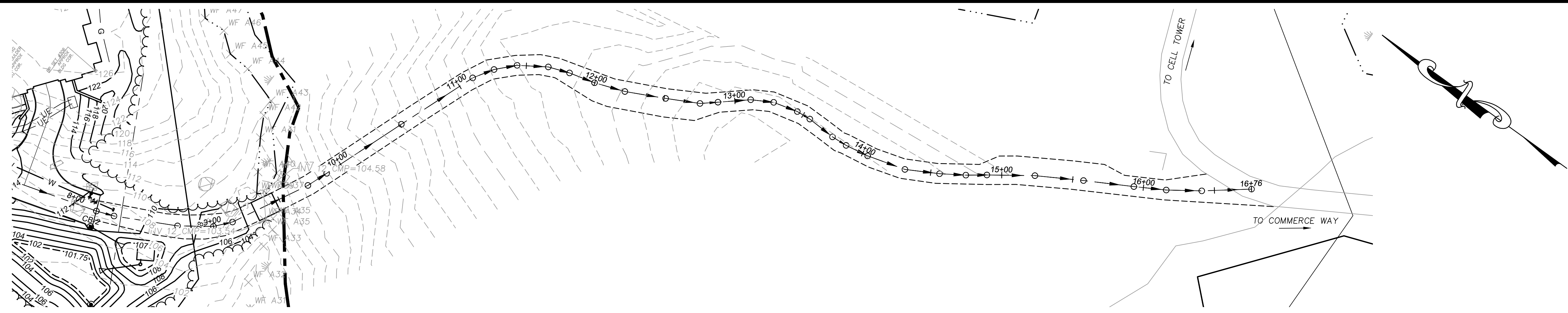
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Sheet Title:  
**EROSION  
 AND SEDIMENT  
 CONTROL PLAN**

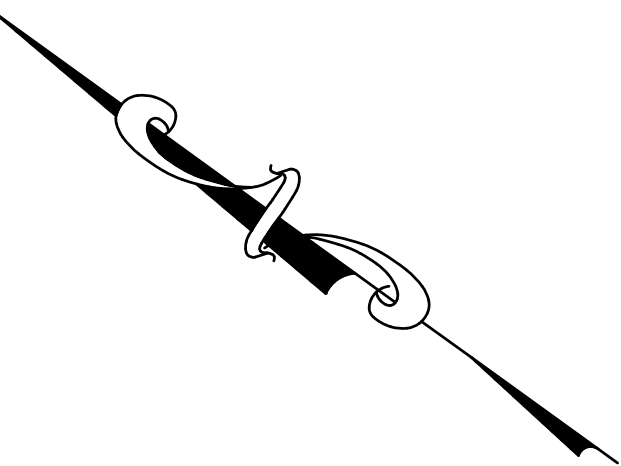
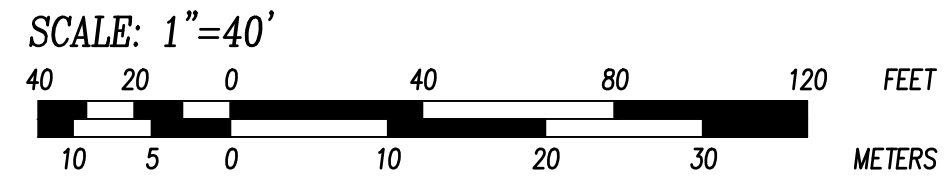
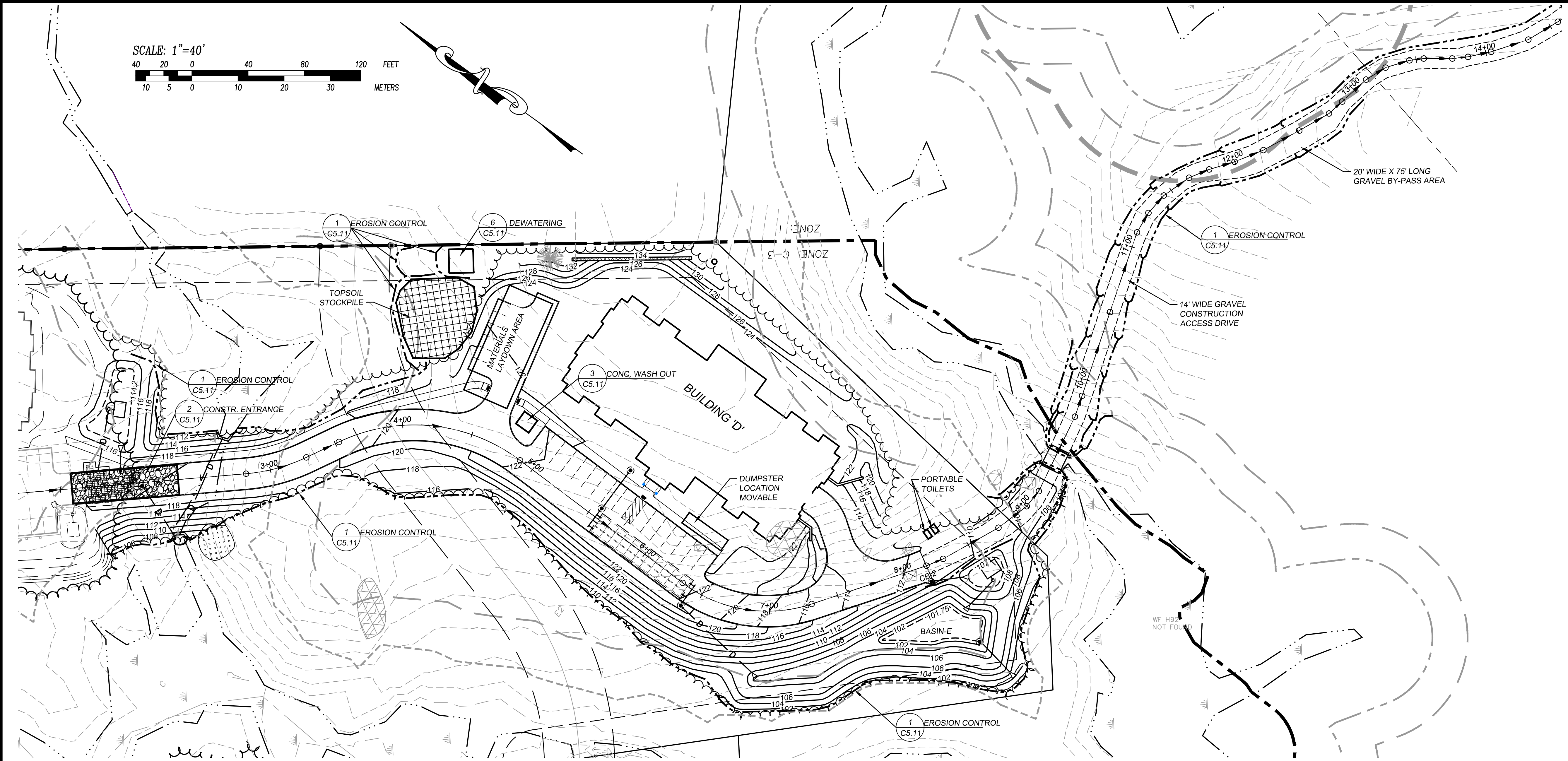
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SHEET C1.51



**Construction Sequence**

NOTE: SEE SHEET C1.52 FOR CONSTRUCTION NOTES

- PRIOR TO CLEARING, OR EARTH MOVING ACTIVITIES, INSTALL TEMPORARY EROSION CONTROLS AS SHOWN. SEE SHEET C5.11 FOR EROSION CONTROL DETAILS AND TECHNIQUES.
- INSTALL CONSTRUCTION ENTRANCE.
- STRIP TOPSOIL AND STOCKPILE IN DESIGNATED AREA. INSTALL TEMPORARY EROSION CONTROLS AROUND STOCKPILE. BOULDERS AND LARGE ROCKS GREATER THAN TWO FEET IN DIAMETER SHALL BE STOCKPILED SEPARATELY IN A DESIGNATED AREA.
- CONSTRUCT TEMPORARY SEDIMENT BASINS AND OUTLET SWALES IN SAME LOCATION AS THE FINAL BASINS AS SHOWN ON THE PLANS. ADDITIONAL TEMPORARY ROWS OF COMPOST SOCK MAY BE REQUIRED IN THE SWALES. INSTALL OUTLET PROTECTION RIP-RAP AS SHOWN PRIOR TO DIRECTING ANY STORMWATER TO THE BASINS. THE FORE-BAYS WILL SERVE AS CONSTRUCTION PERIOD SEDIMENT SETTLING AREAS BUT MUST BE CLEANED AFTER PARKING/LOADING AREAS ARE PAVED, BUILDINGS CONSTRUCTED, AND UTILITIES INSTALLED.
- CREATE SWALES TO DIRECT STORMWATER FROM THE DEVELOPED PORTION OF THE SITE TO THE TEMPORARY BASINS. IMMEDIATELY STABILIZE THE SLOPES OF THE BASINS BY SEEDING AND MULCHING WITHIN 72 HOURS OF ACHIEVING FINISHED GRADES. ALTERNATE METHODS OF SLOPE STABILIZATION MAY BE REQUIRED IF WORK IS PERFORMED OUTSIDE THE GROWING SEASON.
- PREPARE BUILDING SITE TO BE CONSTRUCTED. INSTALL THE BUILDING FOUNDATION AND IMMEDIATELY BRING THE FILL UP TO DESIGN GRADES. CONSTRUCT THE SLOPES IN THE AREAS SHOWN ON THE GRADING PLANS. STABILIZE THE SLOPE WITH SELECTED PLANT MATERIALS AND SEED IMMEDIATELY.
- ROUGH GRADE PARKING AREAS TO SUBBASE ELEVATIONS. FILL WILL BE REQUIRED TO BRING PARKING AREAS TO THE DESIGN GRADES. IMPORTED FILL SHALL BE COMPACTED TO A MINIMUM OF 95% DENSITY. WATER MAY BE REQUIRED TO BRING THE FILL TO THE APPROPRIATE MOISTURE CONTENT FOR PROPER COMPACTION. DO NOT OVER WATER AND CREATE RUNOFF. DO NOT CONTINUE THE FILLING OPERATION DURING INTENSE RAINFALL OR IF RAINFALL IS ANTICIPATED. INSTALL ADDITIONAL EROSION CONTROL AT THE BASE OF SLOPES WHEN RAIN IS ANTICIPATED, AND LEAVE IT IN PLACE UNTIL SLOPES ARE STABILIZED OR ADDITIONAL FILL IS INSTALLED.
- INSTALL PERMANENT STORMWATER TREATMENT DEVICES INCLUDING THE "FOCAL POINT" BIO-RETENTION SYSTEMS AS SHOWN ON THE PLANS. DO NOT ALLOW STORMWATER FLOW TO THE DEVICES FROM UNSTABILIZED AREAS. IF STORMWATER FLOWS ARE ANTICIPATED TO REACH THE TREATMENT DEVICES PRIOR TO FINAL STABILIZATION, ENCASE THE DEVICES WITH FILTER FABRIC.
- INSTALL UNDERGROUND UTILITIES. BACKFILL AND COMPACT TRENCHES. IF DEWATERING IS REQUIRED TO INSTALL UTILITIES OR STRUCTURES, CONSTRUCT THE DEWATERING AREA AS PER THE DETAIL ON SHEET C 5.11 AND PLACE IN THE DESIGNATED AREA. ADDITIONAL ROWS OF COMPOST SOCK MAY BE REQUIRED AT THE DISCHARGE POINT IF THE WATER IS NOT CLEAR.
- INSTALL AND COMPACT PARKING AREA GRAVEL. INSTALL THE BINDER COURSE IN PARKING AREAS WITHIN 72 HOURS OF PLACING GRAVEL.
- INSTALL UTILITY CONNECTIONS. SPREAD TOPSOIL IN GRASS AND LANDSCAPED AREAS AND IMMEDIATELY SEED AND MULCH IF NEEDED. ADDITIONAL EROSION CONTROL MAY BE NEEDED TO CONTROL EROSION AND SILTS FROM ENTERING THE TEMPORARY SETTLEMENT BASIN.

- NOTES:**
1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
  2. ACCESS ROAD SHOWN DEPICTS DESIGN INTENT ONLY. FINAL DESIGN TO BE COORDINATED WITH RESULTS OF THE TIF PROGRAM DESIGN.

TOWN OF EXETER PLANNING BOARD

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

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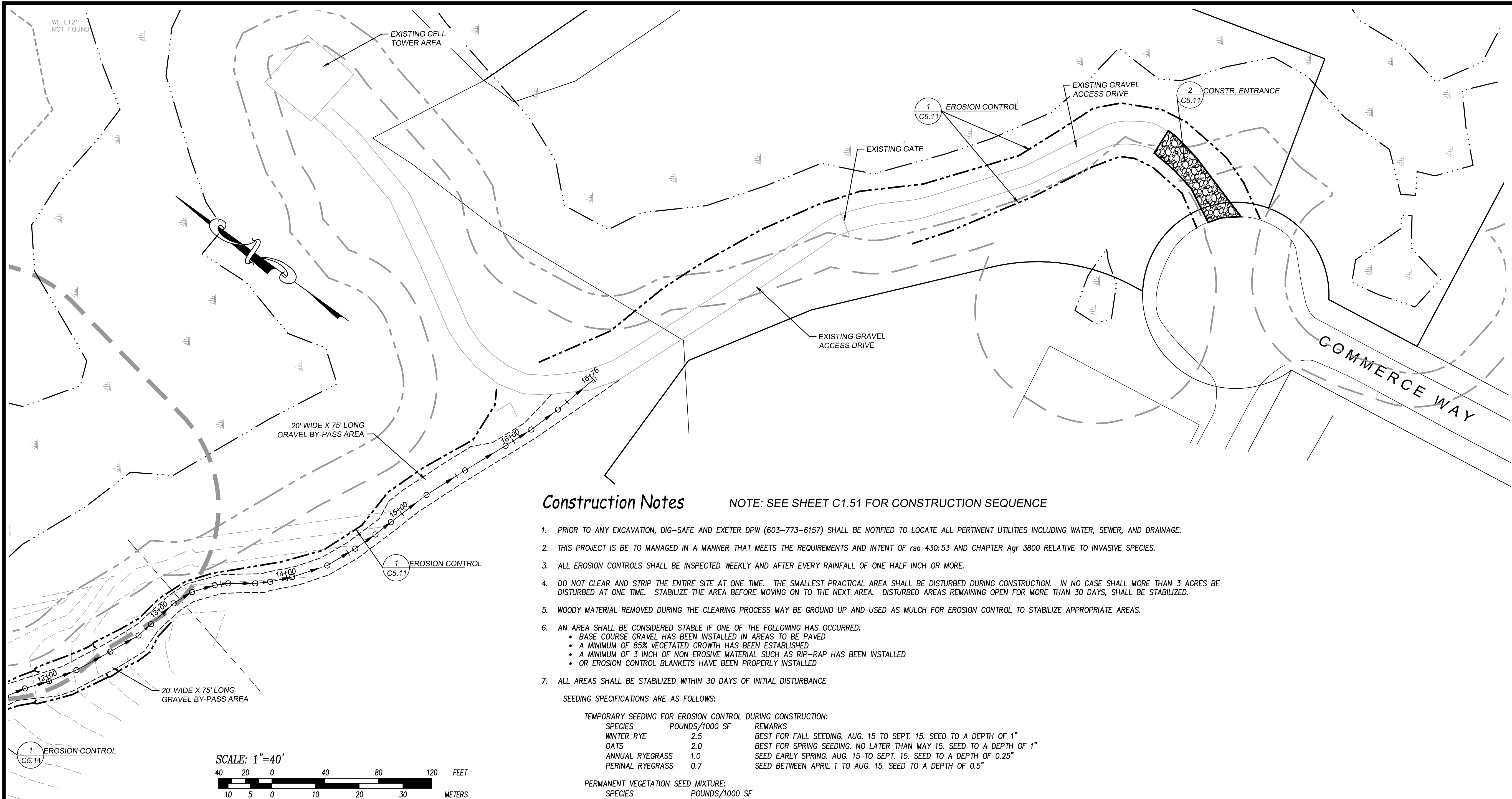
Sheet Title:  
**EROSION  
 AND SEDIMENT  
 CONTROL PLAN**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

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**Construction Notes** NOTE: SEE SHEET C1.51 FOR CONSTRUCTION SEQUENCE

- PRIOR TO ANY EXCAVATION, DIG-SAFE AND EXETER DPW (603-773-6157) SHALL BE NOTIFIED TO LOCATE ALL PERTINENT UTILITIES INCLUDING WATER, SEWER, AND DRAINAGE.
- THIS PROJECT IS BE TO MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER Agr 3800 RELATIVE TO INVASIVE SPECIES.
- ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY RAINFALL OF ONE HALF INCH OR MORE.
- DO NOT CLEAR AND STRIP THE ENTIRE SITE AT ONE TIME. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION. IN NO CASE SHALL MORE THAN 3 ACRES BE DISTURBED AT ONE TIME. STABILIZE THE AREA BEFORE MOVING ON TO THE NEXT AREA. DISTURBED AREAS REMAINING OPEN FOR MORE THAN 30 DAYS, SHALL BE STABILIZED.
- WOODY MATERIAL REMOVED DURING THE CLEARING PROCESS MAY BE GROUND UP AND USED AS MULCH FOR EROSION CONTROL TO STABILIZE APPROPRIATE AREAS.
- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
  - BASE COURSE GRAVEL HAS BEEN INSTALLED IN AREAS TO BE PAVED
  - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
  - A MINIMUM OF 3 INCH OF NON EROSION MATERIAL SUCH AS RIP-RAP HAS BEEN INSTALLED
  - OR EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED
- ALL AREAS SHALL BE STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE

SEEDING SPECIFICATIONS ARE AS FOLLOWS:

TEMPORARY SEEDING FOR EROSION CONTROL DURING CONSTRUCTION:

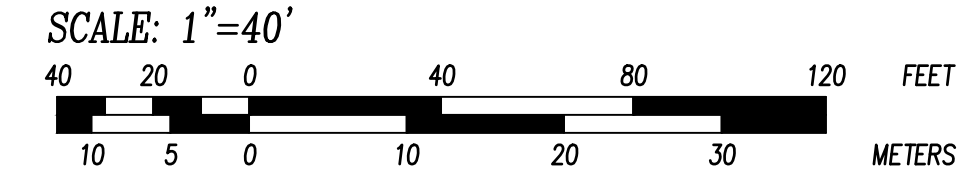
SPECIES	POUNDS/1000 SF	REMARKS
WINTER RYE	2.5	BEST FOR FALL SEEDING. AUG. 15 TO SEPT. 15. SEED TO A DEPTH OF 1"
OATS	2.0	BEST FOR SPRING SEEDING. NO LATER THAN MAY 15. SEED TO A DEPTH OF 1"
ANNUAL RYEGRASS	1.0	SEED EARLY SPRING. AUG. 15 TO SEPT. 15. SEED TO A DEPTH OF 0.25"
PERENNIAL RYEGRASS	0.7	SEED BETWEEN APRIL 1 TO AUG. 15. SEED TO A DEPTH OF 0.5"

PERMANENT VEGETATION SEED MIXTURE:

SPECIES	POUNDS/1000 SF
TALL FESCUE	0.45
CREeping RED FESCUE	0.45
BIRDSFOOT TREFOIL	0.20
TOTAL	1.10

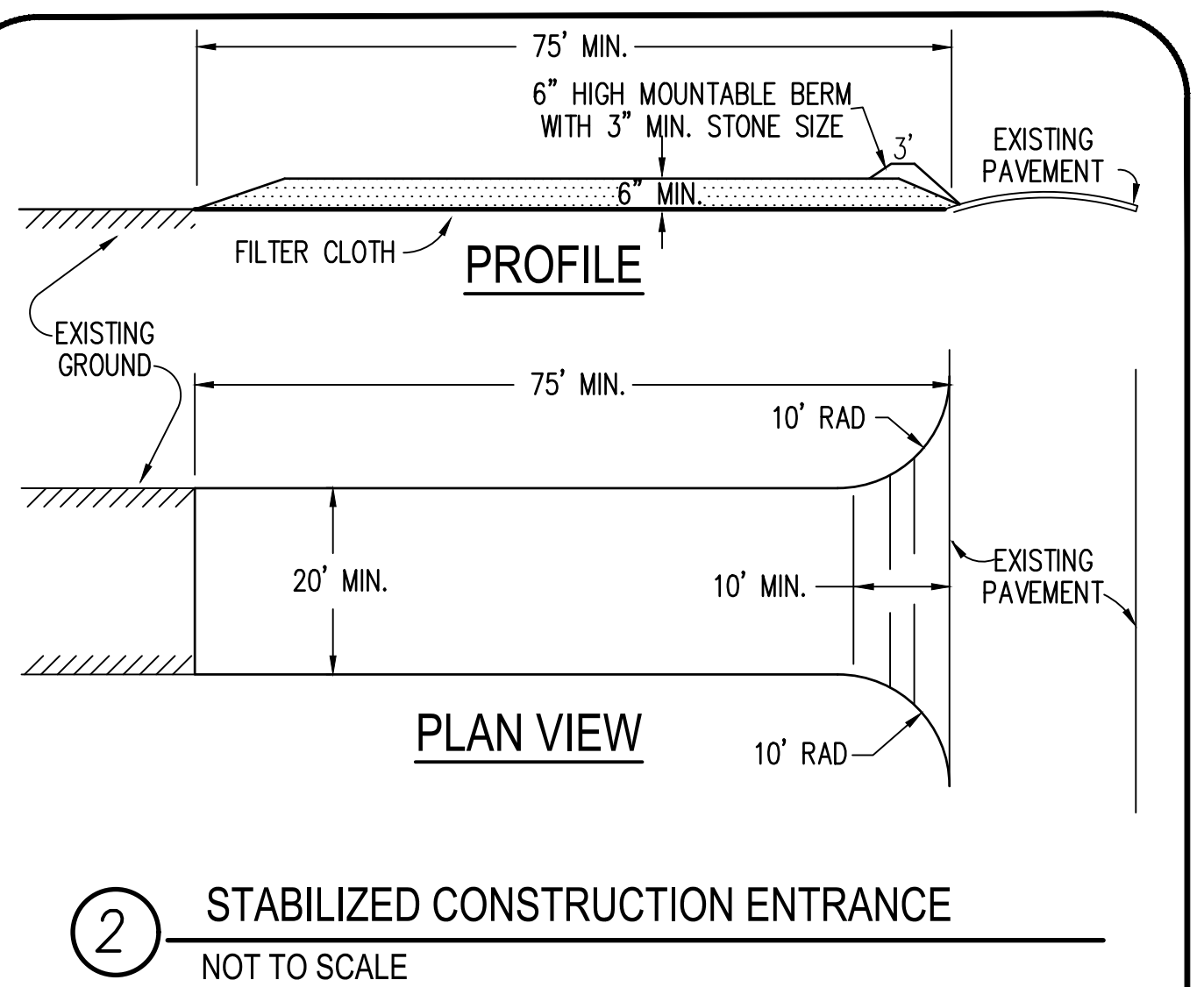
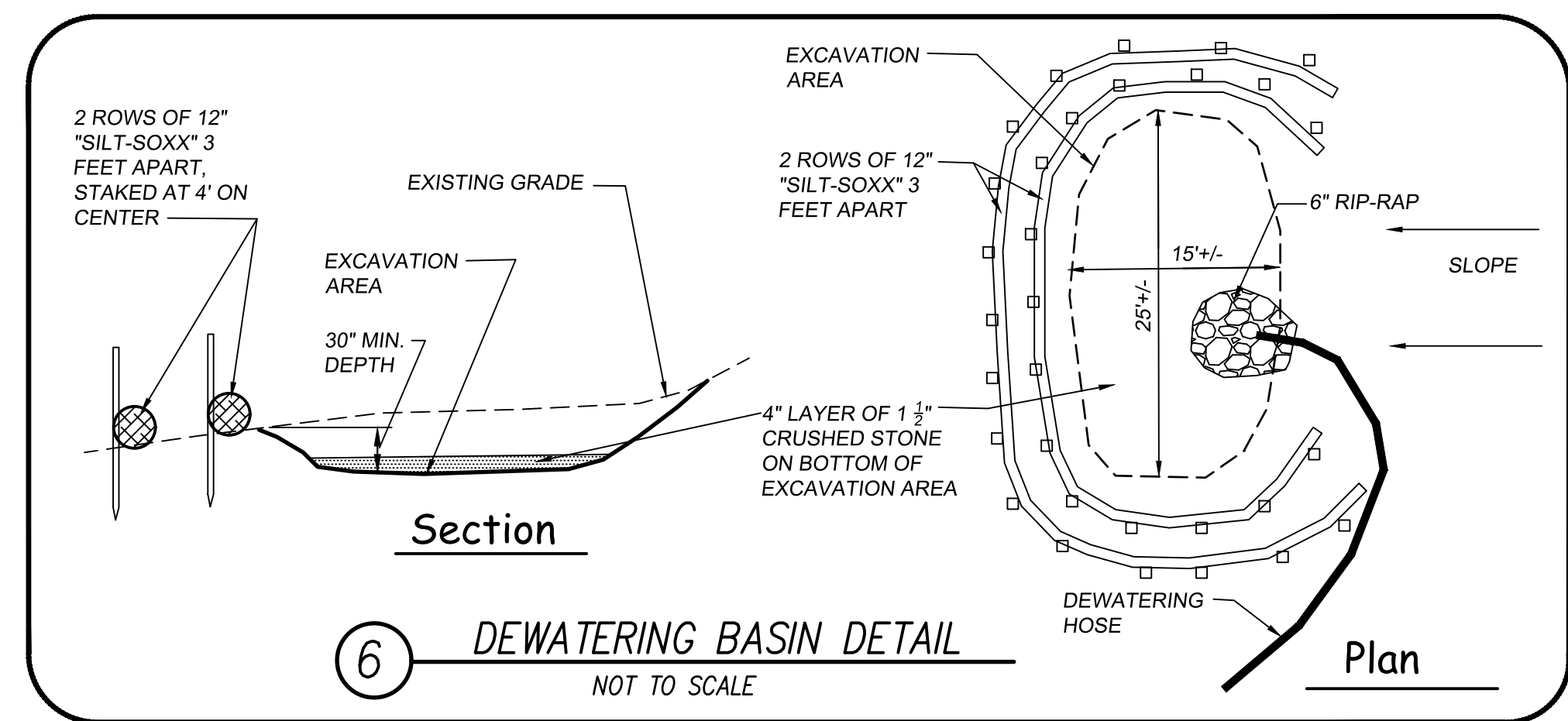
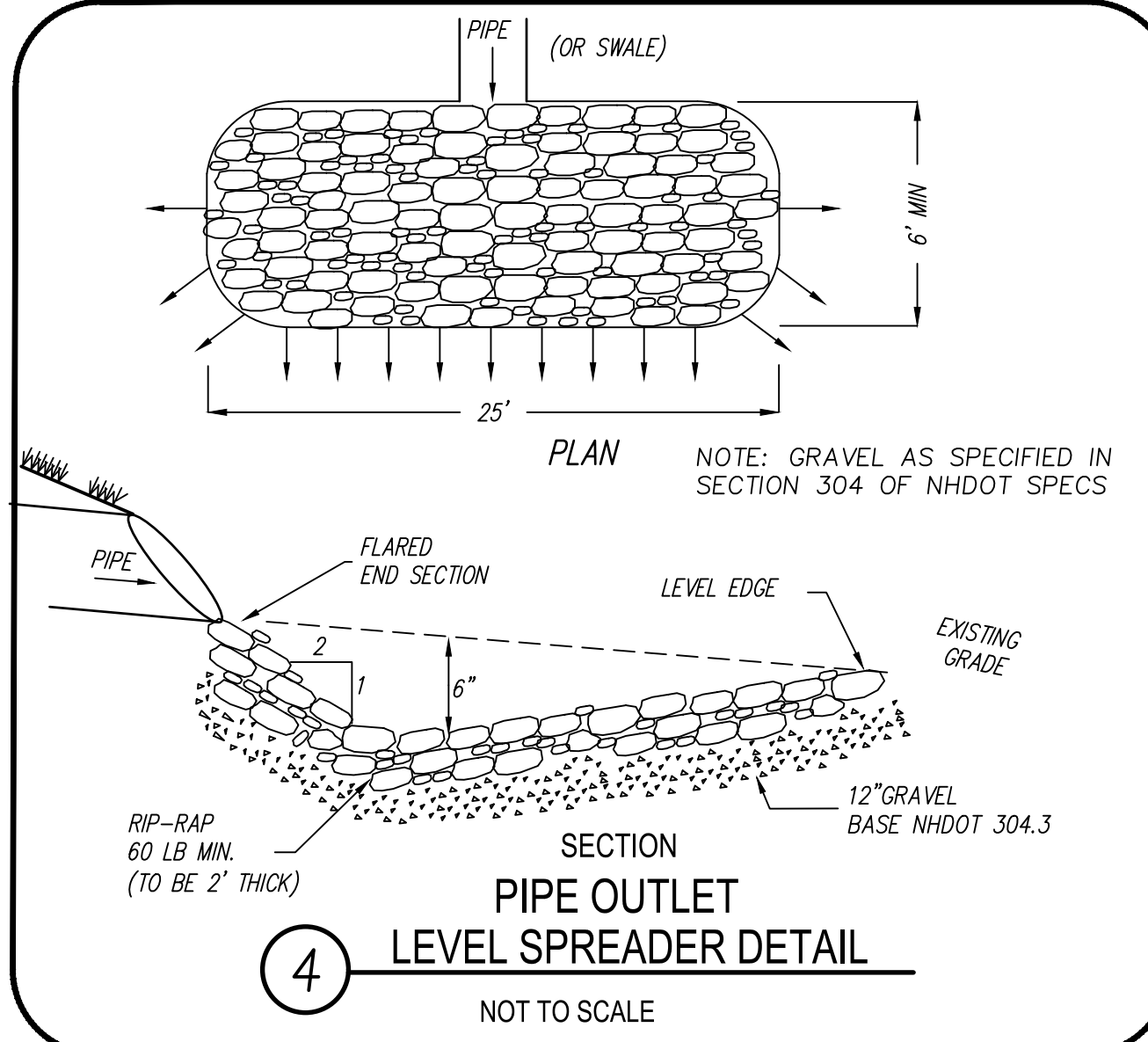
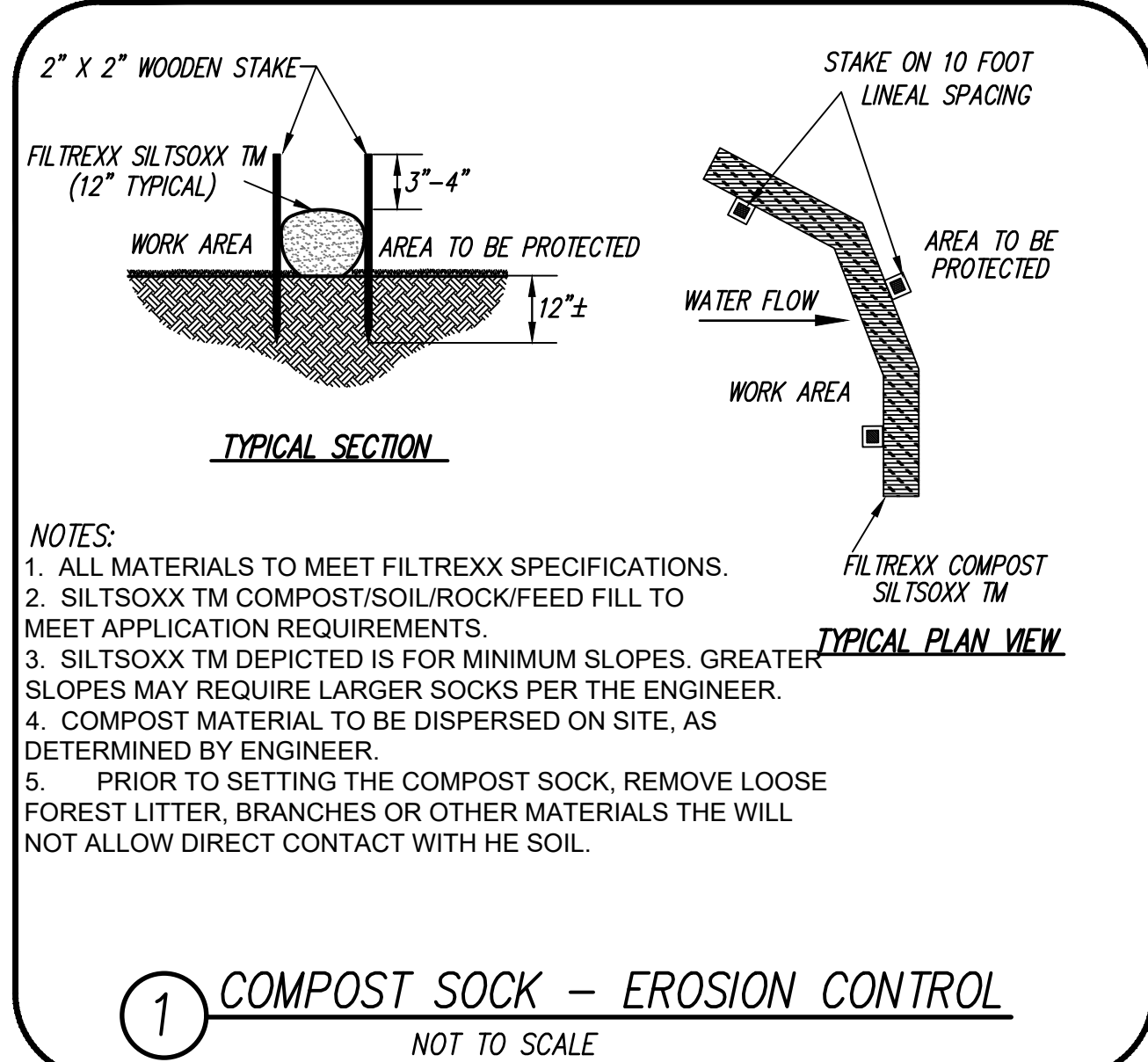
- ALL RE-VEGETATED AREAS THAT DO NOT EXHIBIT 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS (ON 3:1 SLOPES OR STEEPER), SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, OR SECURING WITH ANCHORED NETTING. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER SNOW OR FROZEN GROUND AND SHALL BE COMPLETED PRIOR TO AN ACCUMULATION OF SNOW AND/OR FROST.
- ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
- AFTER NOVEMBER 15, INCOMPLETE ROADS 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.
- CONCRETE WASH OUT SHALL BE CONDUCTED IN THE AREAS SHOWN ON SHEETS C1.51 AND C1.52. AND USE THE CONCRETE WASH OUT DETAIL SHOWN ON SHEET C5.11.
- NO STUMPS OR DEBRIS SHALL BE BURIED ONSITE. ALL STUMPS AND CONSTRUCTION DEBRIS SHALL BE STORED ONSITE UNTIL THEY CAN BE DISPOSED OFF OFFSITE IN A FACILITY CAPABLE OF HANDLING SUCH MATERIALS.
- TEMPORARY PORTABLE TOILETS SHALL BE PROVIDED AND PROPERLY MAINTAINED ONSITE FOR THE DURATION OF THE PROJECT.
- VEHICLE MAINTENANCE SHALL BE PERFORMED OFF SITE. ANY VEHICLE LEAKING OIL OR GREASE SHALL BE IMMEDIATELY REPAIRED OR REMOVED FROM THE SITE. FUEL AND OILS SHALL BE STORED IN AN APPROVED LOCATION AND COMPLY WITH LOCAL, STATE, AND FEDERAL REGULATIONS. IN NO CASE SHALL THEY BE STORED WITHIN 100' OF WETLAND AREAS.



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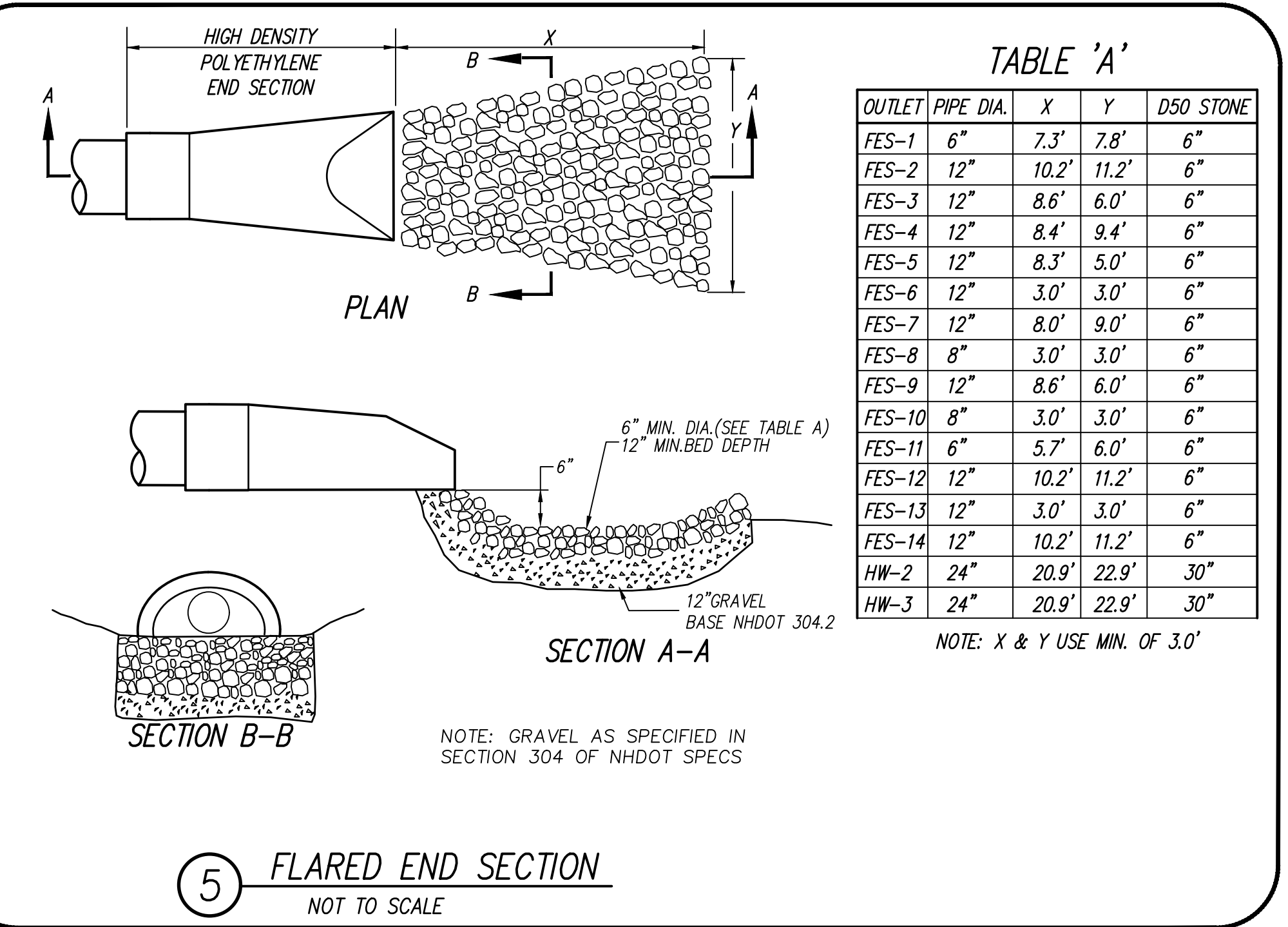
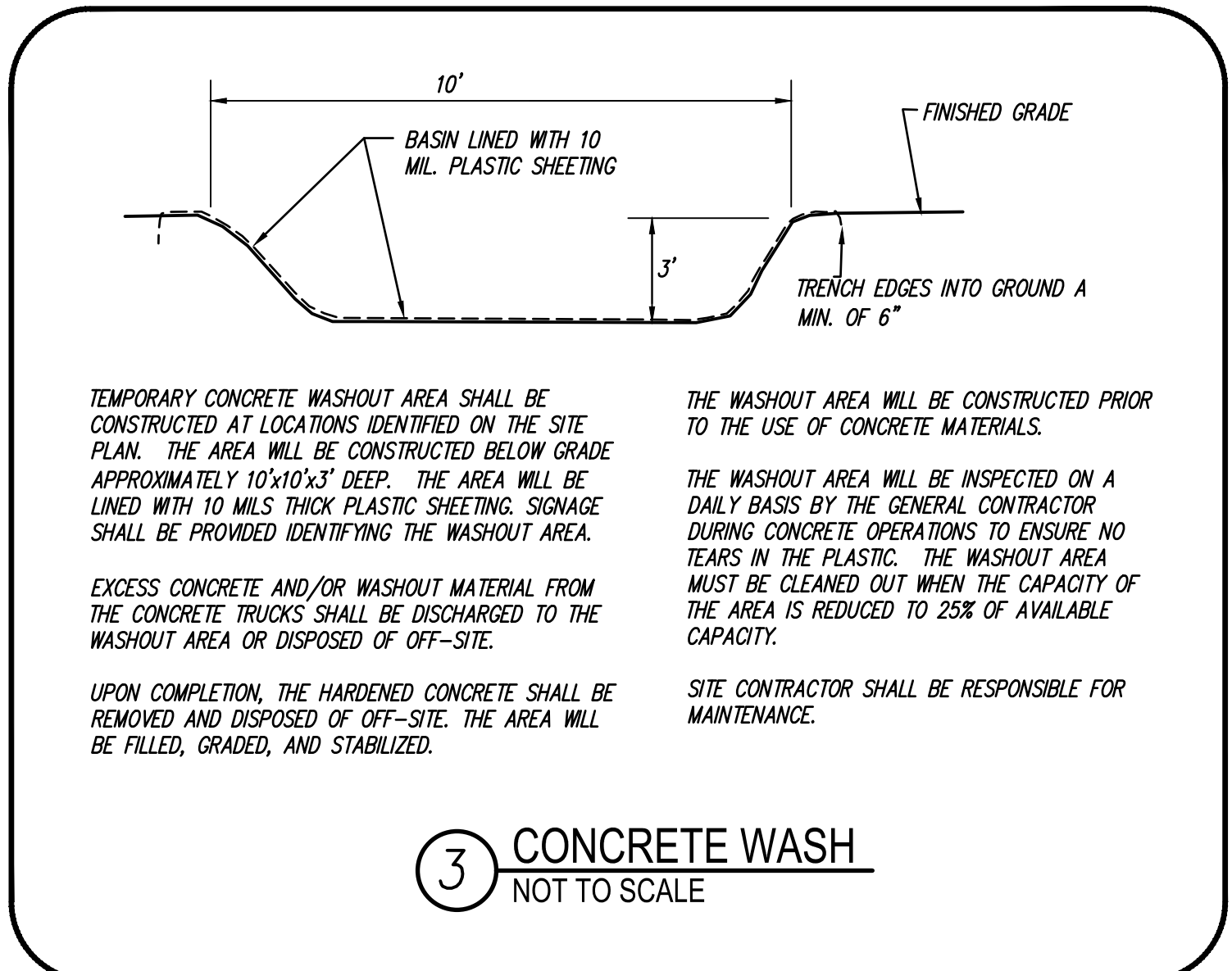


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**Construction Specifications**

- STONE SIZE - USE 3" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- LENGTH - AS REQUIRED, BUT NOT LESS THAN 75 FEET
- THICKNESS - NOT LESS THAN SIX (6) INCHES.
- WIDTH - TWENTY (20) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
- FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER CLOTH WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
- SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAINFALL EVENT.



**TABLE 'A'**

OUTLET	PIPE DIA.	X	Y	D50 STONE
FES-1	6"	7.3'	7.8'	6"
FES-2	12"	10.2'	11.2'	6"
FES-3	12"	8.6'	6.0'	6"
FES-4	12"	8.4'	9.4'	6"
FES-5	12"	8.3'	5.0'	6"
FES-6	12"	3.0'	3.0'	6"
FES-7	12"	8.0'	9.0'	6"
FES-8	8"	3.0'	3.0'	6"
FES-9	12"	8.6'	6.0'	6"
FES-10	8"	3.0'	3.0'	6"
FES-11	6"	5.7'	6.0'	6"
FES-12	12"	10.2'	11.2'	6"
FES-13	12"	3.0'	3.0'	6"
FES-14	12"	10.2'	11.2'	6"
HW-2	24"	20.9'	22.9'	30"
HW-3	24"	20.9'	22.9'	30"

NOTE: X & Y USE MIN. OF 3.0'

**NOTES:**

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

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Rockingham County

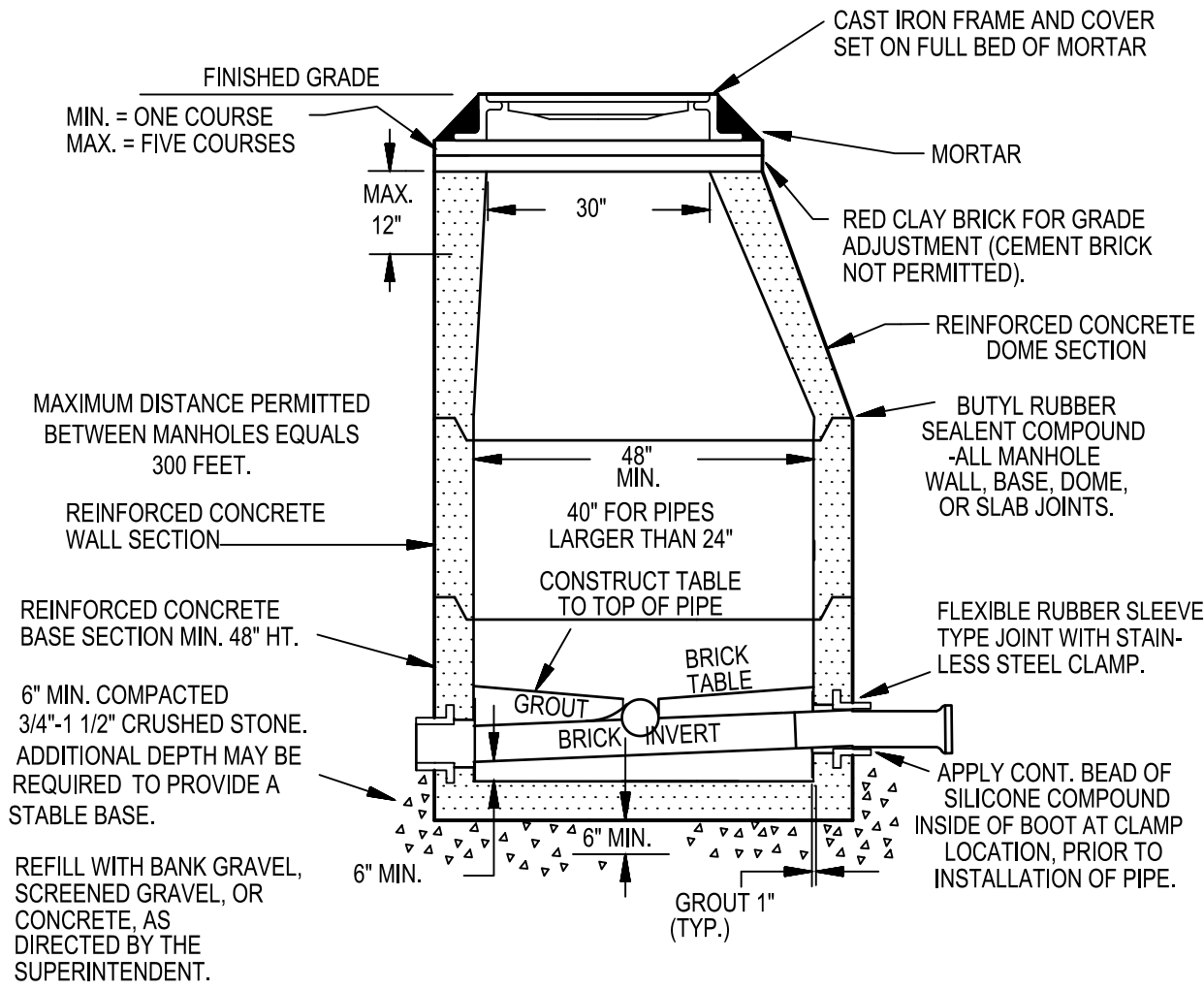
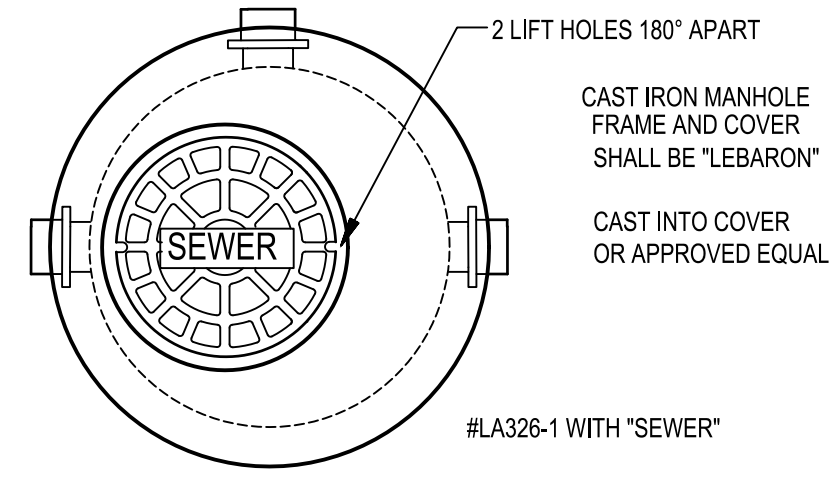
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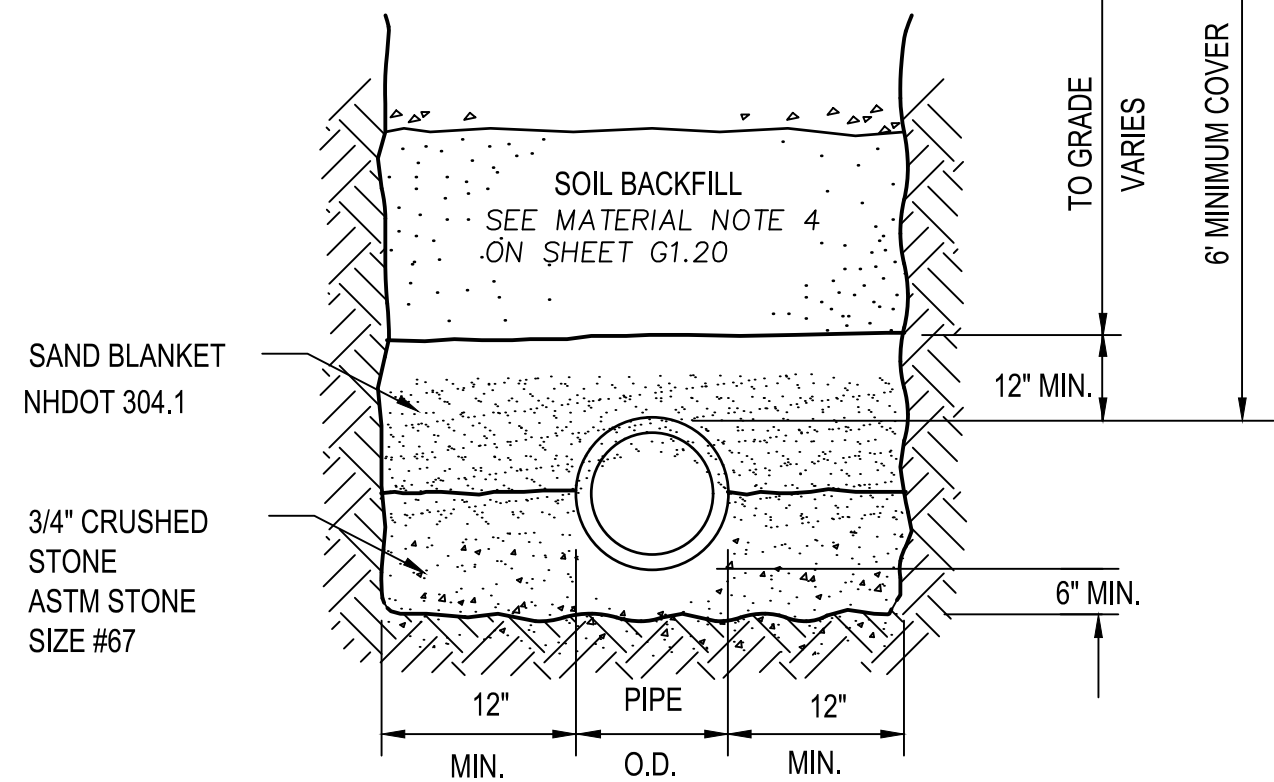
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**MANHOLE TESTING: VACUUM TEST MANHOLE FOR LEAKAGE**  
 THE INITIAL VACUUM GAUGE TEST PRESSURE SHALL BE 10 INCHES Hg. THE MINIMUM TEST HOLD FOR A 1 INCH DROP TO 9 INCHES Hg SHALL BE NOT LESS THAN 2 MINUTES FOR MANHOLES LESS THAN 10 FEET DEEP, 2.5 MINUTES FOR MANHOLES 10 TO 15 FEET DEEP, AND NOT LESS THAN 3 MINUTES FOR MANHOLES MORE THAN 15 FEET DEEP.

- NOTES:
- GRAVEL AS SPECIFIED IN SECTION 304 OF NHDOT SPECS
  - SEWER MANHOLE SHALL BE RATED FOR H-20 LOADING
  - BRICK INVERTS TO BE INSTALLED AFTER TESTING
  - NO STEPS IN MANHOLE
  - BRICKS FOR GRADE ADJUSTMENTS ARE A MAXIMUM OF 5 COURSES

**9 SEWER MANHOLE**  
NOT TO SCALE

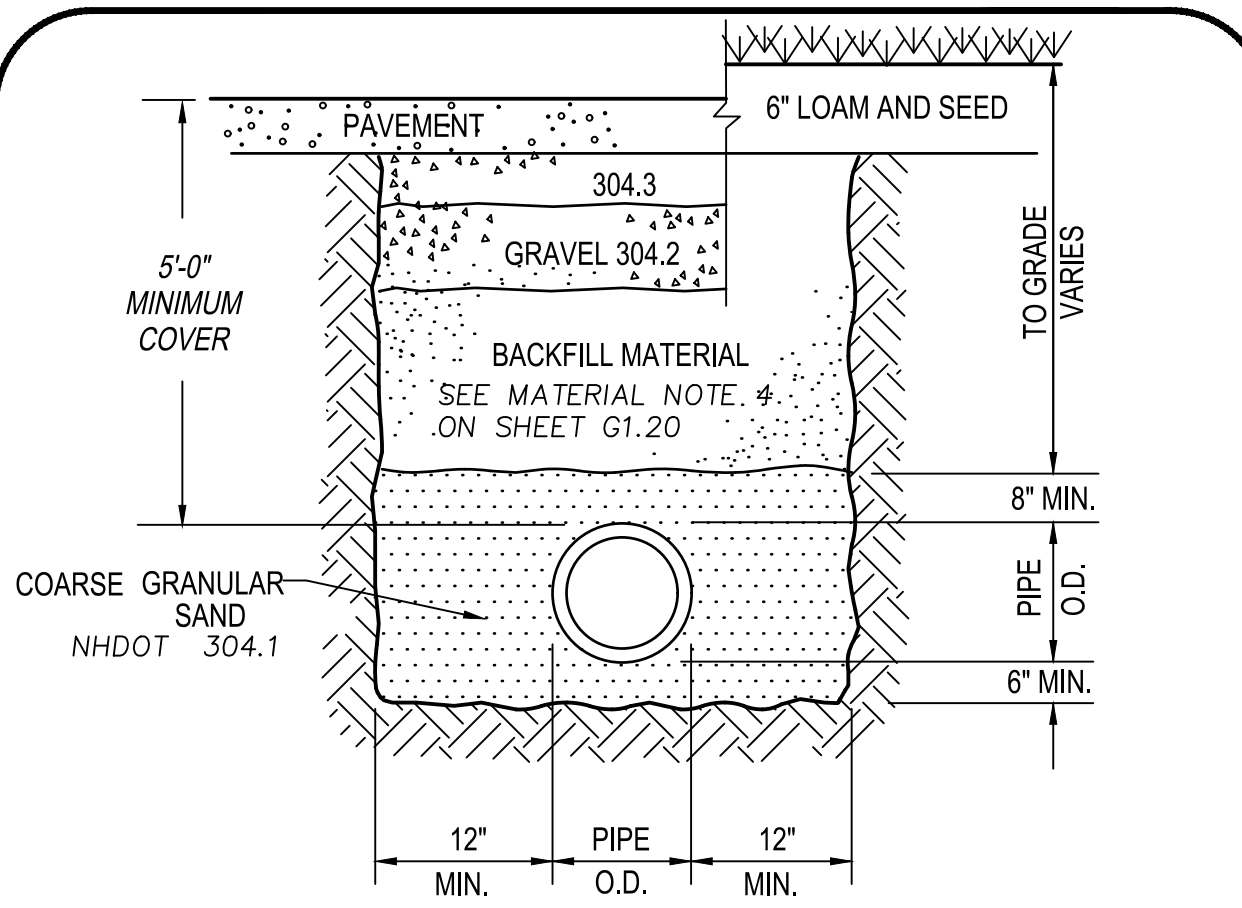
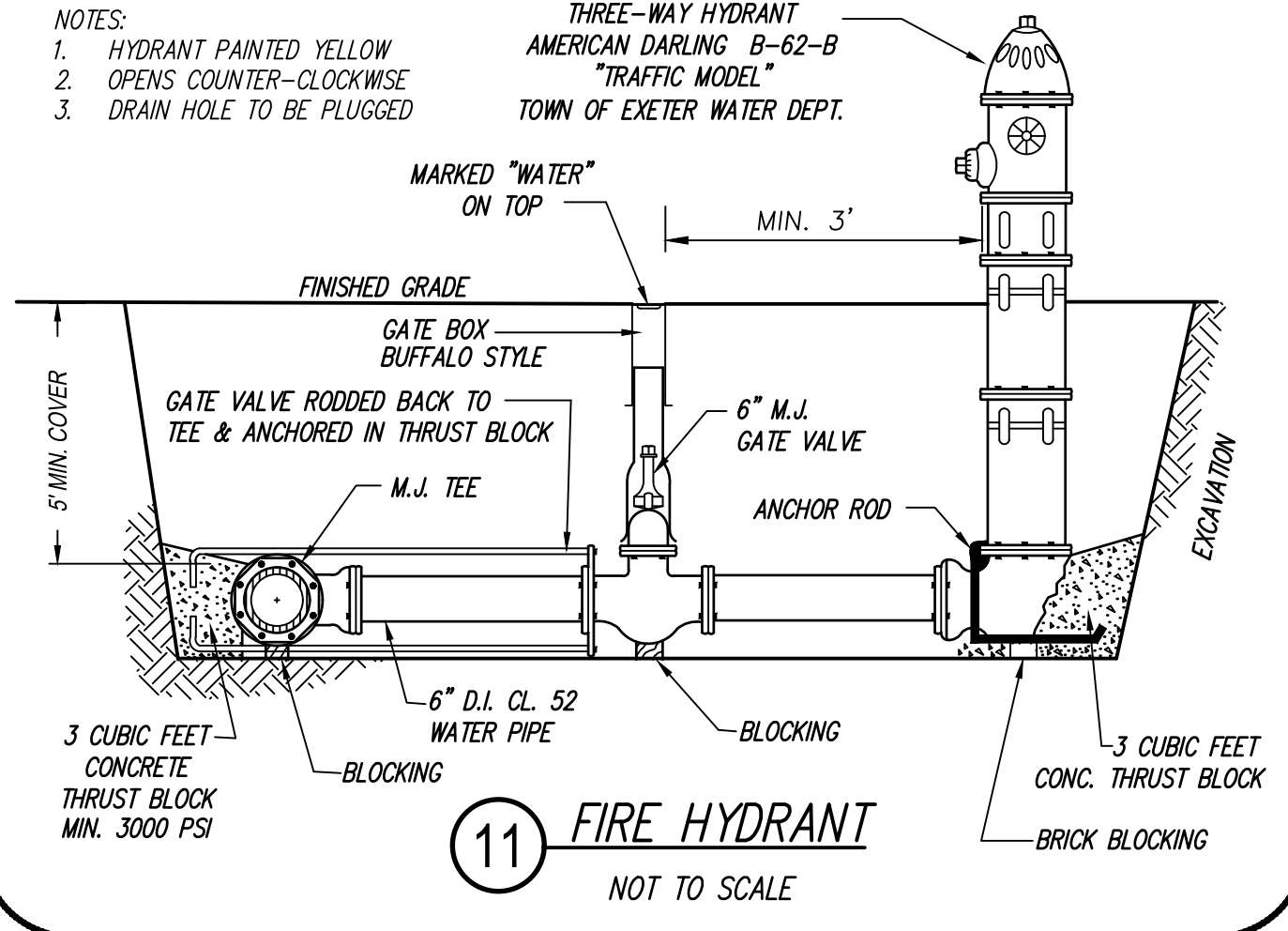


- NOTES:
- GRAVITY SEWER TO BE PVC SDR 35 CONFORMING TO ASTM D3034-04a
  - PLASTIC SEWER PIPE SHALL HAVE A PIPE STIFFNESS RATING OF AT LEAST 46 POUNDS PER SQUARE INCH AT 5% PIPE DIAMETER AS MEASURED WITH ASTM D2412-02 DURING MANUFACTURE.
  - JOINT SEALS OF PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D3212-96(a) AND BE PUSH-ON, BELL-AND-SPIGOT TYPE.
  - SAND BLANKET SHALL BE FREE OF ORGANIC MATERIALS, 100% PASSING 1/2" SIEVE, AND MAXIMUM 15% PASSING #200 SIEVE.
  - COMPACT BEDDING AND SAND BLANKET IN MAXIMUM OF 12" LIFTS.
  - COMPACT BACKFILL MATERIAL IN MAXIMUM OF 12" LIFTS.

**GRAVITY SEWER PIPE TESTING**  
 LOW PRESSURE AIR TESTS SHALL BE USED FOR ALL NEW GRAVITY SEWERS CONFORMING TO ASTM F1417 "STANDARD TEST METHOD OF INSTALLATION ACCEPTANCE OF PLASTIC GRAVITY SEWER LINES USING LOW-PRESSURE AIR" OR UNI-BELL PVC PIPE ASSOCIATION UNI-B-6, "LOW PRESSURE AIR TESTING OF INSTALLED SEWER PIPE (1998)."

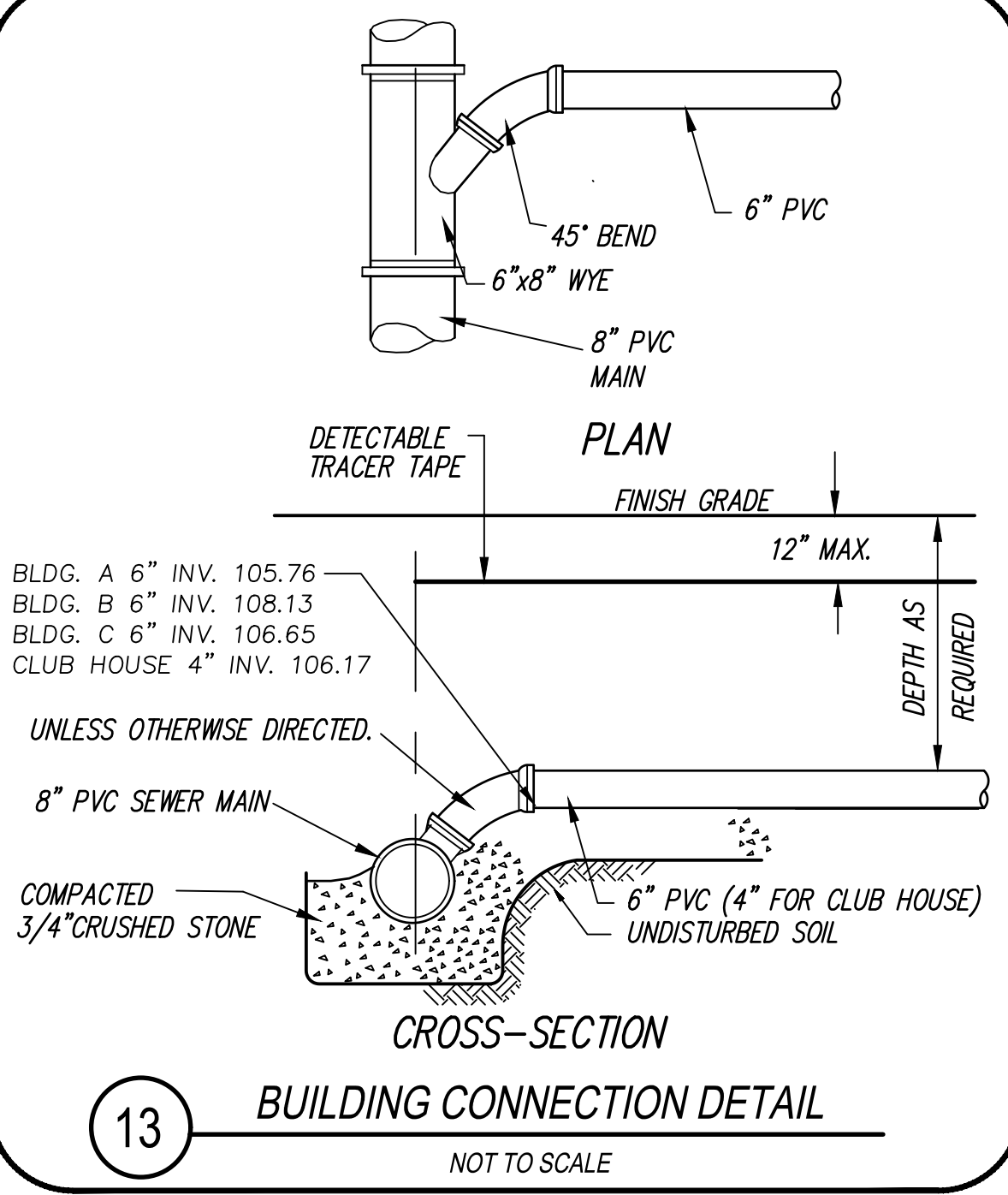
DEFLECTION TEST ALL PLASTIC SEWER PIPE NOT LESS THAN 30 DAYS NOR MORE THAN 90 DAYS FOLLOWING INSTALLATION. MAXIMUM ALLOWABLE DEFLECTION OF FLEXIBLE SEWER PIPE SHALL BE 5 1/2% OF AVERAGE INSIDE DIAMETER.

**10 SEWER TRENCH**  
NOT TO SCALE

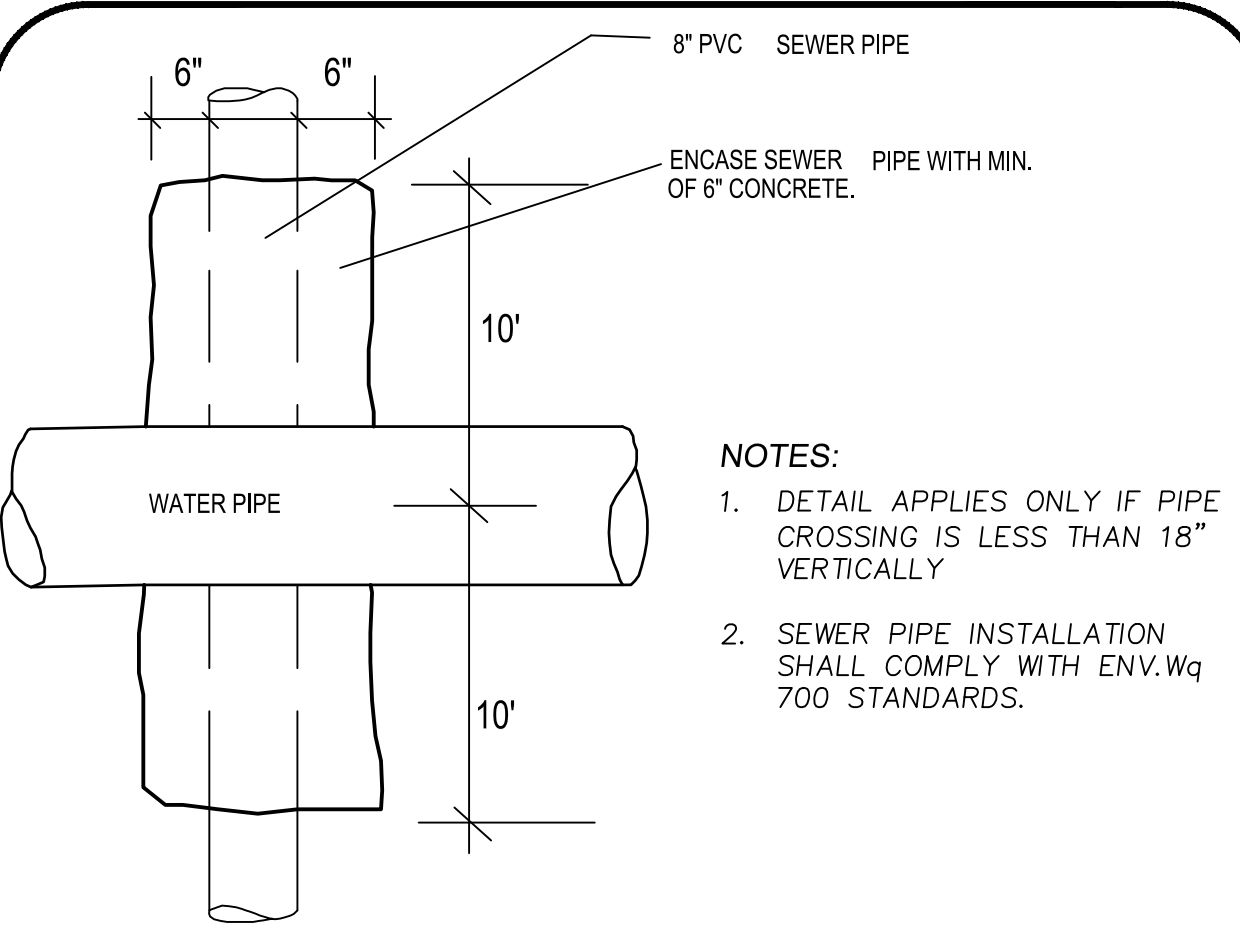


- NOTE:
- SEE SITE PLAN FOR PIPE SIZES AND SERVICE.
  - WATER PIPE TO BE DUCTILE IRON (D.I.) CLASS 52
  - GRAVEL AS SPECIFIED IN SECTION 304 OF NHDOT SPECS

**12 WATER TRENCH**  
NOT TO SCALE

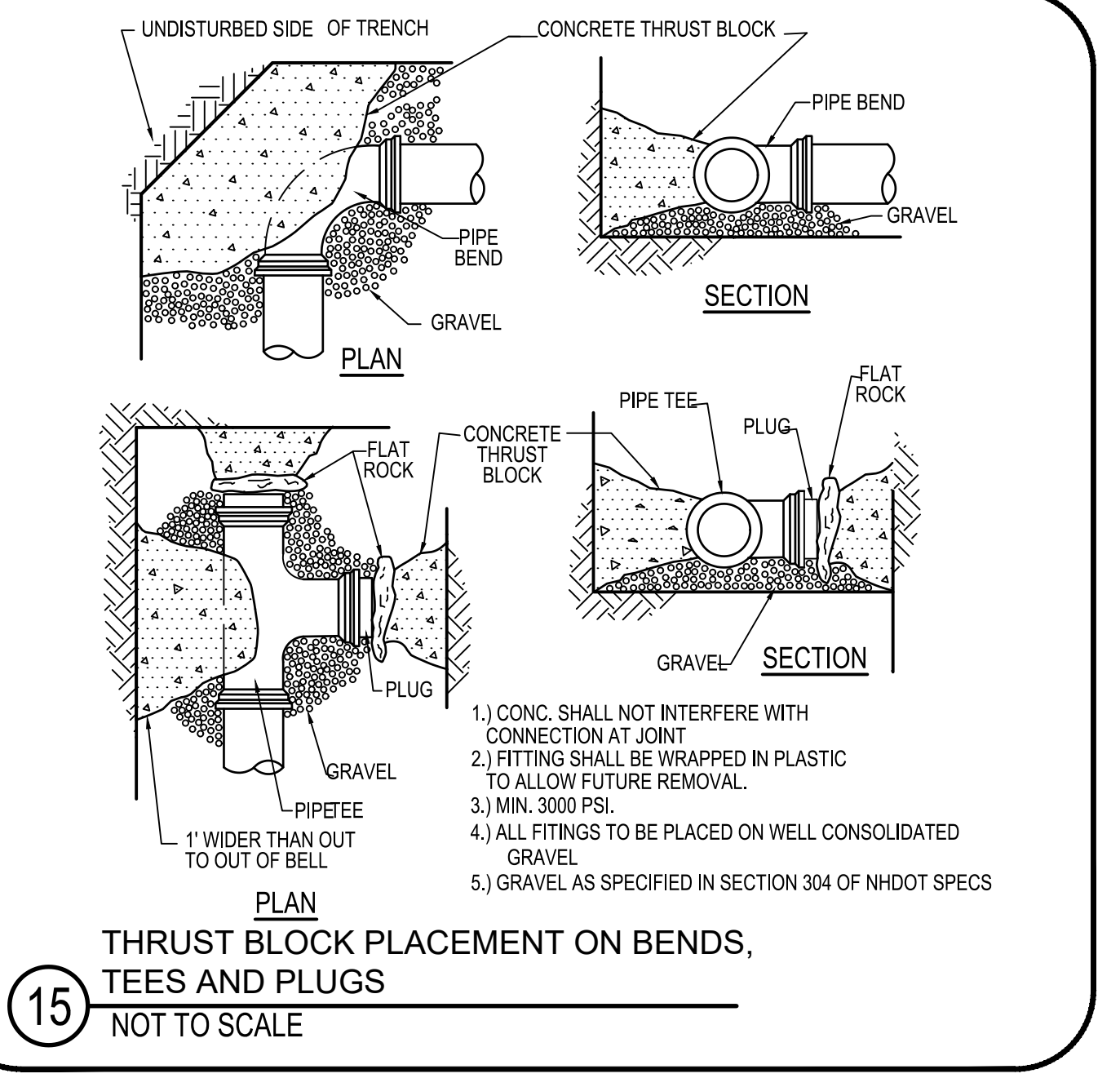


**13 BUILDING CONNECTION DETAIL**  
NOT TO SCALE



**14 SEWER / WATER CROSSING**  
NOT TO SCALE

- NOTES:
- DETAIL APPLIES ONLY IF PIPE CROSSING IS LESS THAN 18" VERTICALLY
  - SEWER PIPE INSTALLATION SHALL COMPLY WITH ENV.Wq 700 STANDARDS.



**15 THRUST BLOCK PLACEMENT ON BENDS, TEES AND PLUGS**  
NOT TO SCALE

- NOTES:
- CONC. SHALL NOT INTERFERE WITH CONNECTION AT JOINT
  - FITTING SHALL BE WRAPPED IN PLASTIC TO ALLOW FUTURE REMOVAL.
  - MIN. 3000 PSI.
  - ALL FITTINGS TO BE PLACED ON WELL CONSOLIDATED GRAVEL.
  - GRAVEL AS SPECIFIED IN SECTION 304 OF NHDOT SPECS

- NOTES:
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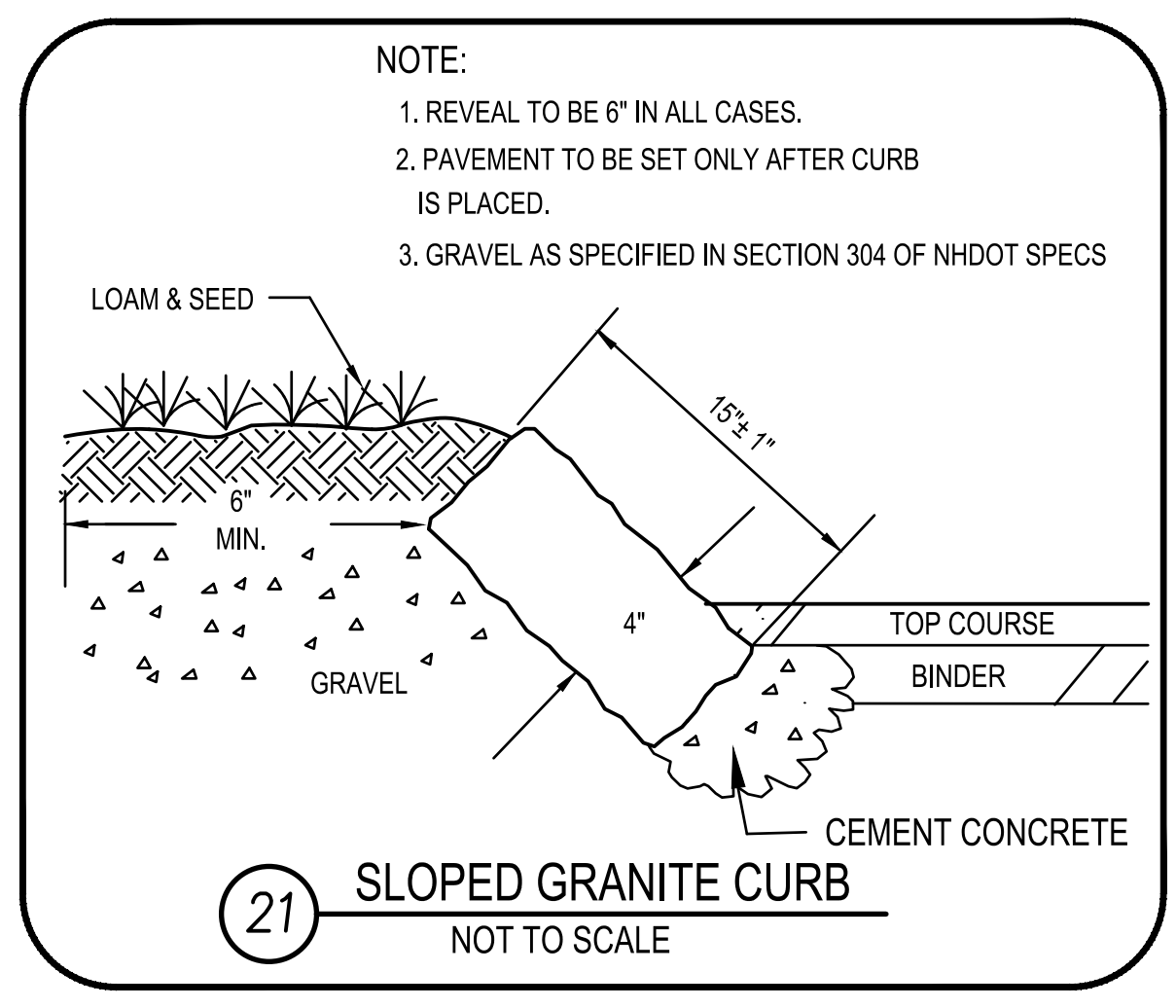
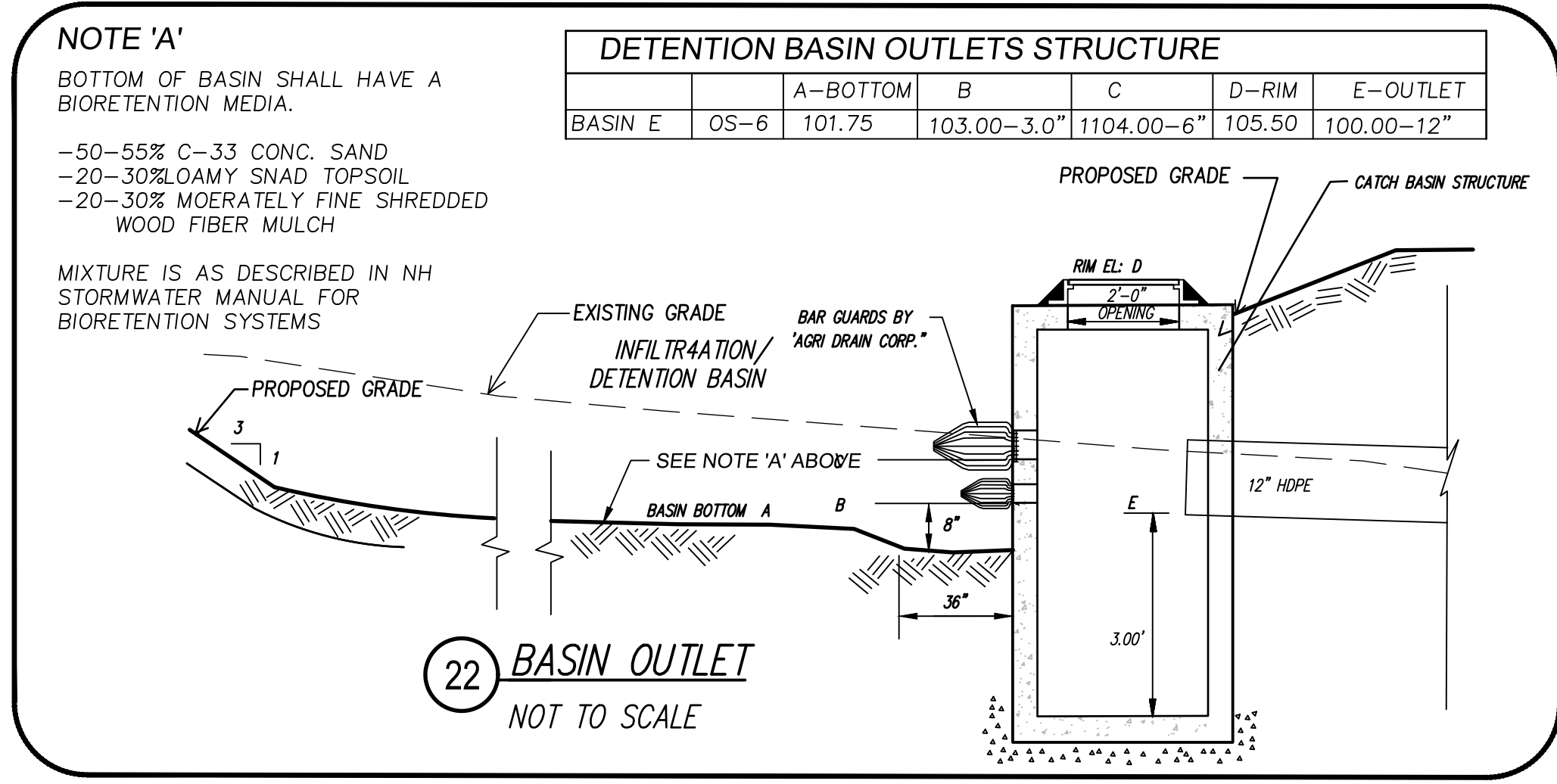
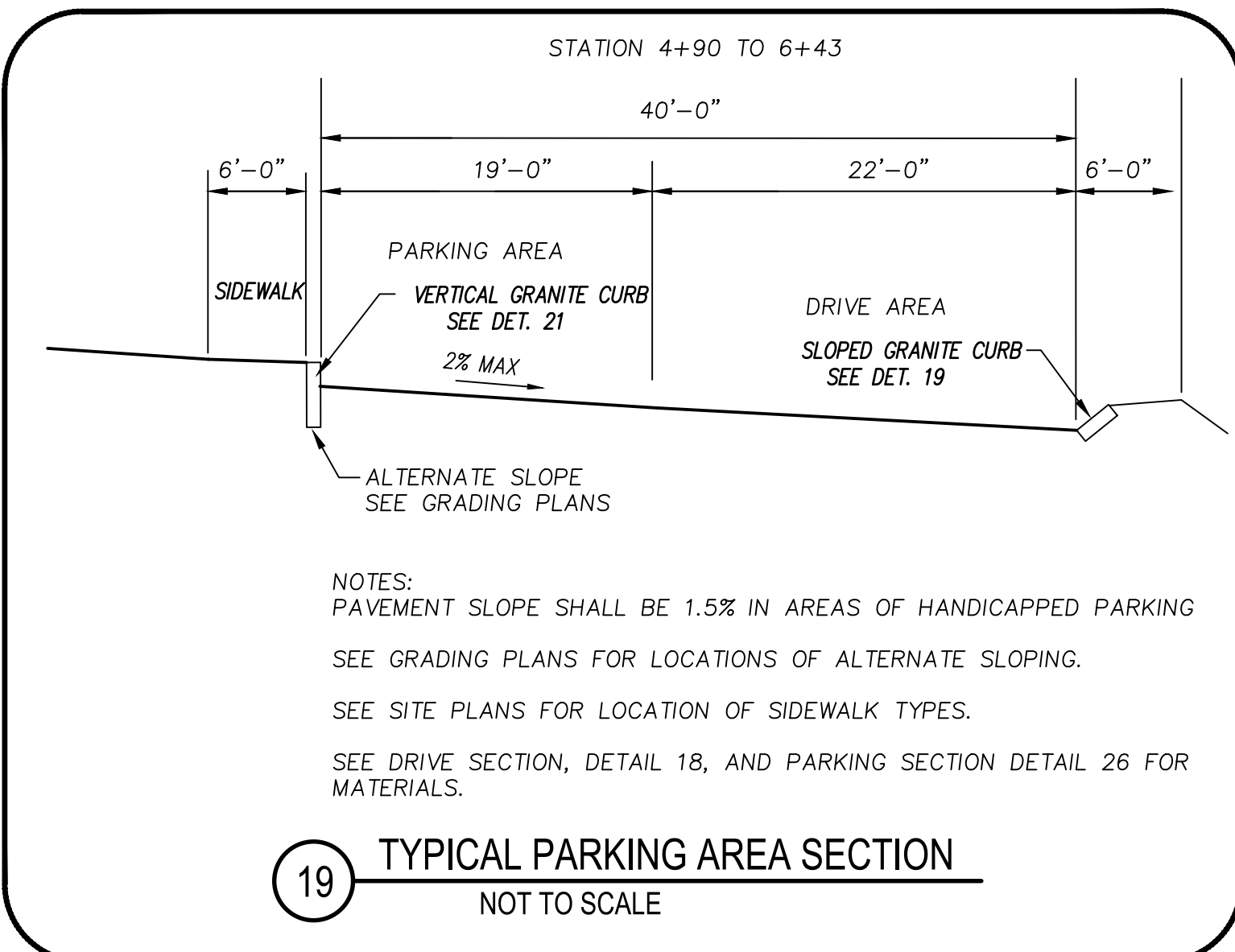
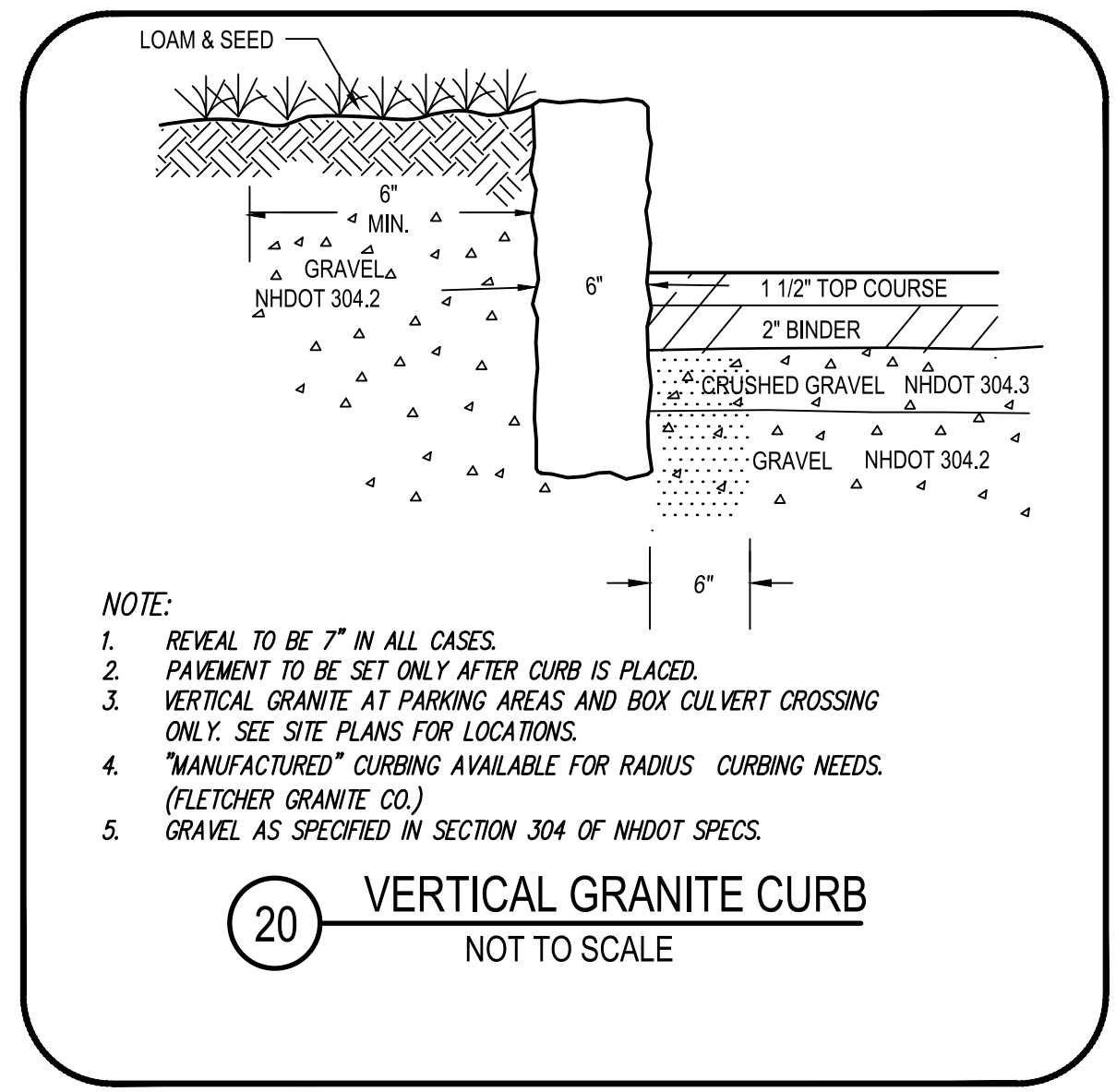
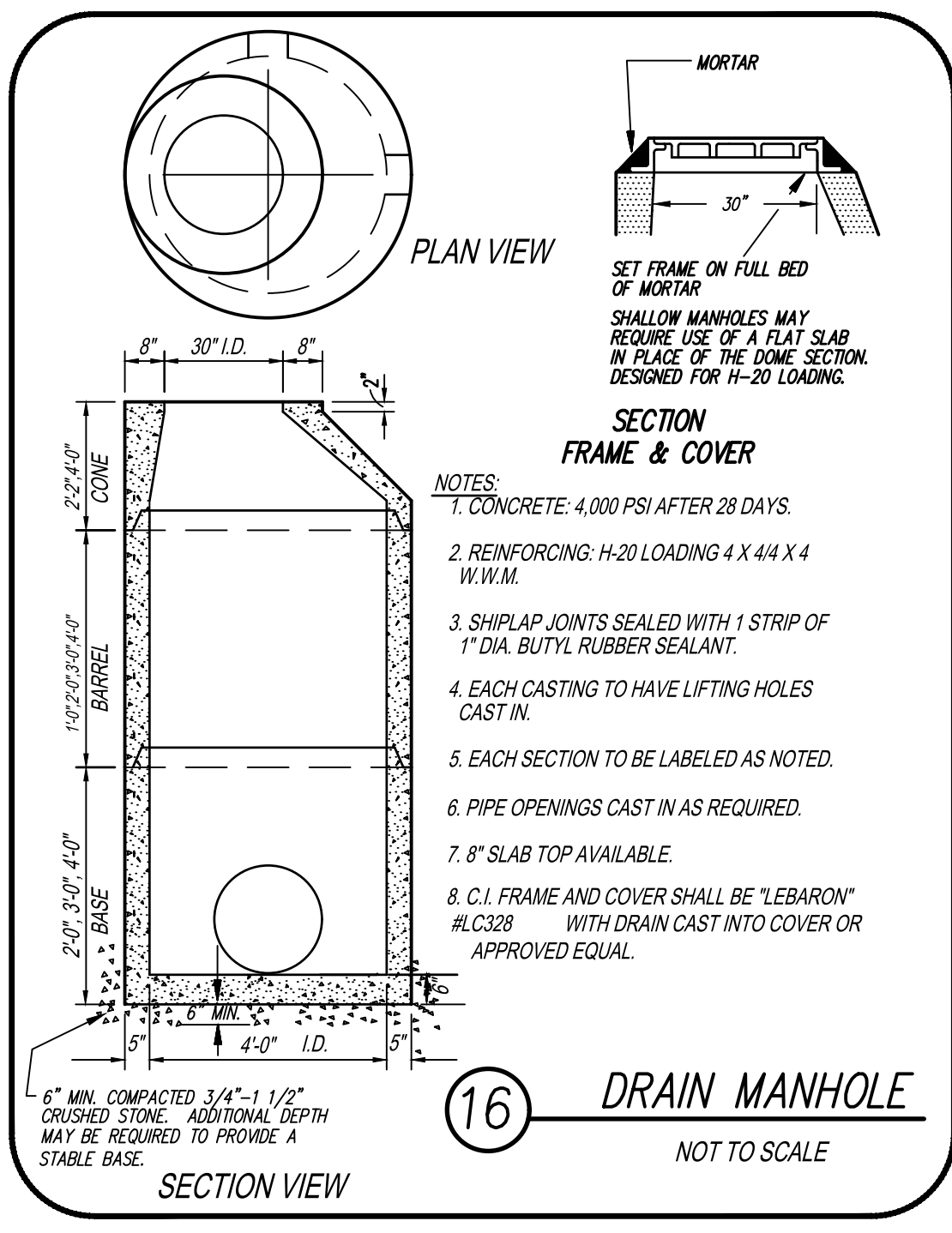
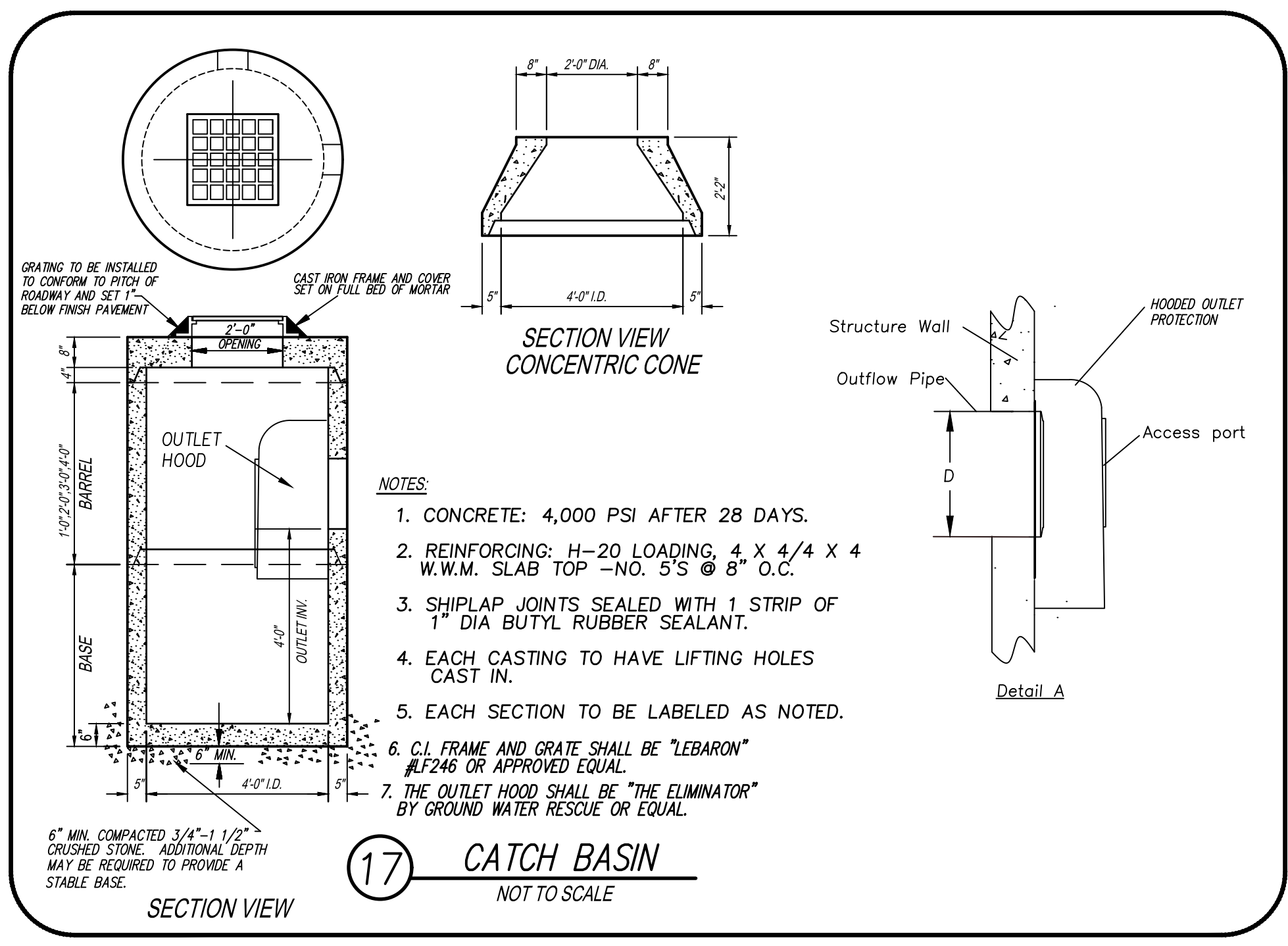
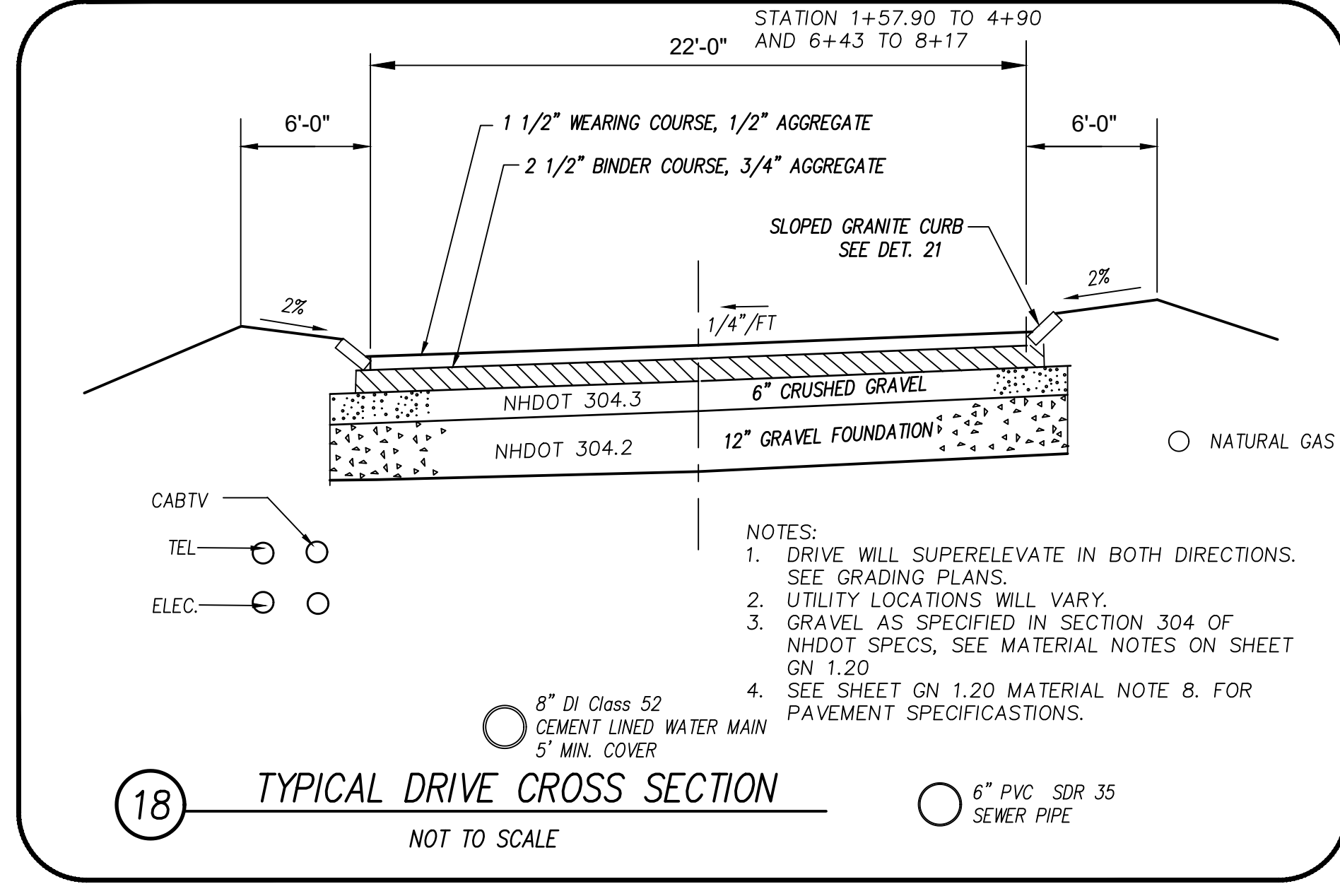
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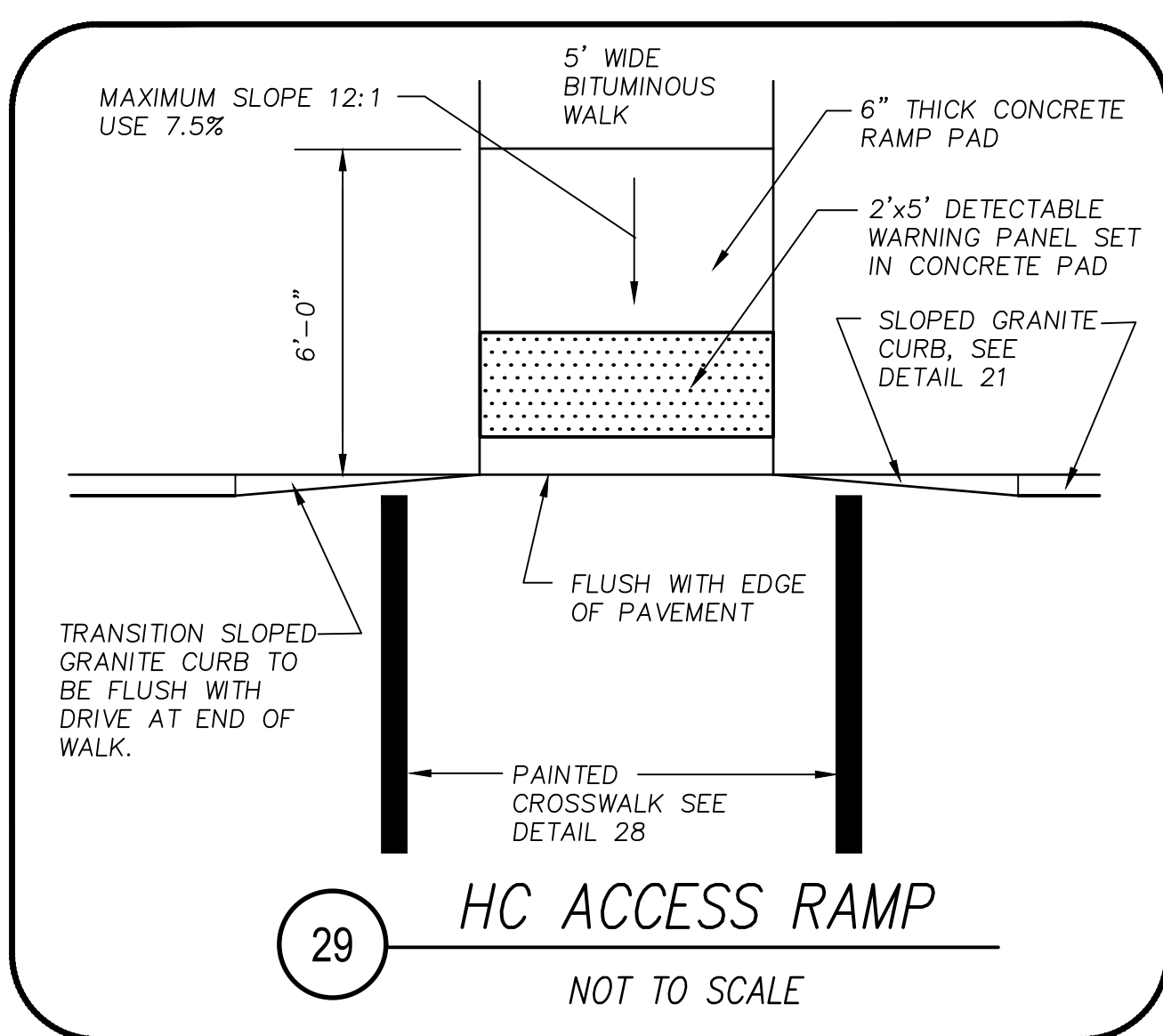
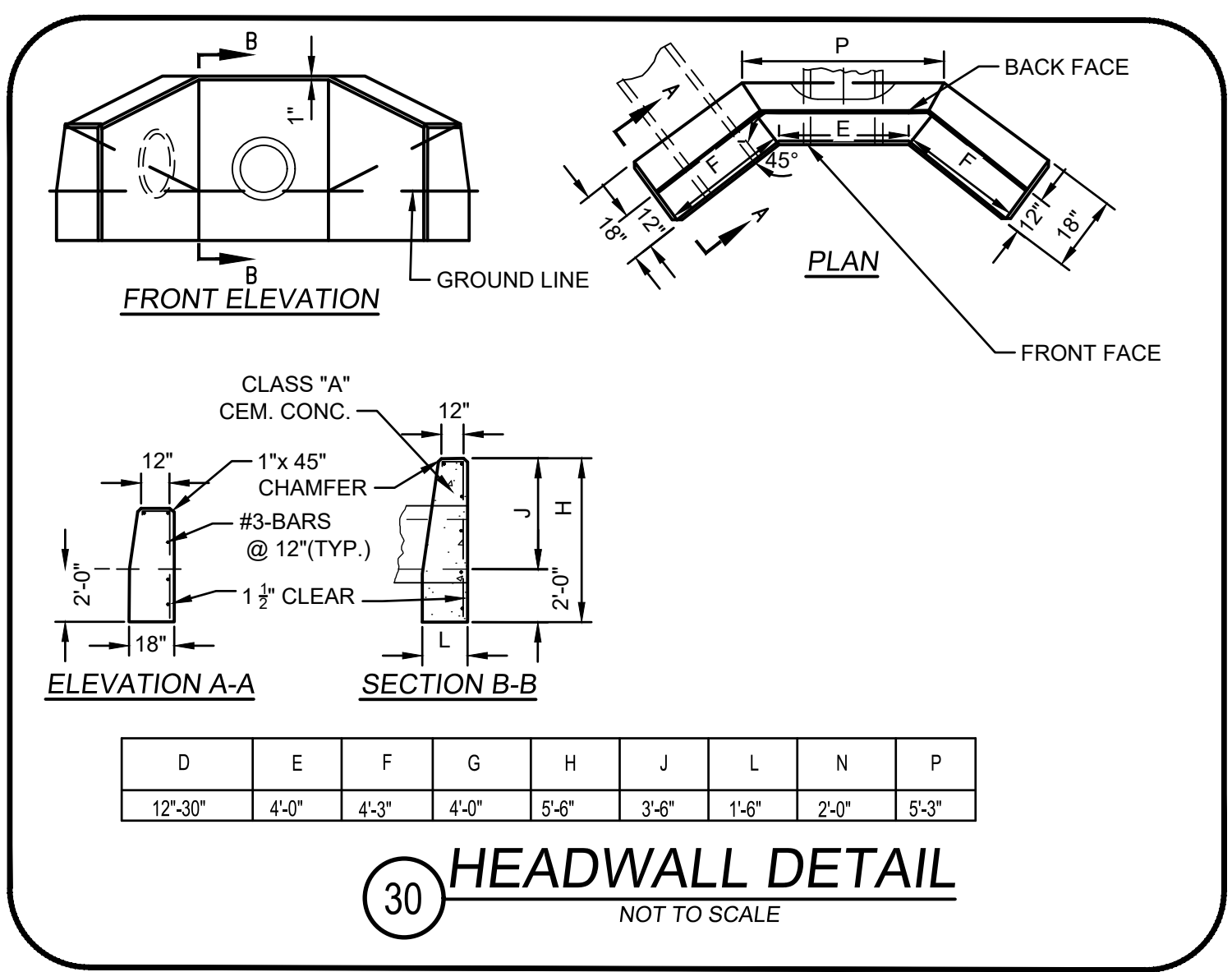
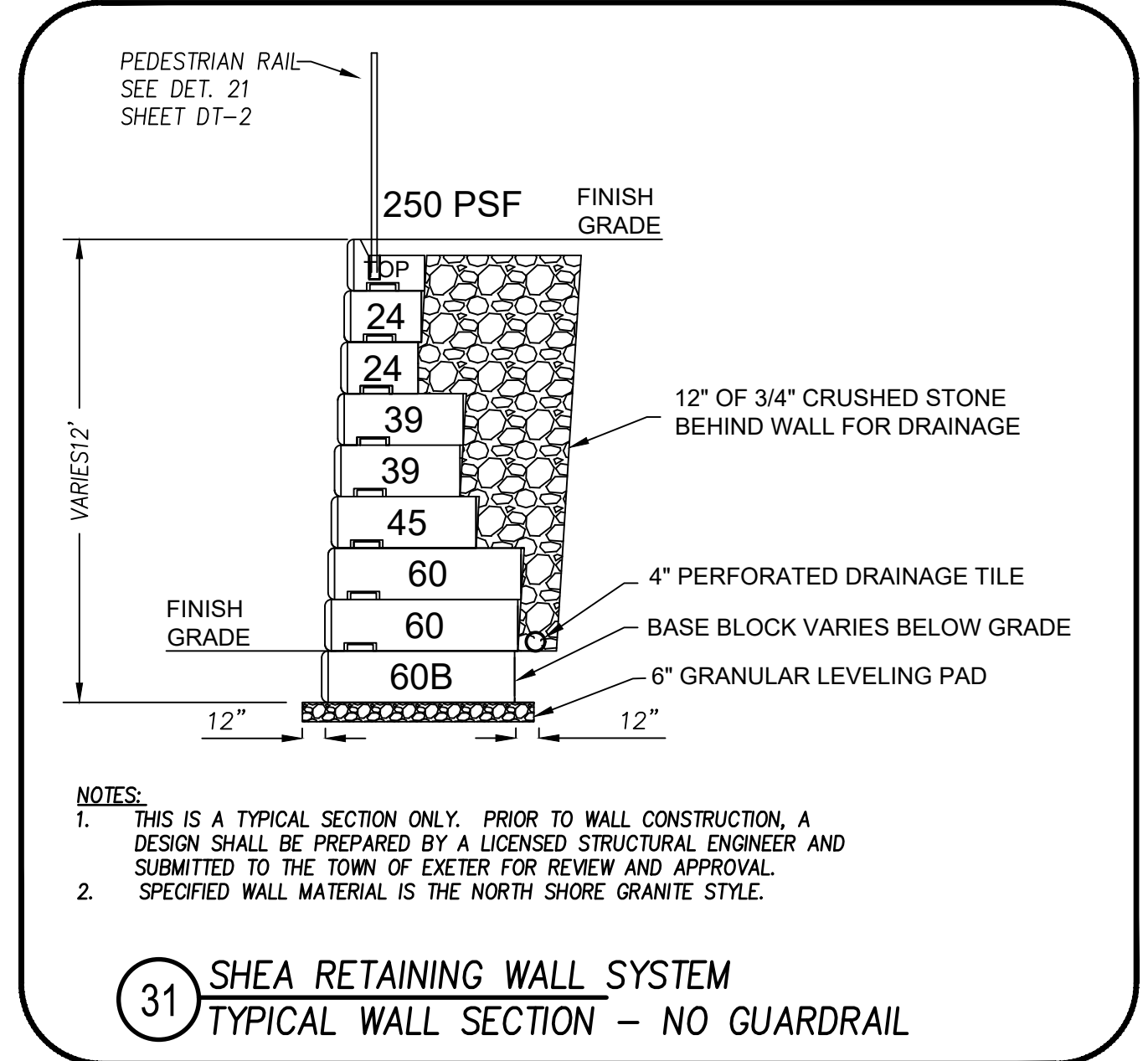
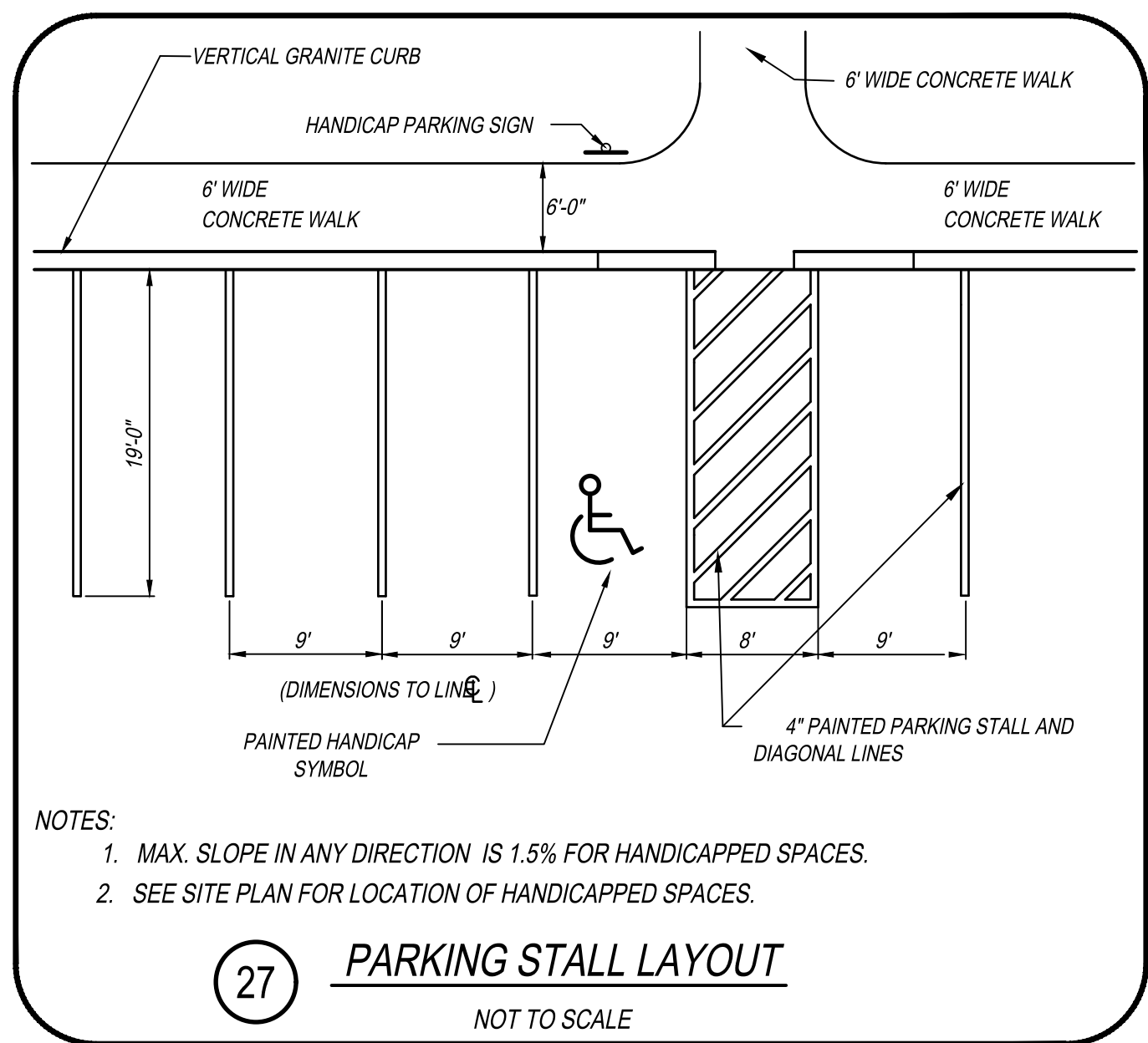
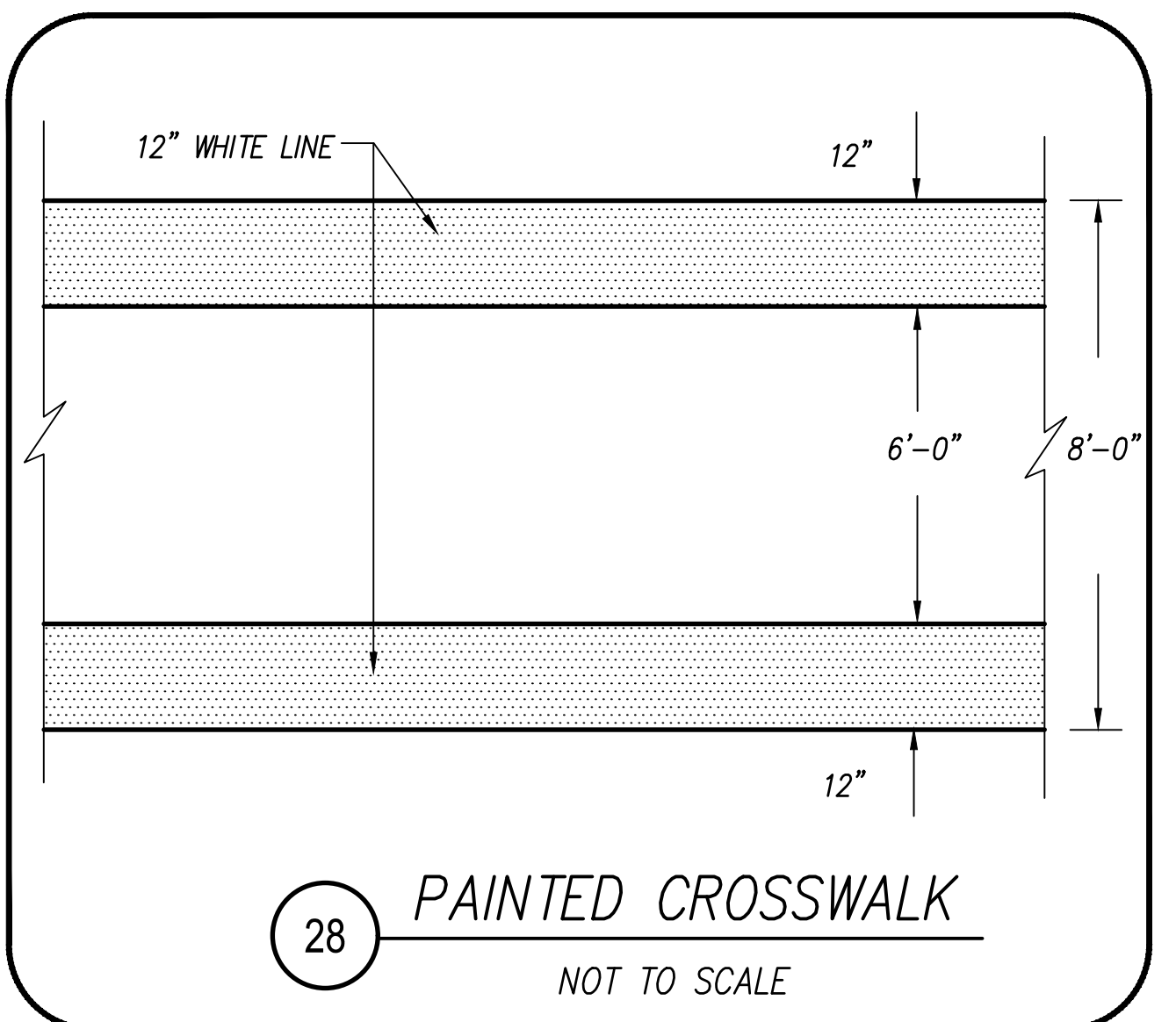
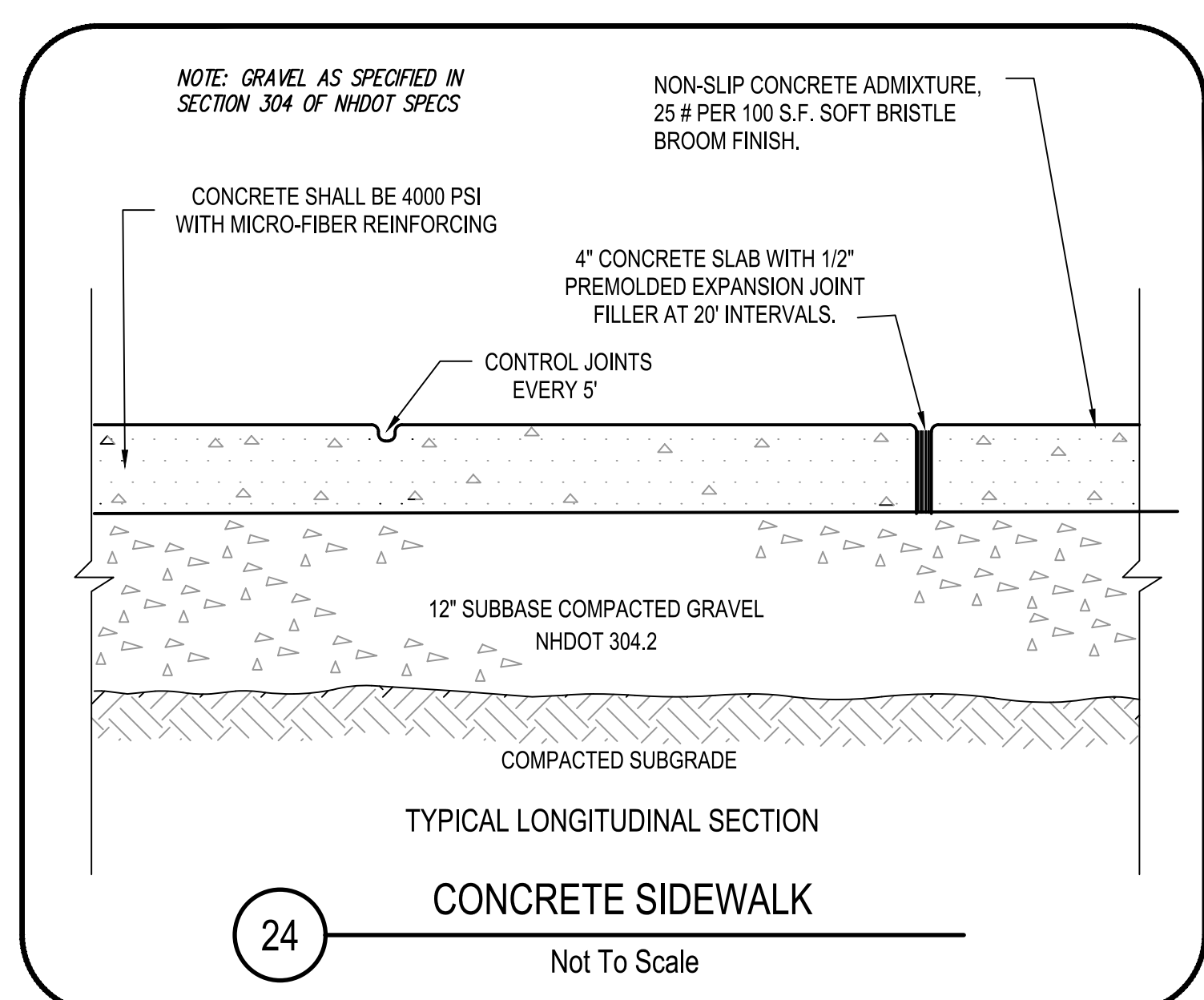
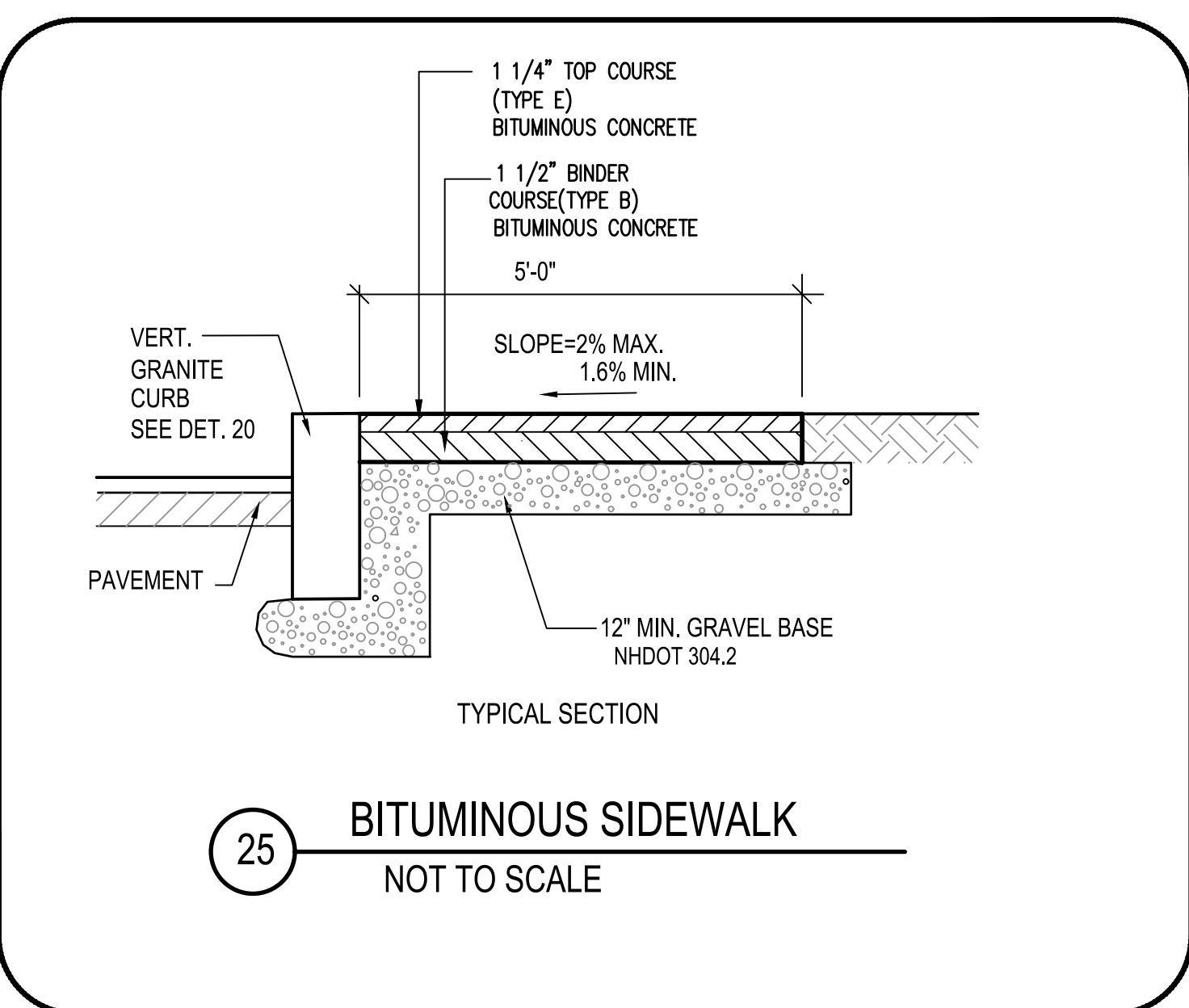
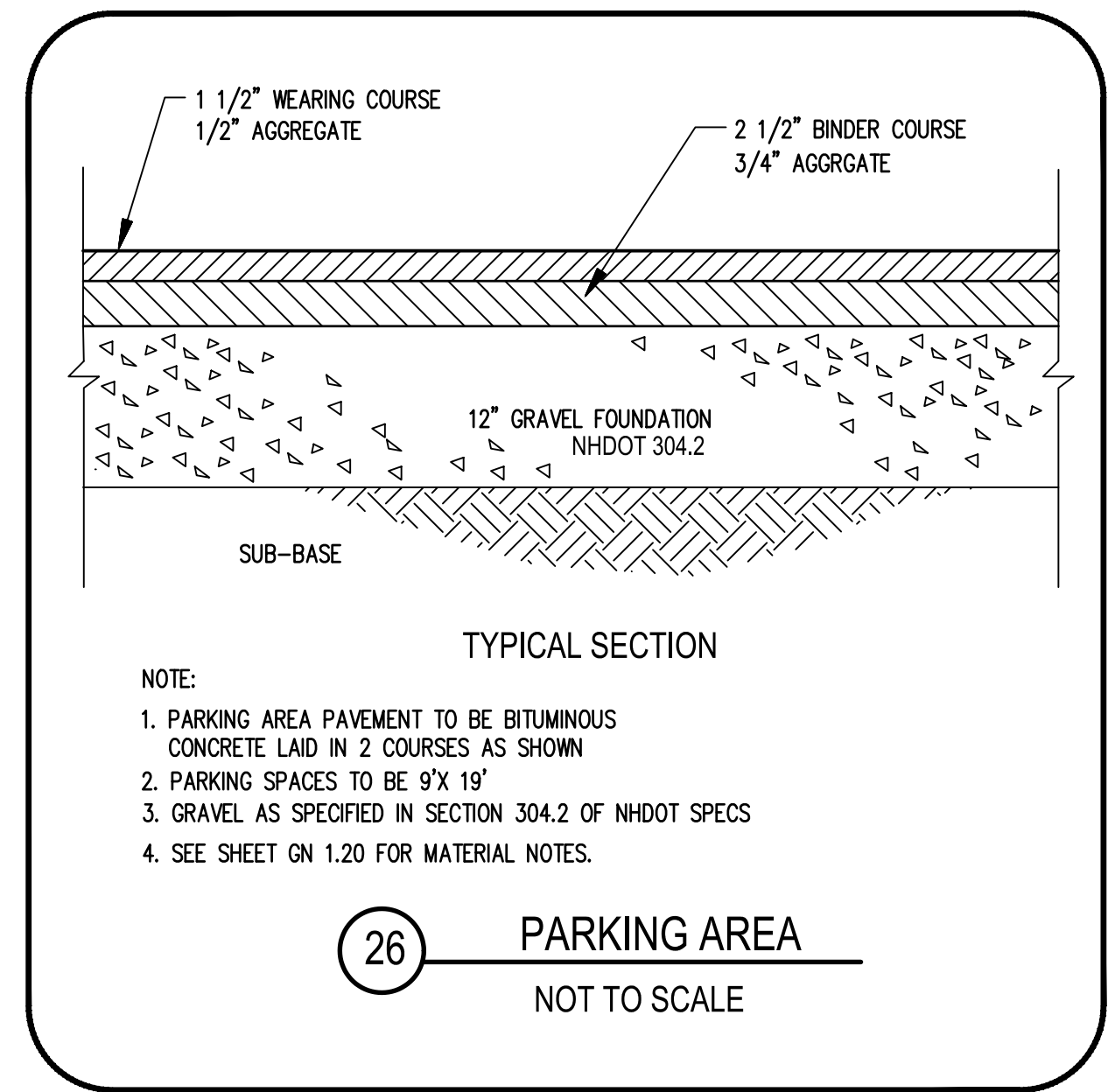
Sheet Title:  
**DETAILS**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY

PROJ. MGR.: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D.DT.DWG  
 FBK:  
 JOB #: 16042 D



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

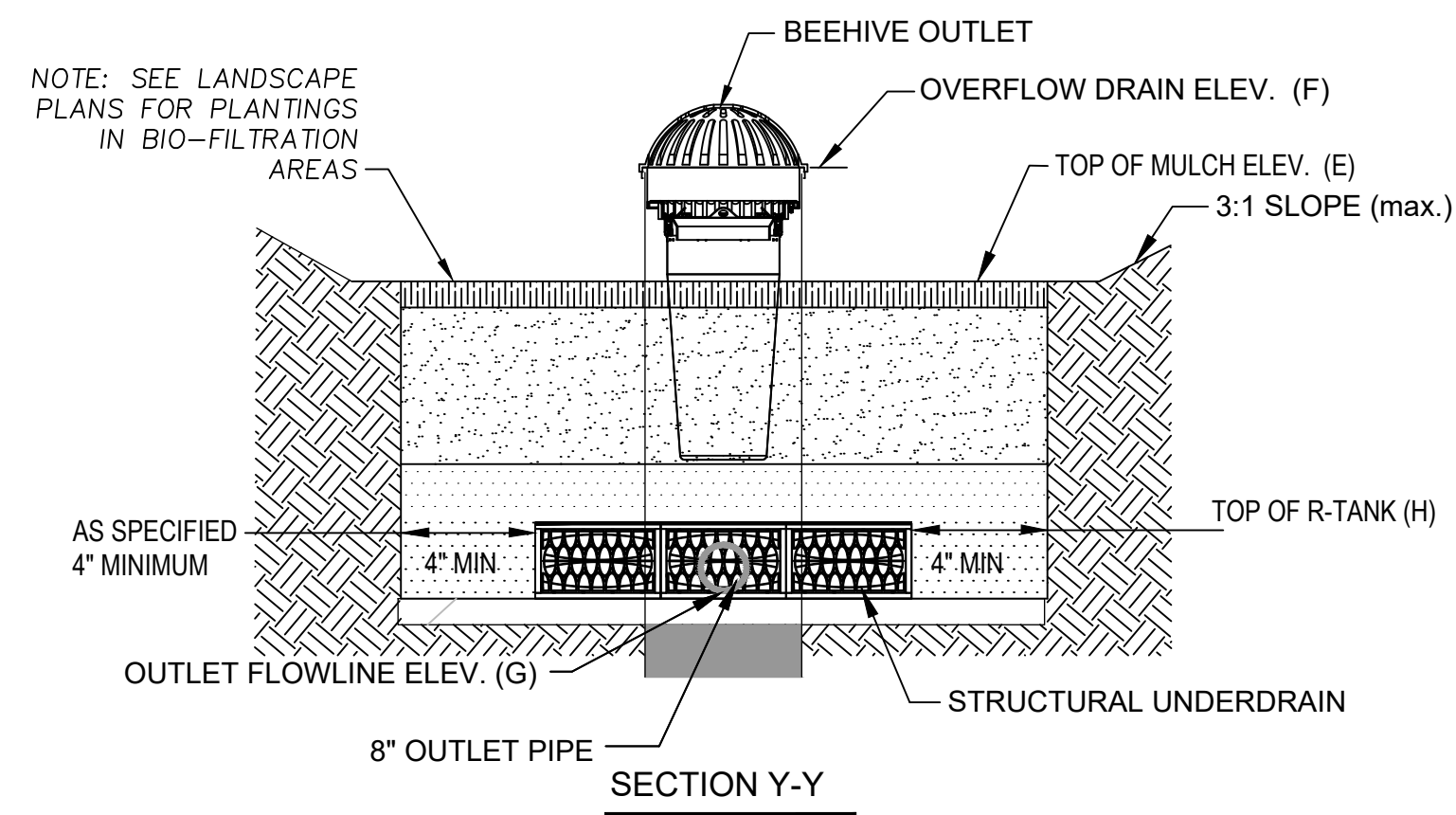
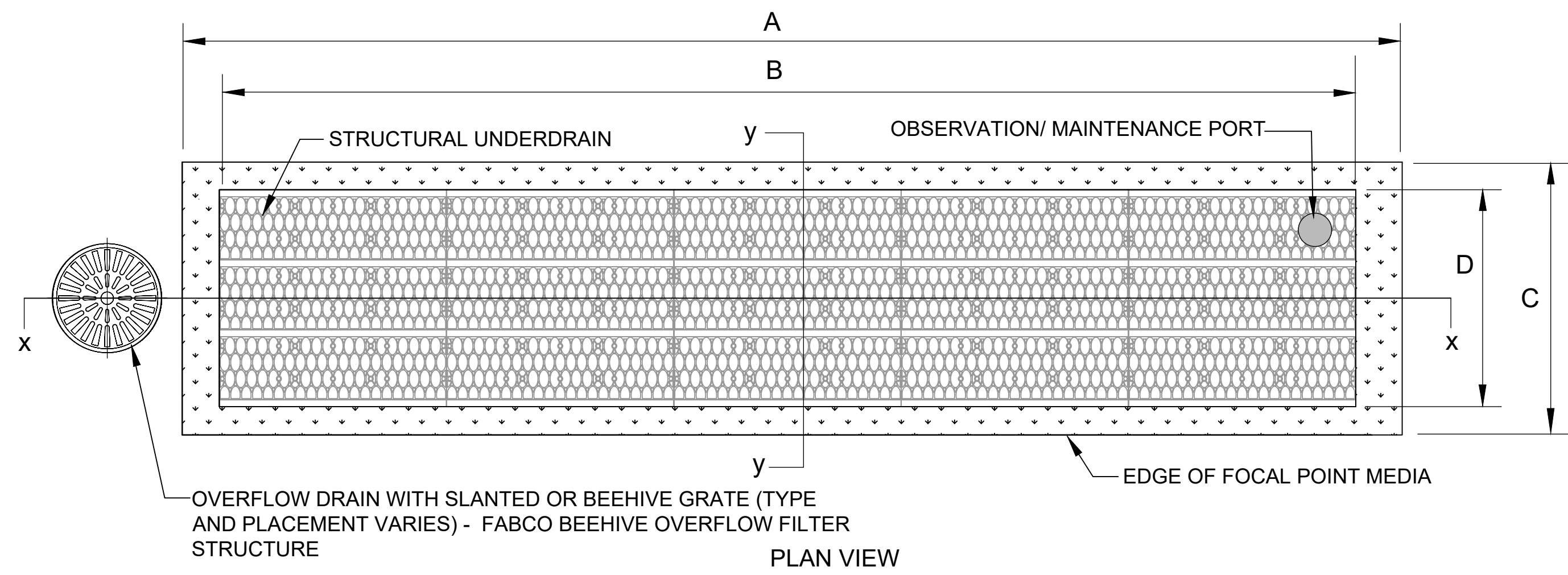
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33

BIO-FILTRATION SYSTEM "FOCAL POINT"

NOT TO SCALE

NOTE: PRODUCTS ON THIS SHEET ARE DISTRIBUTE BY "ACF ENVIRONMENTAL",  
 -25-A PROGRESS AVENUE NASHUA, NH 03062 (603) 589-9255  
 -23 FAITH DR. GORHAM, ME 04038 (207) 272 4431 CONTACT ROBERT WOODMAN

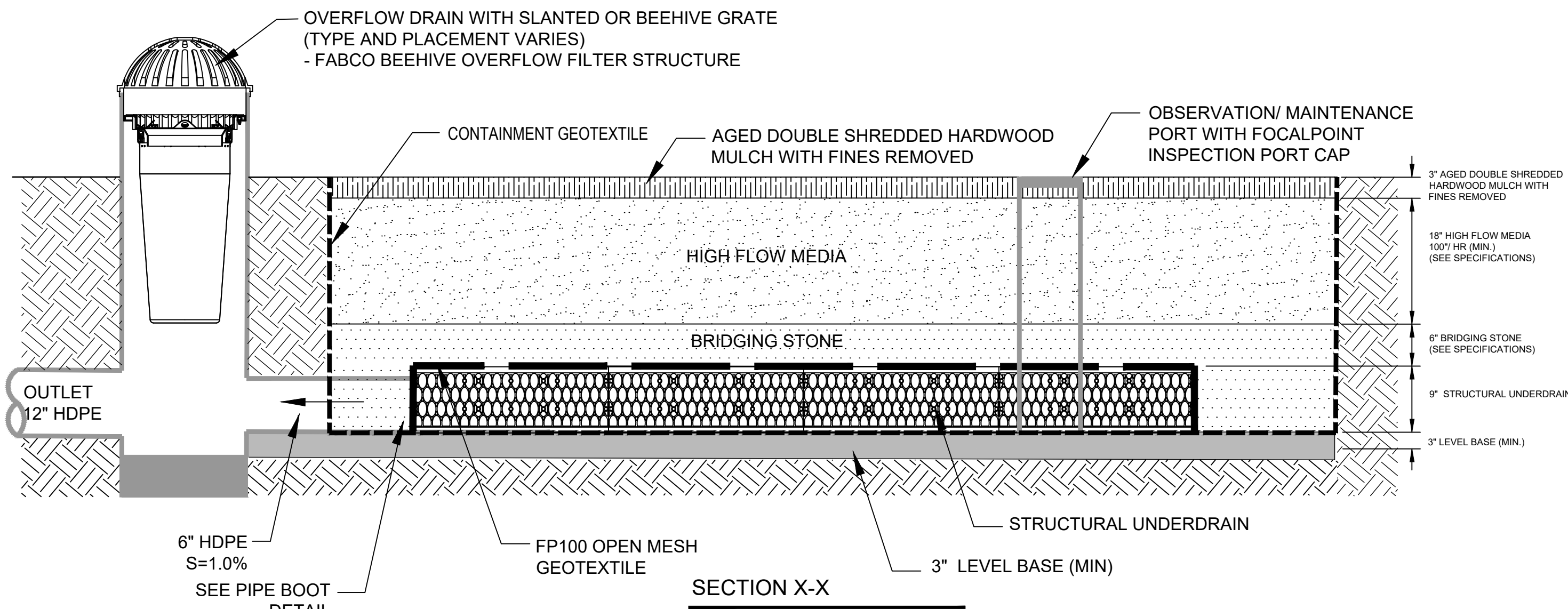


'BEEHIVE' OVERFLOW / OUTLET DATA

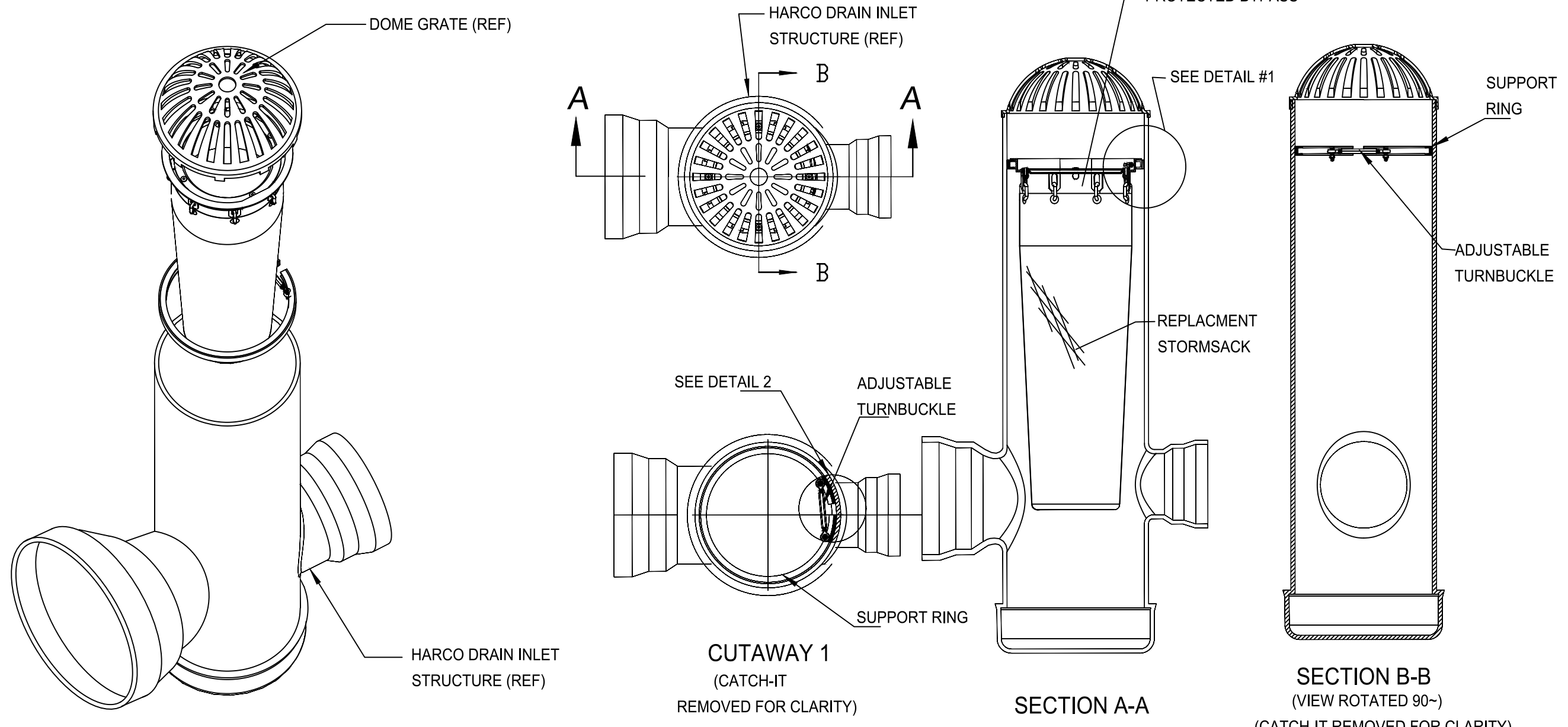
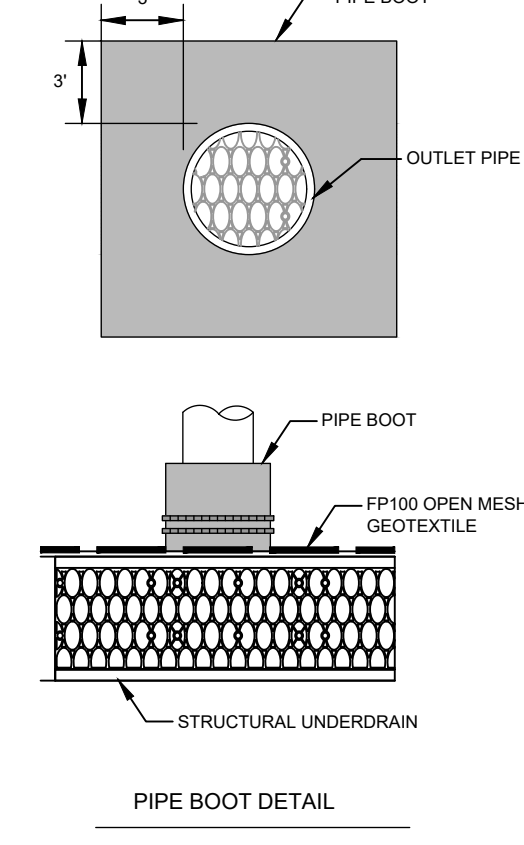
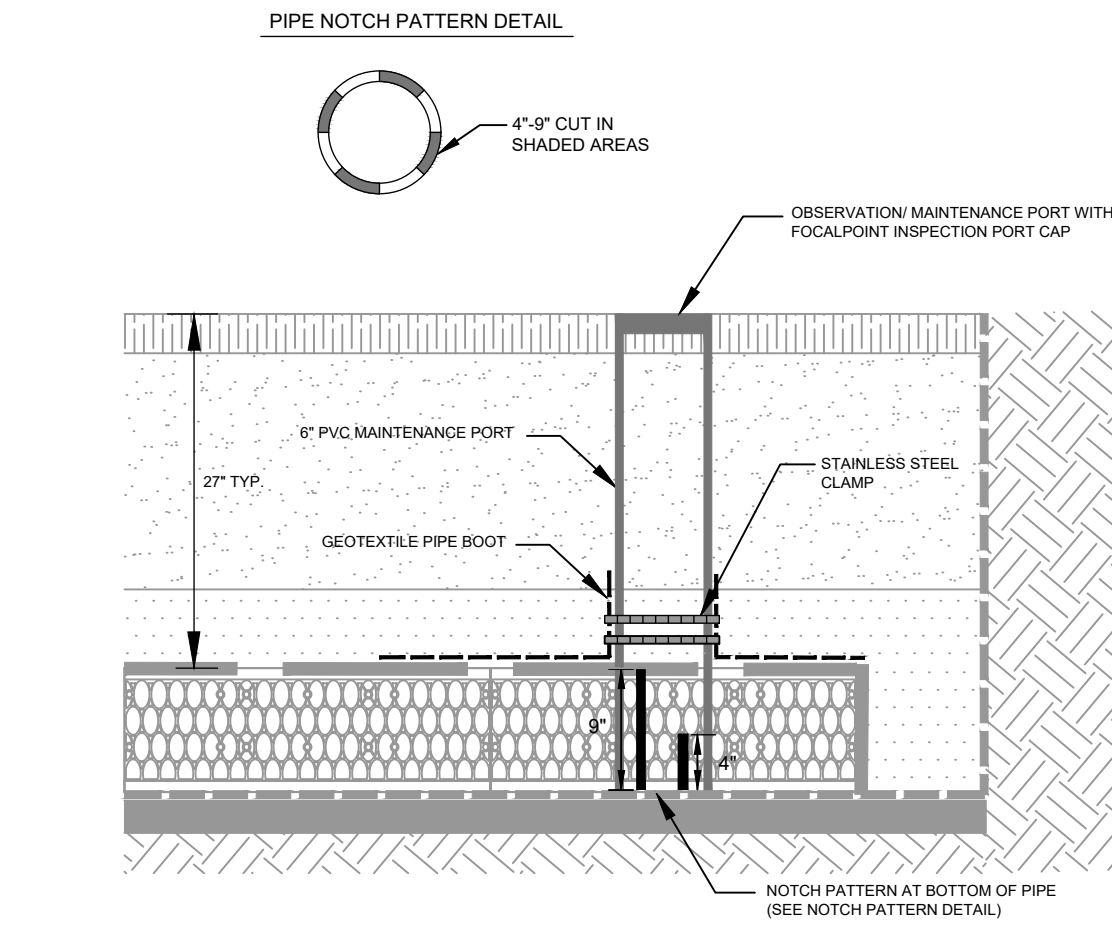
	DIA.	RIM ELEV. 'F'	INLET/INV.	OUTLET/INV.
FP-11	12"	115.00	8"/111.00	8"/111.00
FP-12	12"	107.50	8"/104.00	8"/104.00

FOCAL POINT DATA

	A	B	C	D	E	F	G	H
FP-11	11.00'	9.38' (4 CHAMB)	8.00'	6.56' (5 CHAMB.)	114.20	115.00	111.00	111.95
FP-12	12.00'	9.38' (4 CHAMB)	9.00'	7.87' (6 CHAMB.)	107.00	107.50	104.00	104.75



OBSERVATION / MAINTENANCE PORT



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TOWN OF EXETER PLANNING BOARD

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



6 CHESTNUT STREET, AMESBURY, MA.  
 Phone: (978) 388-2157  
 CONSULTING ENGINEERS & LAND SURVEYORS SINCE 1988  
 www.gm2inc.com

Sheet Title:  
**DETAILS**

Project Title:  
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 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK

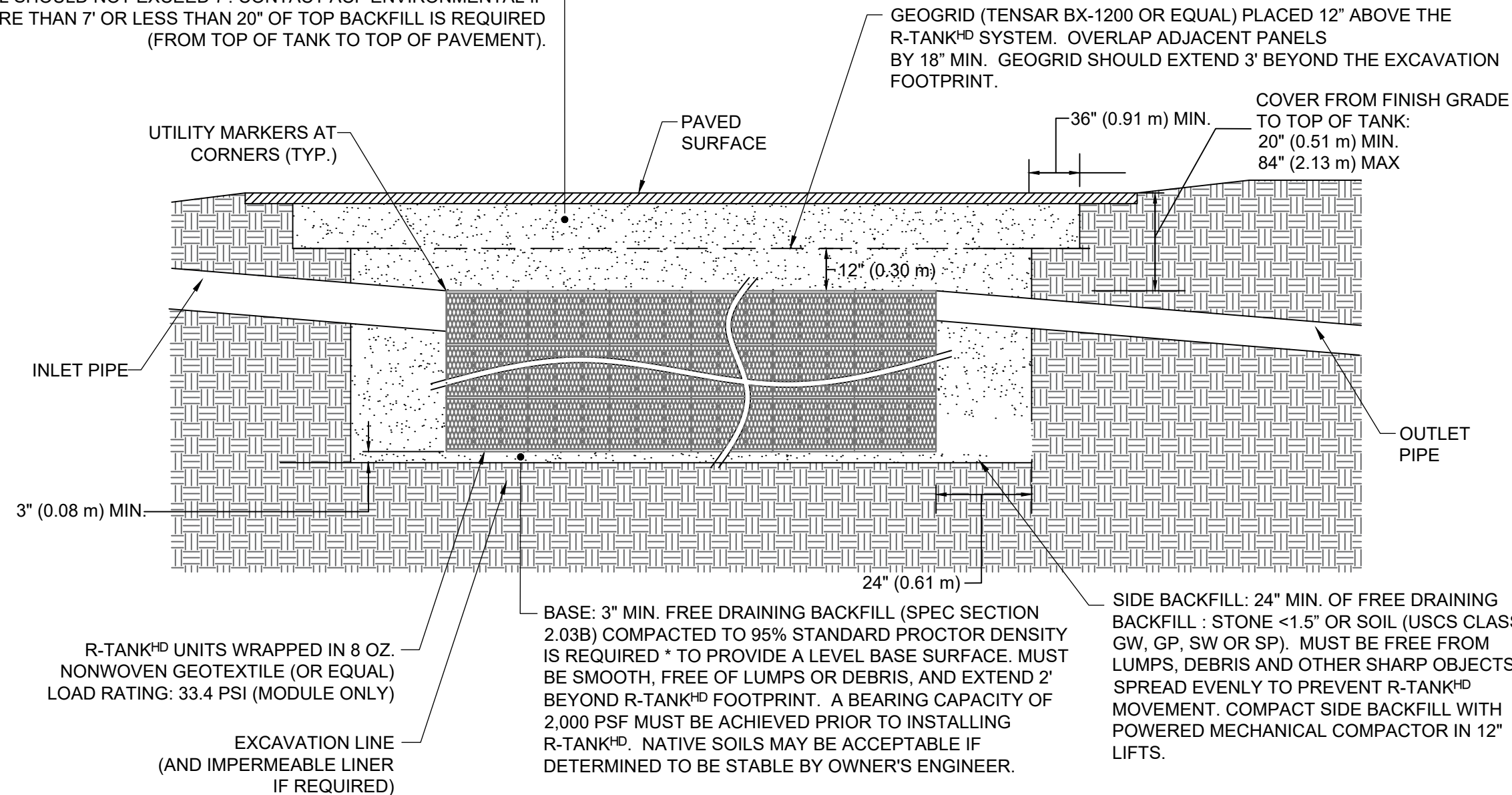
NO.	DATE	DESC	BY

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 FIELD: J. SALVAGGIO / R. SMITH  
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TOTAL COVER: 20" MINIMUM AND 84" MAXIMUM. FIRST 12" MUST BE FREE DRAINING BACKFILL: STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). ADDITIONAL FILL MAY BE STRUCTURAL FILL (SPEC SECTION 2.03C) STONE OR SOIL (USCS CLASS SM, SP, SW, GM, GP OR GW) WITH MAX CLAY CONTENT <10%, MAX 25% PASSING NO. 200 SIEVE, AND MAX PLASTICITY INDEX OF 4. A MIN. 12" COVER MUST BE MAINTAINED BETWEEN BACKFILL EQUIPMENT AND THE TOP OF THE R-TANK™ SYSTEM AT ALL TIMES. TOTAL HEIGHT OF TOP BACKFILL SHOULD NOT EXCEED 7' OR LESS THAN 20" OF TOP BACKFILL IS REQUIRED (FROM TOP OF TANK TO TOP OF PAVEMENT).

NOTES:  
 • FOR COMPLETE MODULE DATA, SEE APPROPRIATE R-TANK® MODULE SHEET  
 • INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF H20 LOADING PER THE 1983, 13TH EDITION OF THE AMERICAN ASSOCIATION OF STATE, HIGHWAY AND TRAFFIC OFFICIALS (AASHTO) STANDARD SPECIFICATIONS  
 • PRE-TREATMENT STRUCTURES NOT SHOWN



\* FOR INFILTRATION APPLICATIONS, BASE SHALL BE 4" MIN. UNCOMPACTED FREE DRAINING BACKFILL (SPEC SECTION 2.03B) TO PROVIDE A LEVEL BASE SURFACE. MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK® FOOTPRINT. A BEARING CAPACITY OF 2,000 PSF MUST BE ACHIEVED PRIOR TO INSTALLING R-TANK®.



### R-TANK<sup>HD</sup> - HS-20 LOADS

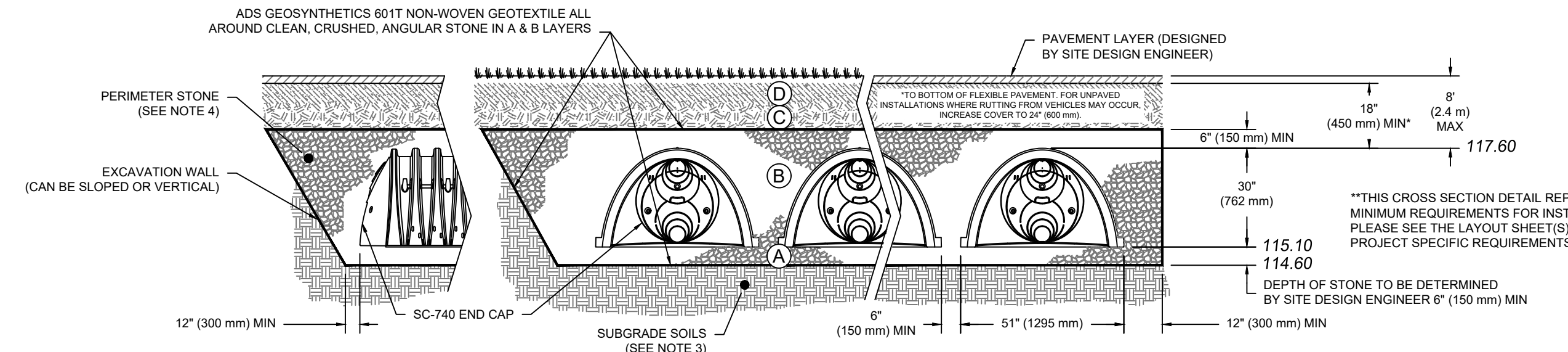
AUG 2016 REV

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

### ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. <sup>2,3</sup>

PLEASE NOTE:  
 1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".  
 2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.  
 3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.  
 4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

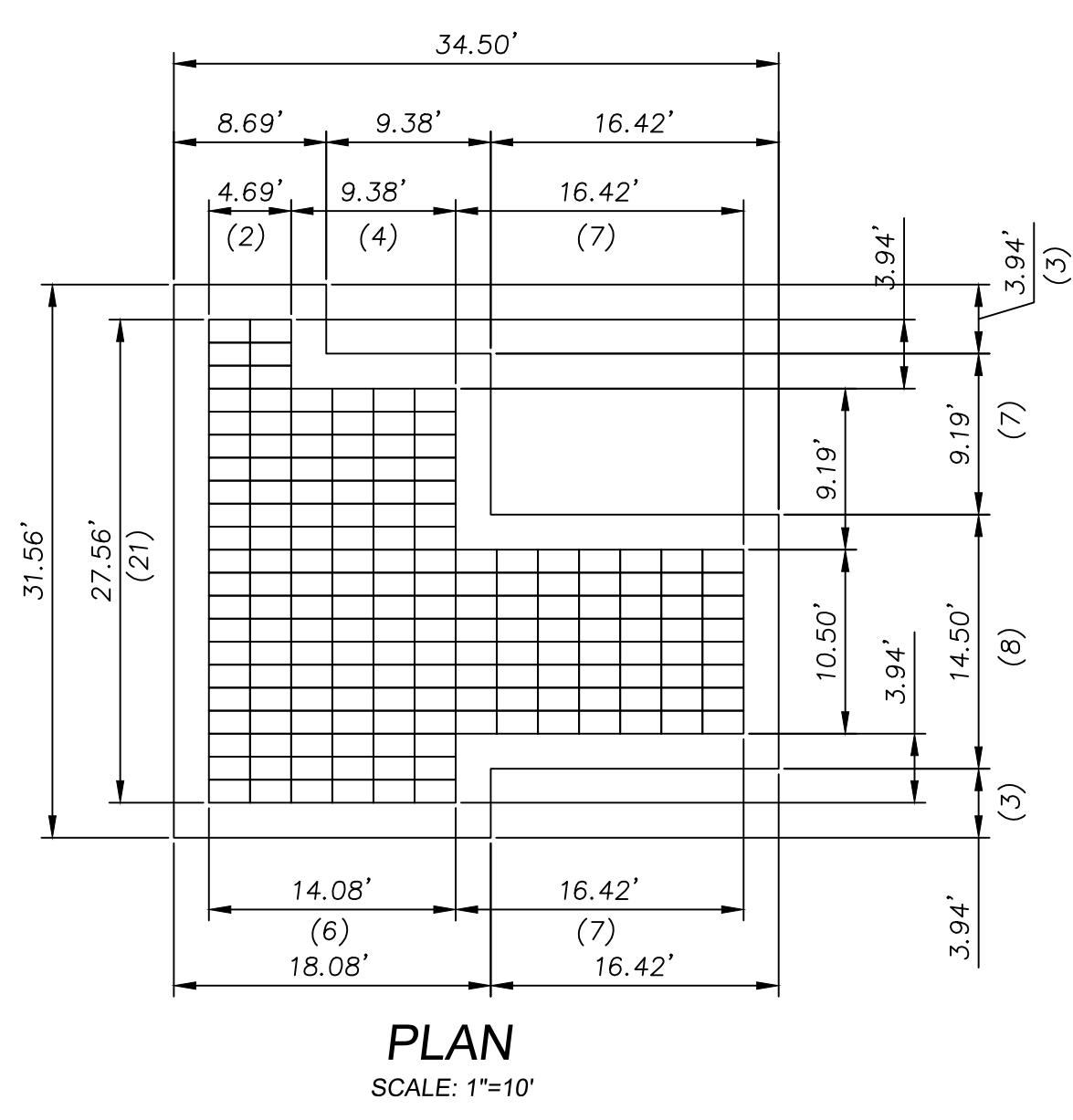


#### NOTES:

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 650 LBS(INCH) AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

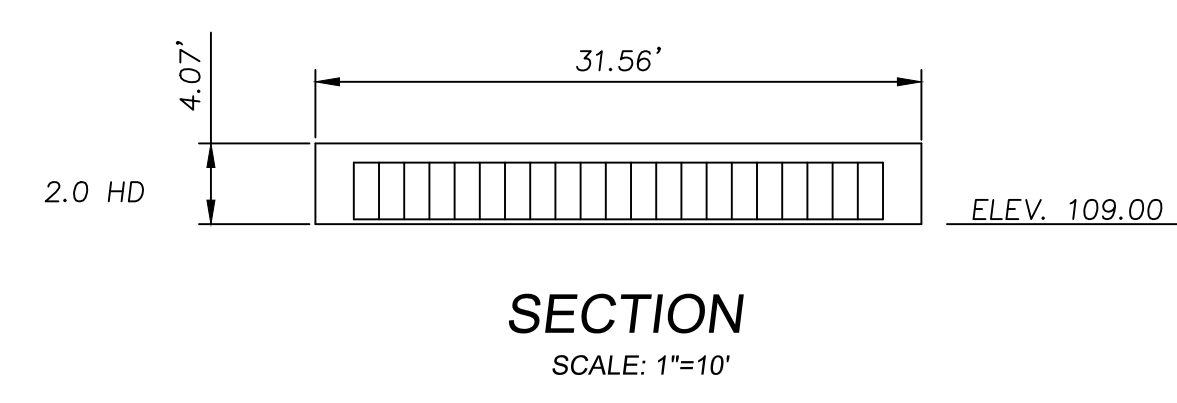
#### CONSTRUCTION NOTES:

- SUBSURFACE INFILTRATION CHAMBER BASINS:  
 - DO NOT ALLOW CONSTRUCTION TRAFFIC ON EXPOSED SOIL SURFACE IN AREA OF THE INFILTRATION SYSTEMS. IF FEASIBLE, PERFORM EXCAVATIONS AND ERECTION OUTSIDE THE LIMITS OF THE INFILTRATION SYSTEM  
 - AFTER THE INFILTRATION SYSTEM AREA IS EXCAVATED TO THE FINAL DESIGN ELEVATION, THE FLOOR SHOULD BE DEEPLY TILLED WITH A ROTARY TILLER OR A DISC HARROW TO RESTORE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.  
 - DO NOT PLACE INFILTRATION SYSTEMS INTO SERVICE UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.

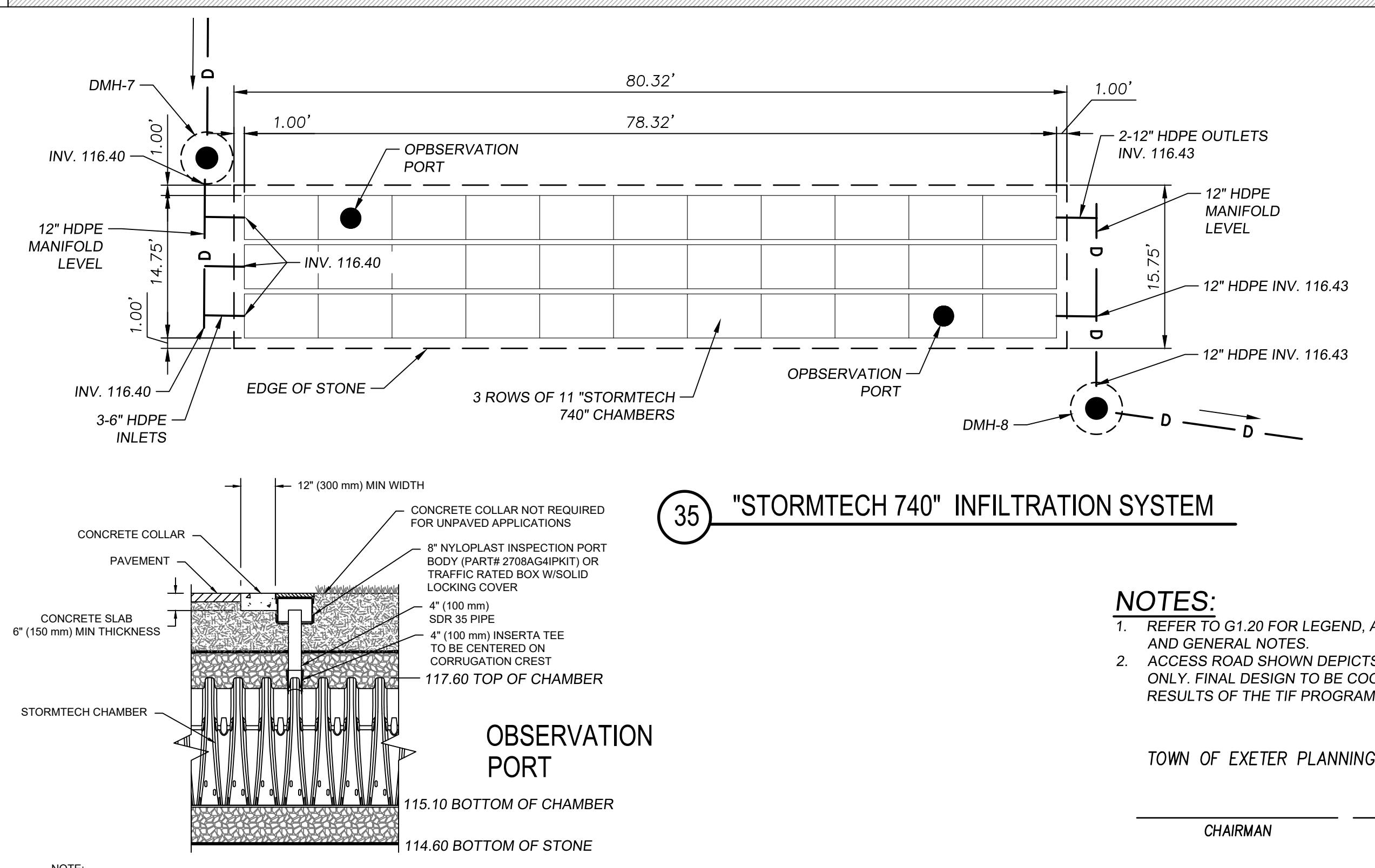


### INFILTRATION SYSTEM 4 (INFIL-4) TOTAL OF 170 2.0 HD CHAMBERS

### 34 R-TANK INFILTRATION SYSTEM



### SC-740 CROSS SECTION DETAIL



#### NOTES:

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

NOTE: INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION CREST.



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## DETAILS

Project Title:  
**Ray Farm Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK			
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PROJ. MGR.: D. HAMEL  
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① EXAMPLE OF EXTERIOR VIEW

PHOTO BY: CLEAR EYE PHOTO

REVISIONS:

RAY FARM ACTIVE ADULT COMMUNITY  
 EPPING ROAD  
 EXETER, NEW HAMPSHIRE 03833, ROCKINGHAM COUNTY

**CJ ARCHITECTS**  
 233 VAUGHAN STREET  
 SUITE 101 SUITE 101  
 PORTSMOUTH, NH 03801  
 (603) 431-2808  
 www.cjarchitects.net

BUILDING D  
 EXAMPLE OF  
 EXTERIOR VIEW

DATE:	3/14/2022
DRAWN BY:	WWB
APPROVED BY:	CJG
SCALE:	N/A
JOB NUMBER:	21611

A1.0

NOT FOR CONSTRUCTION

REVISIONS:

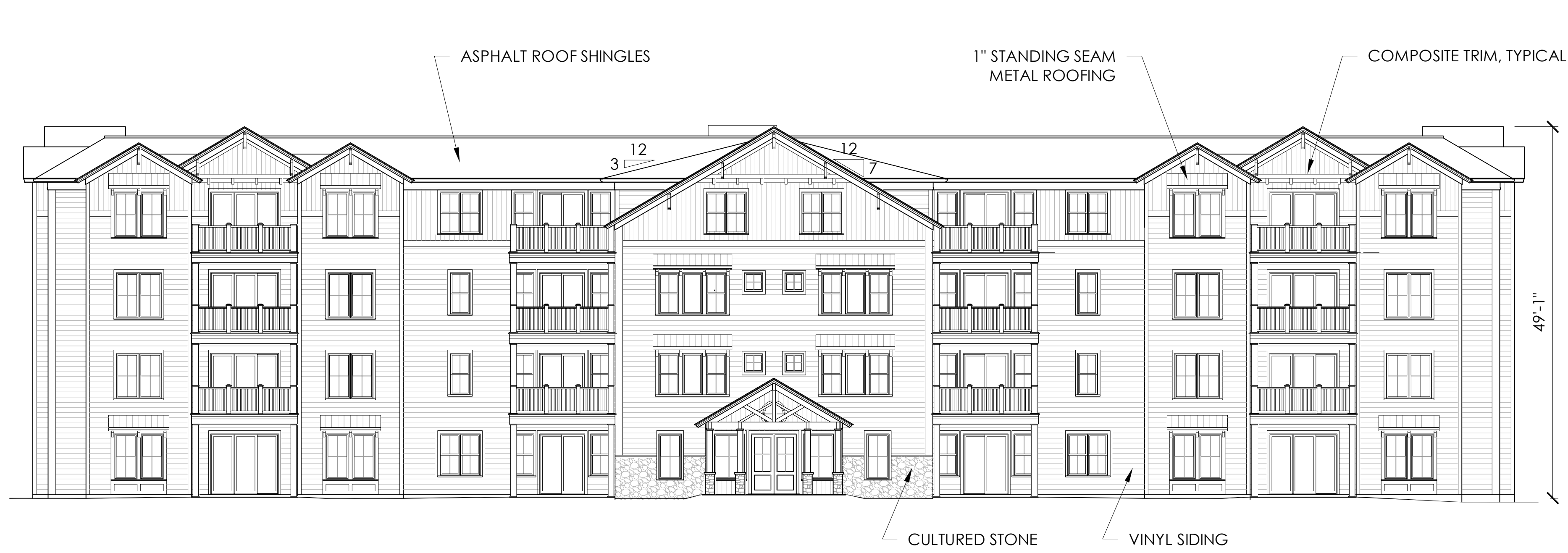
RAY FARM ACTIVE ADULT COMMUNITY  
 EPPING ROAD  
 EXETER, NEW HAMPSHIRE 03833, ROCKINGHAM COUNTY

**CJ**  
**ARCHITECTS**  
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 PORTSMOUTH, NH 03801  
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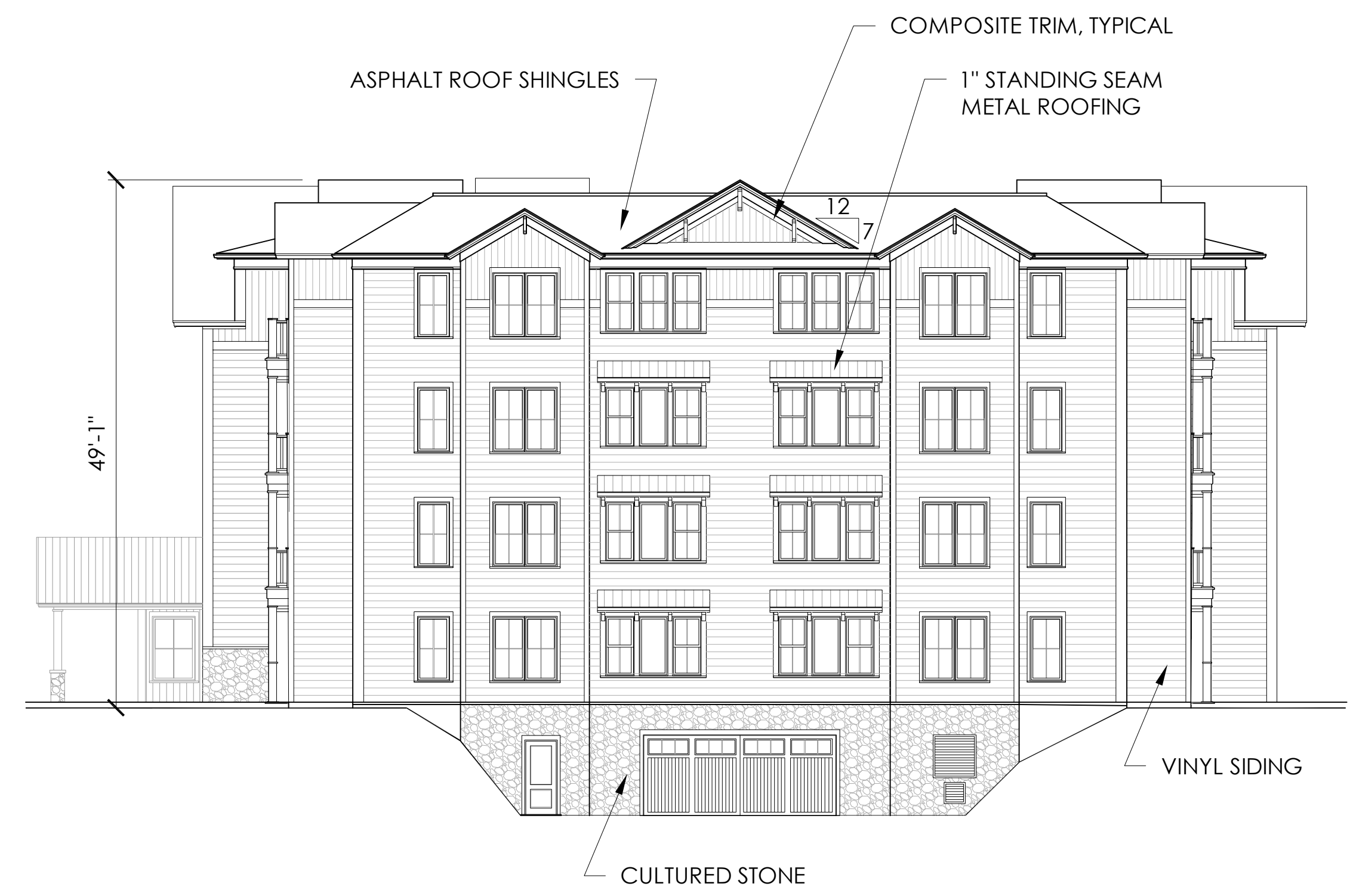
BUILDING D  
 ELEVATIONS

DATE: 3/14/2022  
 DRAWN BY: WWB  
 APPROVED BY: CJG  
 SCALE: 3/32" = 1'-0"  
 JOB NUMBER: 21611

A2.0



1 FRONT ELEVATION  
 3/32" = 1'-0"



2 RIGHT SIDE ELEVATION  
 3/32" = 1'-0"



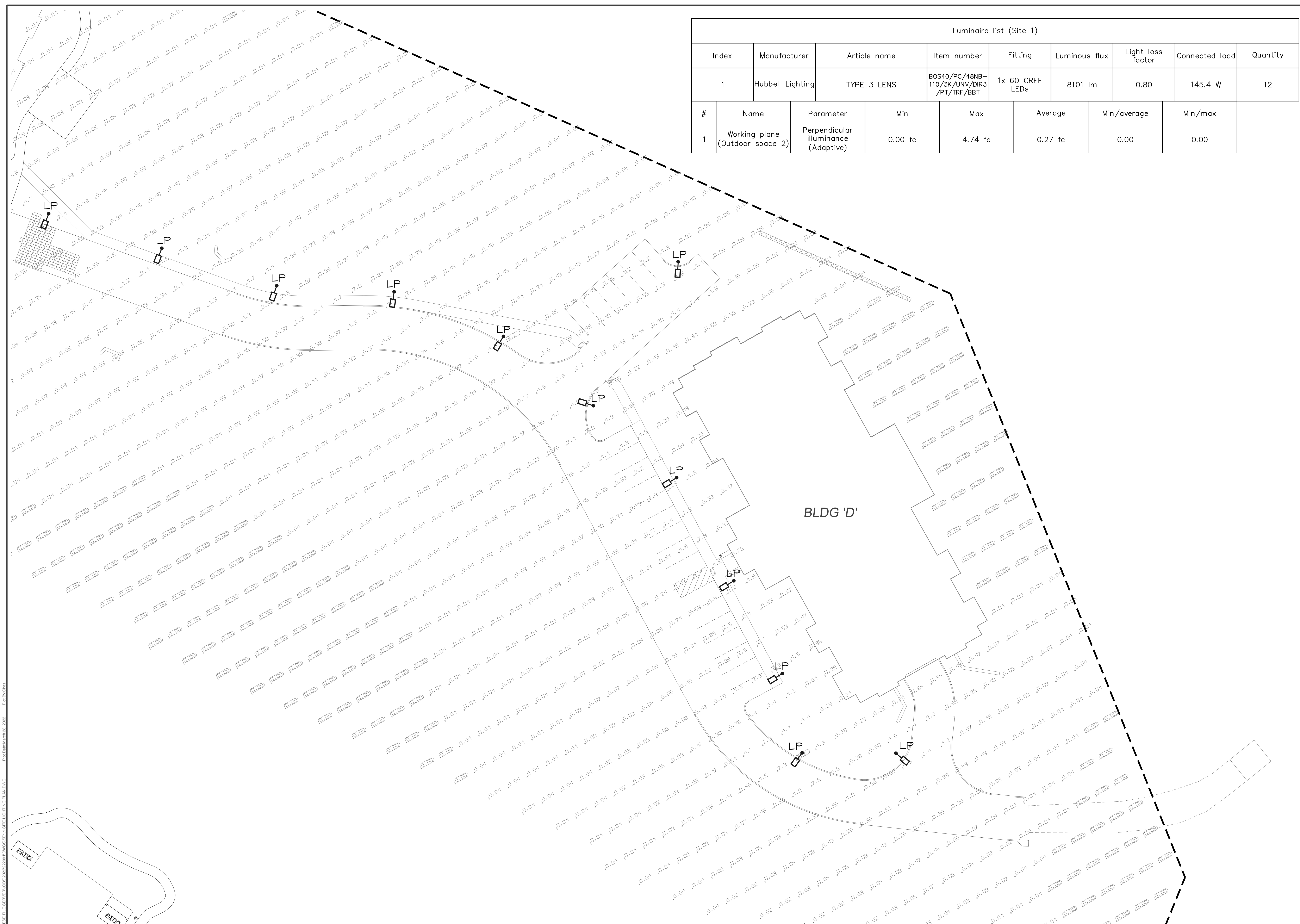
3 BACK ELEVATION  
 3/32" = 1'-0"



4 LEFT SIDE ELEVATION  
 3/32" = 1'-0"

NOT FOR CONSTRUCTION





Luminaire list (Site 1)								
Index	Manufacturer	Article name	Item number	Fitting	Luminous flux	Light loss factor	Connected load	Quantity
1	Hubbell Lighting	TYPE 3 LENS	BOS40/PC/48NB-110/3K/UNV/DIR3/PT/TRF/BBT	1x 60 CREE LEDs	8101 lm	0.80	145.4 W	12
#	Name	Parameter	Min	Max	Average	Min/average	Min/max	
1	Working plane (Outdoor space 2)	Perpendicular illuminance (Adaptive)	0.00 fc	4.74 fc	0.27 fc	0.00	0.00	

Stamp:  
Engineer:



Contractor:

REVISIONS		Approved
Date	Description	

Project Name:  
**RAY FARM - SITE**  
EPPING ROAD  
EXETER, NH 03833

Title:  
**SITE LIGHTING PLAN**

Drawn: CMM  
Checked: SF/SH/RFG  
Date: 03-28-22  
Scale: 1"=20'-0"  
Project No.: 222091  
File No.:

Drawing No.:  
**SE1.1**

J:\SEI FILE SERVER\2022\222091\222091\DWG\SEI.1 SITE LIGHTING PLAN.DWG Plot Date: March 28, 2022 Plot By: chris



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Sheet Title:  
**WETLAND  
 IMPACT  
 PLAN**

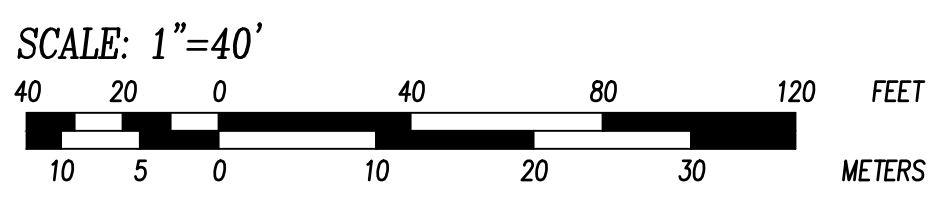
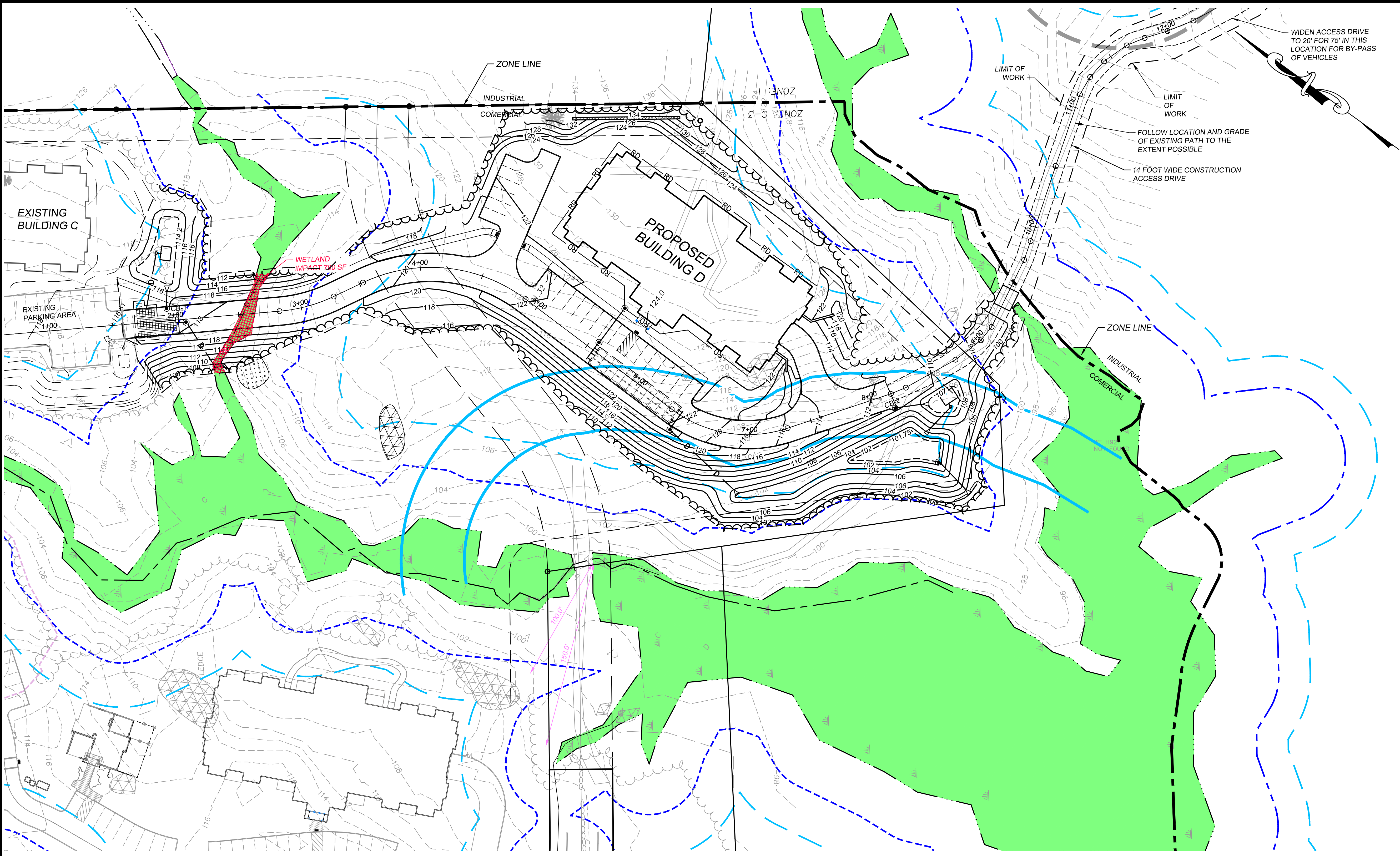
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**DIRECT WETLAND IMPACTS**

WETLAND IMPACT - AREA 1 700 SF

**TOTAL WETLAND IMPACT 700 SF**

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

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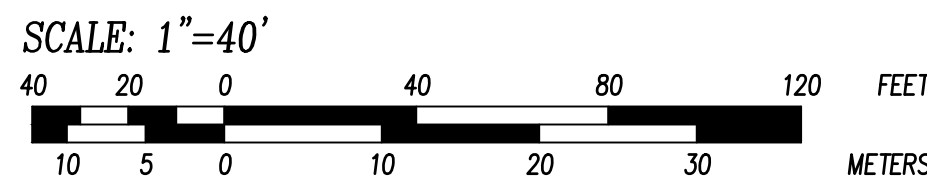
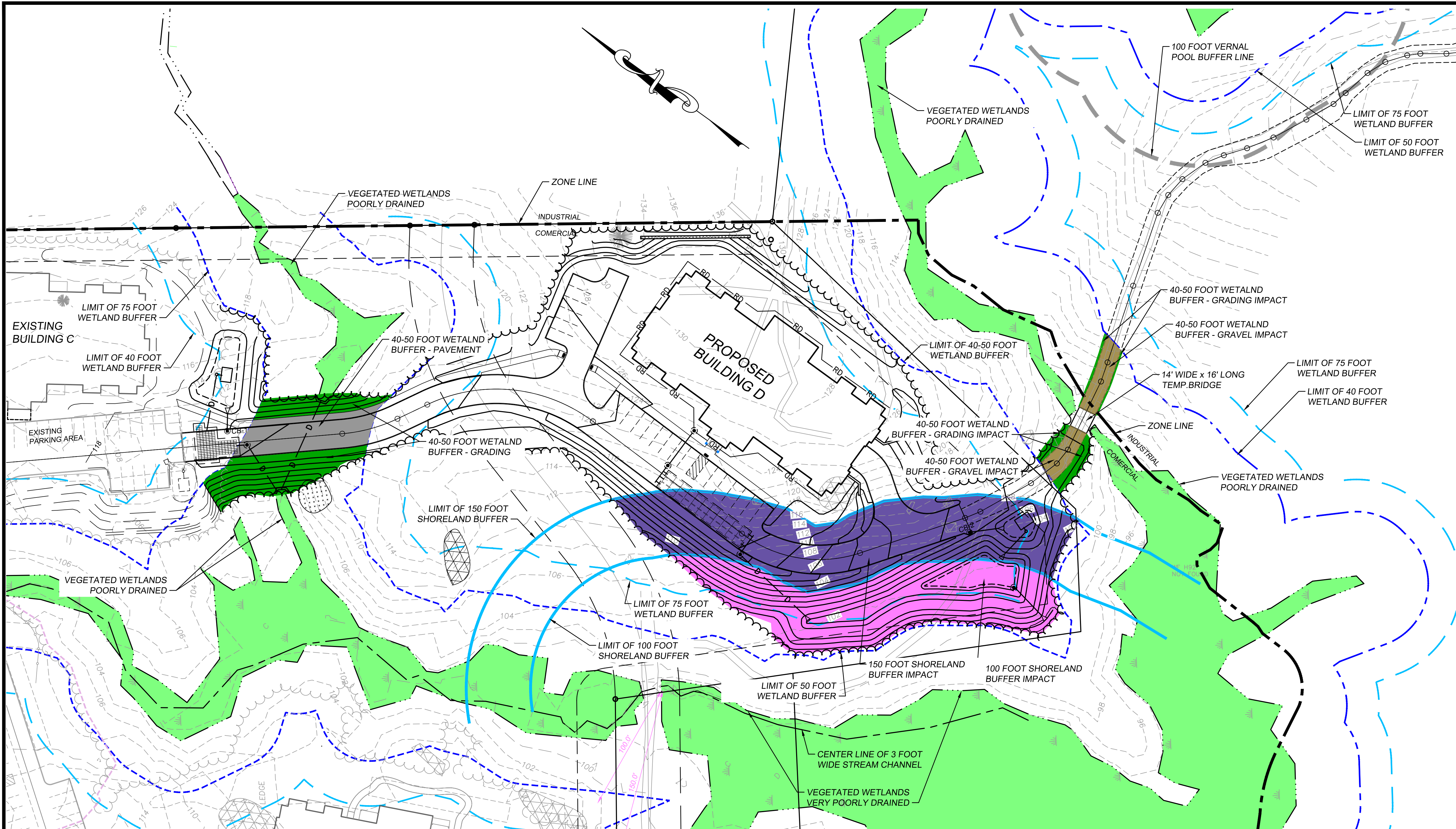
Sheet Title:  
**WETLAND AND  
 SHORELAND  
 BUFFER IMPACT  
 PLAN**

Project Title:  
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**WETLAND BUFFER IMPACTS**

	40-50 FOOT WETLAND BUFFER IMPACT - PAVEMENT	2858 SF
	40-50 FOOT WETLAND BUFFER IMPACT - GRAVEL	1436 SF
	40-50 FOOT WETLAND BUFFER IMPACT - GRADING	5179 SF
	75 FOOT WETLAND BUFFER IMPACT	0 SF

TOTAL WETLAND BUFFER IMPACTS 9,473 SF

**SHORELAND BUFFER IMPACTS**

	100 FOOT SHORELAND BUFFER IMPACT	9128 SF
	150 FOOT SHORELAND BUFFER IMPACT	16,560 SF

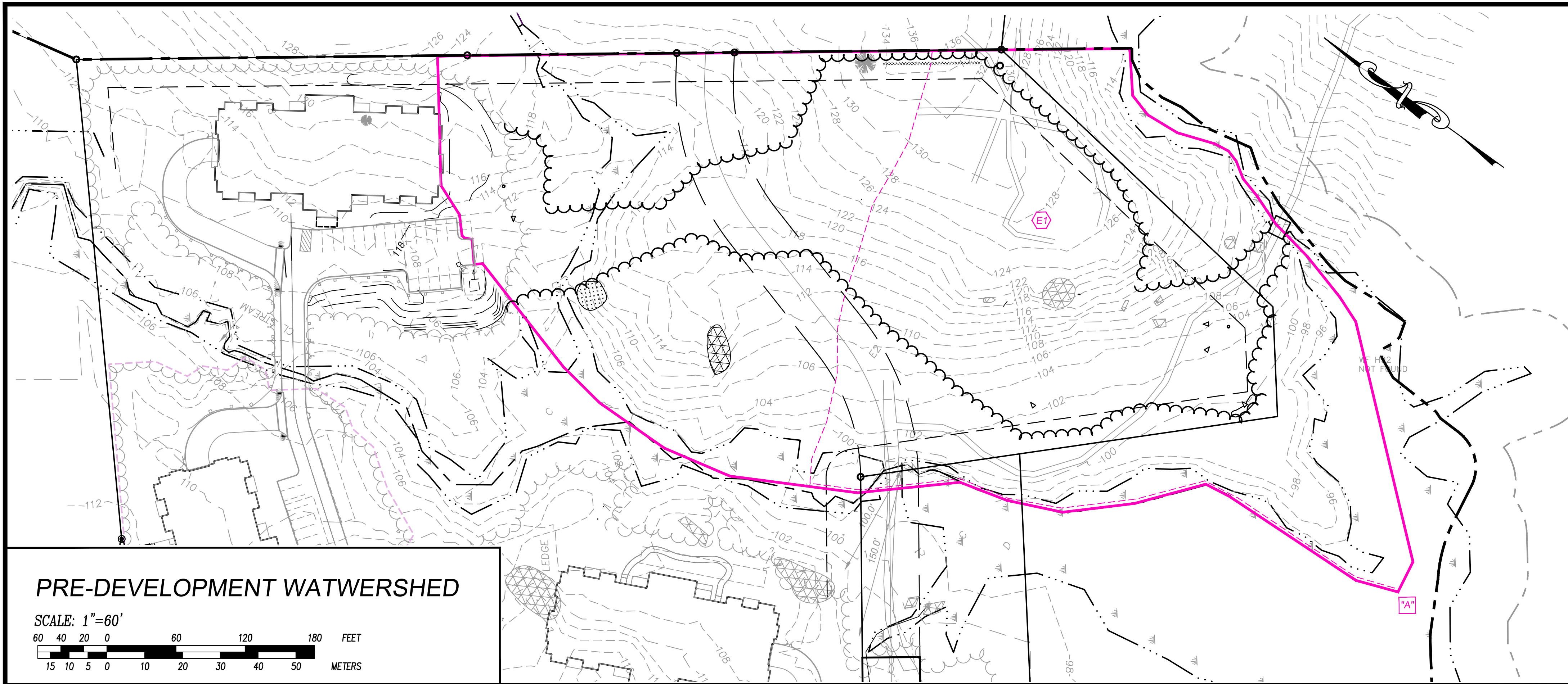
TOTAL SHORELAND BUFFER IMPACT 25,688 SF SF

**NOTES:**

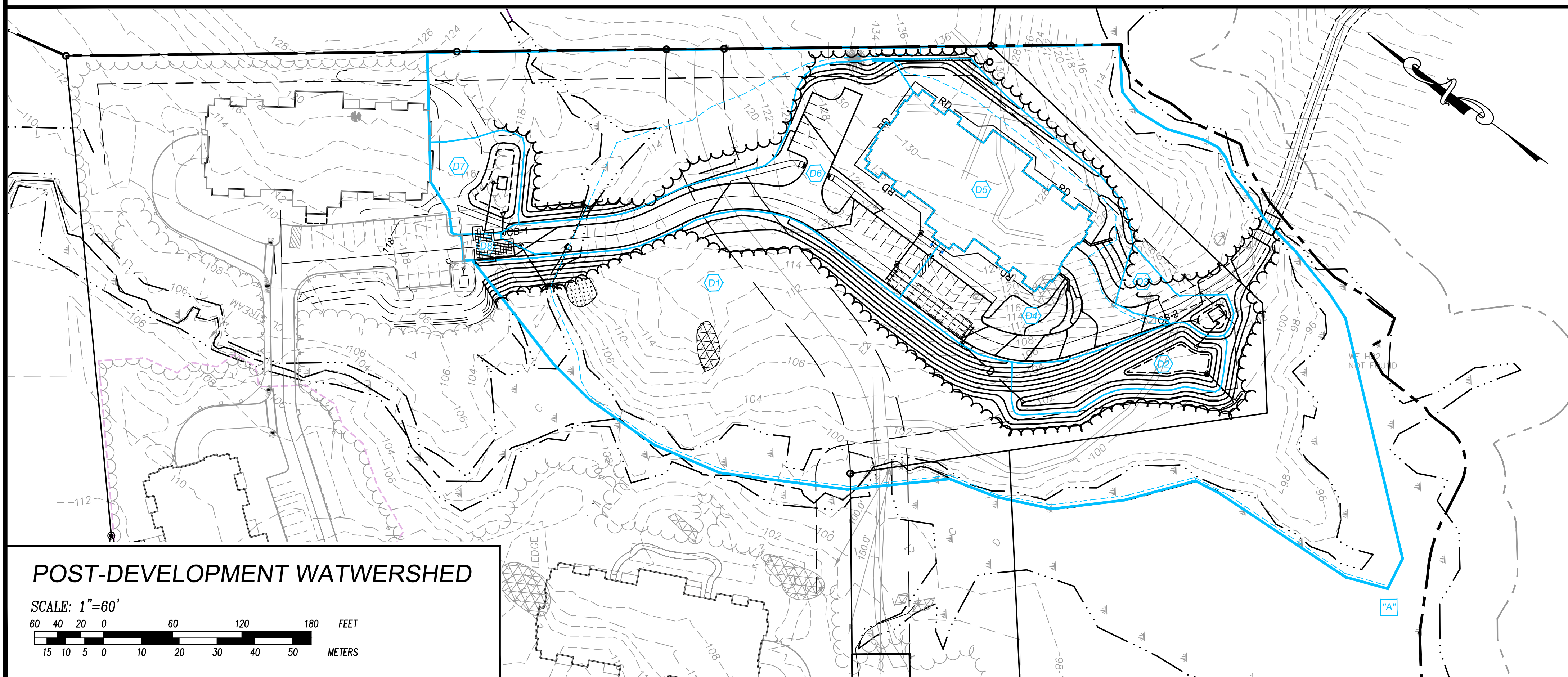
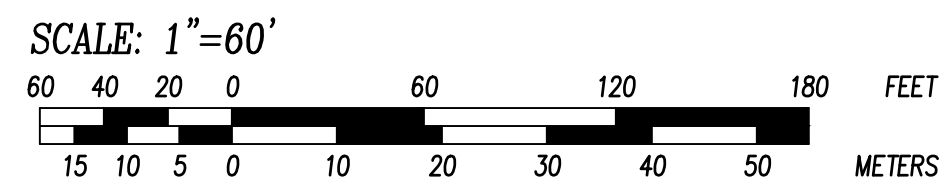
- REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
- ACCESS ROAD SHOWN DEPICTS DESIGN INTENT ONLY. FINAL DESIGN TO BE COORDINATED WITH RESULTS OF THE TIF PROGRAM DESIGN.

TOWN OF EXETER PLANNING BOARD

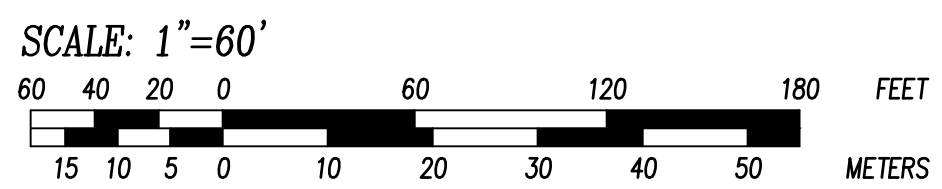
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**PRE-DEVELOPMENT WATWERSHED**



**POST-DEVELOPMENT WATWERSHED**



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6 CHESTNUT STREET, AMESBURY, MA.  
 Phone: (978) 388-2157  
 CONSULTING ENGINEERS &  
 LAND SURVEYORS SINCE 1988  
 www.gm2inc.com

Sheet Title:  
**WATERSHED  
 PLANS**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY

- NOTES:**
- REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
  - ACCESS ROAD SHOWN DEPICTS DESIGN INTENT ONLY. FINAL DESIGN TO BE COORDINATED WITH RESULTS OF THE TIF PROGRAM DESIGN.

TOWN OF EXETER PLANNING BOARD

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 CHAIRMAN

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 DATE

PROJ. MGR: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D GR.DWG  
 FBK:  
 JOB #: 16042 D



CELEBRATING OVER 35 YEARS OF SERVICE TO OUR CLIENTS

LIZABETH M. MACDONALD  
JOHN J. RATIGAN  
DENISE A. POULOS  
ROBERT M. DEROSIER  
CHRISTOPHER L. BOLDT  
SHARON CUDDY SOMERS  
DOUGLAS M. MANSFIELD  
KATHERINE B. MILLER  
CHRISTOPHER T. HILSON  
HEIDI J. BARRETT-KITCHEN  
JUSTIN L. PASAY  
ERIC A. MAHER  
CHRISTOPHER D. HAWKINS  
BRENDAN A. O'DONNELL  
ELAINA L. HOEPPNER  
WILLIAM K. WARREN

RETIRED  
MICHAEL J. DONAHUE  
CHARLES F. TUCKER  
ROBERT D. CIANDELLA  
NICHOLAS R. AESCHLIMAN

April 1, 2022

Langdon Plumer, Chair  
Exeter Planning Board  
10 Front Street  
Exeter, NH 03833

Re: Conditional Use Permit Applications - Ray Farm – Building D Relocation  
Map 47, Lot 8.1

Dear Chair Plumber and Board Members:

This Firm represents Ray Farm, LLC which is the declarant of the Ray Farm Condominium, a 55+ senior living development in Exeter located on property off of Ray Farmstead Road which is further identified as Town Tax Map 47, Lot 8 (the “Ray Farm Property” or the “Project”), as well as CKT Associates, which is the owner of adjacent land identified as Town Tax Map 47, Lot 8.1 (the “CKT Property”). Enclosed please find two (2) Applications for Conditional Use Permits related to proposed impacts to the Town’s Shoreland Protection District and the Wetlands Conservation District on the Ray Farm Property and CKT Property caused by the proposed relocation of the previously approved fourth building of the Project, together with supporting materials. These applications supplement the Site Plan Review application which was filed on March 29, 2022. Also enclosed is check in the amount of \$100.00 for application filing fees. If you have any questions do not hesitate to contact me.

Very truly yours,  
DONAHUE, TUCKER & CIANDELLA, PLLC

Justin L. Pasay  
JLP/sac  
Enclosures

cc: Jonathan Shafmaster  
Denis Hamel, GM2  
Brendan Quigley, Gove Environmental  
Exeter Conservation Commission w/ 2 copies

DONAHUE, TUCKER & CIANDELLA, PLLC  
16 Acadia Lane, P.O. Box 630, Exeter, NH 03833  
111 Maplewood Avenue, Suite D, Portsmouth, NH 03801  
Towle House, Unit 2, 164 NH Route 25, Meredith, NH 03253  
83 Clinton Street, Concord, NH 03301

# Town of Exeter



## **Planning Board Application for Conditional Use Permit: Shoreland Protection District**

***February 2017***



# Town of Exeter Planning Board Application

## Conditional Use Permit: Shoreland Protection District In accordance with Zoning Ordinance Article: 9.3

**SUBMITTAL REQUIREMENTS:**

**(see Conservation Commission and Planning Board meeting dates and submission deadlines)**

1. One (1) electronic copy of full application, including plans (color copy if available)
2. Fifteen (15) copies of the Application
3. Fifteen (15) 11"x17" and three (3) full sized copies of the plan which must include:
  - Existing Conditions
    - a. Property Boundaries
    - b. Edge of Shoreland and associated Buffer (Shoreland Protection District – SPD)
    - c. Structures, roads/access ways, parking, drainage systems, utilities, wells and wastewater disposal systems and other site improvements
  - Proposed Conditions
    - a. Edge of Shoreland and Shoreland Buffers and distances to the following:
      - i. Edge of Disturbance
      - ii. Structures, roads/access ways, parking, drainage systems, utilities, wells and wastewater disposal systems and other site improvements
    - b. Name and phone number of all individuals whose professional seal appears on the plan
4. If applicant and/or agent is not the owner, a letter of authorization must accompany this application
5. Supporting documents i.e. Letters from the Department of Environmental Services, Standard Dredge and Fill Application and Photos of the property
6. A Town of Exeter Assessors list of names and mailing addresses of all abutters

<b>Required Fees:</b>
Planning Board Fee: <b>\$50.00</b> Abutter Fee: <b>\$10.00</b> Recording Fee (if applicable): <b>\$25.00</b>

The Planning Office must receive the completed application, plans and fees on the day indicated on the Planning Board Schedule of Deadlines and Public Hearings.

APPLICANT	Name: CKT Associates
	Address: 158 Shattuck Way, Newington, NH 03801
	Email Address:
	Phone: 603-431-3170
PROPOSAL	Address: Ray Farmstead Road
	Tax Map # <u>47</u> Lot# <u>8.1</u> Zoning District: <u>C-3</u>
	Owner of Record: CKT Associates
Person/Business performing work outlined in proposal	Name: TBD
	Address:
	Phone:
Professional that delineated wetlands	Name: Brendan Quigley, Gove Environmental
	Address: 8 Continental Drive, Unit H, Exeter, NH 03833
	Phone: 603-778-0654

**Town of Exeter**  
**Planning Board Application**  
**Conditional Use Permit: Shoreland Protection District**

Detailed Proposal including intent, project description, and use of property: (Use additional sheet as needed)  
 see attached

Shoreland Protection District Impact (in square footage):	
Water Body	Watson Brook
Temporary Impact	<input type="checkbox"/> 300 Foot SPD _____ <input type="checkbox"/> 150 foot SPD _____ <input type="checkbox"/> SPD Building Setback _____ <input type="checkbox"/> 75 Vegetative Buffer _____
Permanent Impact	<input type="checkbox"/> 300 Foot SPD _____ <input checked="" type="checkbox"/> 150 foot SPD <u>16,560 sf</u> <input checked="" type="checkbox"/> SPD Building Setback <u>9,128 sf grading for stormwater management</u> <input type="checkbox"/> 75 Vegetative Buffer _____
Impervious Lot Coverage	SF of Lot within District <u>71,422</u> SF of Impervious within District <u>6,715</u> % of Impervious within District <u>9.4%</u>

List any variances/special exceptions granted by Zoning Board of Adjustment including dates:  
 Variance to allow age restricted residential use granted on November 17, 2021.

Describe how your proposal meets the conditions of Article 9.3.4.G.2 of the Zoning Ordinance (attached for reference):  
 see attached



**ABUTTERS: PLEASE LIST ALL PERSONS WHOSE PROPERTY IS LOCATED IN NEW HAMPSHIRE AND ADJOINS OR IS DIRECTLY ACROSS THE STREET OR STREAM FROM THE LAND UNDER CONSIDERATION BY THE BOARD. THIS LIST SHALL BE COMPILED FROM THE EXETER TAX ASSESSOR'S RECORDS.**

TAX MAP see attached  
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**Please attach additional sheets if needed**

**Conditional Use Permit Criteria**  
**Shoreland Protection District**

9.3.4 G Conditional Uses:

2. The Planning Board may grant a Conditional Use Permit for those uses listed above only after written findings of fact are made which have been reviewed by technical experts from the Rockingham Conservation District, if required by the Planning Board, at the cost of the developer, provided that all of the following are true:

- a. The proposed use will not detrimentally affect the surface water quality of the adjacent river or tributary, or otherwise result in unhealthful conditions.
- b. The proposed use will discharge no waste water on site other than that normally discharged by domestic waste water disposal systems and will not involve on-site storage or disposal of hazardous or toxic wastes as herein defined.
- c. The proposed use will not result in undue damage to spawning grounds and other wildlife habitat.
- d. The proposed use complies with the use regulations identified in Article 9.3.4 Exeter Shoreland Protection District Ordinance – Use Regulations and all other applicable sections of this article.
- e. The design and construction of the proposed use will be consistent with the intent of the purposes set forth in Article 9.3.1 Exeter Shoreland Protection District Ordinance – Authority and Purpose.

# Town of Exeter



**Planning Board Application  
for  
Conditional Use Permit:  
Wetlands Conservation Overlay  
District**

***March 2020***



**Town of Exeter  
 Planning Board Application  
 Conditional Use Permit: Wetland Conservation Overlay District**

Detailed Proposal including intent, project description, and use of property: (Use additional sheet as needed)  
 see attached

Wetland Conservation Overlay District Impact (in square footage):				
Temporary Impact	<b>Wetland:</b>	(SQ FT.)	<b>Buffer:</b>	(SQ FT.)
	<input type="checkbox"/> Prime Wetlands	_____	<input type="checkbox"/> Prime Wetlands	_____
	<input type="checkbox"/> Exemplary Wetlands	_____	<input type="checkbox"/> Exemplary Wetlands	_____
	<input type="checkbox"/> Vernal Pools (>200SF)	_____	<input type="checkbox"/> Vernal Pools (>200SF)	_____
	<input type="checkbox"/> VPD	_____	<input type="checkbox"/> VPD	_____
	<input type="checkbox"/> PD	_____	<input type="checkbox"/> PD	_____
	<input type="checkbox"/> Inland Stream	_____	<input type="checkbox"/> Inland Stream	_____
Permanent Impact	<b>Wetland:</b>		<b>Buffer:</b>	
	<input type="checkbox"/> Prime Wetlands	_____	<input type="checkbox"/> Prime Wetlands	_____
	<input type="checkbox"/> Exemplary Wetlands	_____	<input type="checkbox"/> Exemplary Wetlands	_____
	<input type="checkbox"/> Vernal Pools (>200SF)	_____	<input type="checkbox"/> Vernal Pools (>200SF)	_____
	<input type="checkbox"/> VPD	_____	<input type="checkbox"/> VPD	_____
	<input checked="" type="checkbox"/> PD	<u>700 sf</u>	<input checked="" type="checkbox"/> PD	<u>9,473 sf</u>
	<input checked="" type="checkbox"/> Inland Stream	<u>inc. above</u>	<input type="checkbox"/> Inland Stream	<u>inc. above</u>

List any variances/special exceptions granted by Zoning Board of Adjustment including dates:

Variance to permit age-restricted residential use granted on November 17, 2021.

Describe how the proposal meets conditions in **Article 9.1.6.B** of the Zoning Ordinance (attached for reference):  
 see attached

**ABUTTERS: PLEASE LIST ALL PERSONS WHOSE PROPERTY IS LOCATED IN NEW HAMPSHIRE AND ADJOINS OR IS DIRECTLY ACROSS THE STREET OR STREAM FROM THE LAND UNDER CONSIDERATION BY THE BOARD. THIS LIST SHALL BE COMPILED FROM THE EXETER TAX ASSESSOR'S RECORDS.**

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9.1.6. B: Conditions: Prior to issuance of a conditional use permit, the Planning Board shall conclude and make a part of the record, compliance with the following criteria:

1. That the proposed use is permitted in the underlying zoning district;
2. No alternative design which does not impact a wetland or wetland buffer or which has less detrimental impact on the wetland or wetland buffer is feasible;
3. A wetland scientist has provided an impact evaluation that includes the “functions and values” of the wetland(s), an assessment of the potential project-related impacts and concluded to the extent feasible, the proposed impact is not detrimental to the value and function of the wetland(s) or the greater hydrologic system.
4. That the design, construction and maintenance of the proposed use will, to the extent feasible, minimize detrimental impact on the wetland or wetland buffer;
5. That the proposed use will not create a hazard to individual or public health, safety and welfare due to the loss of wetland, the contamination of groundwater, or other reasons;
6. The applicant may propose an increase in wetland buffers elsewhere on the site that surround a wetland of equal or greater size, and of equal or greater functional value than the impacted wetland
7. In cases where the proposed use is temporary or where construction activity disturbs areas adjacent to the immediate use, the applicant has included a restoration proposal revegetating any disturbed area within the buffer with the goal to restore the site as nearly as possible to its original grade and condition following construction.
8. That all required permits shall be obtained from the New Hampshire Department of Environmental Services Water Supply and Pollution Control Division under NH RSA §485-A: 17, the New Hampshire Wetlands Board under NH RSA §483-A, and the United States Army Corps of Engineers under Section 404 of the Clean Water Act.;

## Conditional Use Permit Analysis

This Firm represents Ray Farm, LLC which is the declarant of the Ray Farm Condominium, a 55+ senior living development in Exeter located on property off of Ray Farmstead Road which is further identified as Town Tax Map 47, Lot 8 (the “Ray Farm Property” or the “Project”), as well as CKT Associates, which is the owner of adjacent land identified as Town Tax Map 47, Lot 8.1 (the “CKT Property”). This Conditional Use Permit Analysis provides relevant background regarding the Project and the requested Conditional Use Permits, and supplements and incorporates the Wetland Delineation & Function-Value Report conducted by Brendan Quigley, NHCWS, of Gove Environmental Services, Inc. dated 31 March 2022 (the “Wetland Report”) which Wetland Report is incorporated herein by reference and is enclosed herewith as **Enclosure 1**. Also enclosed herewith are the Project’s Wetland Impact Plans produced by GM2, which plans incorporate three (3) sheets. See Enclosure 2.

Below please find a Project Narrative, description of proposed wetland impacts, and supplemented Conditional Use Permit Analysis analyzing both the Wetland Conservation District Conditional Use Permit criteria and the Shoreland Protection District Conditional Use Permit criteria, which analysis supplements and incorporates that which is found in the Wetland Report. See Enclosure 1.

### Project Narrative

By way of brief background, the Project, as approved by the Planning Board on 27 July 2017, consists of four distinct residential buildings (Buildings A – D) containing 116 units, a 2,000 sf clubhouse, and corresponding site improvements, all serviced by a private driveway accessed via Ray Farmstead Road. See Enclosure 3.<sup>1</sup> As approved, Buildings A, B and C are identical in design, size and footprint, and each contains 32 dwelling units. Building D, as depicted on **Enclosure 1**, was approved to be located in close proximity to Epping Road and the Mobil Gas Station and has a different design than Buildings A, B and C, containing only 20 dwelling units.

Since the Project’s approval, Ray Farmstead Road was built and accepted by the Town as Town Road, and Buildings A and B, as well as the clubhouse, are finished and completely occupied. Building C is being constructed and will be completed shortly in the spring of 2022. More than 40% of the units in Building C are pre-sold.

As the Applicant considered the completion of the Project via construction of Building D as originally approved, a more attractive alternative emerged. Specifically, the Applicant now proposes the relocation of Building D to the CKT Property. The Applicant proposes to construct the relocated Building D in the identical manner as Buildings A, B and C, inclusive of 32 units instead of the 20 units Building D was approved for in 2017. The proposed relocation of Building D is depicted on the plans provided by GM2 Engineering. See also Enclosure 2. As depicted, the relocated Building D is proposed to be accessed via an extended internal roadway from Building C, which would require minor wetland crossing.

---

<sup>1</sup> Approved Site Plan



To accomplish its redesign, the Applicant proposes to consolidate approximately 4.29-acres of the upland area of the CKT Property and combine the same with the Ray Farm Property (Town Tax Map 47, Lot 8). The additional 4.29 acres added to the Ray Farm Property would be the site of the relocated Building D.

The net result of the Applicant's proposal would be a Ray Farm Property that is approximately 15.76 acres in size rather than the existing 11.46 acres. Reconfigured as proposed, the Ray Farm Property would continue to comply in all respects with all local Zoning regulations and would have less density than what was approved by the Planning Board in 2017. The area of the Ray Farm Property which was originally approved to accommodate Building D, will remain an open space area of the Ray Farm Project.

In support of its proposal, the Applicant received approval from the Zoning Board of Adjustment on November 17, 2021 to permit an age-restricted use for the proposed relocation of Building D on the Applicant's Abutting Property, which is Zoned in the C-3 Zoning District, and to increase the total number of residential units in the Project from 116 to 128.

The remnant area of the CKT Property post-subdivision and consultation will be approximately 3.16 acres in size, will have ample frontage along Epping Road and Ray Farmstead Road, will remain in the C-3 Zoning District, will comply in all respects with applicable Zoning regulations and could accommodate viable C-3 commercial development in the future.

### **Proposed Impacts**

- **Wetlands Conservation District**

The Project contemplates 700 sf of direct wetland impact and 9,473 sf of buffer impact within the Town's 40-50 ft Limited Use Buffer caused by grading, pavement and gravel relating to two wetland area crossings. **Enclosure 2.** The first, located approximate to existing Building C, will provide internal access to proposed Building D over poorly drained soils and an intermittent stream area. See Enclosure 1. The second is a temporary crossing over poorly drained soils to the south and east of proposed Building D on the CKT Property. Id.

- **Shoreland Protection District**

The Project also contemplates 9,128 sf of proposed impact to the 100 ft Shoreland Protection District caused by grading and stormwater management infrastructure which will be utilized by Building D, as well as 16,560 sf of impact within the 150 ft Shoreland Protection District caused by grading, drainage infrastructure, and portions of pavement which will serve Building D. **Enclosure 2.**

## Wetlands Conservation District Conditional Use Permit Criteria Analysis

The Project satisfies the applicable Wetlands Conservation District Conditional Use Permit criteria found in Section 9.1.6(B) of the Town's Zoning Ordinance for the reasons stated in **Enclosure 1**, as supplemented below.

- **That the proposed use is permitted in the underlying zoning district. Zoning Ordinance, Section 9.6.1(B)(1).**

The underlying use is an age-restricted 55+ multifamily residential use which is permitted in the C-3 district and on the underlying properties pursuant to the Variance relief obtained by the Applicant on 17 November 2021. Further, the actual use within the Limited Use Buffer includes paving, grading and gravel, all to facilitate permanent and temporary access to the Project, which use is expressly permitted by Section 9.6.1(1) of the Zoning Ordinance. As such, this criteria is satisfied.

- **No alternative design which does not impact a wetland or wetland buffer or which has less detrimental impact on the wetland or wetland buffer is feasible. Zoning Ordinance, Section 9.6.1(B)(2).**

See Enclosure 1, pg. 4. Further, the proposed upland area for relocated Building D is best accessed for development via an extension of the existing driveway serving the rest of the Project, and not via extension of the existing Ray Farmstead Road, which would cause significantly more impact to more valuable wetland resource areas. The Project goal of avoiding and minimizing impact, is evidenced by the approach the Applicant has taken with this development proposal to particularly include the use of viable uplands on the CKT Property, the corresponding proposed lot line adjustment, and the Variance the Applicant had to obtain. On these bases, this criteria is satisfied.

- **A wetland scientist has provided an impact evaluation that includes the “functions and values” of the wetland(s), an assessment of the potential project-related impacts and concluded to the extent feasible, the proposed impact is not detrimental to the value and function of the wetland(s) or the greater hydrologic system. Zoning Ordinance, Section 9.6.1(B)(3).**

See Enclosure 1, pgs. 4-5. Further, as evidenced in **Enclosure 1**, due to the Project's design, impacts will be reasonably mitigated and the “overall wetland function and the greater hydrologic system will not be negatively affected.” **Enclosure 1**, pg. 5. On these bases, this criteria is satisfied.

- **That the design, construction and maintenance of the proposed use will, to the extent feasible, minimize detrimental impact on the wetland or wetland buffer. Zoning Ordinance, Section 9.6.1(B)(4).**

See Enclosure 1, pg. 5. Further, the entirety of the relocated Building D is located out of the wetland and all associated buffers and impacts are limited to one permanent wetland crossing

and one temporary crossing to facilitate construction access. The Project also avoids a much larger and more detrimental impact crossing of Watson Brook if Ray Farmstead Road were to be extended. On these bases, this criteria is satisfied.

- **That the proposed use will not create a hazard to individual or public health, safety and welfare due to the loss of wetland, the contamination of groundwater, or other reasons. Zoning Ordinance, Section 9.6.1(B)(5).**

See Enclosure 1, pg. 5. To summarize, the Project causes no hazard to individual or public health, safety or welfare to the loss of wetland, the contamination of groundwater, or any other reasons. On these bases, this criteria is satisfied.

- **The applicant may propose an increase in wetland buffers elsewhere on the site that surround a wetland of equal or greater size, and of equal or greater functional value than the impacted wetland. Zoning Ordinance, Section 9.6.1(B)(6).**

See Enclosure 1, pg. 5. The proposed relocation of Building D avoids approximately 5,000 sf of Limited Use Buffer impact that was approved to occur pursuant to the original location of Building D. The relocation also avoids approximately 1,300 sf of impact within the 75-foot building setback caused by Building D as originally approved. Finally, the proposal avoids larger and more detrimental impact to the Watson Brook area that would be caused by an extension of Ray Farmstead Road. On these bases, this criteria is satisfied.

- **In cases where the proposed use is temporary or where construction activity disturbs areas adjacent to the immediate use, the applicant has included restoration proposal revegetating any disturbed area within the buffer with the goal to restore the site as nearly as possible to its original grade and condition following construction. Zoning Ordinance, Section 9.6.1(B)(7).**

See Enclosure 1, pg. 5. On these bases, this criteria is satisfied.

- **That all required permits shall be obtained from the New Hampshire Department of Environmental Services Water Supply and Pollution Control Division under NH RSA 485-A:17, the New Hampshire Wetlands Board under NH RSA 483-A, and the United States Army Corps of Engineers under Section 404 of the Clean Water Act. Zoning Ordinance, Section 9.6.1(B)(8).**

The Applicant will obtain all necessary local, State and Federal permits for the Project and welcomes a condition of approval requiring same.

### **Shoreland Protection District Conditional Use Permit Criteria Analysis**

The Project satisfies the applicable Shoreland Protection District Conditional Use Permit criteria found in Section 9.3.4(G)(2) of the Town's Zoning Ordinance for the reasons stated in **Enclosure 1**, as supplemented below.

- **That the proposed use will not detrimentally affect the surface water quality of the adjacent river or tributary, or otherwise result in unhealthful conditions. Zoning Ordinance, Section 9.3.4(G)(2)(a).**

See Enclosure 1, pg. 6. On these bases, this criteria is satisfied.

- **The proposed use will discharge no waste water on site other than that normally discharged by domestic waste water disposal systems and will not involve on-site storage or disposal of hazardous or toxic wastes as herein defined. Zoning Ordinance, Section 9.3.4(G)(2)(b).**

See Enclosure 1, pg. 6. There will be no wastewater discharge on site and no disposal or storage of hazardous or toxic wastes. On these bases, this criteria is satisfied.

- **The proposed use will not result in undue damage to spawning grounds and other wildlife habitat. Zoning Ordinance, Section 9.3.4(G)(2)(c).**

See Enclosure 1, pg. 6. On these bases, this criteria is satisfied.

- **The proposed use complies with the use regulations identified in Article 9.3.4 Exeter Shoreland Protection District Ordinance – Use Regulations and all other applicable sections of this article. Zoning Ordinance, Section 9.3.4(G)(2)(d).**

The Project is compliant with the use regulations contained within Article 9.3.4 of the Exeter Zoning Ordinance and all other applicable sections of the Town’s Shoreland Protection Zoning District Ordinance.

- **The design and construction of the proposed use will be consistent with the intent of the purposes set forth in Article 9.3.1 Exeter Shoreland Protection District Ordinance – Authority and Purpose. Zoning Ordinance, Section 9.3.4(G)(2)(e).**

In relevant part, the purpose of the Exeter Shoreland Protection District Ordinance is to protect, maintain and enhance the water quality of the Squamscott River and its tributaries in Exeter, to conserve and protect aquatic and terrestrial habitat associated with river areas as well as intertidal and riparian areas, to preserve and enhance those recreational and aesthetic values associated with the natural shoreline and river environment, both fresh and salt, and to encourage those uses that can be appropriately located adjacent to shorelines. Zoning Ordinance, Section 9.3.1.

In this case, and as evidenced by **Enclosure 1**, the Project does not threaten the water quality of the Squamscott River or Watson Brook, does not compromise aquatic or terrestrial habitat associated with river areas, and does not affect the recreational or aesthetic values associated with natural shorelines. As a result, the Project is precisely the type of development which is appropriately sited in proximity to the Shoreland Protection District and which should be encouraged.



GOVE ENVIRONMENTAL SERVICES, INC

March 31, 2022

Jonathan Shaftmaster  
Ray Farm, LLC  
158 Shattuck Way  
Newington, NH 03801

Subject: Wetland Delineation & Function-Value Report  
Ray Farm Condominiums  
Exeter, NH

Dear Mr. Shaftmaster:

This wetland report is being submitted in connection with proposed relocation of Building "D" within the Ray Farm Condominium development on Ray Farmstead Drive. This report documents the delineation and functional assessment of wetland resources in the vicinity of the proposed work as well as an evaluation of the proposed work within the context Section 9.1 and 9.3 of the Zoning Ordinance (Wetland Conservation and Shoreland Protection Districts).

## WETLAND DELINEATION

Resource areas on this property were initially delineated in 2014 and 2015 during the early planning stages of the original project. In accordance with state standards which limit the effective lifespan of delineations to five (5) years, the resource areas in proximity to the proposed relocated Building D were re-delineated in the fall of 2021 by Brendan Quigley, NHCWS #249. Wetland boundaries were evaluated utilizing the following standards:

1. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, (Version 2.0) January 2012, U.S. Army Corps of Engineers.
2. *Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils*, Version 8.2. United States Department of Agriculture (2018).
3. *New England Hydric Soils Technical Committee. 2019 Version 4, Field Indicators for Identifying Hydric Soils in New England*. New England Interstate Water Pollution Control Commission, Lowell, MA.
4. *National Wetland Plant List*, Version 3.2 (2016).
5. *Classification of Wetlands and Deepwater Habitats of the United States*. USFW Manual FWS/OBS-79/31 (1979).

The updated wetland boundaries were surveyed by GM2, Inc. and are depicted on the plans submitted for Site Plan Approval and Conditional Use Permits. Boundaries did not exhibit appreciable changes from the previous delineation but do encompass additional areas not detailed in the initial project. The vegetated wetland in the vicinity of the proposed new location of Building D is very similar to the forested wetland within the rest of the project site and the surrounding area in general. The dominant wetland type is saturated and seasonally flooded forested wetland dominated by red maple and highbush blueberry (PFO1E). The main portion of wetland in this area of the property lies southwest of the proposed Building D and is directly associated with Watson Brook. This area was largely flooded in 2015 due to downstream beaver activity but is currently free of standing water except within the Watson Brook stream channel which is clearly visible. The soils in this wetland are very poorly drained. Two narrow fingers of forested wetland located north and east of

the proposed building extend from wetland areas located outside the project area and connect to Watson Brook. The soil in these connecting wetlands is poorly drained and both areas contain intermittent streams. There is also a single vernal pool located within the large wetland northwest of Commerce Way. This area is well outside the project except for a small portion of the existing woods road proposed to be utilized for a temporary construction access, which passes through the outer portion of the associated 100-foot Vernal Pool Buffer.

All the wetland in the project area drain to Watson Brook which flows south to Norris Brook and eventually to the Squamscott River. The section of Watson Brook downstream of the existing trail crossing and easement extending from Ray Farmstead Road is perennial, as depicted on the most recent USGS map. Upstream from this location the stream is depicted as intermittent. Subsequently, the downstream section of the stream falls within the Exeter Shoreland Protection District.

The appropriate buffers for wetlands, vernal pools, and Watson Brook specified in the Wetland Conservation District and Shoreland Protection District ordinances are depicted on the project plans.

## FUNCTION & VALUE ASSESSMENT

A wetland function and value assessment was conducted using the US Army Corps Highway Methodology guidelines. Functions are self-sustaining properties of wetlands, which exist in the absence of human involvement. Values refers to the benefits gained by human society from a given wetland or ecosystem and their inherit functions. Functions and values identified as “primary” have been determined to be significant features of the wetland being evaluated. An important distinction is that the primary functions and values of a particular wetland does not necessarily indicating the wetland supports them at a significant *level* in comparison to other wetlands in the region or even near the site.

The Highway Methodology considers 13 functions and values:

1. **Groundwater recharge/discharge:** This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. Recharge should relate to the potential for the wetland to contribute water to an aquifer. Discharge should relate to the potential for the wetland to serve as an area where ground water can be discharged to the surface.
2. **Floodflow Alteration:** This function considers the effectiveness of the wetland in reducing flood damage by attenuation of floodwaters for prolonged periods following precipitation events.
3. **Fish and Shellfish Habitat:** This function considers the effectiveness of seasonal or permanent water bodies associated with the wetland in question for fish and shellfish habitat.
4. **Sediment/Toxicant/Pathogen Retention:** This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants or pathogens.
5. **Nutrient Removal/Retention/Transformation:** This function relates to the effectiveness of the wetland to prevent adverse effects of excess nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers or estuaries.
6. **Production Export:** This function relates to the effectiveness of the wetland to produce food or usable products for human, or other living organisms.
7. **Sediment/Shoreline Stabilization:** This function relates to the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.
8. **Wildlife Habitat:** This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and or migrating species must be considered.



9. **Recreation:** This value considers the effectiveness of the wetland and associated watercourses to provide recreational opportunities such as canoeing, boating, fishing, hunting and other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland, whereas non-consumptive opportunities do not.
10. **Educational/Scientific Value:** This value considers the effectiveness of the wetland as a site for an “outdoor classroom” or as a location for scientific study or research.
11. **Uniqueness/Heritage:** This value relates to the effectiveness of the wetland or its associated water bodies to produce certain special values. Special values may include such things as archeological sites, unusual aesthetic quality, historical events, or unique plants, animals, or geological features.
12. **Visual Quality/Aesthetics:** This value relates to the visual and aesthetic qualities of the wetland.
13. **Threatened or Endangered Species Habitat:** This value relates to the effectiveness of the wetland or associated water bodies to support threatened or endangered species.

Watson Brook and its associated wetland is the predominant resource area associated with the site. The combination of perennial stream flowing through a large wetland area creates conditions which support a number of functions and values, at least at some level. Groundwater discharge and production export for wildlife food sources are functions that are likely supported but not at a level at which they can be considered the wetlands primary functions. Similarly, recreation and aesthetic value can be assigned to these wetlands by virtue of their setting and presence of recreational trails in the vicinity. Support for these values is more general however, and mainly related to the value of open space, in this case mostly upland forest. In the context of wetland values, these are traditionally expressed by wetland specific characteristics such as suitability for boating or fishing, and aesthetically, as more diverse, and observable open wetland area such as a marsh, lake, or river. Although Watson Brook is perennial and may have the potential to support fish habitat, this function is severely limited by downstream crossings that very likely provide a barrier to fish passage.

The most significant functions of the Watson Brook resources are related to water quality, flood attenuation, and wildlife habitat. The wetland and upland buffer adjacent to the stream play an important water quality role for Watson Brook itself and downstream within Norris Brook and the Squamscott River. Though this stream can be characterized as a low energy system, the densely vegetated wetland provides stability to the channel, especially during higher flow events and flooding. The broad wetland area directly adjacent to the stream (the “Contiguous Wetlands”) is able to store water during these events, therefore providing flood attenuation function within the watershed. The stream and wetland also provide wildlife habitat and serve as wildlife corridor within the block of forest generally between Industrial Drive and Route 101. Broader wildlife connectivity is, however, hampered by these roadways, particularly the highway.

The two narrow wetlands and intermittent streams north and east of the proposed building are part of the same interconnected wetland system and therefore support the same set of functions to some degree. Specifically, however, their role is narrower, primarily supporting wetland functions by providing connectivity between the larger wetlands outside the project area and Watson Brook. In this regard connectivity for wildlife is likely the most significant function of these two areas.

## **RELATION TO THE PROPOSED DEVELOPMENT**

Conditional Use Permits (CUP) are being sought for proposed impacts within the Wetlands Conservation and Shoreland Protection Overlay Districts. The proposed wetland and wetland buffer impacts are

associated with construction of a permanent access driveway to access the new location Building D from the existing Building C, and a portion of a temporary construction access. Proposed work within the Vernal Pool Buffer is limited to resurfacing the existing woods road for temporary construction use. Since this does not change the character of the buffer or movement of vernal pool species, it has not been considered as impact. Impacts within the Shoreland Protection District are associated with grading to construct a stormwater management feature and portions of pavement related to parking and circulation around the building. The following sections provide an analysis of these impacts in the context of the CUP criteria contained within Article 9.1.6.B (Wetlands) and Article 9.3.4.G.2 (Shoreland) of Town of Exeter Zoning Ordinance.

#### Wetland Conservation District CUP Criteria--Article 9.1.6.B

*No alternative design which does not impact a wetland or wetland buffer or which has less detrimental impact on the wetland or wetland buffer is feasible;*

Building D is situated on a large area of upland surrounded by wetland or the property line on all sides. A single permanent wetland crossing is proposed at the narrowest possible crossing location which is also able to provide access from the existing development in a consistent manner. A temporary construction access is also proposed to allow construction traffic to access the site from Commerce Way rather than through the existing residential development. This road will utilize an existing woods road with minor improvements and utilize a temporary bridge, at an existing wetland crossing, to provide suitable width. Aside from these impacts, the building and all other areas of disturbance are located outside the 40 or 50-foot wetland buffer. In light of these considerations, no alternative design which does not impact a wetland or wetland buffer, or which has less detrimental impact on the wetland or wetland buffer is feasible.

*A wetland scientist has provided an impact evaluation that includes the “functions and values” of the wetland(s), an assessment of the potential project-related impacts and concluded to the extent feasible, the proposed impact is not detrimental to the value and function of the wetland(s) or the greater hydrologic system.*

A functional evaluation of the wetlands is provided in the previous sections of this letter. The primary functions of the resource areas were determined to be related to water quality, flood attenuation, and wildlife habitat. By limiting wetland impact to a single location for access and locating the remainder of project outside the buffer, the majority of the potential impact to these functions have been avoided. An intact vegetated buffer will continue to provide water quality benefits adjacent to wetland areas while the proposed stormwater management system will ensure that no greater pressure is placed on the wetlands to perform this function. Flood attenuation function should be unaffected as this function is largely associated with Watson Brook and its contiguous wetlands which will not be impacted. Some modest impact to wildlife habitat can be expected as a result of the proposed access driveway which will present an obstacle for wildlife moving along the wetland in that location. The potential impacts of this will be offset, however, by respecting wetland buffers in all other areas of the project and utilizing a pipe that is larger than what is strictly required to allow passage of some species. The proposed project should therefore only result in minor impacts to wetland function by way of restricting wildlife movement at this





particular location but overall wetland function and the greater hydrologic system will not be negatively affected.

*That the design, construction and maintenance of the proposed use will, to the extent feasible, minimize detrimental impact on the wetland or wetland buffer;*

The design of the project minimizes impacts in several ways. Permanent elements of the proposed work have been limited to a single wetland crossing with wetland buffer impacts at either end. The remainder of the project has been located outside wetland buffers. Crossing this narrow wetland and intermittent stream channel to access the proposed building location also avoids a much larger and more impactful crossing of Watson Brook if access followed the easement extending from the end of Ray Farmstead Road. The proposed temporary construction entrance will make use of an existing woods road and utilize a temporary bridge structure to be laid over an existing wetland and stream crossing. Use of the temporary bridge at this location avoids additional impacts that would be otherwise necessary to improve the crossing for construction equipment. The

*That the proposed use will not create a hazard to individual or public health, safety and welfare due to the loss of wetland, the contamination of groundwater, or other reasons;*

At this location the most relevant example of a use that could negatively impact public health, safety or welfare would likely involve direct or extensive impacts to Watson Brook. Such impacts could increase flooding or impact water quality downstream. The project avoids any impact to Watson Brook and will manage and treat runoff with comprehensive stormwater management. The project does not involve wetland impacts or any other uses that would be expected to negatively affect these public interests.

*In cases where the proposed use is temporary or where construction activity disturbs areas adjacent to the immediate use, the applicant has included a restoration proposal revegetating any disturbed area within the buffer with the goal to restore the site as nearly as possible to its original grade and condition following construction.*

Following construction, the bridge used on the temporary construction access will be removed and disturbed buffer areas, exclusive of the existing woods road, be stabilized and restored using a conservation seed mix appropriate for wooded locations. The side slope grading at the permanent access crossing will be treated similarly to achieve a naturally vegetated buffer to each side the access driveway

*The applicant may propose an increase in wetland buffers elsewhere on the site that surround a wetland of equal or greater size, and of equal or greater functional value than the impacted wetland.*

The project only involves buffer impacts in the immediate vicinity of the wetland crossing and maintains intact wetland buffers in all other areas. The proposed new location of Building D will, however, avoid approximately 5,000 SF of wetland buffer impact originally approved for the construction of the building in its previous location. This includes approximately 1,300 SF of the building within the 75-foot building

setback. The wetland in that location contains a unique semi-permanent pond which supports wetland specific wildlife habitat. The habitat supported in this wetland will benefit from an intact buffer.

Shoreland Protection District CUP Criteria--Article 9.3.4.G.2

*The proposed use will not detrimentally affect the surface water quality of the adjacent river or tributary, or otherwise result in unhealthful conditions.*

The proposed impacts within 150 feet of Watson Brook are necessary for the construction of a stormwater management system and a portion of pavement. The water quality in Watson Brook will be protected by adherence to the 100 foot building setback, the comprehensive treatment of all stormwater runoff in a state of the art stormwater management system, and the restoration of graded slopes with native seed mix where feasible. Construction term impacts will be mitigated through best management practices and erosion control as specified on the plans.

*The proposed use will discharge no waste water on site other than that normally discharged by domestic waste water disposal systems and will not involve on-site storage or disposal of hazardous or toxic wastes as herein defined.*

The proposed project will be serviced by sanitary sewer and will not discharge wastewater on site. The proposed residential condominium use will not involve the storage or onsite disposal of hazardous or toxic waste as defined in the Ordinance.

*The proposed use will not result in undue damage to spawning grounds and other wildlife habitat.*

The wildlife habitat associated with Watson Brook concentrated in the stream and the associated wetland areas. This habitat will be preserved intact by avoiding any impacts to the stream, associated wetlands, or 50-foot wetland buffer, therefore maintaining an intact corridor along the stream. Spawning habitat, to the extent it exists, will not be affected. The proposed impacts within the SPD for grading will be vegetated by using a native seed mix. This will create a largely natural condition while also allowing for future access to the basin for maintenance. For these reasons, and considering the minimal nature of the proposed disturbance, the proposed use will not result in undue damage to spawning grounds and other wildlife habitat

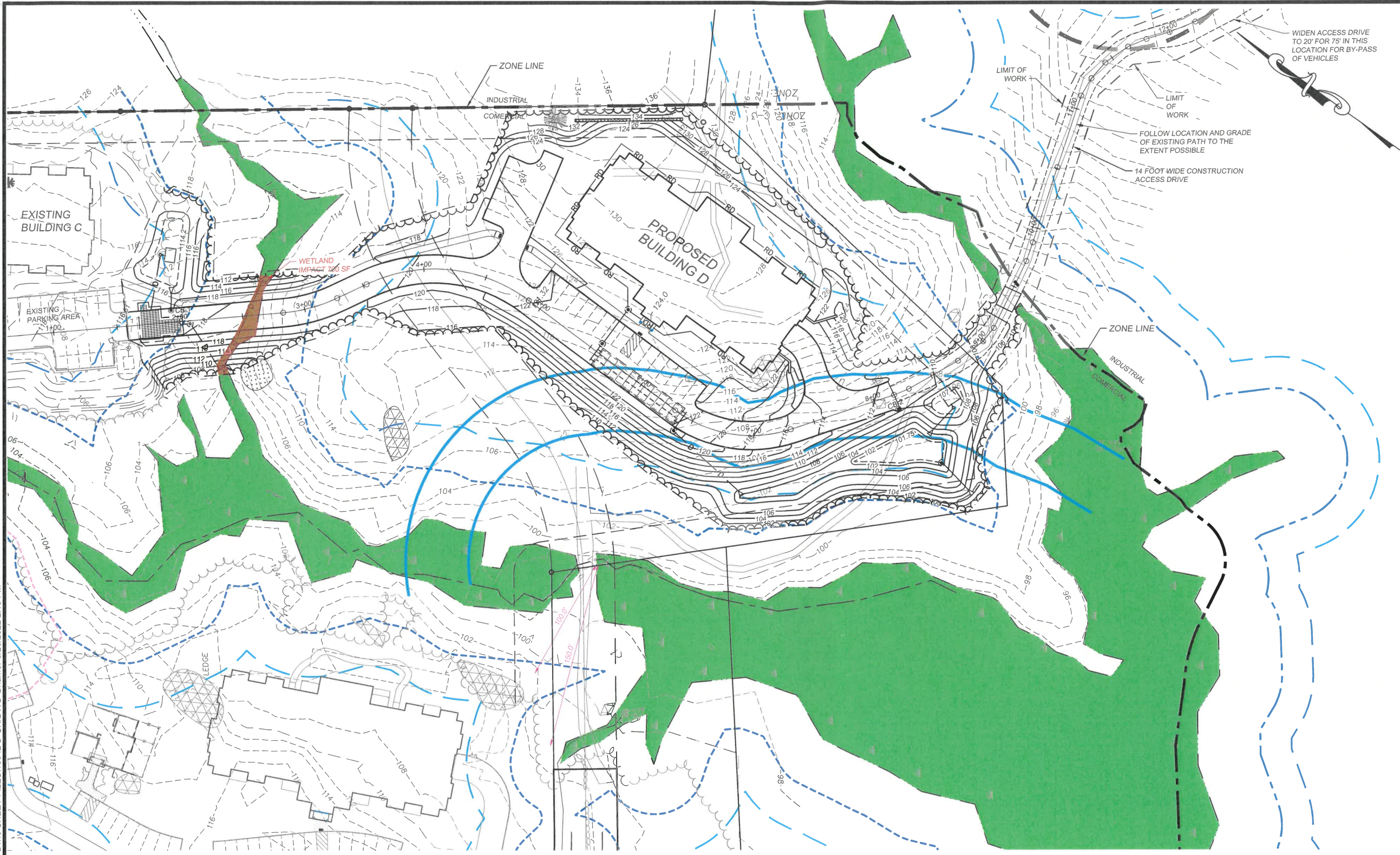
This concludes the wetland delineation and wetland functional assessment report. If I can be of further assistance, please feel free to contact me at (603) 778-0644.

Sincerely,



Brendan Quigley, NHCWS  
Gove Environmental Services, Inc.





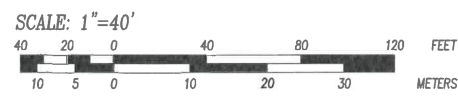
6 CHESTNUT STREET, AMESBURY, MA.  
 Phone: (978) 388-2157  
 CONSULTING ENGINEERS &  
 LAND SURVEYORS SINCE 1988  
 www.gm2inc.com

Sheet Title:  
**WETLAND  
 IMPACT  
 PLAN**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY



**DIRECT WETLAND IMPACTS**

	WETLAND IMPACT - AREA 1	700 SF
<b>TOTAL WETLAND IMPACT</b>		<b>700 SF</b>

- NOTES:**
- REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
  - ACCESS ROAD SHOWN DEPICTS DESIGN INTENT ONLY. FINAL DESIGN TO BE COORDINATED WITH RESULTS OF THE TIF PROGRAM DESIGN.

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

PROJ. MGR.: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D GR.DWG  
 FBK:  
 JOB #: 16042 D

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 Phone: (978) 388-2157  
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 LAND SURVEYORS SINCE 1988  
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Sheet Title:  
**WETLAND AND SHORELAND BUFFER IMPACT PLAN**

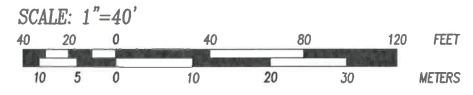
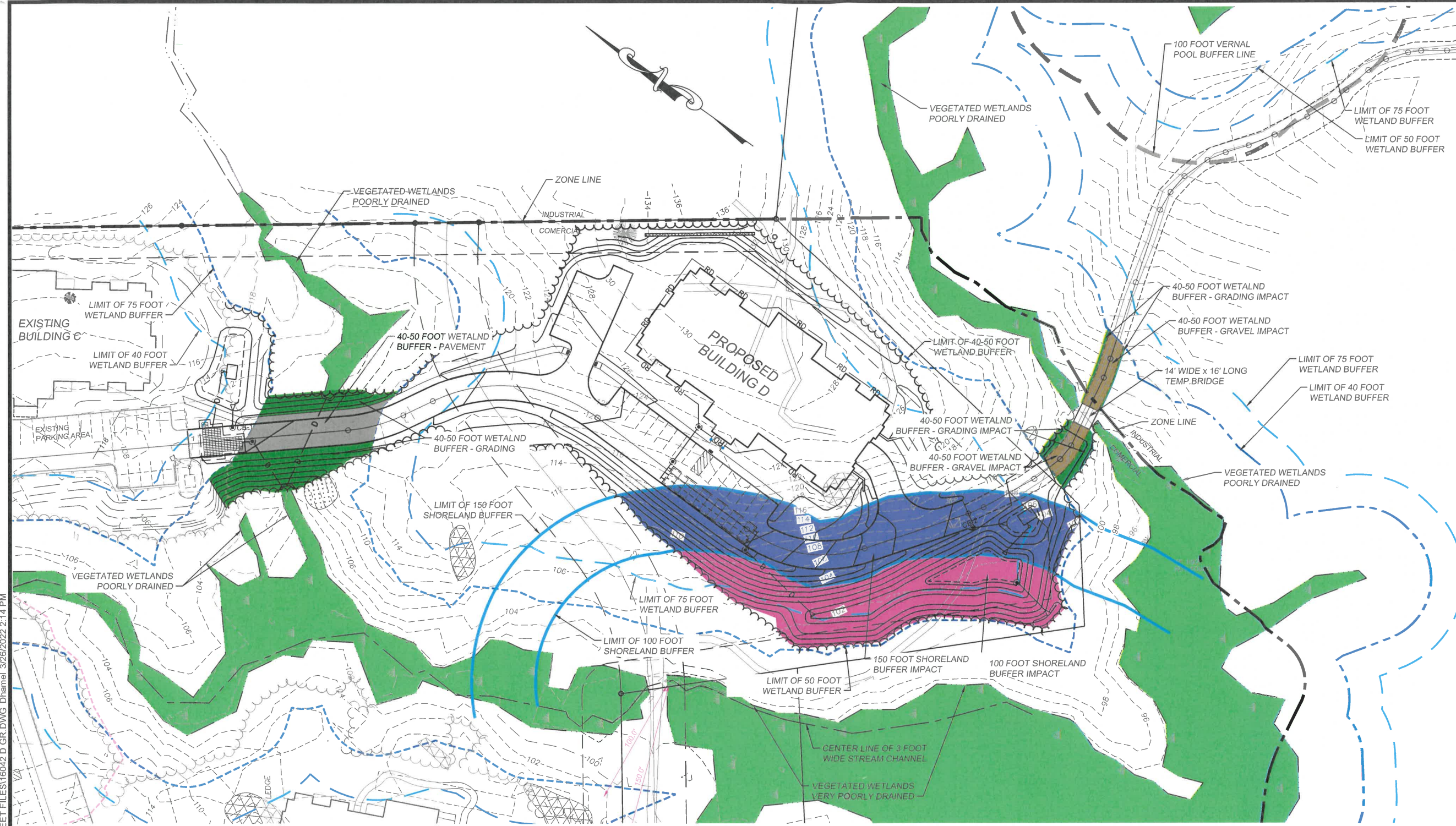
Project Title:  
**Ray Farm Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY

PROJ. MGR.: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D GR.DWG  
 FBK:  
 JOB #: 16042 D

SHEET C1.25



**WETLAND BUFFER IMPACTS**

	40-50 FOOT WETLAND BUFFER IMPACT - PAVEMENT	2858 SF
	40-50 FOOT WETLAND BUFFER IMPACT - GRAVEL	1436 SF
	40-50 FOOT WETLAND BUFFER IMPACT - GRADING	5179 SF
	75 FOOT WETLAND BUFFER IMPACT	0 SF
<b>TOTAL WETLAND BUFFER IMPACTS</b>		<b>9,473 SF</b>

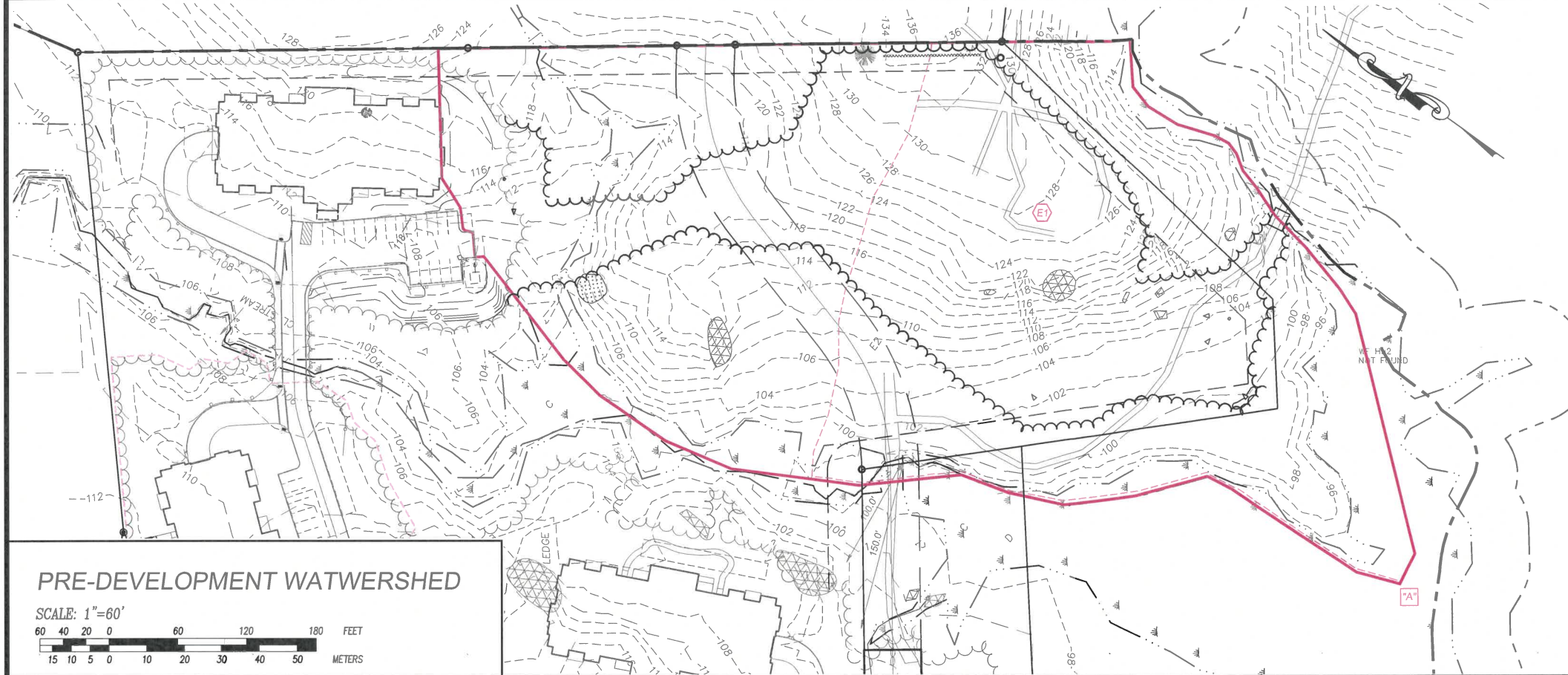
**SHORELAND BUFFER IMPACTS**

	100 FOOT SHORELAND BUFFER IMPACT	9128 SF
	150 FOOT SHORELAND BUFFER IMPACT	16,560 SF
<b>TOTAL SHORELAND BUFFER IMPACT</b>		<b>25,688 SF</b>

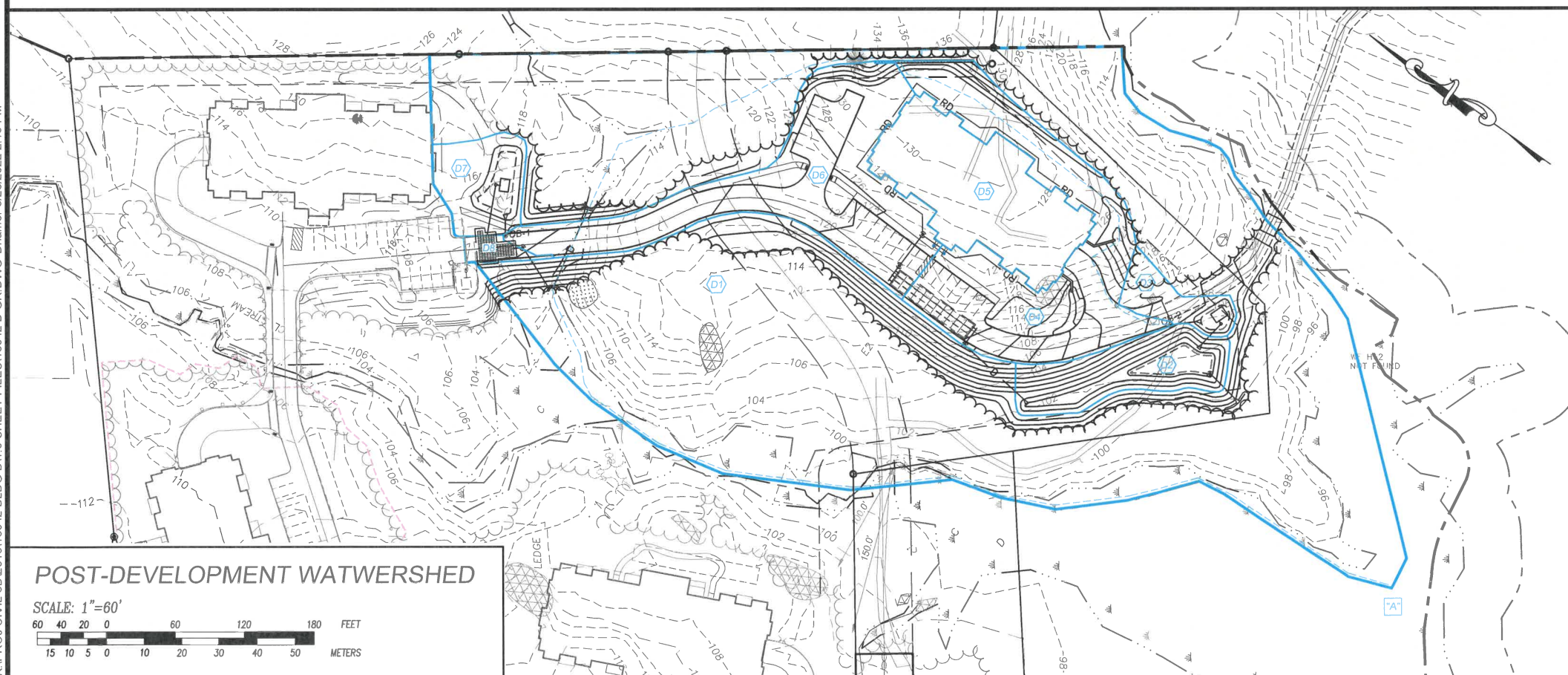
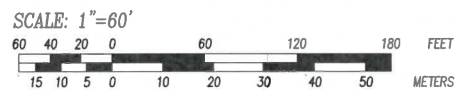
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 2. ACCESS ROAD SHOWN DEPICTS DESIGN INTENT ONLY. FINAL DESIGN TO BE COORDINATED WITH RESULTS OF THE TIF PROGRAM DESIGN.

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

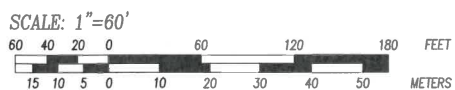
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**PRE-DEVELOPMENT WATWERSHED**



**POST-DEVELOPMENT WATWERSHED**



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Sheet Title:

**WATERSHED  
PLANS**

Project Title:

**Ray Farm  
Condominium**

Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:

Ray Farm, LLC  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK

NO.	DATE	DESC	BY

**NOTES:**

- REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
- ACCESS ROAD SHOWN DEPICTS DESIGN INTENT ONLY. FINAL DESIGN TO BE COORDINATED WITH RESULTS OF THE TIF PROGRAM DESIGN.

TOWN OF EXETER PLANNING BOARD

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

PROJ. MGR.: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D GR.DWG  
 FBK:  
 JOB #: 16042 D

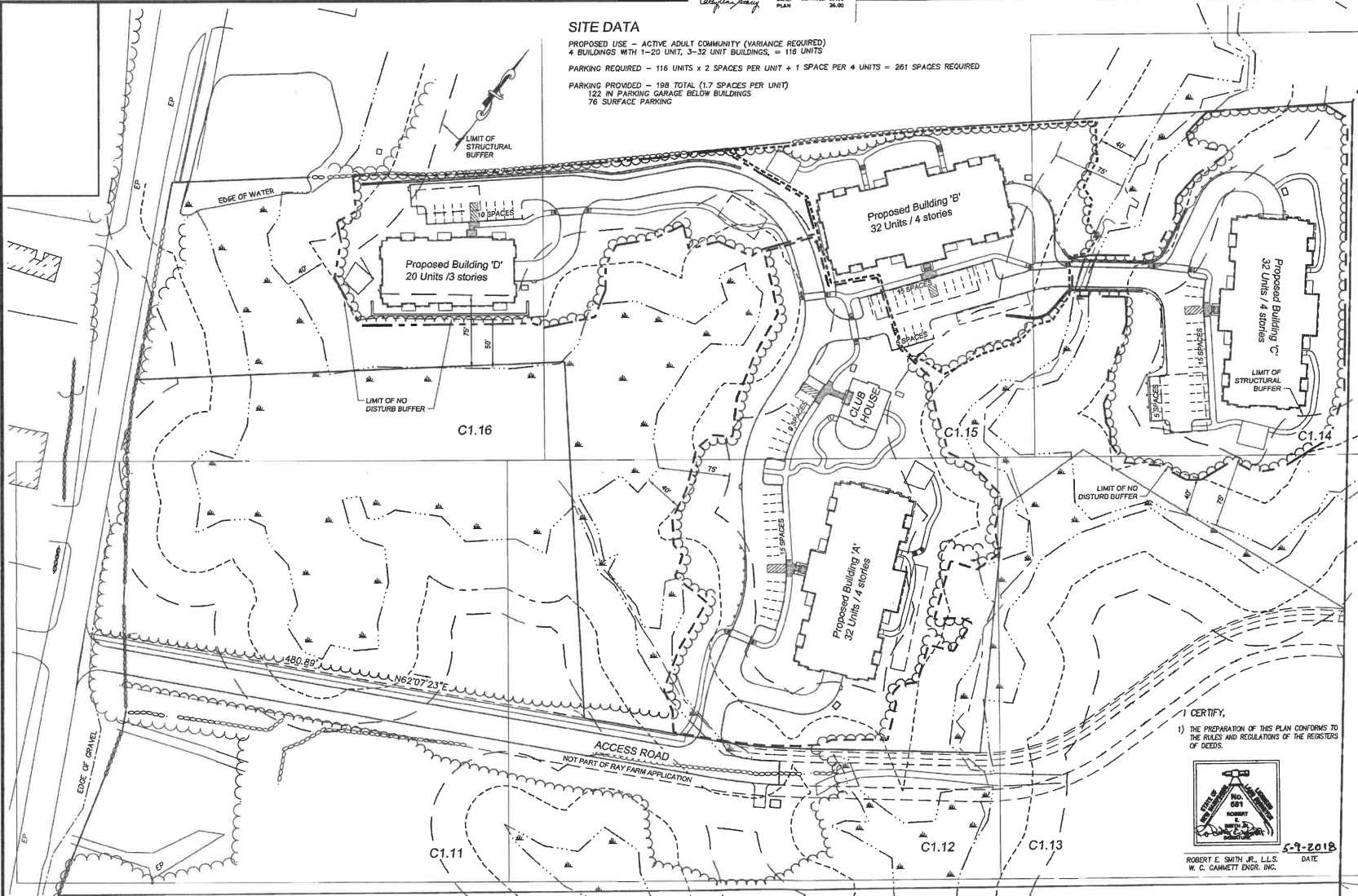
SHEET C1.26

# Enclosure 3

D-40822  
 08/09/2018 03:31:07 PM  
 Register of Deeds, Rockingham County  
 LOST PLAN  
 23.00  
 26.00

**SITE DATA**

PROPOSED USE - ACTIVE ADULT COMMUNITY (VARIANCE REQUIRED)  
 4 BUILDINGS WITH 1-20 UNIT, 3-32 UNIT BUILDINGS, = 116 UNITS  
 PARKING REQUIRED - 116 UNITS x 2 SPACES PER UNIT + 1 SPACE PER 4 UNITS = 261 SPACES REQUIRED  
 PARKING PROVIDED - 198 TOTAL (1.7 SPACES PER UNIT)  
 123 IN PARKING GARAGE BELOW BUILDINGS  
 75 SURFACE PARKING



**CAMMETT ENGINEERING**  
 297 ELM STREET, AMESBURY, MA.  
 Phone: (978) 388-2157 Fax: (978) 388-0428  
 CONSULTING ENGINEERS &  
 LAND SURVEYORS SINCE 1975  
 Visit us on the WEB at www.cammett.com

Project Title:  
**Overall Site Plan**  
 "Ray Farm"  
 Active Adult Community  
 Epping Road  
 Exeter, NH 03833  
 Rockingham County

Applicant:  
 Willey Creek Company  
 158 Shattuck Way  
 Newington, NH 03801  
 Owner:  
 CKT & Associates  
 158 Shattuck Way  
 Newington, NH 03801

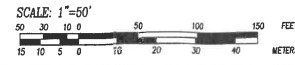
NO.	DATE	DESCRIPTION	BY
A	5.8.2017	TO PLANNING BOARD	DH
B	6.27.2017	PEER REVIEW	DH
C	11.27.17	2nd PEER REVIEW	DH
D	02.07.18	3rd PEER REVIEW	DH

CERTIFY,  
 1) THE PREPARATION OF THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.



ROBERT E. SMITH, JR., L.L.S. DATE: 5-9-2018  
 W. C. CAMMETT ENGR. INC.

**NOTES:**  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.  
 2. ACCESS ROAD SHOWN DEPICTS DESIGN INTENT ONLY. FINAL DESIGN TO BE COORDINATED WITH RESULTS OF THE TIF PROGRAM DESIGN.



TOWN OF EXETER PLANNING BOARD  
 Chairman: Robert E. Smith, Jr. DATE: 2/14/18

PROJ MGR: D. HAMEL  
 FIELD: M. MICHAUD / J. SALVAGRO  
 DESIGN: D. TRAUKE  
 DRAWING: D. HAMEL  
 CHECKED: W. CAMMETT / R. BLANCHETTE  
 DATE: 3/23/2017  
 FILE: 16042 3P-OVERALL 22X34.DWG  
 JOB #: 16042  
 SHEET

D-40822



# 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:** May 19, 2022  
**To:** Planning Board  
**From:** Dave Sharples, Town Planner  
**Re:** Willey Creek Company PB Case #22-3

The Applicant has submitted applications and plans for site plan review, lot line adjustment and Wetlands and Shoreland Conditional Use Permits along with supporting documents, dated 3/29/22, for the proposed relocation of Building D of the Ray Farm Condominium development on Willey Creek Road (off of Ray Farmstead Road). The subject properties are located in the C-3, Epping Road Highway Commercial zoning district and are identified as Tax Map Parcel #47-8-1 and #47-9.

The Applicant is proposing to consolidate approximately 4.29-acres of upland area of the CKT property (Tax Map Parcel #47-8-1) and combine it with the Ray Farm property (Tax Map Parcel #47-8) to create the site for the proposed relocation of Building D. Building D will be constructed in the identical manner as Buildings A, B and C, inclusive of 32 units instead of the 20 units Building D was approved for in 2017.

The Wetlands and Shoreland Protection Conditional Use Permit applications address the proposed wetlands and buffer impacts resulting from the proposed grading, pavement and gravel areas related to the two proposed wetland area crossings, drainage and stormwater management infrastructure associated with the proposed relocation. As of the writing of this memo, the Applicant has not yet appeared before the Conservation Commission for review of their Wetlands and Shoreland Conditional Use permits. They were not prepared to submit for the May meeting, however, are expected to be filing for the June 14<sup>th</sup> Conservation Commission meeting. At this time, we have not received written comments from the Conservation Commission so I would recommend that the Board not take action on the CUP at this time until written comments are received.

The Applicant appeared before the Zoning Board of Adjustment at its November 17<sup>th</sup>, 2022 meeting and was granted a variance (ZBA Case #21-12) to permit the proposed multi-family residential use of the additional property area being added to the existing Ray Farm development parcel (Tax Map Parcel #47-8) to accommodate the proposed relocation of Building D and to increase the total number of units in the Ray Farm project from 116 to 128. A copy of the decision letter and minutes from that meeting are enclosed for your review.

The Applicant is requesting a waiver from Section 11.3.1.2 of the Board's Site Plan Review and Subdivision Regulations to allow less than a 25-foot setback between Building D and the driveway/parking area. A copy of the waiver request letter is enclosed with the supporting documents for review.

A Technical Review Committee (TRC) meeting was held on Thursday, April 21st, 2022. A copy of the TRC comment letter, dated 4/27/22 and the UEI comment letter, dated 4/25/22 are enclosed for your review. Revised plans and supporting documents were received on May 17<sup>th</sup>, 2022 and are enclosed for your review. Also enclosed is a letter from Russell Hilliard, Esq., dated May 16, 2022, on behalf of his client W. Scott Carlisle, III.

The applicant responded to the TRC letter but did not address the Natural Resource Planner comments nor was a written waiver request provided to exceed 1,200 feet in street length. A traffic memo was also not provided as requested by the TRC.

Regarding the waiver request, Section 13.7 states:

**“All requests for waivers shall be submitted in writing by the applicant at the time when the application is filed for consideration. The petition shall fully state the grounds for the waiver and all the facts relied upon by the applicant.”**

The applicant clearly acknowledges the need to submit the waiver request as evidenced by the response in Denis Hamel's May 17, 2022 letter (see response to Town Planner Comments # 13 on page 3 and Mr. Pasay's letter where he states: "The applicant anticipates filing at a future date updated Conditional Use Permit Applications and corresponding analyses which address the Town's Natural Resource Planner's TRC comments as well Waiver requests which the applicant will request at a future hearing". However, the applicant has failed to provide a written request as required by the regulations. It is worth noting that this is an important part of this application as the waiver is to exceed the 1,200-foot maximum street length per Section 9.17.2 and could significantly impact the current design of the project.

The TRC also requested a traffic memo addressing the additional units. The applicant responded by stating one will be provided. The TRC requested this memo under the authority of Section 7.14. This memo has not been received.

As also stated above, the applicant has not responded to any of the Natural Resource Planner comments except to state that they anticipate "filing at a future date". The TRC determined that this information is needed for the Planning Board to properly evaluate the proposal. The TRC comment letter also states: "In order to be heard at the May 26<sup>th</sup>,



2022 Planning Board meeting, please submit any revised plans along with a letter responding to these comments (and other review comments, if applicable) no later than May 17<sup>th</sup>, 2022.

I am pointing this information out as the Board routinely asks me if the plans are complete for review purposes prior to making a motion to accept jurisdiction on the application and start the 65-day statutory timeframe. I am not in a position to state definitively that this application is complete due to the outstanding items detailed above. However, it is ultimately the Board's decision to determine if the application is complete and I would advise the Board to consider the information provided here to help make that determination.

Thank You.

Enclosures



TOWN OF EXETER, NEW HAMPSHIRE  
10 FRONT STREET • EXETER, NH • 03833-3792 • (603) 778-0591 • FAX  
772-4709  
[www.exeternh.gov](http://www.exeternh.gov)

November 22, 2021

Justin L. Pasay, Esquire  
Donahue, Tucker & Ciandella PLLC  
16 Acadia Lane  
POB 630  
Exeter, New Hampshire 03833-4924

Re: Zoning Board of Adjustment Case #20-8  
Variance Request – CKT Associates  
Ray Farmstead Road, Exeter, N. H.  
Tax Map Parcel #47-8, #47-8.1 and #47-9

Dear Attorney Pasay:

This letter will serve as official confirmation that the Zoning Board of Adjustment, at its November 17<sup>th</sup>, 2021 meeting, voted to grant your request for a variance from Article 4, Section 4.2 Schedule I: Permitted Uses to permit an age-restricted residential use (for the proposed relocation of Building D in the Ray Farm Active Adult Community) to be located on Ray Farmstead Road, as presented, including the increase in the number of residential units from 116 units to 128 units.

Please be advised that in accordance with Article 12, Section 12.4 of the Town of Exeter Zoning Ordinance entitled "Limits of Approval" that all approvals granted by the Board of Adjustment shall only be valid for a period of three (3) years from the date such approval was granted; therefore, should substantial completion of the improvements, modifications, alterations or changes in the property not occur in this period of time, this approval will expire.

If you should have any questions, please do not hesitate to contact the Building Department office at (603) 773-6112.

Sincerely,

Robert V. Prior  
Vice Chairman  
Exeter Zoning Board of Adjustment

cc: Jonathan Shafmaster, CKT Associates  
Ray Farm LLC  
Denis Hamel, P.E. GM2 Associates  
Douglas Eastman, Building Inspector/Code Enforcement Officer  
Janet Whitten, Deputy Assessor  
Dave Sharples, Town Planner

RVP:bsm

Town of Exeter  
Zoning Board of Adjustment  
November 17, 2021, 7 PM  
Town Offices, Nowak Room  
Final Minutes

**Preliminaries**

**Members Present:** Vice-Chair Robert Prior, Clerk Esther Olson-Murphy, Rick Thielbar, Laura Davies, Martha Pennell - Alternate, Christopher Merrill - Alternate, Anne Surman - Alternate

**Members Absent:** Chair Kevin Baum

**Call to Order:** Acting Chair Robert Prior called the meeting to order at 7 PM.

**I. New Business**

- A. The application of CKT Associates for a variance from Article 4, Section 4.2 Schedule I: Permitted Uses to permit an age-restricted residential use (for the proposed relocation of Building D in the Ray Farm Active Adult Community) to be located on Ray Farmstead Road. The subject property is located in the C-3, Epping Road Highway Commercial zoning district. Tax Map Parcel #47-8.1 and #47-9. ZBA Case #21-12.

Attorney Justin Pasay of DTC Lawyers; John Shafmaster and Bill Blackett, the owners; and Dennis Hamill from DM2 Engineering were present to discuss the application. Attorney Pasay said the application involves relocating Building D, the fourth building in the Ray Farm project. The original variance was issued in 2014 to a different entity, and the Willey Creek group took it over in 2017. There were to be four buildings total, three with 32 units and one, Building D, with 20 units, because the area was constrained. Buildings A and B and a clubhouse are completed, and we anticipate Building C's completion in 2022. We would like to move it away from Epping Road and the Mobil Station to the opposite edge of the site. Building D would be identical to the other three buildings. The proposal would take four acres of an upland area and combine it with the existing area. The overall development will be enlarged from 11.5 acres to 15 acres, and the density will decrease.

Mr. Prior said the parcel was approved for 116 units, and the reason the applicant is here is that they're taking property from other zoning districts and appending them, so the variance approval does not cover the new parcel. Mr. Prior asked if the 2014 decision referenced a specific number of units, and Mr. Pasay said yes, it was only 116 units.

Mr. Hamill discussed the original property line and the parcel being added for the new building. Access to it is from Building C, which avoids a larger area of wetland impact. It's 350 feet from Building A, where Building A to the original Building D was 380 feet. The original Building D required a wetland setback waiver, but the new Building D

45 does not. This building can connect to town water and sewer. It will look exactly like the  
46 other buildings, and will not be visible from Epping Road.

47 Ms. Davies asked about the easement. Mr. Pasay said the owner of the back  
48 parcel, Mr. Carlisle, has an easement for a private right of way, so he can use that and  
49 improve it to access his lot, but there's no requirement for Mr. Shafmaster to convey the  
50 fee interest of the land underneath the easement. Mr. Carlisle would have to obtain the  
51 relief necessary for frontage and wetlands and could improve his property.

52 Ms. Davies asked if the Fire Department has reviewed the circuitous access to  
53 Building D, and Mr. Hamill said they haven't yet gone to the FD, but they will be adding a  
54 turnaround for larger vehicles such as fire trucks. Mr. Prior asked about the length of the  
55 road. Mr. Hamill said 1,820 feet. Ms. Davies asked about the typical length of a cul de  
56 sac, and Mr. Prior said the Planning Board wants a max of around 1,250 feet. Mr.  
57 Thielbar asked whether it's possible to add a second access road. Mr. Hamill said it's  
58 physically possible, but there are sensitive wetland areas we'd have to cross. Mr.  
59 Thielbar said it's a long drive, and the extra people of Building D will add to the traffic  
60 along that route. They should consider having a circular access road instead. Mr. Prior  
61 said that's not the plan before us.

62 Mr. Shafmaster said Building D was not in a good building location, and required  
63 a waiver for setbacks from wetland. This new proposal would have a net increase of 12  
64 units and the wetland area would never be used for development. He would like to put in  
65 an enclosed dog area in this location for residents of the community. The first building  
66 and clubhouse were overbudget and he's been clawing his way back. This new building  
67 would be in keeping with what he's done before.

68 Mr. Pasay said these are unique properties and the use is reasonable. They  
69 have frontage on Epping Road and Ray Farmstead Road, awkwardly sized, and  
70 constrained by the wetlands. The remnant parcel, lot 9, is located in the C3 and viable  
71 for future commercial use, and this would avoid the impact of going through the  
72 wetlands. Attorney Pasay went through the variance criteria. 1) The variance will not be  
73 contrary to the public interest and 2) the spirit of the ordinance will be observed; yes, the  
74 proposal does not conflict to a marked degree with the ordinance, will not alter the  
75 essential character of the neighborhood, and will not threaten the public health, safety or  
76 welfare. The C3 district is intended to promote reasonable development. The relocation  
77 of Building D will accomplish better light and air for Building D, lessen the density of the  
78 overall project, and prevent overcrowding of land and undue concentration. It's good for  
79 the environment in that it avoids wetlands impact. It will make the remnant parcels  
80 available to be used consistently with the C3 District. This does not alter the essential  
81 character of the neighborhood, as it's identical to the other buildings on the property. It  
82 will protect public health and safety by avoiding impacts of direct access from Epping  
83 Road. 3) Substantial justice is done; yes, there is no gain to the general public from  
84 denying the variance. Granting the variance is in the public interest because we're  
85 promoting reasonable development of an upland area without the negative impacts of  
86 going through the wetland. 4) The proposal will not diminish surrounding property  
87 values; yes, the price of these units has gone considerably up (30-40%) since their  
88 purchase in 2018/2019. The condo declaration reserves the right to use this area in

89 future development, so any buyers were on notice that this would happen. There is a  
90 350 foot site distance, which is consistent with where Building D was supposed to be.  
91 The use is consistent with what was expected on the site. 5) Literal enforcement of  
92 zoning ordinance will result in an undue hardship; yes, it doesn't make sense to apply  
93 this zoning ordinance to this unique property. Lots 8.1 and 9 can accommodate the  
94 proposal, and are burdened by significant wetlands in the area of direct access. 8.1 is  
95 small and awkwardly shaped. The topography is a challenge. The purpose of the  
96 ordinance is being advanced because this will lessen congestion, increase light and air,  
97 and avoid undue concentration of population. They will also be preserving the areas of  
98 the parcel that are most suitable for commercial development. Special conditions mean  
99 that there's no reasonable use without relief given, and the only way to get to this  
100 property without wetlands impact is the means proposed.

101 Mr. Prior asked if they are prevented from putting Building D where it's currently  
102 located. Mr. Pasay said no.

103 Mr. Prior opened the meeting to public comment. He cautioned that the only thing  
104 under consideration is the residential use in this zone, not the location of the building or  
105 the access road.

106 Anthony Laburdi of 7 Willey Creek Road, Unit 202, Building A, said he and his  
107 wife moved to the development in 2019. He is a member of the Board of Directors of  
108 Ray Farm Associates, but he's only speaking for himself. The developer has been  
109 responsive to the residents. He met with us three weeks ago on why he's moving the  
110 building, and satisfied most of our questions. Mr. Laburdi said he and his wife are in  
111 favor of the petition to change the zoning. In two years his property has appreciated  
112 36%.

113 Marty Kennedy of 7 Willey Creek Road, Building A, said his concern with the  
114 original proposal was that the parking lot and access to Building C were on a disputed  
115 50 foot wide easement. This revised plan shows the lot pushed back off the easement,  
116 but it doesn't fully address his concerns. Mr. Carlisle, the owner of the lot in the back,  
117 plans to develop that property with access through the easement. The town views the  
118 easement as having access through that lot, but Mr. Shafmaster says that's probably not  
119 going to happen. The residents of Ray Farm are more than just abutters, we will own the  
120 lot after the last unit is sold. If the access to the rear parcel will be through the easement,  
121 the residents need to be aware of that. Why does there need to be a road between  
122 Building C and D? Building D could have access by extending Ray Farmstead Road. We  
123 need to consider pedestrian safety and mobility. The applicant should not be allowed to  
124 build anything on the original site of Building D in the future.

125 Mr. Prior said the right of way is not disputed. The Carlisle property is accessed  
126 only through this right of way, so in order to be developed, it will be through this right of  
127 way. Willey Creek Road is a private road and would not see an increase of traffic from  
128 any development of the Carlisle property; the access would be from Ray Farmstead  
129 Road.

130 Doug Minott of 7 Willey Creek Road said the residents will take over the new  
131 parcel. The right of way is Mr. Carlisle's to do with as he sees fit, and the residents  
132 shouldn't be absorbing that. He read a letter that he had submitted to the Board

133 regarding his view and the vegetated buffer they currently have. He is opposed to the  
134 application because he does think it will diminish surrounding property values and  
135 compromise their right to the undisturbed use of their property through the disturbance of  
136 the construction.

137 Rosemary Demarco of 24 Willey Creek, Building B, said she approves of the  
138 plans that Mr. Shafmaster has for Building D.

139 Adriana Christopher of 7 Willey Creek, Building A, said they're in favor of the  
140 proposal. The new location would be better than the original location. The development  
141 is wonderful to live in and the builder has done a fantastic job.

142 Mr. Pasay said some of the comments were Planning Board concerns. We have  
143 been transparent with the negotiations with Mr. Carlisle. Concerns about property  
144 values, but this area of the property is zoned C3, this use is the best possible use. The  
145 building will be 350 feet away from Building A, about the same as what was proposed for  
146 Building D. In every deed, there's a reference to the public document of the condo  
147 declaration which says that this property could be added to the condominium. The  
148 market analysis doesn't support the conclusion that it will diminish market value.

149 Bill Blackett, the CFO for Mr. Shafmaster, said he has data that says the value of  
150 the real estate is going up and will not be diminished. There's been a 26% increase from  
151 Building A to Building C. Putting in Building D, units there would be \$700,000, where  
152 Building A was originally \$490,000. Unit 301 in Building A was a recent resale, it was  
153 bought for \$466,000 and sold for \$605,000.

154 Mr. Shafmaster said he's had two meetings with 30-40 residents about his plans,  
155 and he addressed their concerns by moving Building D away. Regarding Mr. Minott's  
156 concerns about noise and blasting, during the second meeting he had his sitework guy  
157 give him a bid to do any work on this building coming in off Commerce Way and doing  
158 the construction work from behind, which would eliminate dust, noise, road issues, etc.  
159 so his concerns were addressed. Regarding value, where Building D was originally,  
160 there is a Mobil Station there that is lit nearly 24 hours a day. The original Building D  
161 would have had lesser value units because of this proximity, which would create  
162 confusion in the market.

163 Mr. Prior closed the public session.

164 Mr. Prior said this will require technical review and Planning Board approval. The  
165 only thing the ZBA is considering is whether residential use can be allowed on this C3  
166 parcel.

167 Ms. Surman said it goes against the grain to continue to make C3 properties on  
168 Epping Road residential. Folks have concerns about mixing residential and commercial  
169 and it's a slippery slope. However, now it's there and Mr. Shafmaster has done a  
170 fabulous job. The area is tough with a lot of wetlands. Going forward this area should be  
171 commercial, but this location for the new building is far superior to where it was. Mr. Prior  
172 said the original vote for allowing residential on this property was 3-2. In 2014 Epping  
173 Road was a different road than now. We are considering the residential use on this  
174 parcel and the increase in the number of units by 12, since the original application  
175 specified a certain number of units.

176 Mr. Thielbar went through the variance criteria. 1) The variance will not be  
177 contrary to the public interest and 2) The spirit of the ordinance will be observed; yes,  
178 there does not seem to be much negative side. The land in question is basically an  
179 island, and is difficult to access in any other way. It's not negative to the public interest  
180 and the spirit of the ordinance is observed. Mr. Prior said if not developed with Building  
181 D, that parcel, while difficult to access, could be developed commercially. It would be  
182 better for residents of buildings A, B, and C to abut another residential property rather  
183 than a commercial property. Mr. Thielbar continued with the variance criteria: 3)  
184 Substantial justice is done; yes, he can't see a downside to the proposal. It clearly  
185 benefits the applicant. An additional section of land will stay as it is now, and it's the part  
186 we all drive by, which is a benefit to the rest of the community. Mr. Prior said "harm to  
187 the general public" includes those who own condos there. People who live in Buildings  
188 A, B, and C will own in common the land underlying the property. This will increase the  
189 amount owned by 3.9 acres, which increases the value of the units. Mr. Thielbar  
190 continued with the criteria: 4) The proposal will not diminish surrounding property values;  
191 yes, there's no sufficient evidence that there will be a significant loss in value. It was  
192 unrealistic to think that the land in question was going to stay undeveloped. Mr. Prior  
193 said selling during construction may have a temporary setback in value, but ultimately  
194 the value will increase. Ms. Davies said in her opinion as a valuation professional, more  
195 units don't equal a lower value. This is a successful project and a few more units aren't  
196 going to change the unit values. Regarding the proximity, there's a good amount of  
197 distance from Building A to Building D. There will be some disruption to the existing  
198 buildings during construction, but they won't see it once it's done. Mr. Thielbar continued  
199 with the criteria: 5) Literal enforcement of zoning ordinance will result in an undue  
200 hardship; yes, the original location of Building D limits the capacity and is not in a good  
201 area. The land proposed to be used is difficult to access but there is a way to  
202 productively use it. Everything on this site had hardship due to the water. Mr. Prior said  
203 we have to consider the parcel as proposed. Is there hardship on the newly designed  
204 parcel? Yes, getting to that upland portion is extremely difficult. The special conditions of  
205 the property create a hardship which is access.  
206

207 Mr. Thielbar moved to accept the application of CKT Associates for a variance from Article 4,  
208 Section 4.2 Schedule I: Permitted Uses to permit an age-restricted residential use for the  
209 proposed relocation of Building D in the Ray Farm Active Adult Community to be located on Ray  
210 Farmstead Road as shown in the submitted documents, with the understanding that the project  
211 will go to the Planning Board. Ms. Surman seconded. Mr. Prior said we should add a comment  
212 that the number of units is also expanded.

213  
214 Ms. Davies made a motion to add an amendment that we would also be granting an increase in  
215 the number of units from 116 to 128. Mr. Thielbar seconded the amendment. Mr. Prior, Mr.  
216 Thielbar, Ms. Davies, Ms. Olson-Murphy, and Ms. Surman voted aye and the amendment  
217 passed 5-0.  
218

219 Regarding the amended motion, Mr. Prior, Mr. Thielbar, Ms. Davies, Ms. Olson-Murphy, and  
220 Ms. Surman voted aye and the amended motion passed 5-0.

221  
222 Mr. Prior called for a five-minute break. Ms. Davies left the meeting at this time.  
223 The meeting reconvened at 8:50 PM.

- 224  
225 B. The application of Roger Elkus for a variance from Article 5, Section 5.5.3 to  
226 permit the proposed construction of a second principal building (residential) on  
227 the property located at 181 High Street. The subject property is located in the R-  
228 2, Single Family Residential zoning district. Tax Map Parcel #70-119. ZBA Case  
229 #21-13.

230  
231 Attorney Sharon Somers of DTC Lawyers was present to discuss the application.  
232 She said the owners would like to put a proposed dwelling in the location that juts out  
233 onto Ridgewood. This building would be no larger than 2,128 square feet, or 56' x 38'. It  
234 would conform with the setbacks, height restrictions, etc.

235 Mr. Prior asked if this is a lot line adjustment, and Attorney Somers said no, only  
236 variance relief to allow two principal dwellings on one lot. Ms. Surman asked if it would  
237 become a condominium, and Attorney Somers said it could, but it wouldn't have to. The  
238 zoning calls for one principal dwelling on a lot, but we are proposing two principal  
239 dwellings on a lot. The property is too big for the owners right now. The existing dwelling  
240 could be better used by a larger family with kids, for example.

241 Mr. Prior asked if the proposed house would meet all the size, access, area, lot  
242 coverage, and setback requirements for a single-family dwelling? Attorney Somers said  
243 yes. It's allowed to have two driveways on a single lot, and the property next door, Map  
244 70 Lot 20, has two driveways.

245 Mr. Thielbar said the ZBA rejected a similar application regarding this property in  
246 2019. Attorney Somers said the application in 2019 was for frontage relief because there  
247 is only 90 feet of frontage on Ridgewood Terrace, and was done in connection with a  
248 subdivision proposal. The new application is not a subdivision, it's to have two dwelling  
249 units on a single lot.

250 Mr. Prior said he asked if this unit would meet all requirements for a separate lot,  
251 and she said yes, but it actually doesn't. Attorney Somers said it's correct that it wouldn't  
252 meet the requirements as a separate lot, but that's not what's proposed. It would  
253 conform to all building setbacks, height, open space, etc.

254 Attorney Somers went through the variance criteria. 1) The variance will not be  
255 contrary to the public interest. She said the purpose of the zoning in requiring one  
256 dwelling on a lot is to prevent overcrowding. There will be no alteration of the essential  
257 character of the neighborhood. The neighborhood is single family homes, and this is just  
258 an additional family home. They will be on a lot which is well-sized to support both of  
259 them. There are no public safety issues. This would be a small house, around 2,000  
260 square feet, and will not result in excess population or traffic concerns. Between the two  
261 houses, it would be equivalent to a five bedroom property on 1.7 acres, which is  
262 adequate.



263 Ms. Surman asked what the address of the second house would be, which could  
264 be an issue for the Fire Department. Attorney Somers said she didn't know, but that  
265 could be worked out if the variance were granted and the building permit was pulled.

266 Attorney Somers continued with the variance criteria: 2) The spirit of the  
267 ordinance is observed; this is usually considered together with criteria 1 about public  
268 interest. 3) Substantial justice is done; yes, there is no gain to the public if this variance  
269 were denied. The applicant has a variety of options about what can go into this large 1.7  
270 acre parcel, such as an accessory structure like a barn or garage, or with a special  
271 exception it could have an accessory dwelling unit. The loss to the applicant would be  
272 that they can't have a modestly sized dwelling in the location that they would like. 4) The  
273 proposal will not diminish surrounding property values; yes, there won't be any  
274 diminution in value. 5) Literal enforcement of zoning ordinance will result in an undue  
275 hardship; yes, the size and configuration of the lot creates the hardship. There is a fair  
276 and substantial relationship between this proposal and the public purpose of the zoning  
277 ordinance, which is to prevent overcrowding on the land or excess additional population.  
278 Putting a 2,000 square foot dwelling on this area would not constitute overcrowding. The  
279 proposed use is reasonable because the lot is big enough to contain the proposed use.  
280 Large accessory units could go in there already, this proposal is only slightly different.

281 Mr. Prior asked if there are other 2 family properties in the neighborhood.  
282 Attorney Somers said no, but in 2000 there was a subdivision to create lot 119/1; prior to  
283 that subdivision there were two units on the lot. Mr. Prior said the second unit wasn't a  
284 dwelling unit until after the subdivision. Prior to that, it was a garage.

285 Mr. Thielbar said this is essentially a resubmittal of their 2019 request which was  
286 rejected. Attorney Somers said under the Fisher test, this is a material change of the  
287 proposed use. Previously, it was a subdivision proposal, but this is one lot with two  
288 dwellings. An accessory dwelling unit is not on the table because it's too small and  
289 wouldn't be able to be condo'd. An addition doesn't work. If this Board were to allow a  
290 second dwelling unit on some other portion of the property, it still wouldn't maintain open  
291 space because a driveway would have to go in.

292 Mr. Prior opened the session to public comment.

293 Matthew Forsyth, the neighbor to the south, said his concern is that his house  
294 has severe water issues, and where the applicants are proposing to build a house also  
295 collects water. If they build up, it will put even more water in his basement. He would like  
296 to see the proposed size of the house and a runoff water plan that's signed off on by the  
297 neighbors be conditions of the variance.

298 Mr. Prior closed the public session and allowed the applicant to address the  
299 Board.

300 Mr. Elkus said he knows this proposal is similar to the request two years ago.  
301 The house is a lot to take care of. He and his wife want to stay in Exeter, but do it in a  
302 more modest way. Not a lot of thought was put into how this lot was subdivided. If it had  
303 100 instead of 90 frontage feet, we would be able to subdivide. There are nearby houses  
304 that are smaller than the lot they're looking at building on, but they were grandfathered  
305 in.

306 Attorney Somers said regarding Mr. Forsyth's concern, they may want to table  
307 the issue so that she can discuss with her client whether this is an amenable condition.  
308 Mr. Prior said if the variance is approved, it would be conditional on Planning Board  
309 approval, and the Planning Board could address that issue. Attorney Somers said that  
310 the Planning Board wouldn't have jurisdiction because it's not a multi-family; three  
311 homes is the cut off for that.

312 Ms. Surman said it would make more sense to create it as a condo or a rental,  
313 since by definition there is only one primary dwelling on a lot. Attorney Somers said we  
314 would be amenable to treating it as two condominium units.

315 Mr. Prior said before the Board goes through the variance criteria, he would like  
316 to hear the applicants further address "hardship."

317 Attorney Somers said she would like a five-minute break to speak with her client  
318 about the water issues, since this is the first she's hearing of it.

319 Mr. Prior called for a five-minute recess. The meeting reconvened at 9:25 PM.

320 Attorney Somers asked to table the application to give her client the opportunity  
321 to talk with his neighbors.

322 Ms. Olson-Murphy made a motion to table this application until the next meeting. Mr. Thielbar  
323 seconded. Mr. Thielbar, Mr. Merrill, Mr. Prior, Ms. Olson-Murphy, and Ms. Surman voted aye,  
324 and the motion passed 5-0.

325

326 **II. Other Business**

327 A. Extension of Case 18-24.

328 Mr. Prior said nothing about the application or property have changed, so it's  
329 reasonable to extend for the requested time of one additional year.

330 Mr. Thielbar made a motion to grant the extension of Case 18-24 for one year. Ms. Surman  
331 seconded. Mr. Thielbar, Mr. Merrill, Mr. Prior, Ms. Olson-Murphy, and Ms. Surman voted aye,  
332 and the motion passed 5-0.

333

334 B. Minutes of October 19, 2021

335 Ms. Surman made a motion to accept the minutes of Oct 19, 2021 as presented. Mr. Thielbar  
336 seconded. Mr. Thielbar, Mr. Merrill, Mr. Prior, and Ms. Surman voted aye, and the motion  
337 passed 4-0.

338

339 **III. Adjournment**

340

341 Ms. Surman moved to adjourn. Mr. Merrill seconded. All were in favor and the meeting was  
342 adjourned at 9:30 PM.

343

344 Respectfully Submitted,

345 Joanna Bartell

346 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:** April 27, 2022

**To:** Denis Hamel, P.E., GM2  
Jonathan Shafmaster, Ray Farm LLC  
Justin Pasay, Esquire

**From:** Dave Sharples, Town Planner

**Re:** Site Plan Review TRC Comments  
PB Case #22-3 Willey Creek Co - Ray Farm, LLC  
Tax Map Parcel #47-8-1 and #47-9

The following comments are provided as a follow-up for technical review of the site plans and supporting documents submitted on March 29, 2022 for the above-captioned project. The TRC meeting was held on Thursday, April 21<sup>st</sup>, 2022 and materials were reviewed by Town departments.

### **TOWN PLANNER COMMENTS**

1. Are there any known environmental hazards on the site? If so, provide detail.
2. Show monuments in accordance with Section 9.25.
3. Provide all professional stamps (P.E., Wetland Scientist, LLS, etc.) on the applicable plans per Section 7.2.1 and 7.2.2 for the Planning Board submission.
4. Identify significant trees per Section 7.4.7. Be sure to identify all trees within the limit of work and along the proposed gravel access drive from Commerce Way to the site.
5. Please clarify the parking requirements and waivers on the cover sheet as it appears to indicate what is required as part of the prior approval and also the information does not appear accurate (i.e. 1233 parking stalls). Suggest treating this as a standalone application and provide details regarding parking and waivers requested that are specific to this application.
6. Add snow storage areas on plans per Section 7.5.14.
7. Add note per Section 7.5.16.
8. Please provide further details on the 14' wide gravel access road and how it will be constructed. Are all buffer impacts resulting in the creation of this access road included in

the CUP? There is a reference in the Gove memo that appears to indicate that this is an “existing woods road”. While there is packed down soil from bike and pedestrian use, it doesn’t not appear to be a road.

9. Provide information to determine if Section 9.6.3 is being satisfied.
10. Was the landscape plan created by a Licensed Landscape Architect? Are the plantings low maintenance and chosen for all site conditions? Will irrigation be required? If so, show locations on landscape plan.
11. Provide updated traffic memo addressing the additional units.
12. Sixteen (16) parking stalls are proposed along the front of Building D. This requires a parking island per Section 9.7.5.5.
13. Section 9.17.2 allows a maximum dead-end street of 1,200 feet. It appears that the access roadway exceeds 1,500 feet. Please see Section 9.17.10.B that states “An access road used to serve three or more units is considered a road (or street)”. Also see the definition of Street in Section 5.3.4.
14. The access road to Building D appears to conflict with the TIF Road (so called) design. Whether that road is built as a TIF road or built by Carlisle, it shows as access to the Carlisle property on a plan approved by the Planning Board for subdivision in 2017. To town planning staff it appears that the construction of this new accessway to proposed Building D will conflict with the intended construction of that road, though the applicant’s attorney represents that it does not. To resolve this, I recommend that the Planning Board refers this issue to the town’s outside engineering consultant for its guidance specifically on whether the proposed construction of this accessway to Building D would interfere with a road to be built through the Carlisle easement, whether it remains as a private roadway or becomes public.
15. Provide information on the Lighting Plan to determine compliance with all requirements set forth in Section 9.20.
16. Provide information that the project meets Section 11.2 and 11.3.
17. Confirm if there will be any grading within 5 feet of any exterior property line.
18. How will trash pick-up for the residential use and commercial uses be handled? Will there be any internal trash storage? No dumpsters are shown on the plans.
19. Please discuss potential addressing of the site/buildings with the Code Enforcement Officer and Deputy Fire Chief.

## **PUBLIC WORKS COMMENTS**

1. The layout of this roadway is not compatible with the Phase II Ray Farmstead Rd design. I compared this concept plan to the TIF Phase II portion of Ray Farmstead Rd that previously

went through final design by the developer and engineer. I assumed that both would be eventually built. In fact, the drainage pond in Phase I was designed and already built with runoff contributions from Phase II accounted for.

- A. The Building D roadway would intersect Ray Farmstead Rd at approximately STA 11+68. Ray Farmstead Rd centerline would be at elevation +/- 117.0 ft while Building D roadway is at +/- elevation 120.0 ft. (a difference of 3.0 ft)
  - B. The Building D roadway should intersect Ray Farmstead Rd on a straight-away and not on a curve. The intersection of the roadways should be perpendicular to each other.
  - C. The utilities for Building D need to be designed with the Ray Farmstead utility extensions in mind. Assuming that Phase II - Ray Farmstead Rd is built and accepted by the Town, it is not customary to have private utility corridors crossing a town right-of-way.
2. There is offsite area that contributes to the stormwater runoff through the proposed development. The sketches of the Pre-development and Post-development drainage areas do not show this offsite area.
  3. Check the pipe orientations and headwall detail for the headwall near STA 2+40.
  4. The existing utility information for Building C is different from the approved plan. It seems that additional utilities have already been installed without town approval or inspection.

### **FIRE DEPARTMENT COMMENTS**

In an e-mail from Ass't. Fire Chief Pizon, dated 4/7/22, it was indicated that Deputy Fire Chief Jason Fritz had previously met with the Applicant (and representatives) to go over the Fire Department requirements, and it was noted that the requirements were the same as for the other buildings

### **NATURAL RESOURCE PLANNER COMMENTS**

#### **CUPs**

- The application does not contain enough information to demonstrate it meets 9.6.1 B.2. (*"No alternative design .....or which has less detrimental impacts on the wetland or wetland buffer is feasible"*) or 9.6.1.B.4 (*"That the design, construction and maintenance*

*of the proposed use will, to the extent feasible minimize detrimental impact on the wetland or wetland buffer”).*

- You have demonstrated that an alternate location for Building D is feasible with your prior approved plans. Your proposal did not include a determination that the previous location would cause a greater wetland impact. Please provide a calculation of impacts that would result from locating the larger 32 Unit Building D to the original location. This is necessary to determine whether your proposal meets the aforementioned condition.
- The application states the gravel construction access road is necessary for construction to avoid conflicts with the developed portions of the lot however, prior plans for the construction of Building D, the recent construction of Building B, and the ongoing construction of Building C all entail driving through the developed portion of the lot for construction purposes, thereby demonstrating it is feasible. Further, eliminating this from the proposal will eliminate impacts to vernal pool buffers and eliminate a need for the temporary wetland crossing. Therefore, it is unclear how inclusion of this gravel construction access road can meet either condition.
- Your proposal has not documented that accessing Building D via the extension of Ray Farmstead Road is infeasible, or quantified the impacts in order to compare with the impacts resulting from the connection between Building C and D and the construction access road. This analysis should also consider that it will be creating a redundant wetland crossing within the wetland system serving Watson brook when the Ray Farmstead Road is extended as you acknowledged in your wetland application amendment to the State NHDES (File# 2017-01530) for the original proposal.
- The application does not meet 9.6.1.B.3 (impact evaluation) because it does not consider impacts to the 100-foot vernal pool buffer from widening the existing trail to meet the 14-20' wide construction access road called out in the plans.
- I am also concerned that conclusions within the impact evaluation did not consider all project related impacts adequately in order to meet 9.6.1.B.3 for the following reasons:

- The construction access road is described as requiring minor widening in some portions however it is currently best described as a foot path and the plans indicate resurfacing and widening to 14-20 feet. There is no quantification of this. Without these details, it is not possible to consider impacts to the resources. Further, there is no evaluation of sedimentation or runoff from the steep slope of the construction roadway which slopes directly into the wetland feeding Watson Brook. No stormwater management is described to address this. The only management offered is adding silt sock/fence along the linear edge of the road. This is also relevant to Shoreland CUP 9.3.4 (G)2.a. (“not detrimental to surface water quality”).
- The new location of Building D is within the State Wildlife Action Plan’s Highest Ranked Habitat in the Region category but this was not mentioned so it is unclear if this was considered. This is also relevant to Shoreland CUP 9.3.4. (G) 2.c. (“undue damage to....wildlife habitat”). Further the impact evaluation report identified a constriction for wildlife movement within the wetland at the crossing between Building C and D. As this is described as a primary function of the wetlands, and a larger crossing structure has not been considered, this also does not appear to meet Shoreland CUP criteria 9.3.4.(G).2.c.
- The application is missing the restoration plan for the temporary buffer impacts in order to meet Wetland CUP 9.6.1.B.7 (restoration proposal).
- Please clarify what the intent of the Open Space is at the former Building D location. Is it intended to remain free of buildings?

General Comments:

- The Conservation Commission will want a site walk. I recommend proposing dates that work for the applicant’s team prior to the 5/10 meeting when the additional info requested is submitted. They will want the ability to ask questions of the wetland scientist during the walk, so Brendan’s presence is requested. With later sunsets, 5 pm before the meeting or early mornings tend to fit best with work schedules.
- Soil stockpiling within the wetland buffer should be avoided.
- What are the nutrient removal efficiencies for the proposed stormwater structures?
- I did not see detail on the temporary crossing structure. Please provide. Has the applicant considered removing the damaged culvert from this crossing to improve wetland function?

- The original application indicated that there may be sensitive plant species present and follow up surveys would be conducted during the appropriate growing period prior to construction. When were these surveys conducted and what was the result? Were surveys also conducted within the proposed new location for Building D?
- Given the presence of wetlands, there is a potential for entrapment of amphibians from the deep sump catch basins. Is there potential to avoid the use of deep sumps?
- Please confirm all erosion control silt sock and matting materials are limited to natural material such as jute or coconut matting as photodegrading plastic causes wildlife impacts. Please add note accordingly.
- I did not see snow storage (Site and Sub Regs 7.5.14) or significant trees (remaining or to be removed) indicated (SS Regs 7.4.7). Please provide.
- Please confirm the selected lighting meets our lighting requirements for dark sky compliant, full cut-off shielding (SS Regs 9.20.4).
- *Miscanthus sinensis* is proposed for perennial grasses. This species is on the [NH Invasive Species Watch List](#). Some native suggestions for replacement: *Sorghastrum nutans* or *Andropogon gerardii*.
- What size is the culvert under the road between building C and D? It would be helpful to have this shown on the grading and drainage plans to identify whether it is sufficiently sized. Did the designs consider sufficient sizing for hydraulic capacity, wildlife and aquatic organism passage? Have elevated rainfall regime been considered in designs?
- Add requirement for wetland boundary disks to be installed along wetland buffers within the development (SS 9.9.1).

In order to be heard at the May 26<sup>th</sup>, 2022 Planning Board meeting, please submit any revised plans along with a letter responding to these comments (and other review comments, if applicable) **no later than May 17<sup>th</sup>, 2022**, but sooner if possible, to allow staff adequate time to review the revisions and responses prior to the planning board hearing.



2187.00

April 25, 2022

David Sharples, Town Planner  
Town Planning Office, Town of Exeter  
10 Front Street  
Exeter, NH 03833

**Re: Ray Farm Building D**  
**Design Review Engineering Services**  
Exeter, New Hampshire

**Site Information:**

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Tax Map/Lot#	Map #47, Lot 8	Review No. 1
Address:	Ray Farmstead Road	
Lot Area:	15.75 acres (total after lot line adjustment)	
Proposed Use:	Residential	
Water:	Town	
Sewer:	Town	
Zoning District:	C-3	
Applicant:	Willey Creek Co., LLC, 158 Shattuck Way Newington, NH 03801	
Design Engineer:	GM2 Associates, Amesbury, Massachusetts	

**Application Materials Received:**

- Site plan set entitled “Ray Farm” “Site Development Plans for Building D off Ray Farmstead Road, Exeter, NH” dated January 11, 2022, prepared by GM2 Associates.
- Site plan application materials prepared by GM2 Associates.
- CUP application prepared by GM2 Associates.
- Drainage report and stormwater maintenance manual prepared by GM2 Associates.

Dear Mr. Sharples:

Based on our review of the above information, we offer the following comments in accordance with the Town of Exeter Regulations and standard engineering practice.

**General**

1. The plans should be stamped by the engineer, surveyor, wetlands scientist, et al. as appropriate.

2. An NHDES Sewer Connection Permit should be added to the list of permits on the plan set cover. Any revisions or modifications made in the field during construction since the prior NHDES approval should be submitted for after-the-fact review as well as those required for the approval of Building D.
3. It is unclear if the Proposed Building D (32-units) is intended to replace the previously approved Building D (20-units) and complete the project or if the applicant's intent is to preserve the option to re-permit the former Building D for construction at a later time. The application should be clear if the intent is that the project will be complete of all phases following the construction of the proposed Building D.

#### **Lot Line Adjustment Plan**

4. The General Notes (3) identifies W. Scott Carlisle as the beneficiary of the existing ROW/Easement through the project's parcels. Any encumbrance to that ROW should be reviewed by the beneficiary for concurrence.
5. It appears that Parcel 047-008-0002 exists but is labelled as "Proposed Lot II" in the lot line adjustment plan. Please confirm and adjust the label as appropriate.

#### **Existing Conditions Plan**

6. Near Station 2+60 Right is a round shape with small "x" in it. That symbology is missing from the legend. Please identify what the shape is intended to portray.

#### **Site Plan**

7. The length of the internal roadway exceeds the Town limit per section 9.17.2 of the Site Plan regulations.
8. The internal roadway must meet all other requirements of section 9.17.2.
9. The proposed project's design appears to disregard the ROW through Parcel A as well as the TIF Road design of 2018. The project plans should include the stationing from the TIF Road design and identify the station equation representing the point of intersection.
10. The roadway between Building C and Building D should be realigned to cross the intersection with the right-of-way at a 90-degree angle. Please see the Town of Exeter Standard Specifications for Construction Section E.III.D.2. Note that per the regulations, if this requirement cannot be met on both sides of the ROW, the roadway must be designed and stamped by a professional traffic engineer.
11. Confirm sight distance per the above-referenced Town regulation can be achieved at the ROW intersection per alignment geometry.
12. How will solid waste disposal be handled? No dumpster enclosure is shown on the plan.
13. There appears to be clearing within the 40' wetland buffer in the vicinity of Station 3+50 Left.
14. Confirm emergency vehicle access and turning movements are accommodated within the roadway widths and curb radii.



15. It appears to UE that the greater Ray Farm Condominium project would benefit from utilizing the extended TIF Road ROW/design rather than extending the access road for Ray Farm an additional 818 +/- feet as proposed. Benefits include:
- A. Avoidance of future coordination issues with the ROW/TIF Road.
  - B. Improved Emergency Access to Building D and potentially Buildings A through C.
  - C. Reduced total footprint impact when compared to the proposed 860' 14' wide access road.
  - D. Potential for reduced total wetland impacts.
  - E. Reduced commercial traffic through Industrial Drive and Commercial Way.

### Utility Plans

16. All utilities should be designed for isolation on both sides of the ROW at the crossing.
17. It is unclear how ownership of utilities crossing the right-of-way will be handled.
18. UE understands the proposed gas line is a private utility, however generally speaking, the placement of a utility spur around/behind a building is not advised.
19. A note should be added to the plan indicating 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 during construction of these utilities.
20. The terminus of the water main with a stub toward the abutting CKT parcel implies future extension plans, per comment 3 above, the application should be clear regarding the greater intent, if any.

### Grading and Drainage Plans

21. Has the 24" culvert proposed at station 2+53 been evaluated for wildlife passage requirements? The applicant should evaluate the wildlife corridor needs of the wetland system being restricted by the culvert.
22. The culvert crossing at Station 2+53 could be shortened significantly by utilizing taller headwalls or gravity retaining walls.
23. Restoration notes should be provided at each headwall. Will it be loam and seed? Riprap? In addition, the proposed tree line should be pushed out at those locations since equipment will need to access the area for installation of the headwalls and culvert.
24. Embankment slopes of steeper than 3:1 slope should be fitted with guardrails.
25. Where will foundation drains discharge?
26. Note 2 on several sheets refers to the TIF road plan. The proposed elevation of the access roadway is inconsistent with the design grades of the TIF road plans. Specifically, the intersection of the two roads differ by approximately 3.5 vertical feet.
27. The temporary easement lines for the construction access should be shown on sheet C1.23.
28. The perimeter drainage, labelled RD (roof drain?) should be fitted with clean-outs or better still, structures (i.e. nyoplast units), for access and cleaning. UE questions the layout as it would appear to be breaking the RD system at the northern corner of the building where



the northeasterly run would discharge to, or the vicinity of CB 2 may be preferable to running the RD water all the way around the building.

29. What is the finished treatment of the access road (to Commerce Way) once the project is complete – grassed, remain gravel? Note – the project proposes a swale that will discharge water to the access road and ultimately off site that, as graded, will not make it to the stormwater treatment downstream of CB2.

### **Profile Sheets**

30. The profile slope of the access road is 3% whereas the typical section of the proposed TIF road is a normal crown with 2% cross slopes.
31. Please note the maximum allowable grade within 50' of the future pavement of the ROW is 3% per the Town of Exeter Standard Specifications for Construction.
32. Show the temporary bridge in the profile view of the construction access road.
33. The access road profile approaches 15% for over 200' of its length. In addition to the steep grades, there appears to be the potential for vehicles to bottom out at the wetland crossing, particularly delivery trucks. Please confirm the vehicles will have no issue navigating the profile grades as shown.
34. Show the proposed temporary culvert at the construction access road wetlands crossing in the plan view. Label the slope and inverts. Since the wetlands will be spanned, what is the purpose of the culvert?
35. The proposed contours in the plan view do not match the profile view in the area of the temporary bridge. The profile indicates fill to station 9+97, while the plan view shows fill ending before the bridge. In addition, the profile indicates there will be fill within the wetlands rather than a temporary span.
36. The existing edges of gravel and the existing and proposed tree lines should be shown along the construction access route.
37. Add the edge of ROW lines to the profile view on sheet C1.41.

### **Erosion Control Plans**

38. Ultimate restoration of the construction access road should be labeled.

### **Landscape Plan**

39. Utilities should be added to the plan to assess potential conflicts. Proposed grading should be added as well.
40. Will an irrigation system be installed? If so, it should be shown on the plan.

### **Stormwater Design and Modeling**

41. The Pre and Post Development Plans for review of the HydroCAD model were attached to the CUP submittal. Please merge those into the stormwater analysis.
42. The Pre and Post Development Plans are missing call-outs for ponds, modelled CB ponds, reaches and other HydroCAD model nodes requiring a significant amount of interpretation to evaluate the features and their modelled limits. As such, the drainage review is not complete. The review will be completed upon resubmittal with labels.



43. UE is concerned about the simple Pre- model being used as a baseline for comparison to the post-model. While it is typical that the pre-models are simpler than post-models, as a quantitative analysis common features modelled in one model should be replicated as appropriate in the other model; an example being Post-Development Reach 5R (“Stream Channel”) should be modelled in the Pre-Development which would necessitate the Pre-Development Subcatchment E1 being broken up accordingly. It would seem reasonable that the post- model would define the Stream Channel Reach to correspond to the culvert at Stat 2+52 to address other comments within this review.
44. Subcatchment D8 is orphaned.
45. UE questions the size and routing of Subcatchment D1 as 50% of it is utilizing at least some portion of the Reach 5R for conveyance.
46. Rainfall amounts must be increased by 15% per AoT regulation Env-Wq 1503.08.
47. The project has not demonstrated its compliance with the Pollutant Loading removal requirements per the Town of Exeter stormwater treatment regulations.
48. Provide pipe sizing calculations for all drainage pipes and culverts, including the culvert at Station 2+52.
49. The project is required to comply with Exeter regulation section 9.3.3.6 regarding the evaluation of the effects of sea level rise.
50. **PTAP Database:** The Applicant is requested to enter project related stormwater tracking information contained in the site plan application documents using the Great Bay Pollution Tracking and Accounting Program (PTAP) database ([www.unh.edu/unhsc/ptapp](http://www.unh.edu/unhsc/ptapp)) and submit the entry for review.

A written response is required to facilitate future reviews. Please contact us if you have any questions.

Very truly yours,  
UNDERWOOD ENGINEERS, INC.



Allison M. Rees, P.E.  
Project Manager



Robert J. Saunders, P.E.  
Senior Project Engineer





CELEBRATING OVER 35 YEARS OF SERVICE TO OUR CLIENTS

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RETIRED  
MICHAEL J. DONAHUE  
CHARLES F. TUCKER  
ROBERT D. CIANDELLA  
NICHOLAS R. AESCHLIMAN

17 May 2022

Langdon Plumer, Chair  
Exeter Planning Board  
10 Front Street  
Exeter, NH 03833

**Re: Planning Board Case #22-3**

Dear Chair Plumer and Board Members –

This firm represents the Applicant in the above referenced Planning Board case. Please find enclosed herewith a revised Site Plan set and Storm Water Report with calculations from Denis M. Hamel, P.E. at GM2 Associates ("GM2") as well as a GM2 Letter responding to the Town's TRC comments, all with requisite number of copies. The Applicant and its team of consultants look forward to discussing the Applicant's project proposal with the Planning Board at its 26 May 2022 meeting. The Applicant anticipates filing at a future date updated Conditional Use Permit Applications and corresponding analyses which address the Town's Natural Resource Planner's TRC comments as well as Waiver Requests which the Applicant will request the Planning Board review at a future hearing. The Applicant anticipates appearing before the Town's Conservation Commission at its next meeting on 14 June 2022.

By this letter, the Applicant responds to several TRC Comments which GM2 did not respond to, to include Town Planner Comment 14, Public Works Comment 1, and Underwood Engineering Comments 4, 9, 10, 11, 15, 16, 17, 30 and 31, all of which pertain to the potential extension of the existing public Ray Farmstead Road over an existing 50-foot private easement on the Applicant's Property benefiting the owner of abutting land currently owned by Scott Carlisle ("Mr. Carlisle's Private Easement" or the "Private Easement") (the "TRC Comments"). This letter also responds to correspondence filed with the Planning Board on 16 May 2022 by Upton & Hatfield, LLP on behalf of Mr. Carlisle ("Attorney Hilliard's Letter").

As the Planning Board is aware, there is ongoing litigation involving the Town of Exeter, the Applicant and Mr. Carlisle regarding the potential extension of Ray Farmstead Road over Mr. Carlisle's Private Easement to access Mr. Carlisle's Property. To summarize the foundational subject of that litigation, the Town and Mr. Carlisle maintain that the Applicant has a legal obligation to permit the Town to site and construct a public road over the Private Easement. The Applicant maintains, as it expressly has for years, that it does not consent to the extension of Ray Farmstead Road as a public road over Mr. Carlisle's Private Easement and has never agreed to convey the necessary property interests to the Town to convert the Private Easement into a public road.

**DONAHUE, TUCKER & CIANDELLA, PLLC**  
16 Acadia Lane, P.O. Box 630, Exeter, NH 03833

111 Maplewood Avenue, Suite D, Portsmouth, NH 03801

Towle House, Unit 2, 164 NH Route 25, Meredith, NH 03253

83 Clinton Street, Concord, NH 03301

The TRC Comments which the Applicant responds to by this letter unfortunately put the Planning Board in the middle of this private dispute between the Applicant and the Town by improperly assuming that Ray Farmstead Road will be extended as a public road over the Private Easement as a matter of fact and by stating that the Applicant's proposal is not compatible with same. In so doing, the TRC Comments conflate the reality of the existing conditions of the underlying Property inclusive of the Private Easement, with the speculative and unestablished nature of the potential extension of the public Ray Farmstead Road over the Private Easement. To be clear, the "TIF Road design" which the TRC Comments consistently refer to, was produced by the Applicant and provided to the Town at the Town's request in 2018. This design has not been reviewed, approved or permitted. Further, the Applicant expressly declined to convey to the Town the property interests necessary to convert the Private Easement into a public road. As such, the so-called "TIF Road extension" is theoretical in nature.

Attorney Hilliard's letter suffers from the same false premise as the TRC Comments: that construction of the public extension of Ray Farmstead Road over the Private Easement will occur as a matter of fact. On the contrary, Mr. Carlisle's improper "dedication" of a public road over land he does not own pursuant to a 2017 subdivision application which did not have the Applicant's authorization, does not create a legal obligation on the Applicant to facilitate said construction. Indeed, as Note 7 of the Subdivision Plan indicates, "Upon approval by the Town, the Proposed Road will be conveyed to the Town." Only the Applicant, the owner of the underlying land, has the authority to convey title of the roadway to the Town. For these reasons, like the TRC Comments, Attorney Hilliard's allegations regarding the compatibility of the Applicant's proposal with the theoretical "TIF Road extension" are irrelevant to the Planning Board's review.

To avoid this very dilemma, for months the Applicant made unrequited attempts to discuss an alternative access to Mr. Carlisle's Property with the Town and counsel for Mr. Carlisle. Specifically, the Applicant has been open to the idea of facilitating access to Mr. Carlisle's Property over other property owned by the Applicant off Commerce Way. The Applicant anticipates that that proposed alternative access would, as depicted in the plans filed herewith by GM2, cause considerably less direct wetland, wetland buffer and shoreland impact than extending Ray Farmstead Road over Mr. Carlisle's Private Easement.<sup>1</sup> The Town is under a contractual obligation to confer and cooperate with the Applicant in this regard. Instead of exploring the viability of this possibility, or even responding to the Applicant and engaging in a discussion, the Town elected to file a lawsuit.

The Planning Board is required to review applications in light of existing conditions, not in light speculative future development which has not been reviewed, approved or permitted. As such, the TRC Comments which are the subject of this letter are irrelevant to the Planning Board's jurisdictional obligations and the Applicant respectfully requests that the Planning Board

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<sup>1</sup> Specifically, as depicted on GM2's plans, the extension of Ray Farmstead Road over Mr. Carlisle's Private Easement is projected to cause 2,280 sf of direct wetland impact, 15,715 sf of total wetland buffer impact, and 232,124 sf of total shoreland impact where the alternative access to Mr. Carlisle's Property from Commerce Way is only projected to cause approximately 712 sf of direct wetland impact (a reduction of 69%), approximately 13,285 sf of total wetland buffer impact (a reduction of 15%) and no shoreland impacts.

Langdon Plumer, Chair  
Exeter Planning Board  
17 May 2022  
Page 3

treat said comments as such. In short, consideration of the comments implicating the Private Easement or the TIF Road extension is improper.

Finally, in an effort to help remove this issue from the Planning Board's consideration and ensure it remains where it belongs, with the Court, the Applicant would be comfortable with a condition of Planning Board approval stating that if the extension of Ray Farmstead Road over the existing Private Easement is ever reviewed, approved and permitted, the Applicant will pursue amended site plan approval for the parking, grading and water/sewer connection reconfigurations that would be necessary for Building D to be fully compatible with same. GM2 has already looked at what would be required to ensure full compatibility between Building D and an extended Ray Farmstead Road and is comfortable that the underlying alterations would be the appropriate subject of an amended site plan review by the Planning Board.

Thank you for your time and consideration. We look forward to appearing before the Planning Board on 26 May.

Very truly yours,  
DONAHUE, TUCKER & CIANDELLA, PLLC



Justin L. Pasay  
JLP/LH

Cc: Jon Shafmaster  
Gove Environmental, Inc. (email only)  
GM2 Associates  
Chris Hilson, Esq. (email only)  
Walter Mitchel, Esq. (email only)  
Russ Hilliard, Esq. (email only)





May 17, 2022

Mr. Dave Sharples  
Planning Department  
Town of Exeter  
Front Street  
Exeter, NH 03833

Dear Mr. Sharples:

Subject: Response to **Town Comments to Ray Farm Building D Re-location Site Plan Review Application as discussed at the TRC meeting held on April 21, 2022**

*Headquarters*  
115 GLASTONBURY BLVD  
GLASTONBURY CT 06033  
860.659.1416

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CONCORD NH 03301  
603.856.7854

200 MAIN ST  
PAWTUCKET RI 02860  
401.726.4084

The comments from the Town Departments and their consultants are listed. Our response is directly below each comment and is bold italic text.

### **TOWN PLANNER COMMENTS**

1. Are there any known environmental hazards on the site? If so, provide detail.

***We are unaware of any environmental hazards on the site.***

2. Show monuments in accordance with Section 9.25.

***Monuments “to be set” have been added to the plan.***

3. Provide all professional stamps (P.E., Wetland Scientist, LLS, etc.) on the applicable plans per Section 7.2.1 and 7.2.2 for the Planning Board submission.

***Stamps by the professionals preparing the plans will be added when the plans are final. There will be further comments by the Planning Board and Conservation Commission as the process continues.***

4. Identify significant trees per Section 7.4.7. Be sure to identify all trees within the limit of work and along the proposed gravel access drive from Commerce Way to the site.

***There were several significant trees (greater than 21” in diameter) found in or near the development area that will need to be cut down. All are white pine trees. The***

**trees near the development area that pose a significant threat were also identified as to be cut down. For the trees outside the development area, the stumps will remain. The trees are shown on the Site Plans C1.11 and C1.12.**

5. Please clarify the parking requirements and waivers on the cover sheet as it appears to indicate what is required as part of the prior approval and also the information does not appear accurate (i.e. 1233 parking stalls). Suggest treating this as a standalone application and provide details regarding parking and waivers requested that are specific to this application.

**The Site Data and parking data has been revised and clarified.**

6. Add snow storage areas on plans per Section 7.5.14.

**Snow storage notes and location have been added to the Site Plans C1.11 and C1.12.**

7. Add note per Section 7.5.16.

**The note per section 7.5.16 has been added to the General Notes sheet G1.20 under section General Notes #20.**

8. Please provide further details on the 14' wide gravel access road and how it will be constructed. Are all buffer impacts resulting in the creation of this access road included in the CUP? There is a reference in the Gove memo that appears to indicate that this is an "existing woods road". While there is packed down soil from bike and pedestrian use, it doesn't not appear to be a road.

**The Temporary Construction Access Road has been removed from the plan set. Construction vehicles will access the site from the existing Ray Farm project.**

9. Provide information to determine if Section 9.6.3 is being satisfied.

**The upland area where Building D was and defined as Phase IV of the approved project is 1.35 acres. The new area being added to the approved project is 4.28 acres. The area where Building D was will remain open space**

**and used by the residents as passive recreation. No buildings will be placed in this area. This area (1.35 acres) is 31.5% of the new land being added and complies with Section 9.6.3.**

10. Was the landscape plan created by a Licensed Landscape Architect? Are the plantings low maintenance and chosen for all site conditions? Will irrigation be required? If so, show locations on landscape plan.

**A Landscape Architect will stamp the Landscape plans. There will be irrigation for Building D as it is for the other three building and the Community Building. The irrigation system is installed only after the site improvements are in place in order not to interfere with landscape and hardscapes. The irrigation will not be shown on the design plans.**

11. Provide updated traffic memo addressing the additional units.

**The Traffic Engineer will provide a memo about the additional traffic generated by the additional twelve units.**

12. Sixteen (16) parking stalls are proposed along the front of Building D. This requires a parking island per Section 9.7.5.5.

**The parking has been modified to not have more than 15 spaces in a row. A landscaped island was added to the front parking.**

13. Section 9.17.2 allows a maximum dead-end street of 1,200 feet. It appears that the access roadway exceeds 1,500 feet. Please see Section 9.17.10.B that states "An access road used to serve three or more units is considered a road (or street)". Also see the definition of Street in Section 5.3.4.

**A waiver request will be submitted to allow the access drive as submitted.**

14. The access road to Building D appears to conflict with the TIF Road (so called) design. Whether that road is built as a TIF road or built by Carlisle, it shows as access to the Carlisle property on a plan approved by the Planning

Board for subdivision in 2017. To town planning staff it appears that the construction of this new accessway to proposed Building D will conflict with the intended construction of that road, though the applicant's attorney represents that it does not. To resolve this, I recommend that the Planning Board refers this issue to the town's outside engineering consultant for its guidance specifically on whether the proposed construction of this accessway to Building D would interfere with a road to be built through the Carlisle easement, whether it remains as a private roadway or becomes public.

***Please see letter from DTC Lawyers dated May 17, 2022.***

15. Provide information on the Lighting Plan to determine compliance with all requirements set forth in Section 9.20.

***The requirements of Section 9.20 will be met and added to the Lighting Plans.***

- 16 Provide information that the project meets Section 11.2 and 11.3.

***We believe that the project complies with applicable portions of Sections 11.2 and 11.3.***

17. Confirm if there will be any grading within 5 feet of any exterior property line.

***There will no grading within five feet of any property line.***

- 18 How will trash pick-up for the residential use and commercial uses be handled? Will there be any internal trash storage? No dumpsters are shown on the plans.

***There will be no outside dumpsters. The trash will be collected inside the basement area and set out for private pickup weekly which is the same as the other three buildings.***

- 19 Please discuss potential addressing of the site/buildings with the Code Enforcement Officer and Deputy Fire Chief.

***The applicant met with the Fire Department and discussed the access requirements for the Fire Department apparatus. The plans have been revised to accommodate the largest fire vehicle. The Fire Department approved the location of the fire hydrants as shown on the plans.***

### **PUBLIC WORKS COMMENTS**

1. The layout of this roadway is not compatible with the Phase II Ray Farmstead Rd design. I compared this concept plan to the TIF Phase II portion of Ray Farmstead Rd that previously went through final design by the developer and engineer. I assumed that both would be eventually built. In fact, the drainage pond in Phase I was designed and already built with runoff contributions from Phase II accounted for.
  - A. The Building D roadway would intersect Ray Farmstead Rd at approximately STA 11+68. Ray Farmstead Rd centerline would be at elevation +/- 117.0 ft while Building D roadway is at +/- elevation 120.0 ft. (a difference of 3.0 ft)
  - B. The Building D roadway should intersect Ray Farmstead Rd on a straight-away and not on a curve. The intersection of the roadways should be perpendicular to each other.
  - C. The utilities for Building D need to be designed with the Ray Farmstead utility extensions in mind. Assuming that Phase II - Ray Farmstead Rd is built and accepted by the Town, it is not customary to have private utility corridors crossing a town right-of-way.

***Please see letter from DTC Lawyers dated May 17, 2022.***

- 2 There is offsite area that contributes to the stormwater runoff

through the proposed development. The sketches of the Pre-development and Post-development drainage areas do not show this offsite area.

***The offsite stormwater runoff from the Carlisle property does not affect the stormwater system. Some flow arrows on the Pre-Development and Post Development were added that indicate that the stormwater from the Carlisle property bypass the development in the same fashion for both scenarios. The stormwater flow goes to the two streams on each side of the development. He flow does not enter the developed stormwater system. The offsite flow is the same for the Pre-Development as the Post-Development and will not affect the design. The offsite flow is considered for the sizing of the cross culvert for the access drive. That culvert is oversized to allow for small wildlife to pass.***

- 3 Check the pipe orientations and headwall detail for the headwall near STA 2+40.

***The headwalls were eliminated with the installation of the large block retaining walls.***

- 4 The existing utility information for Building C is different from the approved plan. It seems that additional utilities have already been installed without town approval or inspection.

***The Sewer extension and water extension were installed without public review. The submitted plans show them and will be approved or adjusted based on review by the Town.***

## FIRE DEPARTMENT COMMENTS

In an e-mail from Ass't. Fire Chief Pizon, dated 4/7/22, it was indicated that Deputy Fire Chief Jason Fritz had previously met with the Applicant (and representatives) to go over the Fire Department requirements, and it was noted that the requirements were the same as for the other

buildings

**No Comment needed.**

## NATURAL RESOURCE PLANNER COMMENTS

**All the comments will be addresses with the CUP application.**

CUPs

- The application does not contain enough information to demonstrate it meets 9.6.1 B.2.  
*{ "No alternative design .....or which has less detrimental impacts on the wetland or wetland buffer is feasible" } or 9.6.1.B.4 ( That the design, construction and maintenance of the proposed use will, to the extent feasible minimize detrimental impact on the wetland or wetland buffer " ).*
  - o You have demonstrated that an alternate location for Building D is feasible with your prior approved plans. Your proposal did not include a determination that the previous location would cause a greater wetland impact. Please provide a calculation of impacts that would result from locating the larger 32 Unit Building D to the original location. This is necessary to determine whether your proposal meets the aforementioned condition.
  - o The application states the gravel construction access road is necessary for construction to avoid conflicts with the developed portions of the lot however, prior plans for the construction of Building D, the recent construction of Building B, and the ongoing construction of Building C all entail driving through the developed portion of the lot for construction purposes, thereby demonstrating it is feasible. Further, eliminating this from the proposal will eliminate impacts to vernal pool buffers and eliminate a need for the temporary wetland crossing.

Therefore, it is unclear how inclusion of this gravel construction access road can meet either condition.

- o Your proposal has not documented that accessing Building D via the extension of Ray Farmstead Road is infeasible, or quantified the impacts in order to compare with the impacts resulting from the connection between Building C and D and the construction access road. This analysis should also consider that it will be creating a redundant wetland crossing within the wetland system serving

Watson brook when the Ray Farmstead Road is extended as you acknowledged in your wetland application amendment to the State NHDES (File# 2017-01530) for the original proposal.

- The application does not meet 9.6.1.B.3 (impact evaluation) because it does not consider impacts to the 100-foot vernal pool buffer from widening the existing trail to meet the 14-20' wide construction access road called out in the plans.
- I am also concerned that conclusions within the impact evaluation did not consider all project related impacts adequately in order to meet 9.6.1.B.3 for the following reasons:
  - o The construction access road is described as requiring minor widening in some portions however it is currently best described as a foot path and the plans indicate resurfacing and widening to 14-20 feet. There is no quantification of this. Without these details, it is not possible to consider impacts to the resources. Further, there is no evaluation of sedimentation or runoff from the steep slope of the construction roadway which slopes directly into the wetland feeding Watson Brook. No stormwater management is described to address this. The only management offered is adding silt sock/fence along the linear edge of the road. This is also relevant to Shoreland CUP



9.3.4 (G)2.a. ("not detrimental to surface water quality").

- o The new location of Building D is within the State Wildlife Action Plan's Highest Ranked Habitat in the Region category but this was not mentioned so it is unclear if this was considered. This is also relevant to Shoreland CUP 9.3.4. (G) 2.c. ("undue damage to....wildlife habitat"). Further the impact evaluation report identified a constriction for wildlife movement within the wetland at the crossing between Building C and D. As this is described as a primary function of the wetlands, and a larger crossing structure has not been considered, this also does not appear to meet Shoreland CUP criteria 9.3.4.(G).2.c.
- The application is missing the restoration plan for the temporary buffer impacts in order to meet Wetland CUP 9.6.1.B.7 (restoration proposal).
- Please clarify what the intent of the Open Space is at the former Building D location. Is it intended to remain free of buildings?

General Comments:

- The Conservation Commission will want a site walk. I recommend proposing dates that work for the applicant's team prior to the 5/10 meeting when the additional info requested is submitted. They will want the ability to ask questions of the wetland scientist during the walk, so Brendan's presence is requested. With later sunsets, 5 pm before the meeting or early mornings tend to fit best with work schedules.
- Soil stockpiling within the wetland buffer should be avoided.
- What are the nutrient removal efficiencies for the proposed stormwater structures?
- I did not see detail on the temporary crossing structure. Please provide. Has the applicant considered removing the damaged culvert from this crossing to improve wetland function?
- The original application indicated that there may be sensitive plant species present and follow up surveys would be conducted during the appropriate growing period prior to construction. When were these surveys conducted

and what was the result? Were surveys also conducted within the proposed new location for Building D?

- Given the presence of wetlands, there is a potential for entrapment of amphibians from the deep sump catch basins. Is there potential to avoid the use of deep sumps?
- Please confirm all erosion control silt sock and matting materials are limited to natural material such as jute or coconut matting as photodegrading plastic causes wildlife impacts. Please add note accordingly.
- I did not see snow storage (Site and Sub Regs 7.5.14) or significant trees (remaining or to be removed) indicated (SS Regs 7.4.7). Please provide.
- Please confirm the selected lighting meets our lighting requirements for dark sky compliant, full cut-off shielding (SS Regs 9.20.4).
- *Miscanthus sinensis* is proposed for perennial grasses. This species is on the NH [Invasive Species Watch List](#). Some native suggestions for replacement: *Sorghastrum nutans* or *Andropogon gerardii*.
- What size is the culvert under the road between building C and D? It would be helpful to have this shown on the grading and drainage plans to identify whether it is sufficiently sized. Did the designs consider sufficient sizing for hydraulic capacity, wildlife and aquatic organism passage? Have elevated rainfall regime been considered in designs?
- Add requirement for wetland boundary disks to be installed along wetland buffers within the development (SS 9.9.1).

In order to be heard at the May 26th, 2022 Planning Board meeting, please submit any revised plans along with a letter responding to these comments (and other review comments, if applicable) no **later than May 17th, 2022**, but sooner if possible, to allow staff adequate time to review the revisions and responses prior to the planning board hearing.

## Underwood Engineers Comments

### General

1. The plans should be stamped by the engineer, surveyor, wetlands scientist, et al. as appropriate.

***The plans will be stamped by the appropriate professionals for the final submittal.***

2. An NHDES Sewer Connection Permit should be added to the list of permits on the plan set cover. Any revisions or modifications made in the field during construction since the prior NHDES approval should be submitted for after-the-fact review as well as those required for the approval of Building D.

***A Sewer Connection Permit for the additional flow will be applied for.***

3. It is unclear if the Proposed Building D (32-units) is intended to replace the previously approved Building D (20-units) and complete the project or if the applicant's intent is to preserve the option to re-permit the former Building D for construction at a later time. The application should be clear if the intent is that the project will be complete of all phases following the construction of the proposed Building D.

***Building D will be enlarged to be the same as the other three buildings and re-located to site for which this Site Plan Review was submitted. The location where the original Building D was located will remain as part of the development, but be open space. No new buildings will be placed in the old location***

Lot Line Adjustment Plan

4. The General Notes (3) identifies W. Scott Carlisle as the beneficiary of the existing ROW/Easement through the project's parcels. Any encumbrance to that ROW should be reviewed by the beneficiary for concurrence.

***That is an issue between the owner of the land and Mr. Carlisle.***

5. It appears that Parcel 047-008-0002 exists but is labelled as "Proposed Lot II" in the lot line adjustment plan. Please confirm and adjust the label as appropriate.

***The Note has been removed and not appropriate for this plan.***

Existing Conditions Plan

6. Near Station 2+60 Right is a round shape with small "x" in it. That symbology is missing from the legend. Please identify what the shape is intended to portray.

***The object is a large surface boulder. A symbol for that has been added to the Legend on sheet G1.20***

Site Plan

7. The length of the internal roadway exceeds the Town limit per section 9.17.2 of the Site Plan regulations.

***A waiver request will be submitted for the length of Road.***

8. The internal roadway must meet all other requirements of section 9.17.2.

***A waiver request from the subdivision road requirements will be submitted.***

9. The proposed project's design appears to disregard the ROW through Parcel A as well as the TIF Road design of 2018. The project plans should include the stationing from the TIF Road design and identify the station equation representing the point of intersection.

***Please see letter from DTC Lawyers dated May 17, 2022.***

10. The roadway between Building C and Building D should be realigned to cross the intersection with the right-of-way at a 90-degree angle. Please see the Town of Exeter Standard Specifications for Construction Section E.III.D.2. Note that per the regulations, if this requirement cannot be met on both sides of the ROW, the roadway must be designed and stamped by a professional traffic engineer.

***Please see letter from DTC Lawyers dated May 17, 2022.***

11. Confirm sight distance per the above-referenced Town regulation can be achieved at the ROW intersection per alignment geometry.

**Please see letter from DTC Lawyers dated May 17, 2022.**

12. How will solid waste disposal be handled? No dumpster enclosure is shown on the plan.

**There are no exterior dumpsters. The trash will be handled as it is for the other three buildings. See the response to Dave Sharples comment # 18 above.**

13. There appears to be clearing within the 40' wetland buffer in the vicinity of Station 3+50 Left.

**There is no grading of disturbing the surface in this area. See the Grading plan C1.21.**

14. Confirm emergency vehicle access and turning movements are accommodated within the roadway widths and curb radii.

**The Applicant met with the Fire Department for their vehicles and they are satisfied.**

- 15.

It appears to UE that the greater Ray Farm Condominium project would benefit from utilizing the extended TIF Road ROW/design rather than extending the access road for Ray Farm an additional 818 +/- feet as proposed. Benefits include:

- a. Avoidance of future coordination issues with the ROW/TIF Road.

It appears to UE that the greater Ray Farm Condominium project would benefit from utilizing the extended TIF Road ROW/design rather than extending the access road for Ray Farm an additional 818 +/- feet as proposed. Benefits include:

- b. Avoidance of future coordination issues with the ROW/TIF Road.

- A. Improved Emergency Access to Building D and potentially Buildings A through C.
- B. Reduced total footprint impact when compared to the proposed 860' 14' wide access road.
- C. Potential for reduced total wetland impacts.
- D. Reduced commercial traffic through Industrial Drive and Commercial Way.

**Please see letter from DTC Lawyers dated May 17, 2022.**

Utility Plans

16. All utilities should be designed for isolation on both sides of the ROW at the crossing.

**Please see letter from DTC Lawyers dated May 17, 2022.**

17. It is unclear how ownership of utilities crossing the right-of-way will be handled.

**Please see letter from DTC Lawyers dated May 17, 2022.**

- UE understands the proposed gas line is a private utility, however generally speaking, the placement of a utility spur around/behind a building is not advised.

**The other buildings have gas along the rear of the building.**

- A note should be added to the plan indicating 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 during construction of these utilities.

**Note 1. Was added to the General Notes sheet G1.20, Contractors Responsibilities.**

20. The terminus of the water main with a stub toward the abutting CKT parcel implies future extension plans, per comment 3 above, the application should be clear regarding the greater intent, if any.

**The water stub at the end of the proposed water main at sta. 8+28 is for future looping of the water main to Commerce Way if the Town has that desire.**

*Grading and Drainage Plans*

21. Has the 24" culvert proposed at station 2+53 been evaluated for wildlife passage requirements? The applicant should evaluate the wildlife corridor needs of the wetland system being restricted by the culvert.

**Wildlife passage and restrictions will be evaluated with**

***the Wetland Permit application. The culvert has been enlarged to 36”.***

22. The culvert crossing at Station 2+53 could be shortened significantly by utilizing taller headwalls or gravity retaining walls.

***Large block retaining walls have been incorporated into the design for that purpose.***

23. Restoration notes should be provided at each headwall. Will it be loam and seed? Riprap? In addition, the proposed tree line should be pushed out at those locations since equipment will need to access the area for installation of the headwalls and culvert.

***The headwalls have been removed due to the retaining walls. Rip-Rap has been added to the outlet end.***

24. Embankment slopes of steeper than 3:1 slope should be fitted with guardrails.

***Guard rails have been added to the plan.***

25. Where will foundation drains discharge?

***A footing drain has been added to the Grading/Drainage plans. See sheet C1.22***

26. Note 2 on several sheets refers to the TIF road plan. The proposed elevation of the access roadway is inconsistent with the design grades of the TIF road plans. Specifically, the intersection of the two roads differ by approximately 3.5 vertical feet.

***That note has been removed from the plans.***

27. The temporary easement lines for the construction access should be shown on sheet CI.23.

***The Temporary Construction Access Road has been removed from the project.***

28. The perimeter drainage, labelled RD (roof drain?) should be fitted with clean-outs or better still, structures (i.e. nyoplast units), for access and cleaning. UE questions the layout as it would appear to be breaking the RD system at the northern corner of the building where the northeasterly run would discharge to, or the vicinity of CB 2 may be preferable to running the RD water all the

way around the building.

***Cleanout have been added to the roof drain piping at the corners. We will discharge all the roof runoff into a infiltration basin located under the parking area in front of the building.***

29. What is the finished treatment of the access road (to Commerce Way) once the project is complete -grassed, remain gravel? Note -the project proposes a swale that will discharge water to the access road and ultimately off site that, as graded, will not make it to the stormwater treatment downstream of CB2.

***The temporary access road has been removed from the project.***

#### **Profile Sheets**

30. The profile slope of the access road is 3% whereas the typical section of the proposed TIF road is a normal crown with 2% cross slopes.

***Please see letter from DTC Lawyers dated May 17, 2022.***

31. Please note the maximum allowable grade within 50' of the future pavement of the ROW is 3% per the Town of Exeter Standard Specifications for Construction.

***Please see letter from DTC Lawyers dated May 17, 2022.***

32. Show the temporary bridge in the profile view of the construction access road.

***The access road and bridge have been removed from the project.***

33. The access road profile approaches 15% for over 200' of its length. In addition to the steep grades, there appears to be the potential for vehicles to bottom out at the wetland crossing, particularly delivery trucks. Please confirm the vehicles will have no issue navigating the profile grades as shown.

***The access road and bridge have been removed from the project.***

34. Show the proposed temporary culvert at the construction access road wetlands crossing in the plan view. Label the slope and inverts. Since the wetlands will be spanned, what is the purpose of the culvert?



***The access road and bridge have been removed from the project.***

35. The proposed contours in the plan view do not match the profile view in the area of the temporary bridge. The profile indicates fill to station 9+97, while the plan view shows fill ending before the bridge. In addition, the profile indicates there will be fill within the wetlands rather than a temporary span.

***The access road and bridge have been removed from the project.***

36. The existing edges of gravel and the existing and proposed tree lines should be shown along the construction access route.

***The access road and bridge have been removed from the project.***

37. Add the edge of ROW lines to the profile view on sheet Cl.41.

***The Center line of the Easement is shown on the Profiles. The edges of the Easement have been added.***

#### Erosion Control Plans

38. Ultimate restoration of the construction access road should be labeled.

***The access road and bridge have been removed from the project.***

#### Landscape Plan

39. Utilities should be added to the plan to assess potential conflicts. Proposed grading should be added as well.

***The landscaping will be adjusted during installation to avoid any conflicts with the utilities or other items onsite.***

40. Will an irrigation system be installed? If so, it should be shown on the plan.

***An irrigation system will be installed. It will be the last item to be installed and will adjust as needed to provide watering coverage and avoid conflicts with landscaping and structures.***

#### Stormwater Design and Modeling

41. The Pre and Post Development Plans for review of the HydroCAD model were attached to the CUP submittal. Please merge those into the stormwater analysis.

***The Water shed plans will be submitted with the stormwater***

**report.**

42. The Pre and Post Development Plans are missing call-outs for ponds, modelled CB ponds, reaches and other HydroCAD model nodes requiring a significant amount of interpretation to evaluate the features and their modelled limits. As such, the drainage review is not complete. The review will be completed upon resubmittal with labels.

***On the Hydro-Cad Model Diagram all the Nodes and Subcatchments are labeled to which structure they go to. The Grading plans label all the structures. The Watershed Plans are at too small of a scale to label all the structures.***

43. UE is concerned about the simple Pre- model being used as a baseline for comparison to the post-model. While it is typical that the pre-models are simpler than post-models, as a quantitative analysis common features modelled in one model should be replicated as appropriate in the other model; an example being Post-Development Reach SR ("Stream Channel") should be modelled in the Pre-Development which would necessitate the Pre-Development Subcatchment EI being broken up accordingly. It would seem reasonable that the post- model would define the Stream Channel Reach to correspond to the culvert at Stat 2+S2 to address other comments within this review.

***The Pre-Developed Watershed was divided into to Subcatchments to more resemble the Post-Development Watershed. The Post-Development Subcatchment D1 (by-passing the basins) was divided into two subcatchments to more resemble the Pre-Development.***

44. Subcatchment D8 is orphaned.

***Subcatchment D8 does not enter any structures associated with Building D. It does flow to a Focal Point for the Building C system. The area is small and will not overload the Focal Point. The stormwater will be treated through the Focal Point and then discharged into an infiltration system before being released. Some of the area that flows into Focal Point 11 on the Building D site was flowing into Focal Point at Building C and we considered it a wash.***

45. UE questions the size and routing of Subcatchment DI as SO% of it is utilizing at least some portion of the Reach SR for conveyance.

**See Response to comment 43 above.**

46. Rainfall amounts must be increased by 15% per AoT regulation Env-Wq 1S03.08.5

***The rainfall amounts have been increased by 15 %.***

47. The project has not demonstrated its compliance with the Pollutant Loading removal requirements per the Town of Exeter stormwater treatment regulations.

***In review of the stormwater treatment requirements, it states that total Nitrogen and Phosphorus be reduced by 60%. In the New Hampshire Stormwater Manual, Volume 2, Appendix B, Pollutant Removal Efficiencies table, indicates that Infiltration systems greater than 75' from surface waters, Nitrogen is 60% and Phosphorus is 65% in removal efficiencies. All stormwater runoff from pavement for this project is directed to a deep sump hooded catch basin, then through a "Focal Point" (manufacturer claims 40% Nitrogen removal), and then into an infiltration basin (60% TN, 65% TP).***

48. Provide pipe sizing calculations for all drainage pipes and culverts, including the culvert at Station 2+S2.

***The Drainage Pipes within the drainage system are modeled in Hydro-Cad with the outlets of structures. The culvert has been sized separately because it receives runoff from off site. A separate report for this culvert will be provided.***

49. The project is required to comply with Exeter regulation section 9.3.3.6 regarding the evaluation of the effects of sea level rise.

***The entire developed portion of the site is higher than elevation 100. It is unlikely to be affected by sea level rise.***

50. **PTAP Database:** The Applicant is requested to enter project related stormwater tracking information contained in the site plan application documents using the Great Bay Pollution Tracking and Accounting Program (PTAP) database ([www.unh.edu/unhsc/ptapp](http://www.unh.edu/unhsc/ptapp)) and submit

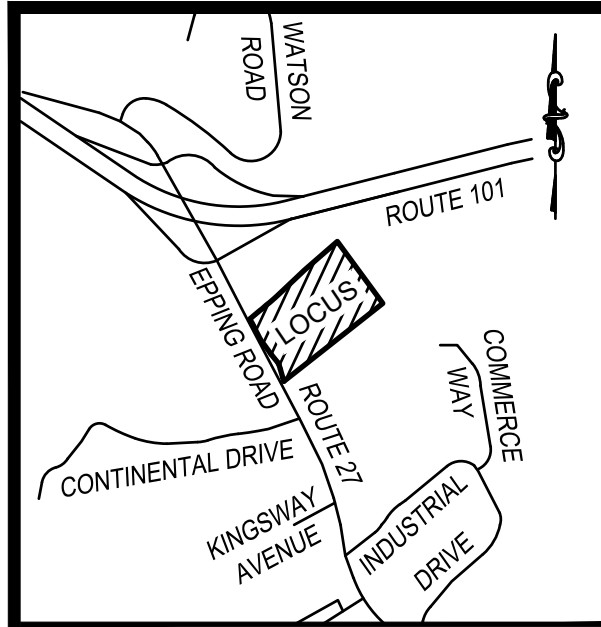
the entry for review.

***We have not submitted anything to Great Bay Pollution Tracking and Accounting Program. We will discuss with our Environmental Consultant to determine what may be needed.***

Respectfully,

*Denis M. Hamel*

Denis M. Hamel, CPESC  
Site/Civil Project Manager



LOCUS MAP  
SCALE: 1" = 3000'

# Ray Farm

## Active Adult Community

### Site Development Plans for Building D off Ray Farmstead Road, Exeter, NH

#### SHEET INDEX

G1.10	TITLE SHEET
G1.20	GENERAL NOTES, LEGEND, & ABBREVIATIONS
V1.10	MINOR SUBDIVISION PLAN
V1.11, V1.12	EXISTING CONDITIONS
C1.10	OVERALL SITE PLAN
C1.11, C1.12	SITE PLANS
C1.21, C1.22	GRADING AND DRAINAGE PLANS
C1.31, 1.32	UTILITY PLANS
C1.41	PLAN & PROFILES
C1.51	EROSION AND SEDIMENT CONTROL PLAN
C5.11 TO C5.16	DETAILS
C1.24	WETLAND IMPACTS
C1.25	WETLAND BUFFER IMPACT PLAN
C1.26	WATERSHED PLAN



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LAND SURVEYORS SINCE 1988  
www.gm2inc.com

Sheet Title:  
**TITLE SHEET**

Project Title:  
**Ray Farm  
Condominium**  
Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
158 Shattuck Way  
Newington, NH 03801

REVISION BLOCK				
NO.	DATE	DESC	BY	
1	5.10.22	TRC COMMENTS	DH	

#### DIMENSIONAL REQUIREMENTS (C-3 DISTRICT)

	REQUIRED
MINIMUM LOT AREA	40,000 SF
MINIMUM LOT WIDTH	175 FEET
MINIMUM LOT DEPTH	225 FEET
MINIMUM YARD SETBACKS	
FRONT	50 FEET
SIDE	30 FEET
REAR	25 FEET
MAXIMUM BUILDING COVERAGE	40 %
MINIMUM OPEN SPACE	20 %
MAXIMUM HEIGHT	50 FEET

#### LOCUS PARCEL

OKT ASSOCIATES  
MAP 47, PARCELS, 8 & 9  
(SEE MINOR SUBDIVISION PLAN V1.10)

#### TOTAL SITE DENSITY

TOTAL PARCEL AREA  
15.75 Acres (686,127 SF)  
TOTAL NUMBER OF UNITS - 128  
DENSITY = 5,360.4 SF PER UNIT

#### BUILDING D SITE DATA

PROPOSED USE - ACTIVE ADULT COMMUNITY (VARIANCE GRANTED)  
FOUR STORY 32 UNIT BUILDING, WITH INSIDE PARKING AT BASEMENT LEVEL

PARKING REQUIRED - 32 UNITS x 2 SPACES PER UNIT +  
1 SPACE PER 4 UNITS = 72 SPACES REQUIRED

PARKING PROVIDED - 58 TOTAL (1.81 SPACES/UNIT) (WAIVER REQUESTED)  
36 IN PARKING GARAGE BELOW BUILDING 22 SURFACE PARKING

#### TOTAL SITE DATA

PROPOSED USE - ACTIVE ADULT COMMUNITY (VARIANCE GRANTED)  
4 BUILDINGS WITH 4-32 UNIT BUILDINGS, = 128 UNITS

PARKING REQUIRED - 128 UNITS x 2 SPACES PER UNIT +  
1 SPACE PER 4 UNITS = 288 SPACES REQUIRED

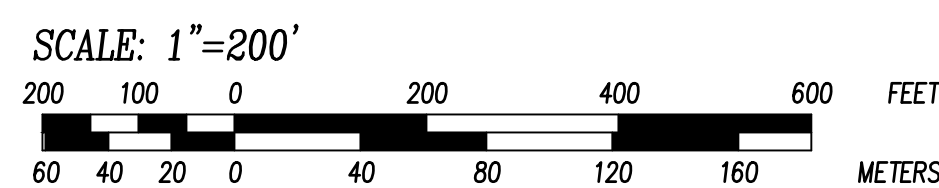
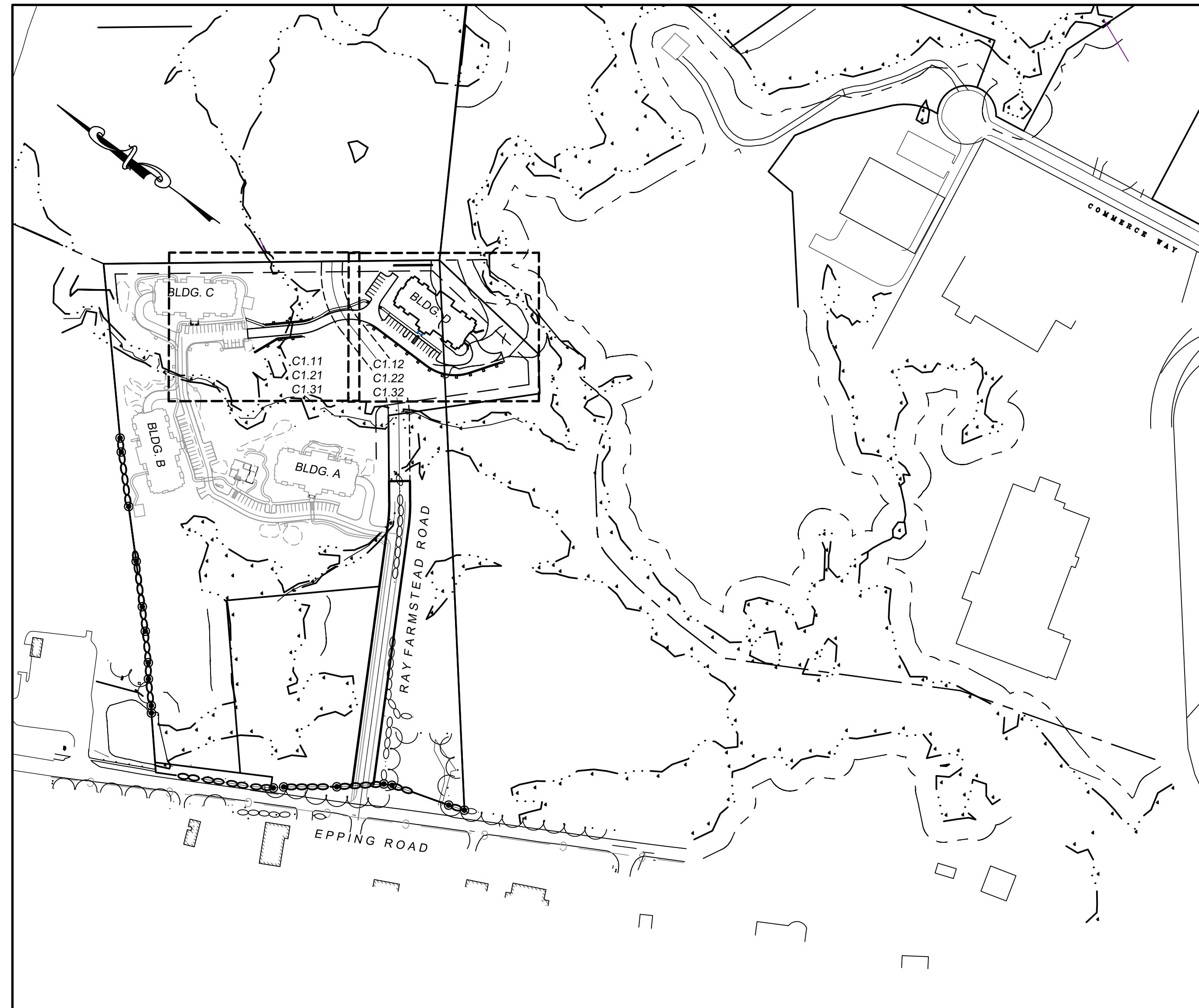
PARKING PROVIDED - 233 TOTAL (1.82 SPACES/UNIT) (WAIVER REQUESTED)  
144 IN PARKING GARAGE BELOW BUILDINGS  
89 SURFACE PARKING

#### WAIVERS

1. WAIVER FOR WETLAND IMPACTS - 9.9.2 SITE PLAN REVIEW REGULATIONS
2. WAIVER FOR PARKING - 5.6.5 ZONING ORDINANCE
3. WAIVER FOR ROADWAY DESIGN PLANS - 7.5.7 AND 7.7 SITE PLAN REVIEW REGULATIONS
4. WAIVER FOR PARKING SETBACKS - 11.3.1.2 SITE PLAN REVIEW REGULATIONS
5. WAIVER FOR RECREATIONAL AREAS - 11.3.4 SITE PLAN REVIEW REGULATIONS
6. WAIVER FOR LENGTH OF ROAD - 9.17.2 SITE PLAN REVIEW REGULATION

#### PERMITS

ALTERATION OF TERRAIN - AOT 1335 (PREVIOUSLY APPROVED)  
ALTERATION OF TERRAIN - AOT XXXX (FOR BUILDING D)  
DREDGE AND FILL - FILE NO. 2017-01530 (PREVIOUSLY APPROVED)  
DREDGE AND FILL - FILE NO. XXXX-XXX (ASSOCIATED WITH BUILDING D)



TOWN OF EXETER PLANNING BOARD

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

PROJ. MGR.: D. HAMEL  
FIELD: J. SALVAGGIO / R. SMITH  
DESIGN: D. HAMEL  
DRAWN: D. HAMEL  
CHECKED: D. GIANGRANDE  
DATE: 01-11-2022  
FILE: 16042 D T1.DWG  
FBK:  
JOB #: 16042 D

SHEET G1.10

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**GENERAL NOTES**

- ELEVATIONS BASED ON NAVD 1988. PLANS ARE NH STATE PLAIN NAD83 COORDINATE SYSTEM.
- OWNERS OF ADJOINING PROPERTIES ARE SHOWN ACCORDING TO CURRENT ASSESSOR'S MAPS AND DO NOT CONSTITUTE CERTIFICATION TO TITLE OR OWNERSHIP.
- EXISTING CONDITIONS DATA FROM AN ON THE GROUND SURVEY CONDUCTED BY W.C. CAMMETT ENG., NOVEMBER OF 2016 THROUGH APRIL OF 2017, AND GM2 ASSOCIATES IN DECEMBER OF 2021.
- WETLANDS AND SOILS INFORMATION PROVIDED BY GOVE ENVIRONMENTAL SERVICES.
- THERE IS NO FLOOD PLAIN ON THIS SITE ACCORDING TO THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NUMBER 330130 0401 E.
- THE ORIGINAL PARCEL IS LOCATED AT 183 EPPING ROAD AND IS SHOWN AS LOT 8 ON EXETER TAX MAP 47. IT HAS AN AREA OF 960,175 S.F.± (22.04 ACRES±).
- EXISTING 50' WIDE RIGHT OF WAY IS FOR THE BENEFIT OF N. SCOTT CARLISLE. SEE BOOK 3794 PAGE 1963 FOR NOTICE OF EASEMENT.
- THE PERIMETER SURVEY PERFORMED BY W.C. CAMMETT ENG. WITH A 5" TOTAL STATION AND AN ERROR OF CLOSURE OF BETTER THAN 1:32,000.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, WATER AND ANY OTHER PRIVATE OR MUNICIPAL UTILITIES WITH THE APPROPRIATE UTILITY COMPANY.
- WHERE EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RECORD FOR RESOLUTION OF THE CONFLICT.
- EXISTING UTILITY POLES, WILL BE RELOCATED BY OTHERS, IF NECESSARY.
- EXCAVATION SHALL ONLY OCCUR WITHIN THE LIMIT OF WORK, AS SHOWN.
- IF AREAS OUTSIDE THE LIMIT OF PROPOSED WORK IS DISTURBED BY THE CONTRACTOR'S OPERATIONS, THE AREAS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
- JOINTS BETWEEN NEW BITUMINOUS CONCRETE ROADWAY PAVEMENT AND SAW CUT EXISTING PAVEMENT SHALL BE SEALED WITH BITUMEN, INFRARED SEAL, AND BACK SANDED.
- EXISTING SIGNS AND/OR MAILBOXES WITHIN THE PROJECT LIMITS THAT ARE DISTURBED SHALL BE REMOVED AND RELOCATED AS APPLICABLE.
- ALL DISTURBED AREAS OUTSIDE OF THE NEW PAVEMENT LIMITS SHALL BE LOAMED (4" MINIMUM DEPTH) AND SEEDED.
- A MINIMUM OF 10' HORIZONTAL AND 18" VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN WATER MAINS AND SEWER LINES.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE EXETER WATER AND SEWER DEPARTMENT WHEN MAKING THE CONNECTIONS.
- ALL WORK SHALL COMPLY WITH EXETER'S "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER" NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
- ALL WATER, SEWER, ROAD (INCLUDING PARKING LOT), AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 9.3 STORMWATER MANAGEMENT STANDARDS, STORMWATER MANAGEMENT PLAN, AND EROSION AND SEDIMENT CONTROL STANDARDS AND THE STANDARD SPECIFICATION FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER, NEW HAMPSHIRE.

**MATERIAL NOTES**

- CRUSHED GRAVEL - NHDOT 304.3
- GRAVEL - NHDOT 304.2
- SAND - NHDOT 304.1
- BACKFILL MATERIAL - EARTH MATERIAL FREE FROM ROCKS LARGER THAN 3", DEBRIS, STUMPS, CLAY, ORGANIC MATTER, ICE, FROZEN SOIL, AND EXCESSIVE MOISTURE.
- LOAM - NHDOT 641.2.1
- CRUSHED STONE - GRADED CRUSHED ROCK TO THE SIZE SPECIFIED, WITH LESS THAN 2% FINES PASSING THE #200 SIEVE.
- PLACING AND COMPACTION OF FILL MATERIALS SHALL COMPLY WITH NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SECTION 304.3.4, 304.3.5, AND 304.3.6.
- PAVEMENTS SHALL COMPLY WITH SECTIONS 401, 403, AND 410 OF NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

**CONSTRUCTION NOTES**

- PRIOR TO ANY EXCAVATION, DIG-SAFE AND EXETER DPW (603-773-6157) SHALL BE NOTIFIED TO LOCATE ALL PERTINENT UTILITIES INCLUDING WATER, SEWER, AND DRAINAGE.
- THIS PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER Agr 3800 RELATIVE TO INVASIVE SPECIES.
- ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY RAINFALL OF ONE HALF INCH OR MORE.
- DO NOT CLEAR AND STRIP THE ENTIRE SITE AT ONE TIME. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION. IN NO CASE SHALL MORE THAN 3 ACRES BE DISTURBED AT ONE TIME. STABILIZE THE AREA BEFORE MOVING ON TO THE NEXT AREA. DISTURBED AREAS REMOVED OPEN FOR MORE THAN 30 DAYS, SHALL BE STABILIZED.
- WOODY MATERIAL REMOVED DURING THE CLEARING PROCESS MAY BE GROUND UP AND USED AS MULCH FOR EROSION CONTROL TO STABILIZE APPROPRIATE AREAS.
- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
  - BASE COURSE GRAVEL HAS BEEN INSTALLED IN AREAS TO BE PAVED
  - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
  - A MINIMUM OF 3 INCH OF NON EROSION MATERIAL SUCH AS RIP-RAP HAS BEEN INSTALLED
  - OR EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED
- ALL AREAS SHALL BE STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE SEEDING SPECIFICATIONS ARE AS FOLLOWS:

**TEMPORARY SEEDING FOR EROSION CONTROL DURING CONSTRUCTION:**

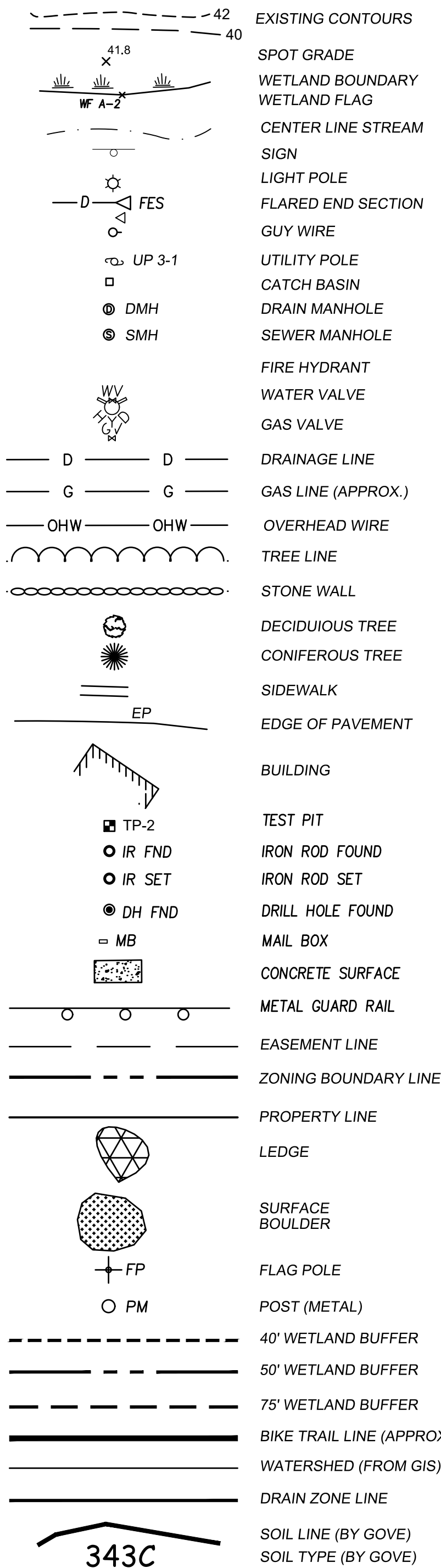
SPECIES	POUNDS/1000 SF	REMARKS
WINTER RYE	2.5	BEST FOR FALL SEEDING. AUG. 15 TO SEPT. 15. SEED TO A DEPTH OF 1"
OATS	2.0	BEST FOR SPRING SEEDING. NO LATER THAN MAY 15. SEED TO A DEPTH OF 1"
ANNUAL RYEGRASS	1.0	SEED EARLY SPRING. AUG. 15 TO SEPT. 15. SEED TO A DEPTH OF 0.25"
PERNIAL RYEGRASS	0.7	SEED BETWEEN APRIL 1 TO AUG. 15. SEED TO A DEPTH OF 0.5"

**PERMANENT VEGETATION SEED MIXTURE:**

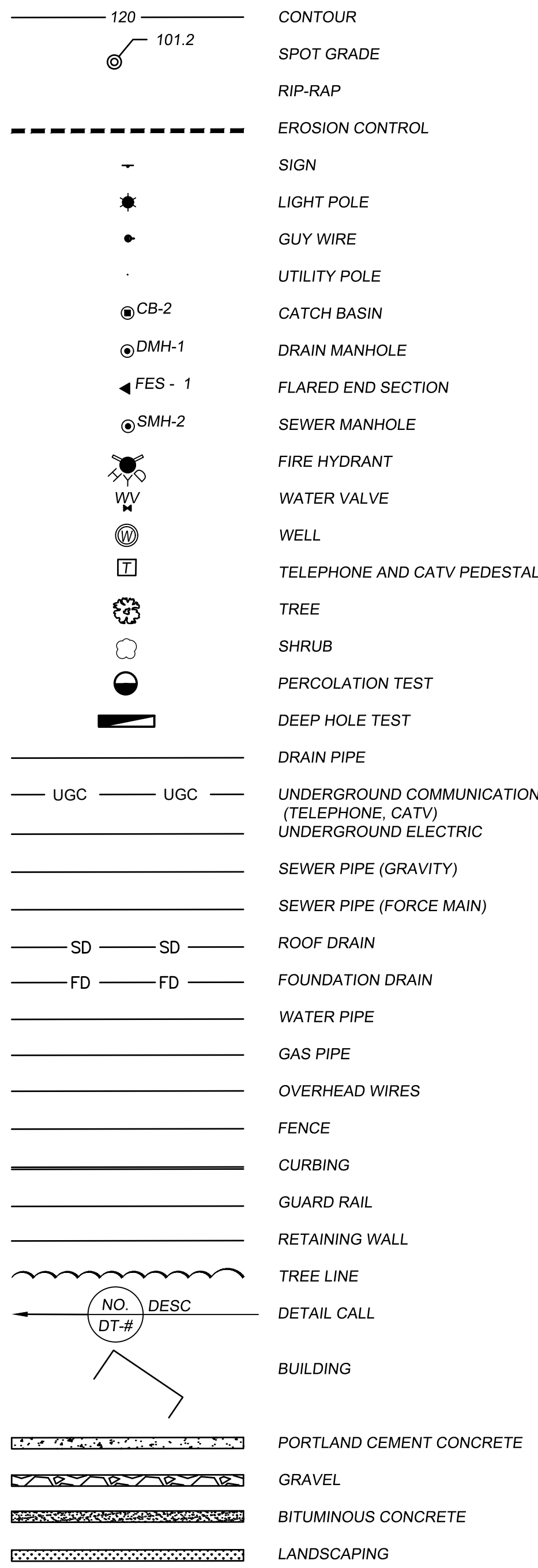
SPECIES	POUNDS/1000 SF
TALL FESCUE	0.45
CREeping RED FESCUE	0.45
BIRDSFOOT TREFOIL	0.20
<b>TOTAL</b>	<b>1.10</b>

- ALL RE-VEGETATED AREAS THAT DO NOT EXHIBIT 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS (ON 3:1 SLOPES OR GREATER). SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, OR SECURING WITH ANCHORED NETTING. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER SNOW OR FROZEN GROUND AND SHALL BE COMPLETED PRIOR TO AN ACCUMULATION OF SNOW AND/OR FROST.
- ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
- AFTER NOVEMBER 15, INCOMPLETE ROADS 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.
- CONCRETE WASH OUT SHALL BE CONDUCTED IN THE AREAS SHOWN ON SHEET C1.51" AND USE THE CONCRETE WASH OUT DETAIL SHOWN ON SHEET C5.11.
- NO STUMPS OR DEBRIS SHALL BE BURIED ONSITE. ALL STUMPS AND CONSTRUCTION DEBRIS SHALL BE STORED ONSITE UNTIL THEY CAN BE DISPOSED OFF SITE IN A FACILITY CAPABLE OF HANDLING SUCH MATERIALS.
- TEMPORARY PORTABLE TOILETS SHALL BE PROVIDED AND PROPERLY MAINTAINED ONSITE FOR THE DURATION OF THE PROJECT.
- VEHICLE MAINTENANCE SHALL BE PERFORMED OFF SITE. ANY VEHICLE LEAKING OIL OR GREASE SHALL BE IMMEDIATELY REPAIRED OR REMOVED FROM THE SITE. FUEL AND OILS SHALL BE STORED IN AN APPROVED LOCATION AND COMPLY WITH LOCAL, STATE, AND FEDERAL REGULATIONS. IN NO CASE SHALL THEY BE STORED WITHIN 100' OF WETLAND AREAS.

**EXISTING**



**LEGEND**



**PROPOSED**

**ABBREVIATIONS**

UTILITIES	
RCP	REINFORCED CONCRETE PIPE
PVC	POLYVINYLCHLORIDE PIPE
C.I.	CAST IRON PIPE
COND	CONDUIT
D.I.	DUCTILE IRON PIPE
HYD.	HYDRANT
INV.	INVERT ELEVATION
UP	UTILITY POLE
TSV & B	TAPPING SLEEVE, VALVE AND BOX

**GENERAL**

PROP.	PROPOSED
MIN.	MINIMUM
MAX.	MAXIMUM
EXIST.	EXISTING
STA	STATION
GRAN.	GRANITE
DRIVE	DRIVEWAY
ELEV.	ELEVATION
N.T.S.	NOT TO SCALE
TYP.	TYPICAL
APPROX.	APPROXIMATE
CEM. CONC.	CEMENT CONCRETE
BIT. CONC.	BITUMINOUS CONCRETE
ROW	RIGHT OF WAY
CL	CENTERLINE
WALK	SIDEWALK
TBM	TEMPORARY BENCH MARK
SGE	SLOPED GRANITE EDGING

**TREES**

12" B	12" BIRCH
12" C	12" CEDAR
12" M	12" MAPLE
12" O	12" OAK
12" P	12" PINE

**ROADWAY**

H.P.	HIGH POINT
L.P.	LOW POINT
A.D.	ALGEBRAIC DIFFERENCE
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
PRC	POINT OF REVERSE CURVATURE
PCC	POINT OF COMPOUND CURVATURE
CC	CENTER OF CURVE
PVC	POINT OF VERTICAL CURVATURE
PVT	POINT OF VERTICAL TANGENCY
PVRC	POINT OF VERTICAL REVERSE CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
OD	OUTSIDE DIAMETER
ID	INSIDE DIAMETER
DIA. Ø	DIAMETER
R	RADIUS
TYP.	TYPICAL
L	LENGTH
DP.	DEPTH
EQ.	EQUIVALENT

TOWN OF EXETER PLANNING BOARD

CHAIRMAN DATE



6 CHESTNUT STREET, AMESBURY, MA.

Phone: (978) 388-2157  
CONSULTING ENGINEERS &  
LAND SURVEYORS SINCE 1988  
www.gm2inc.com

Sheet Title:

**General Notes**

Project Title:

**Ray Farm Condominium**

Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

Applicant/Owner:

Ray Farm, LLC  
158 Shattuck Way  
Newington, NH 03801

**REVISION BLOCK**

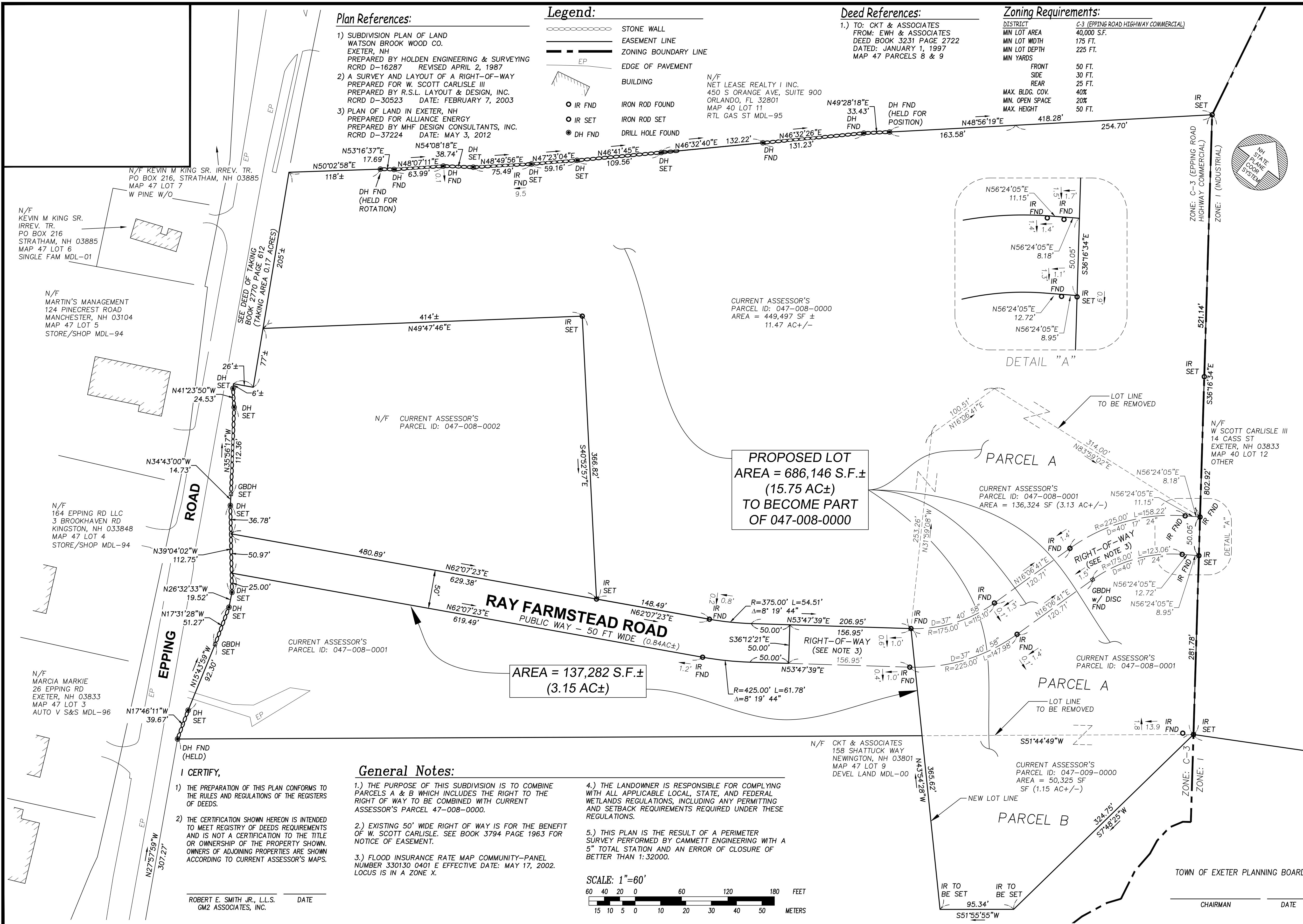
NO.	DATE	DESC	BY
1	5.10.22	TRC COMMENTS	DH

PROJ. MGR.:	D. HAMEL
FIELD:	J. SALVAGGIO / R. SMITH
DESIGN:	D. HAMEL
DRAWN:	D. HAMEL
CHECKED:	D. GIANGRANDE
DATE:	01-11-2022
FILE:	16042 D.GN.DWG
FBK:	
JOB #:	16042 D

PROJ. MGR.:	D. HAMEL
FIELD:	J. SALVAGGIO / R. SMITH
DESIGN:	D. HAMEL
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CHECKED:	D. GIANGRANDE
DATE:	01-11-2022
FILE:	16042 D.GN.DWG
FBK:	
JOB #:	16042 D

SHEET G1.20

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**Plan References:**

- 1) SUBDIVISION PLAN OF LAND WATSON BROOK WOOD CO. EXETER, NH PREPARED BY HOLDEN ENGINEERING & SURVEYING RCRD D-16287 REVISED APRIL 2, 1987
- 2) A SURVEY AND LAYOUT OF A RIGHT-OF-WAY PREPARED FOR W. SCOTT CARLISLE III PREPARED BY R.S.L. LAYOUT & DESIGN, INC. RCRD D-30523 DATE: FEBRUARY 7, 2003
- 3) PLAN OF LAND IN EXETER, NH PREPARED FOR ALLIANCE ENERGY PREPARED BY MHF DESIGN CONSULTANTS, INC. RCRD D-37224 DATE: MAY 3, 2012

**Legend:**

- STONE WALL
- EASEMENT LINE
- ZONING BOUNDARY LINE
- EDGE OF PAVEMENT
- BUILDING
- IRON ROD FOUND
- IRON ROD SET
- DRILL HOLE FOUND

**Deed References:**

- 1.) TO: CKT & ASSOCIATES FROM: EWH & ASSOCIATES DEED BOOK 3231 PAGE 2722 DATED: JANUARY 1, 1997 MAP 47 PARCELS 8 & 9

**Zoning Requirements:**

DISTRICT	C-3 (EPPING ROAD HIGHWAY COMMERCIAL)
MIN LOT AREA	40,000 SF.
MIN LOT WIDTH	175 FT.
MIN LOT DEPTH	225 FT.
MIN YARDS	
FRONT	50 FT.
SIDE	30 FT.
REAR	25 FT.
MAX. BLDG. COV.	40%
MIN. OPEN SPACE	20%
MAX. HEIGHT	50 FT.

CURRENT ASSESSOR'S PARCEL ID: 047-008-0000 AREA = 449,497 SF ± 11.47 AC+/-

PROPOSED LOT AREA = 686,146 S.F.± (15.75 AC±) TO BECOME PART OF 047-008-0000

AREA = 137,282 S.F.± (3.15 AC±)

**General Notes:**

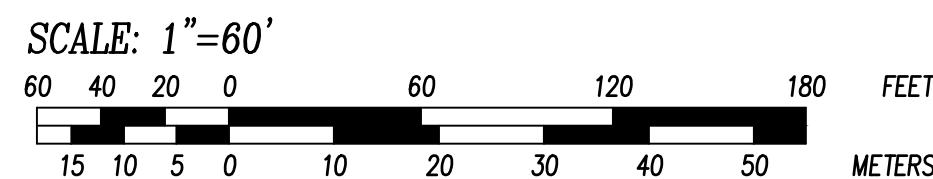
I CERTIFY,

- 1.) THE PREPARATION OF THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.
- 2.) THE CERTIFICATION SHOWN HEREON IS INTENDED TO MEET REGISTRY OF DEEDS REQUIREMENTS AND IS NOT A CERTIFICATION TO THE TITLE OR OWNERSHIP OF THE PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE SHOWN ACCORDING TO CURRENT ASSESSOR'S MAPS.

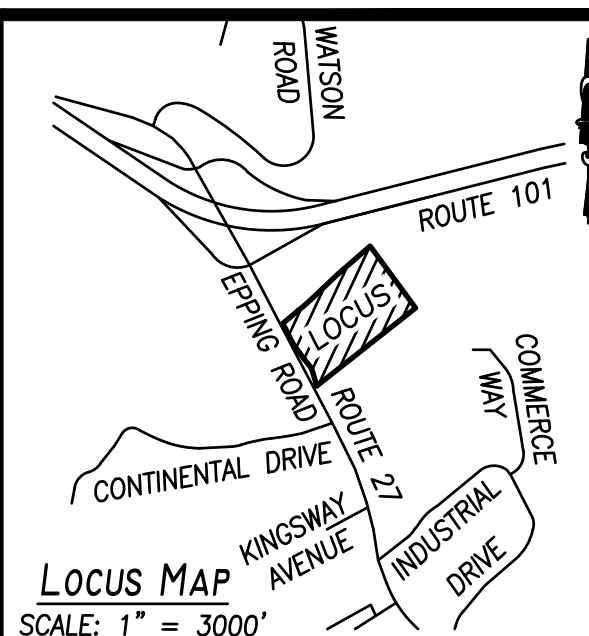
- 1.) THE PURPOSE OF THIS SUBDIVISION IS TO COMBINE PARCELS A & B WHICH INCLUDES THE RIGHT TO THE RIGHT OF WAY TO BE COMBINED WITH CURRENT ASSESSOR'S PARCEL 47-008-0000.
- 2.) EXISTING 50' WIDE RIGHT OF WAY IS FOR THE BENEFIT OF W. SCOTT CARLISLE. SEE BOOK 3794 PAGE 1963 FOR NOTICE OF EASEMENT.
- 3.) FLOOD INSURANCE RATE MAP COMMUNITY-PANEL NUMBER 330130 0401 E EFFECTIVE DATE: MAY 17, 2002. LOCUS IS IN A ZONE X.

- 4.) 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.

- 5.) THIS PLAN IS THE RESULT OF A PERIMETER SURVEY PERFORMED BY CAMMETT ENGINEERING WITH A 5" TOTAL STATION AND AN ERROR OF CLOSURE OF BETTER THAN 1:32000.



ROBERT E. SMITH JR., L.L.S. DATE GM2 ASSOCIATES, INC.



6 CHESTNUT STREET, AMESBURY, MA. Phone: (978) 388-2157 CONSULTING ENGINEERS & LAND SURVEYORS SINCE 1988 www.gm2inc.com

Lot Line Adjustment Plan

"Ray Farm" Active Adult Community Epping Road Exeter, NH 03833 Rockingham County

Applicant: Willey Creek Company 158 Shattuck Way Newington, NH 03801 Owner: CKT & Associates 158 Shattuck Way Newington, NH 03801

REVISION			
NO.	DATE	DESCRIPTION	BY
1	11.23.21	MINOR EDITS	RS
2	02.01.22	MINOR EDITS	RS

PROJ. MGR.: D. HAMEL FIELD: M. MICHAUD / A. BICK DESIGN: D. HAMEL DRAWN: J. SALVAGGIO CHECKED: R. SMITH DATE: 5-12-2022 FILE: 16042 SUB NOV 2021.DWG FBK: JOB #: 16042



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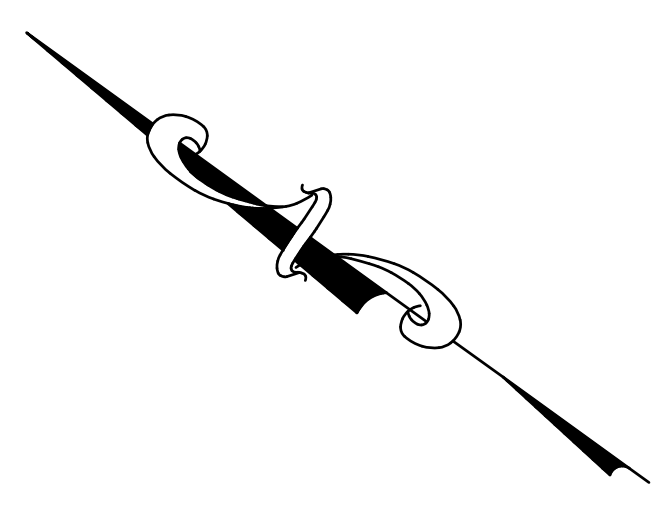
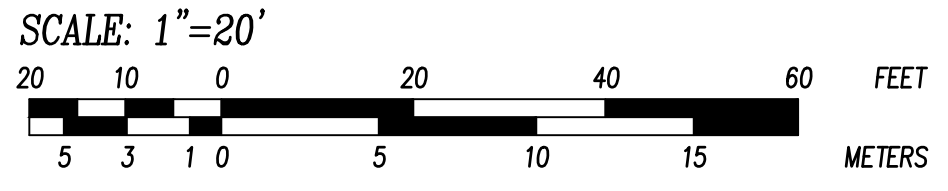
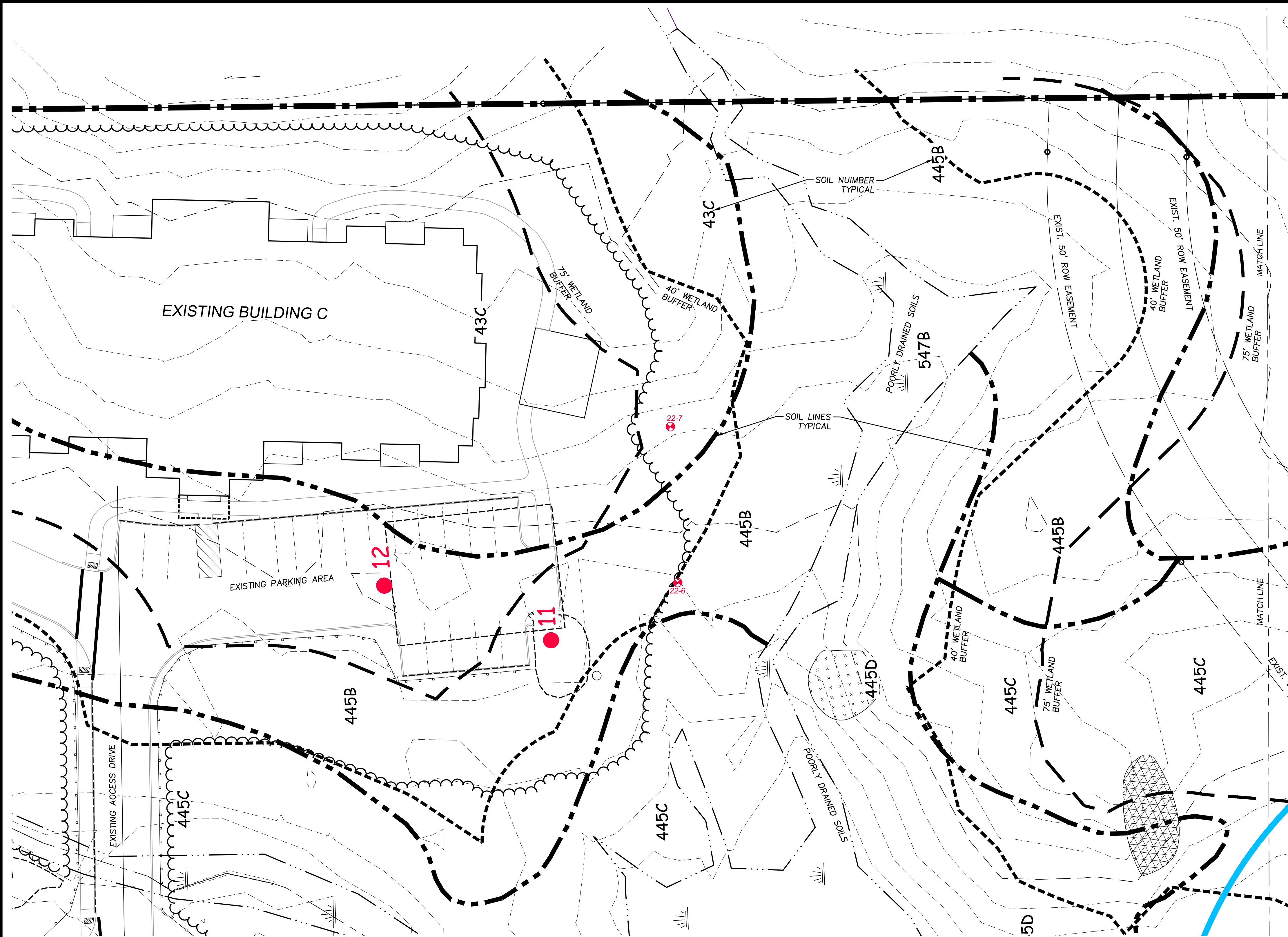
Sheet Title:  
**EXISTING  
 CONDITIONS**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY
1	5.10.22	TRC COMMENTS	DH

PROJ. MGR.: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D EC.DWG  
 FBK:  
 JOB #: 16042 D



**SOILS DATA (2016)**

43	CANTON, VERY STONY : HYDROLOGIC GROUP - B
115	SCARBORO MUCK : HYDROLOGIC GROUP - D
343	CANTON, EXTREMELY BOULDERY : HYDROLOGIC GROUP - B
445	NEWFIELDS, VERY STONY : HYDROLOGIC GROUP - B
500	UDORTHENTS, LOAMY : HYDROLOGIC GROUP - B
547	WALPOLE, VERY STONY : HYDROLOGIC GROUP - C

**SLOPES**

B	0 - 8%
C	8 - 15%
D	15 - 25%

**WETLAND NOTES:**  
 The limits of jurisdictional wetlands as shown on this plan were delineated by Gove Environmental Services, Inc., between November 2014 to April 2015 AND November 2021 in accordance with:  
 1. US Army Corps of Engineers Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Technical Report ERDC/EL TR-12-1, January 2012, Version 2.0  
 2. Field Indicators of Hydric Soils in the United States, Version 7.0, 2010 AND (for disturbed site) Field Indicators for Identifying Hydric Soils in New England, Version 3. NEIWPCC Wetlands Work Group (April 2004)  
 3. North American Digital Flora: National Wetland Plant List, current version.

**SOIL NOTES:**  
 The soils mapping is within the technical standards of the National Cooperative Soil Survey. It is a special purpose product, intended for infiltration requirements by the NH DES Alteration of Terrain Bureau. It was produced by a professional soil scientist, and is not a product of the USDA Natural Resources Conservation Service. There is a report that accompanies this mapping.  
 The site specific soil survey was produced October 20, 2016, Masy 2, 2022 and was prepared by James P. Gove, CSS # 004, Gove Environmental Services, Inc.  
 Soils were identified with the New Hampshire State-wide Numerical Soils Legend, USDA NRCS, Durham, NH. Issue # 10, January 2011. The numerical legend was amended to identify the correct soil components of the complex.  
 Hydrologic Soil Group from Ksat Values for New Hampshire Soils, Society of Soil Scientist of New England, Special Publication No. 5, September, 2009.

**SOILS DATA (2022)**

343	Canton, extremely bouldery : Hydro Soil Group B
445	Newfields, very stony : Hydro Soil Group B
547	Walpole, very stony : Hydro Group C

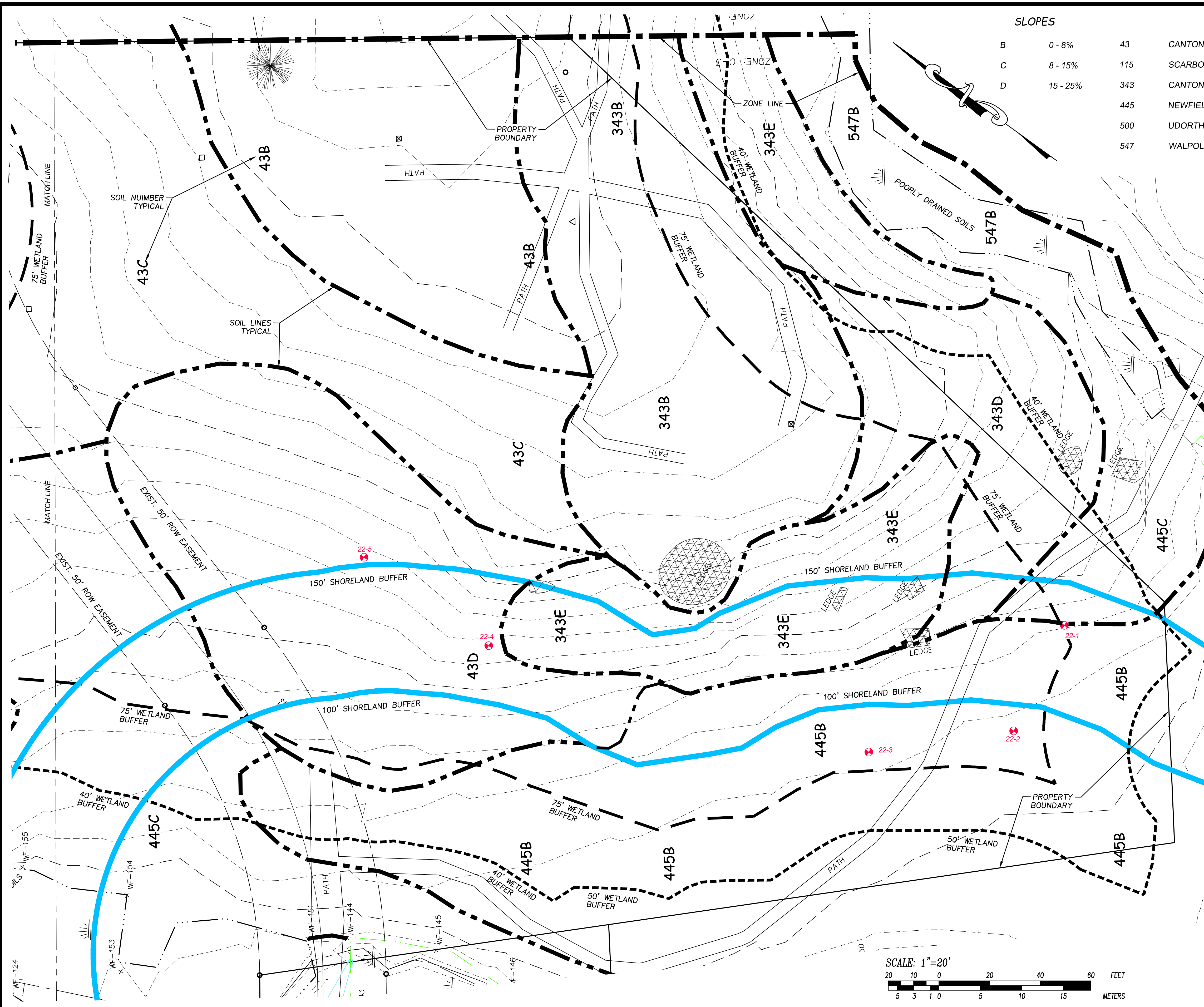
**SLOPES**

B	0 - 8%
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**SLOPES**

B	0 - 8%	43
C	8 - 15%	115
D	15 - 25%	343

**SOILS DATA**

CANTON, VERY STONY	: HYDROLOGIC GROUP - B	43
SCARBORO MUCK	: HYDROLOGIC GROUP - D	115
CANTON, EXTREMELY BOULDERY	: HYDROLOGIC GROUP - B	343
NEWFIELDS, VERY STONY	: HYDROLOGIC GROUP - B	445
UDORTHENTS, LOAMY	: HYDROLOGIC GROUP - B	500
WALPOLE, VERY STONY	: HYDROLOGIC GROUP - C	547

**WETLAND NOTES:**

The limits of jurisdictional wetlands as shown on this plan were delineated by Gove Environmental Services, Inc., between November 2014 to April 2015 AND November 2021 in accordance with:

- US Army Corps of Engineers Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Technical Report ERDC/EL TR-12-1, January 2012, Version 2.0
- Field Indicators of Hydric Soils in the United States, Version 7.0, 2010 AND (for disturbed site) Field Indicators for Identifying Hydric Soils in New England, Version 3. NEIWPCC Wetlands Work Group (April 2004)
- North American Digital Flora: National Wetland Plant List, current version.

**SOIL NOTES:**

The soils mapping is within the technical standards of the National Cooperative Soil Survey. It is a special purpose product, intended for infiltration requirements by the NH DES Alteration of Terrain Bureau. It was produced by a professional soil scientist, and is not a product of the USDA Natural Resources Conservation Service. There is a report that accompanies this mapping.

The site specific soil survey was produced October 20, 2016, Masy 2, 2022 and was prepared by James P. Gove, CSS # 004, Gove Environmental Services, Inc.

Soils were identified with the New Hampshire State-wide Numerical Soils Legend, USDA NRCS, Durham, NH. Issue # 10, January 2011. The numerical legend was amended to identify the correct soil components of the complex.

Hydrologic Soil Group from Ksat Values for New Hampshire Soils, Society of Soil Scientist of New England, Special Publication No. 5, September, 2009.



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Sheet Title:  
**EXISTING  
 CONDITIONS**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK

NO.	DATE	DESC	BY
1	5.10.22	TRC COMMENTS	DH

PROJ. MGR: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D EC.DWG  
 FBK:  
 JOB #: 16042 D



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Sheet Title:

# OVERALL SITE PLAN

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:

Ray Farm, LLC  
 158 Shattuck Way  
 Newington, NH 03801

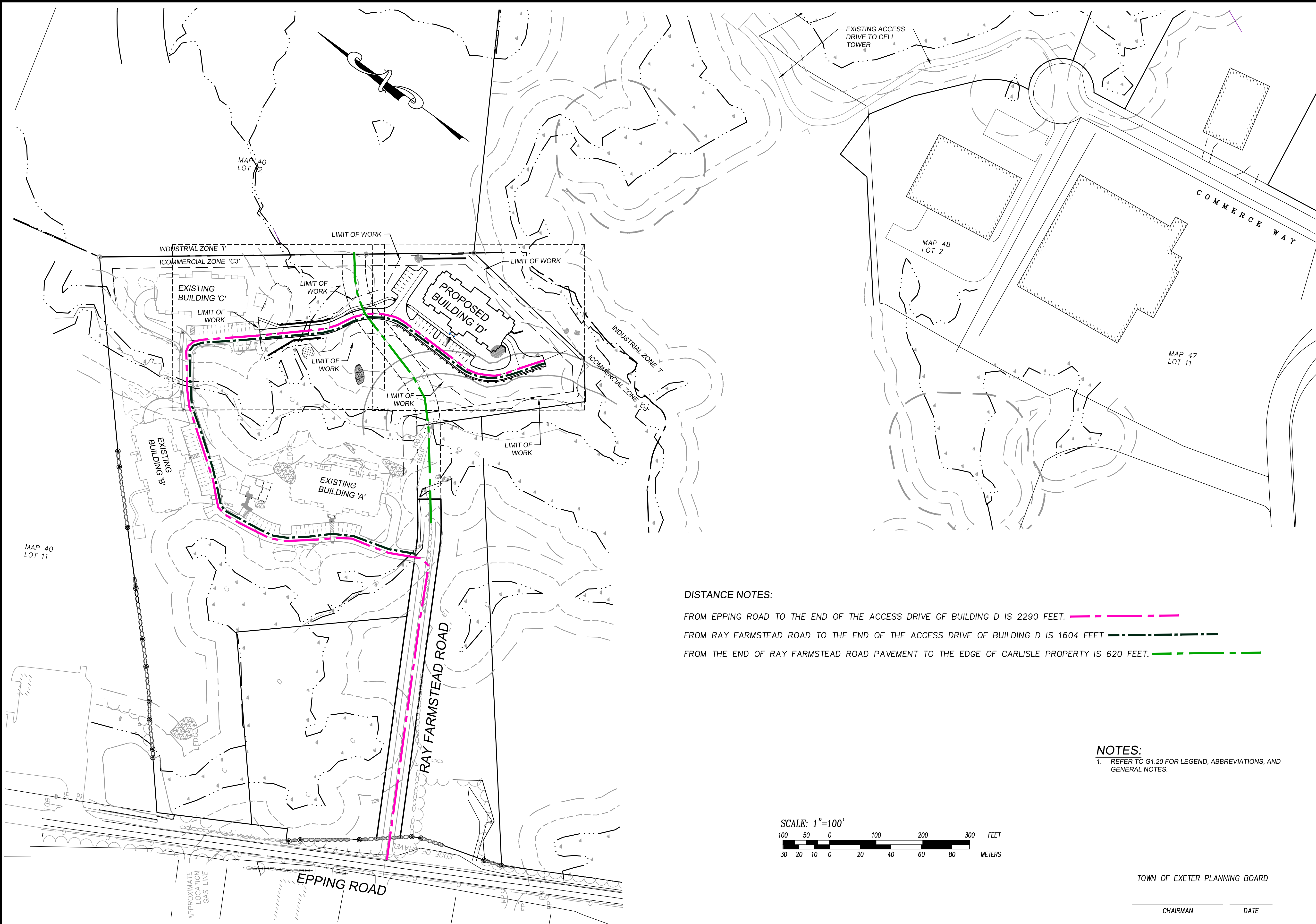
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1	5.10.22	TRC COMMENTS	DH	

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 FILE: 16042 D 5P.DWG  
 FBK:  
 JOB #: 16042 D

TOWN OF EXETER PLANNING BOARD

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

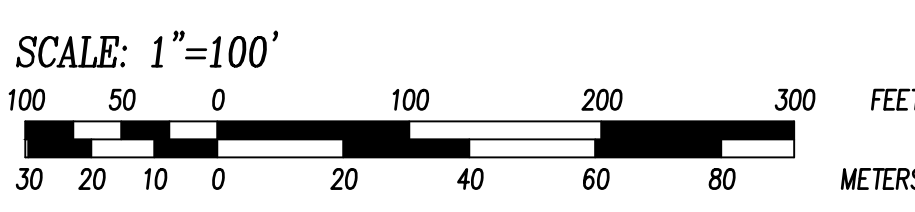
SHEET C1.10



**DISTANCE NOTES:**

- FROM EPPING ROAD TO THE END OF THE ACCESS DRIVE OF BUILDING D IS 2290 FEET.
- FROM RAY FARMSTEAD ROAD TO THE END OF THE ACCESS DRIVE OF BUILDING D IS 1604 FEET
- FROM THE END OF RAY FARMSTEAD ROAD PAVEMENT TO THE EDGE OF CARLISLE PROPERTY IS 620 FEET.

**NOTES:**  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.



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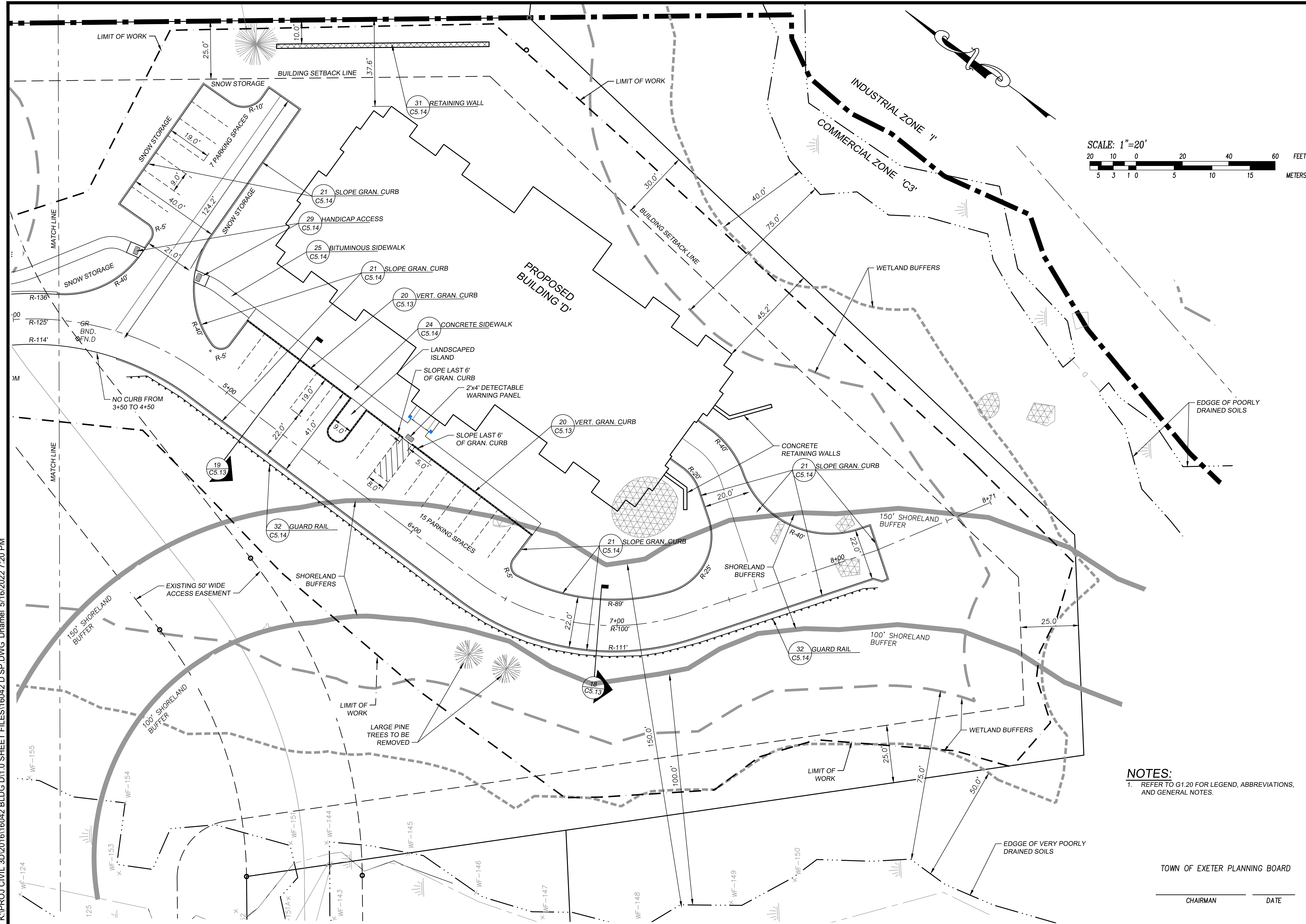
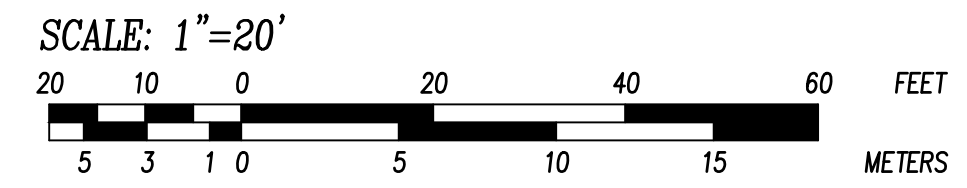
# SITE PLAN

Project Title:

**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:

**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801



**NOTES:**  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

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

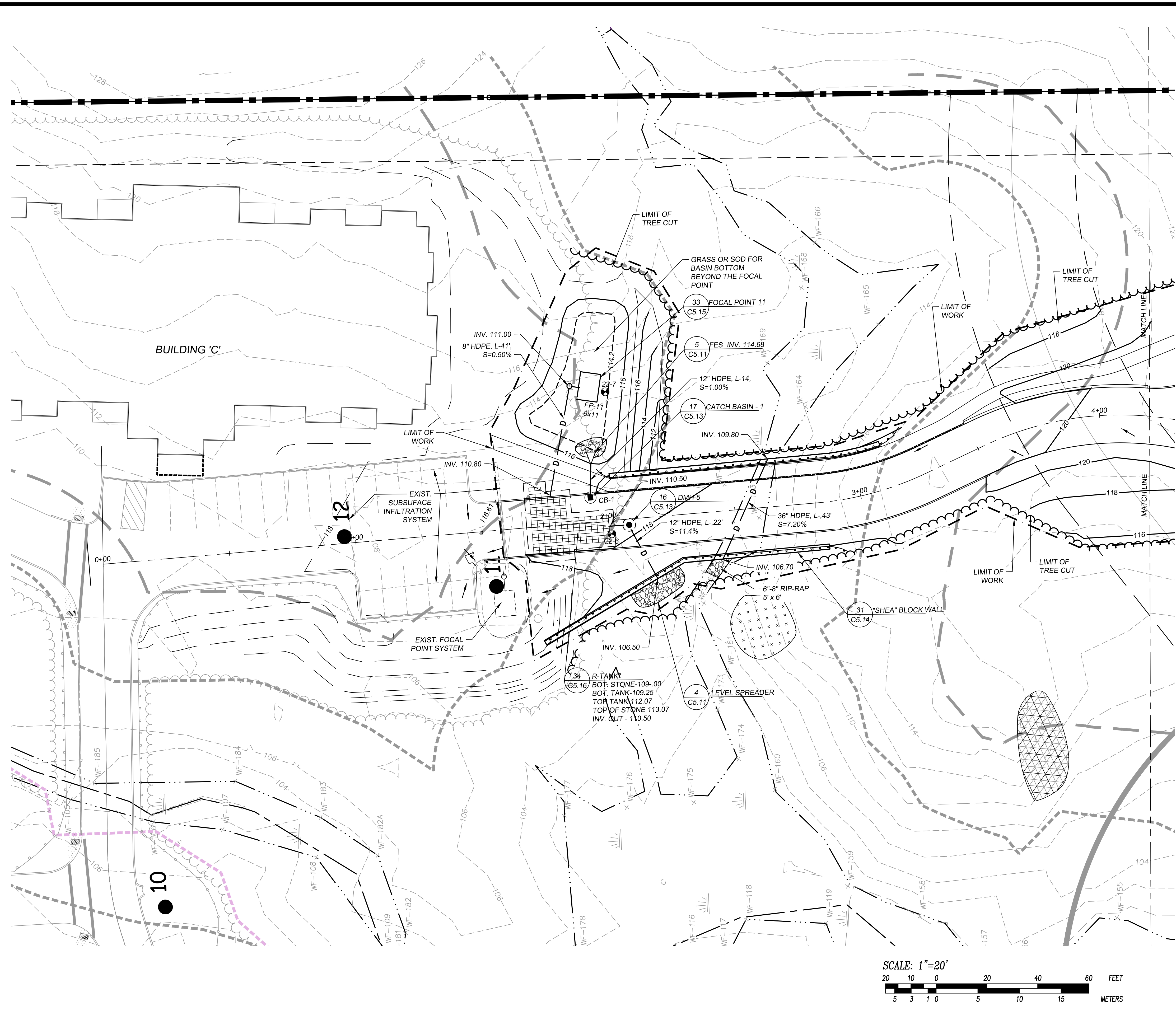
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1	5.10.22	TRC COMMENTS	DH	

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SHEET C1.12

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**DRAINAGE STRUCTURES**

CB-1 R-117.15  
12" INV. OUT 114.82

DMH-5 R-117.90  
12" INV. IN - 110.44  
12" INV. OUT - 109.00

SOIL TEST LOGGED BY DENIS HAMEL 5-3-2022

SOIL TEST 22-6  
0-6" Sandy Loam 10 YR 3/2  
6"-13" Loamy Sand 10 YR 5/6  
13"-36" Loamy Sand 2.5Y 5/6  
SHWT @17", No Water, No Ledge

SOIL TEST 22-7  
0-4" Sandy Loam 10 YR 3/2  
4"-13" Loamy Sand 10 YR 5/6  
13"-36" Loamy Sand 2.5Y 5/4  
SHWT @13", No Water, No Ledge



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# GRADING/ DRAINAGE PLAN

**Ray Farm  
Condominium**

Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

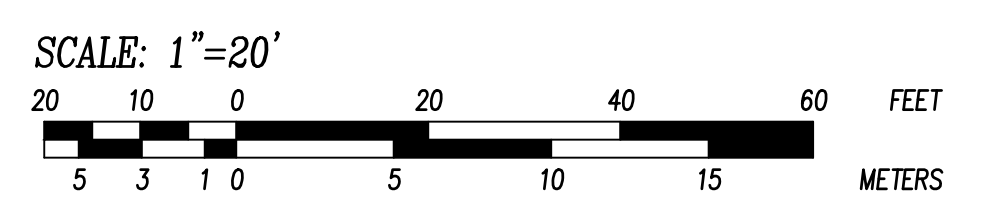
Applicant/Owner:  
**Ray Farm, LLC**  
158 Shattuck Way  
Newington, NH 03801

REVISION BLOCK				
NO.	DATE	DESC	BY	
1	4.26-22	REVISE WET IMPACTS	DH	

**NOTES:**  
1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

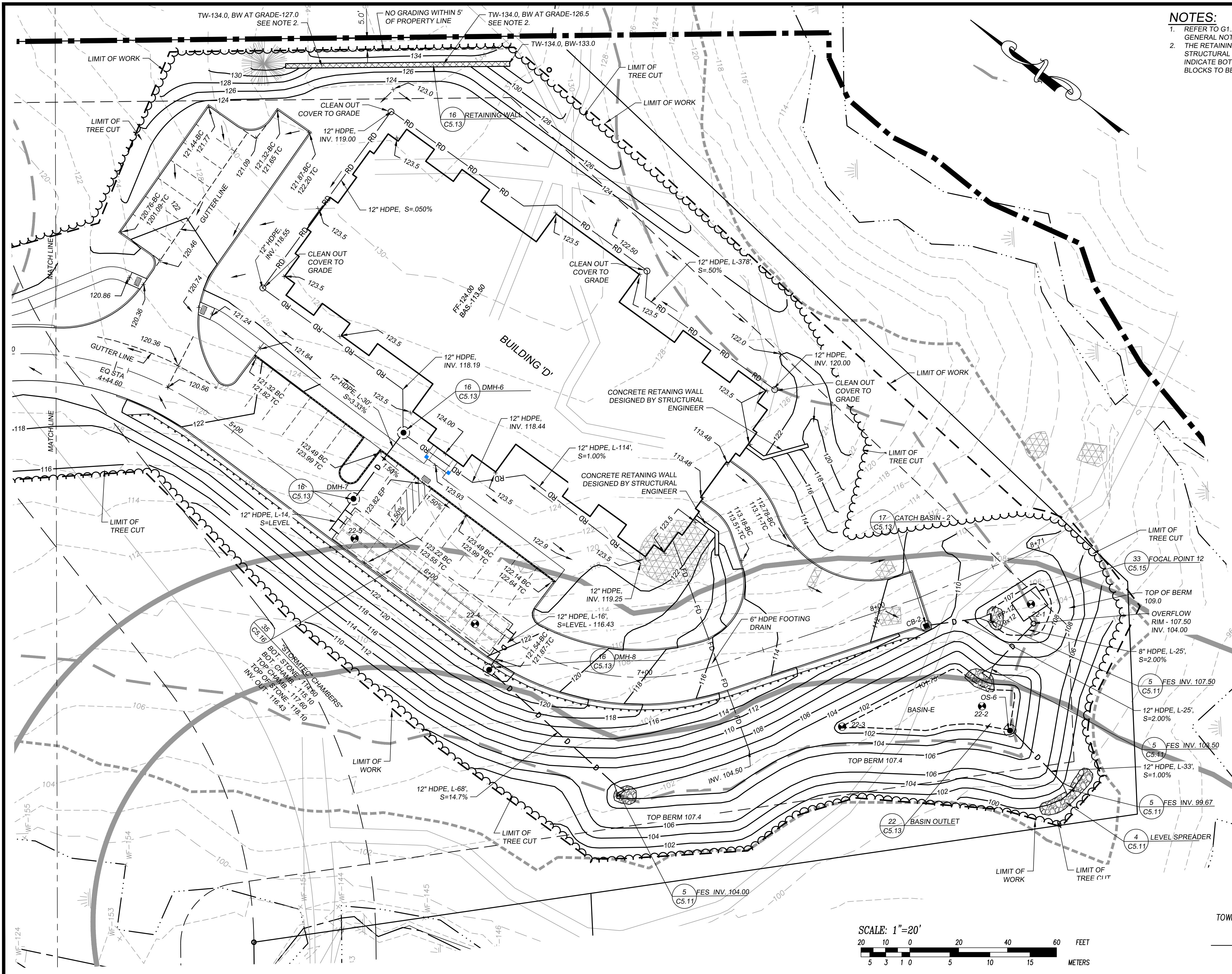
TOWN OF EXETER PLANNING BOARD

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



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FBK:  
JOB #: 16042 D

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**NOTES:**  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.  
 2. THE RETAINING WALL SHALL BE DESIGNED BY A STRUCTURAL ENGINEER. THE DEGN PLANS SHALL INDICATE BOTTOM OF WALL ELEVATIONS AND SIZE OF BLOCKS TO BE USED.

**DRAINAGE STRUCTURES**

CB-2	R-111.09	12" INV. OUT 108.00
DMH-6	R-123.50	12" INV. IN - 118.10 12" INV. OUT - 118.00
DMH-7	R-123.16	12" INV. IN - 117.00 12" INV. OUT - 116.43
DMH-8	R-122.10	12" INV. IN - 116.43 12" INV. OUT - 114.00
OS-6	RIM 105.50	TOP OF STRUCTURE-104.83 3" ORIFICE-103.00 6" ORIFICE-104.00 12" HDPE OUT-99.67

SOIL TEST LOGGED BY  
 JIM GOVE 5-2-2022

SOIL TEST 22-1  
 0-7" Sandy Loam 10 YR 3/2  
 7"-39" Loamy Sand 10 YR 5/6  
 39"-42" Loamy Sand 2.5Y 5/4  
 SHWT @39", No Water, Large Boulder

SOIL TEST 22-2  
 0-4" Sandy Loam 10 YR 3/2  
 4"-30" Sandy Loam 10 YR 5/6  
 30"-49" Loamy Sand 2.5Y 5/4  
 SHWT @30", No Water, No Ledge

SOIL TEST 22-3  
 0-5" Sandy Loam 10 YR 3/2  
 5"-31" Sandy Loam 10 YR 4/6  
 31"-52" Loamy Sand 2.5Y 5/4  
 SHWT @31", No Water, Large Boulder

SOIL TEST 22-4  
 0-6" Sandy Loam 10 YR 3/2  
 6"-35" Loamy Sand 10 YR 5/6  
 35"-60" Loamy Sand 2.5Y 5/4  
 SHWT @35", No Water, No Ledge

SOIL TEST 22-5  
 0-8" Sandy Loam 10 YR 3/2  
 8"-24" Sandy Loam 10 YR 5/6  
 24"-44" Loamy Sand 2.5Y 5/4  
 44"-55" Loamy Sand 2.5Y 5/4  
 SHWT @44", No Water, No Ledge



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# GRADING/ DRAINAGE PLAN

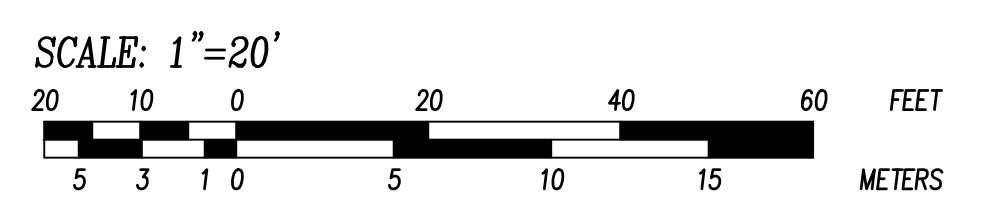
## Ray Farm Condominium

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 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
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 Newington, NH 03801

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1	4.26-22	REVISE WET IMPACTS	DH	

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 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
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 FBK:  
 JOB #: 16042 D



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



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Sheet Title:

# UTILITY PLAN

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:

Ray Farm, LLC  
 158 Shattuck Way  
 Newington, NH 03801

### REVISION BLOCK

NO.	DATE	DESC	BY
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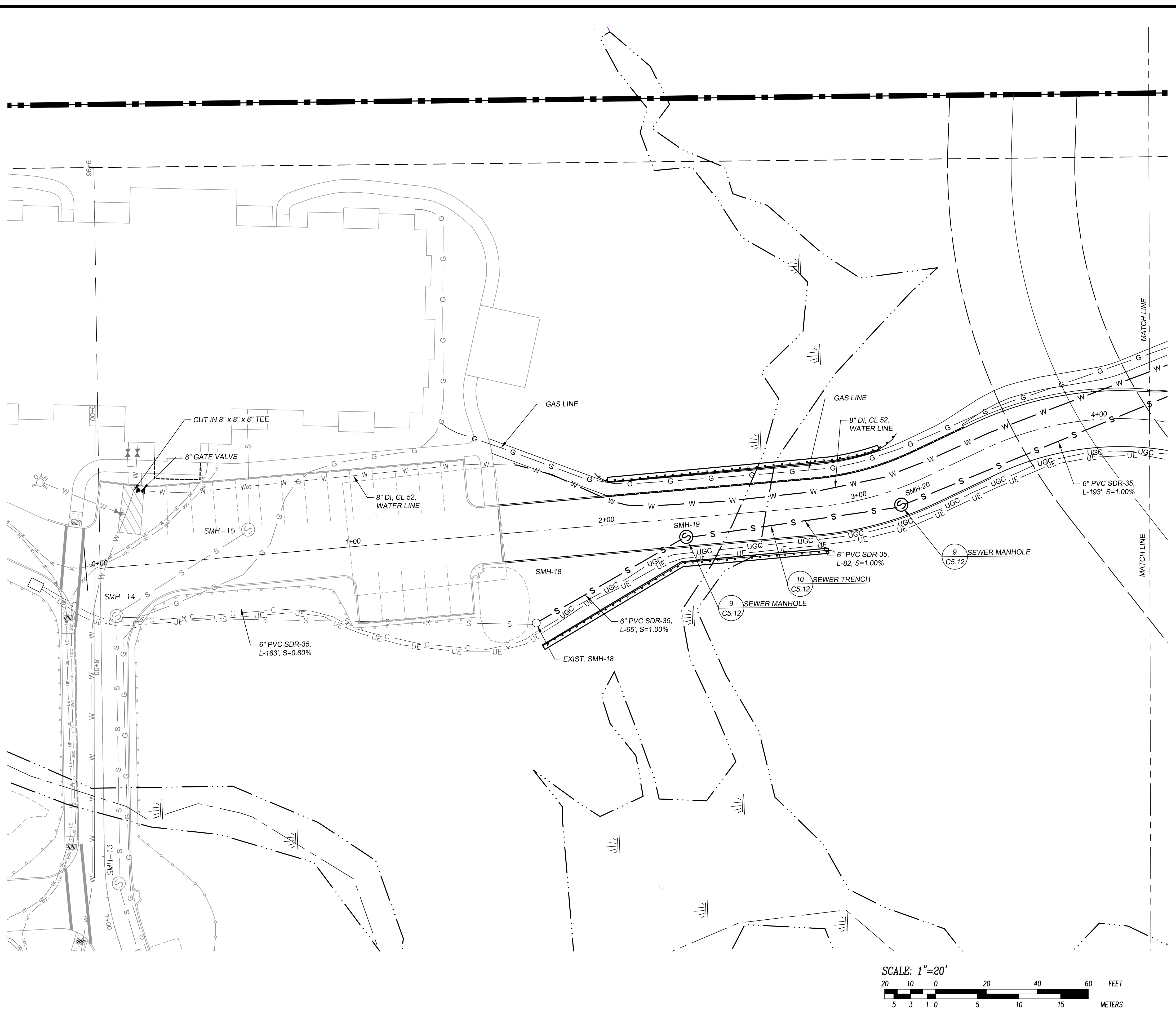
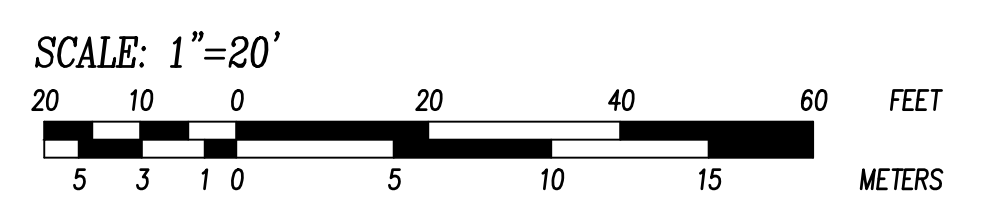
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 FILE: 16042 D UT.DWG  
 FBK:  
 JOB #: 16042 D

### SEWER STRUCTURES

SMH-14 EXISTING 6" INV. IN 110.60 (EX) 6" INV. OUT 110.50 (EX)	SMH-15 EXISTING 6" INV. IN 111.28 (EX) 6" INV. OUT 111.20 (EX)
SMH-18 EXISTING 6" INV. IN 111.97 (PROP) INV. OUT 111.87 (EX)	SMH-19 R-118.27 6" INV. IN 112.72 6" INV. OUT 112.62
SMH-20 R-119.10 6" INV. IN 113.64 6" INV. OUT 113.54	SMH-21 R-123.00 6" INV. IN 115.67 6" INV. OUT 115.57

**NOTES:**  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

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



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Sheet Title:

# UTILITY PLAN

Project Title:

## Ray Farm Condominium

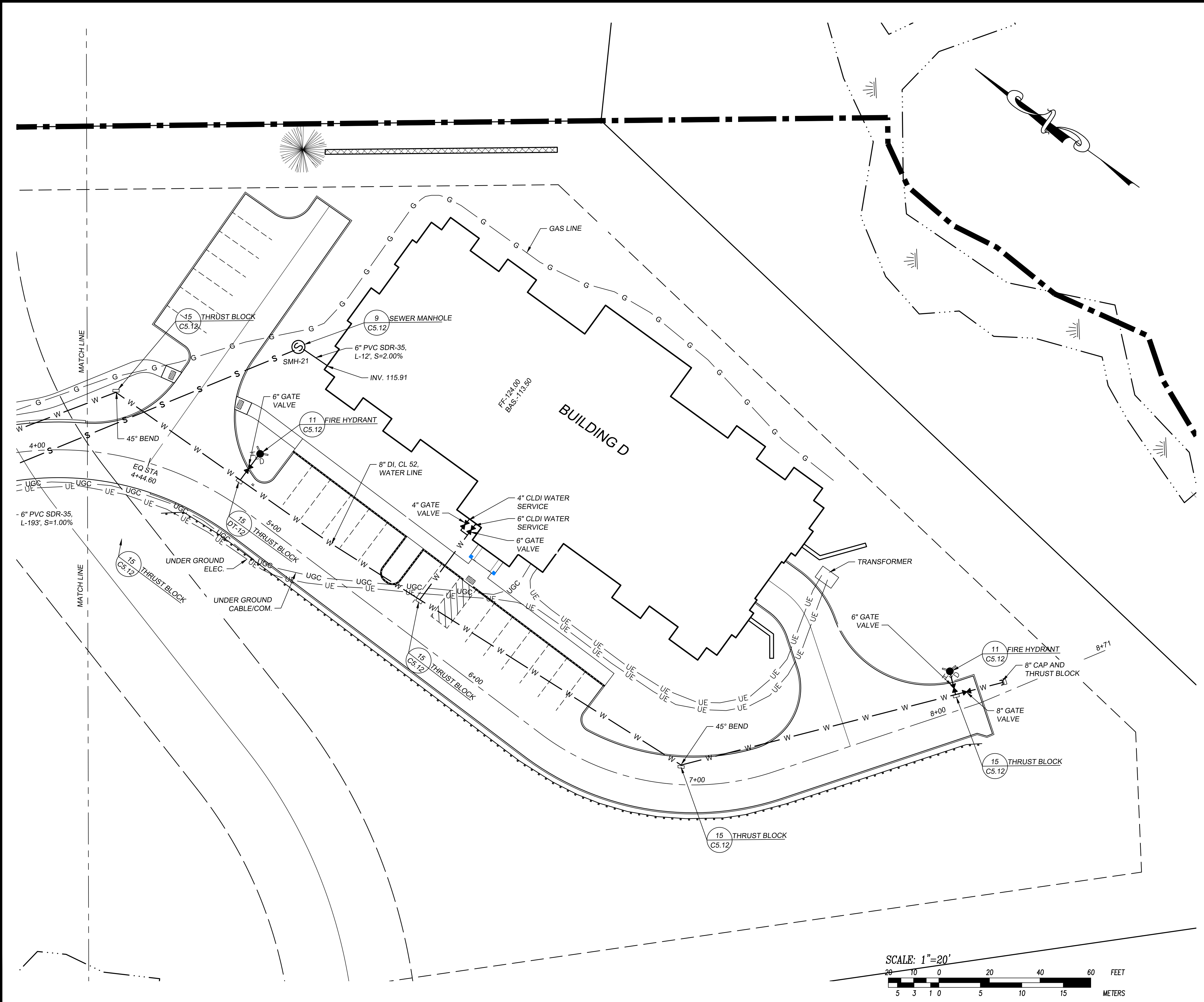
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Rockingham County

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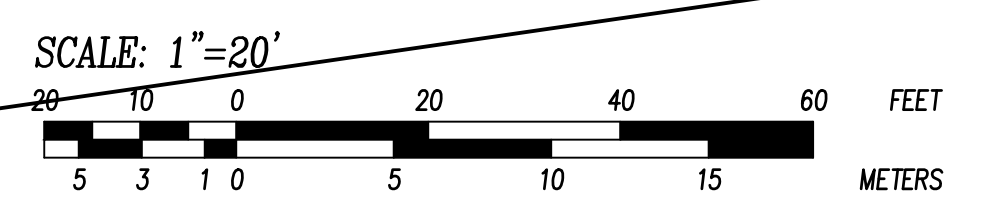
Ray Farm, LLC  
158 Shattuck Way  
Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY
1	5.10.22	TRC COMMENTS	DH

SEWER STRUCTURES	
SMH-20 R-119.10	SMH-21 R-123.00
6" INV. IN 113.64	6" INV. IN 115.67
6" INV. OUT 113.54	6" INV. OUT 115.57



**NOTES:**  
1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.



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

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Sheet Title:

# EROSION AND SEDIMENT CONTROL PLAN

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:

Ray Farm, LLC  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK			
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SHEET C1.51

### Construction Notes

- PRIOR TO ANY EXCAVATION, DIG-SAFE AND EXETER DPW (603-773-6157) SHALL BE NOTIFIED TO LOCATE ALL PERTINENT UTILITIES INCLUDING WATER, SEWER, AND DRAINAGE.
- THIS PROJECT IS BE TO MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER Agr 3800 RELATIVE TO INVASIVE SPECIES.
- ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY RAINFALL OF ONE HALF INCH OR MORE.
- DO NOT CLEAR AND STRIP THE ENTIRE SITE AT ONE TIME. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION. IN NO CASE SHALL MORE THAN 3 ACRES BE DISTURBED AT ONE TIME. STABILIZE THE AREA BEFORE MOVING ON TO THE NEXT AREA. DISTURBED AREAS REMAINING OPEN FOR MORE THAN 30 DAYS, SHALL BE STABILIZED.
- WOODY MATERIAL REMOVED DURING THE CLEARING PROCESS MAY BE GROUND UP AND USED AS MULCH FOR EROSION CONTROL TO STABILIZE APPROPRIATE AREAS.
- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
  - BASE COURSE GRAVEL HAS BEEN INSTALLED IN AREAS TO BE PAVED
  - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
  - A MINIMUM OF 3 INCH OF NON EROSIIVE MATERIAL SUCH AS RIP-RAP HAS BEEN INSTALLED
  - OR EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED
- ALL AREAS SHALL BE STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE

SEEDING SPECIFICATIONS ARE AS FOLLOWS:

TEMPORARY SEEDING FOR EROSION CONTROL DURING CONSTRUCTION:			
SPECIES	POUNDS/1000 SF	REMARKS	
WINTER RYE	2.5	BEST FOR FALL SEEDING. AUG. 15 TO SEPT. 15.	
OATS	2.0	BEST FOR SPRING SEEDING. NO LATER THAN	
ANNUAL RYEGRASS	1.0	SEED EARLY SPRING. AUG. 15 TO SEPT. 15.	
PERENIAL RYEGRASS	0.7	SEED BETWEEN APRIL 1 TO AUG. 15. SEED TO A	

PERMANENT VEGETATION SEED MIXTURE:			
SPECIES	POUNDS/1000 SF		
TALL FESCUE	0.45		
CREEPING RED FESCUE	0.45		
BIRDSFOOT TREFOL	0.20		
TOTAL	1.10		

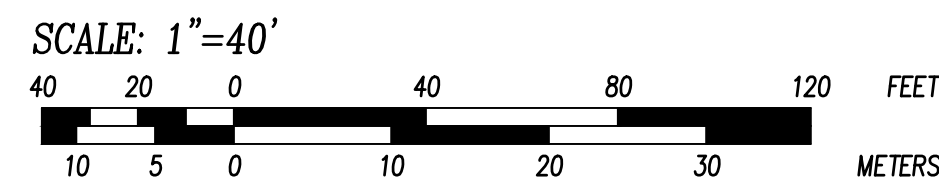
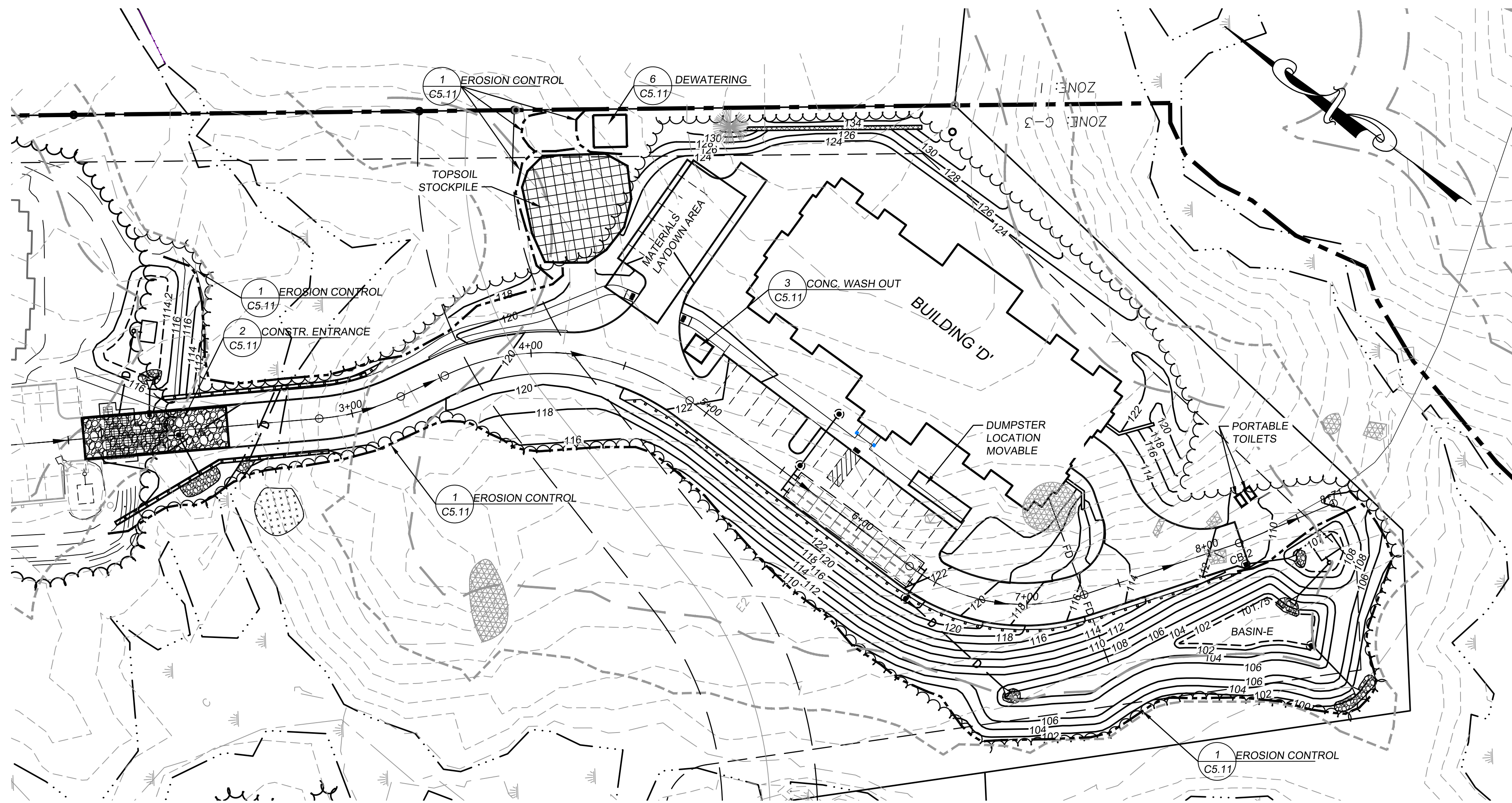
- ALL RE-VEGETATED AREAS THAT DO NOT EXHIBIT 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS (ON 3:1 SLOPES OR STEEPER). SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, OR SECURING WITH ANCHORED NETTING. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER SNOW OR FROZEN GROUND AND SHALL BE COMPLETED PRIOR TO AN ACCUMULATION OF OF SNOW AND/OR FROST.
- ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
- AFTER NOVEMBER 15, INCOMPLETE ROADS 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.
- CONCRETE WASH OUT SHALL BE CONDUCTED IN THE AREAS SHOWN ON SHEETS C1.51 AND C1.52. AND USE THE CONCRETE WASH OUT DETAIL SHOWN ON SHEET C5.11.
- NO STUMPS OR DEBRIS SHALL BE BURIED ONSITE. ALL STUMPS AND CONSTRUCTION DEBRIS SHALL BE STORED ONSITE UNTIL THEY CAN BE DISPOSED OFFSITE IN A FACILITY CAPABLE OF HANDLING SUCH MATERIALS.
- TEMPORARY PORTABLE TOILETS SHALL BE PROVIDED AND PROPERLY MAINTAINED ONSITE FOR THE DURATION OF THE PROJECT.
- VEHICLE MAINTENANCE SHALL BE PERFORMED OFF SITE. ANY VEHICLE LEAKING OIL OR GREASE SHALL BE IMMEDIATELY REPAIRED OR REMOVED FROM THE SITE. FUEL AND OILS SHALL BE STORED IN AN APPROVED LOCATION AND COMPLY WITH LOCAL, STATE, AND FEDERAL REGULATIONS. IN NO CASE SHALL THEY BE STORED WITHIN 100' OF WETLAND AREAS.

### NOTES:

- REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

TOWN OF EXETER PLANNING BOARD

CHAIRMAN DATE



### Construction Sequence

PRIOR TO CLEARING, OR EARTH MOVING ACTIVITIES, INSTALL TEMPORARY EROSION CONTROLS AS SHOWN. SEE SHEET C5.11 FOR EROSION CONTROL DETAILS AND TECHNIQUES.

INSTALL CONSTRUCTION ENTRANCE.

STRIP TOPSOIL AND STOCKPILE IN DESIGNATED AREA. INSTALL TEMPORARY EROSION CONTROLS AROUND STOCKPILE. BOULDERS AND LARGE ROCKS GREATER THAN TWO FEET IN DIAMETER SHALL BE STOCKPILED SEPARATELY IN A DESIGNATED AREA.

CONSTRUCT TEMPORARY SEDIMENT BASINS AND OUTLET SWALES IN SAME LOCATION AS THE FINAL BASINS AS SHOWN ON THE PLANS. ADDITIONAL TEMPORARY ROWS OF COMPOST SOCK MAY BE REQUIRED IN THE SWALES. INSTALL OUTLET PROTECTION RIP-RAP AS SHOWN PRIOR TO DIRECTING ANY STORMWATER TO THE BASINS. THE FORE-BAYS WILL SERVE AS CONSTRUCTION PERIOD SEDIMENT SETTLING AREAS BUT MUST BE CLEANED AFTER PARKING/LOADING AREAS ARE PAVED, BUILDINGS CONSTRUCTED, AND UTILITIES INSTALLED.

CREATE SWALES TO DIRECT STORMWATER FROM THE DEVELOPED PORTION OF THE SITE TO THE TEMPORARY BASINS. IMMEDIATELY STABILIZE THE SLOPES OF THE BASINS BY SEEDING AND MULCHING WITHIN 72 HOURS OF ACHIEVING FINISHED GRADES. ALTERNATE METHODS OF SLOPE STABILIZATION MAY BE REQUIRED IF WORK IS PERFORMED OUTSIDE THE GROWING SEASON.

PREPARE BUILDING SITE TO BE CONSTRUCTED. INSTALL THE BUILDING FOUNDATION AND IMMEDIATELY BRING THE FILL UP TO DESIGN GRADES. CONSTRUCT THE SLOPES IN THE AREAS SHOWN ON THE GRADING PLANS. STABILIZE THE SLOPE WITH SELECTED PLANT MATERIALS AND SEED IMMEDIATELY.

ROUGH GRADE PARKING AREAS TO SUBBASE ELEVATIONS. FILL WILL BE REQUIRED TO BRING PARKING AREAS TO THE DESIGN GRADES. IMPORTED FILL SHALL BE COMPACTED TO A MINIMUM OF 95% DENSITY. WATER MAY BE REQUIRED TO BRING THE FILL TO THE APPROPRIATE MOISTURE CONTENT FOR PROPER COMPACTION. DO NOT OVER WATER AND CREATE RUNOFF. DO NOT CONTINUE THE FILLING OPERATION DURING INTENSE RAINFALL OR IF RAINFALL IS ANTICIPATED. INSTALL ADDITIONAL EROSION CONTROL AT THE BASE OF SLOPES WHEN RAIN IS ANTICIPATED, AND LEAVE IT IN PLACE UNTIL SLOPES ARE STABILIZED OR ADDITIONAL FILL IS INSTALLED.

INSTALL PERMANENT STORMWATER TREATMENT DEVICES INCLUDING THE "FOCAL POINT" BIO-RETENTION SYSTEMS AS SHOWN ON THE PLANS. DO NOT ALLOW STORMWATER FLOW TO THE DEVICES FROM UNSTABILIZED AREAS. IF STORMWATER FLOWS ARE ANTICIPATED TO REACH THE TREATMENT DEVICES PRIOR TO FINAL STABILIZATION, ENCASE THE DEVICES WITH FILTER FABRIC.

INSTALL UNDERGROUND UTILITIES. BACKFILL AND COMPACT TRENCHES. IF DEWATERING IS REQUIRED TO INSTALL UTILITIES OR STRUCTURES, CONSTRUCT THE DEWATERING AREA AS PER THE DETAIL ON SHEET C 5.11 AND PLACE IN THE DESIGNATED AREA. ADDITIONAL ROWS OF COMPOST SOCK MAY BE REQUIRED AT THE DISCHARGE POINT IF THE WATER IS NOT CLEAR. INSTALL AND COMPACT PARKING AREA GRAVEL. INSTALL THE BINDER COURSE IN PARKING AREAS WITHIN 72 HOURS OF PLACING GRAVEL.

INSTALL UTILITY CONNECTIONS. SPREAD TOPSOIL IN GRASS AND LANDSCAPED AREAS AND IMMEDIATELY SEED AND MULCH IF NEEDED. ADDITIONAL EROSION CONTROL MAY BE NEEDED TO CONTROL EROSION AND SILTS FROM ENTERING THE TEMPORARY SETTLEMENT BASIN.

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Sheet Title:

# DETAILS

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

Applicant/Owner:

Ray Farm, LLC  
158 Shattuck Way  
Newington, NH 03801

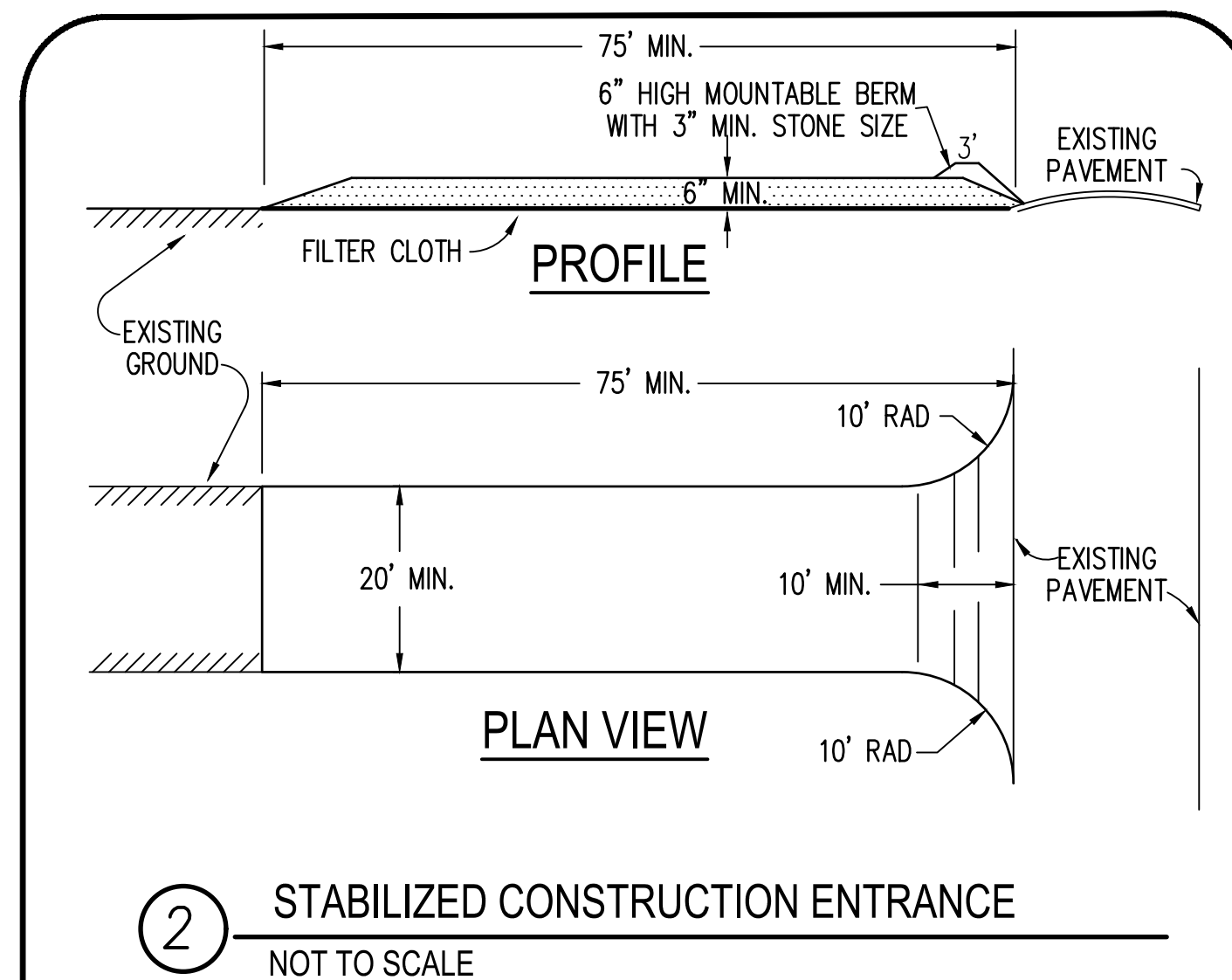
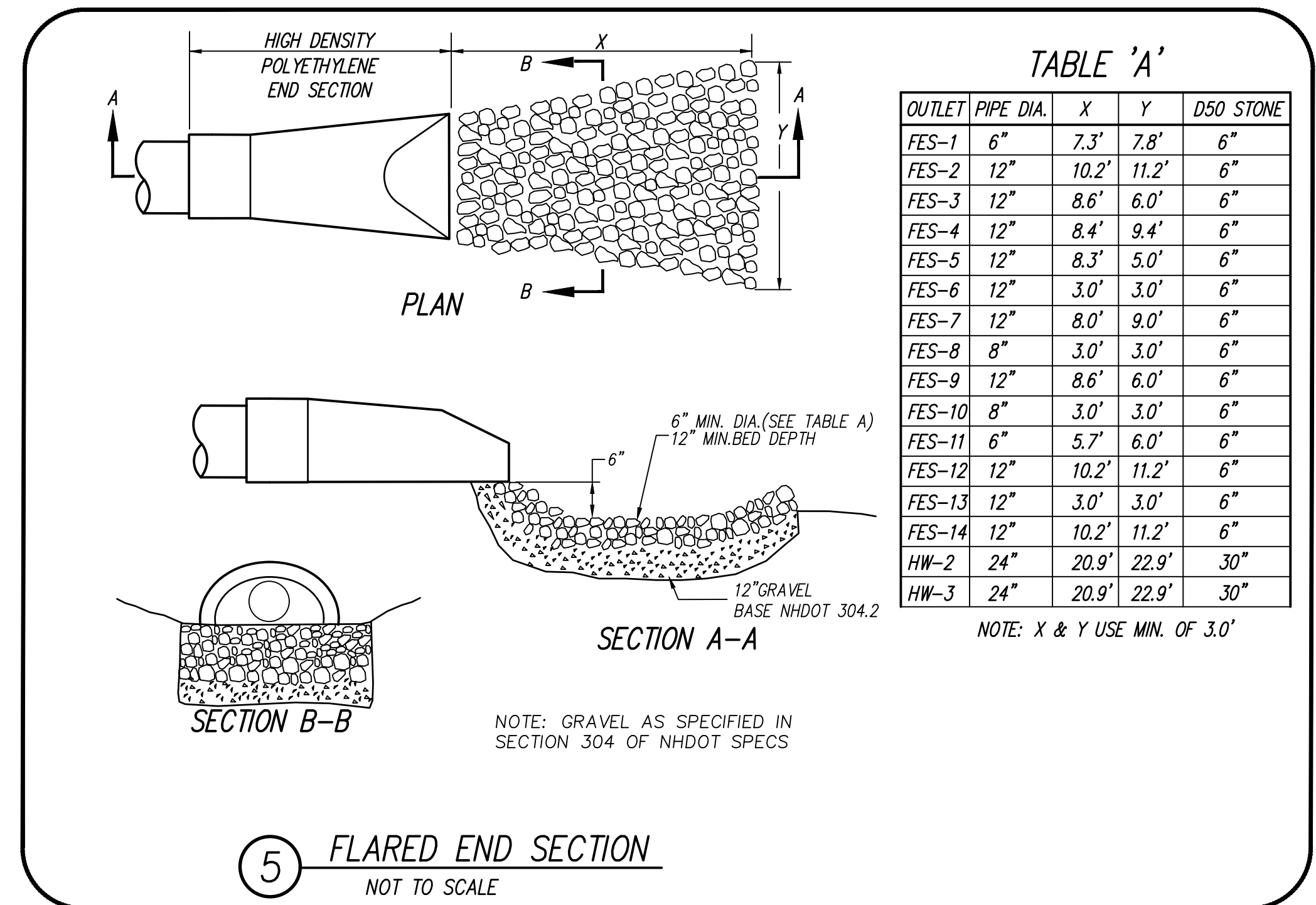
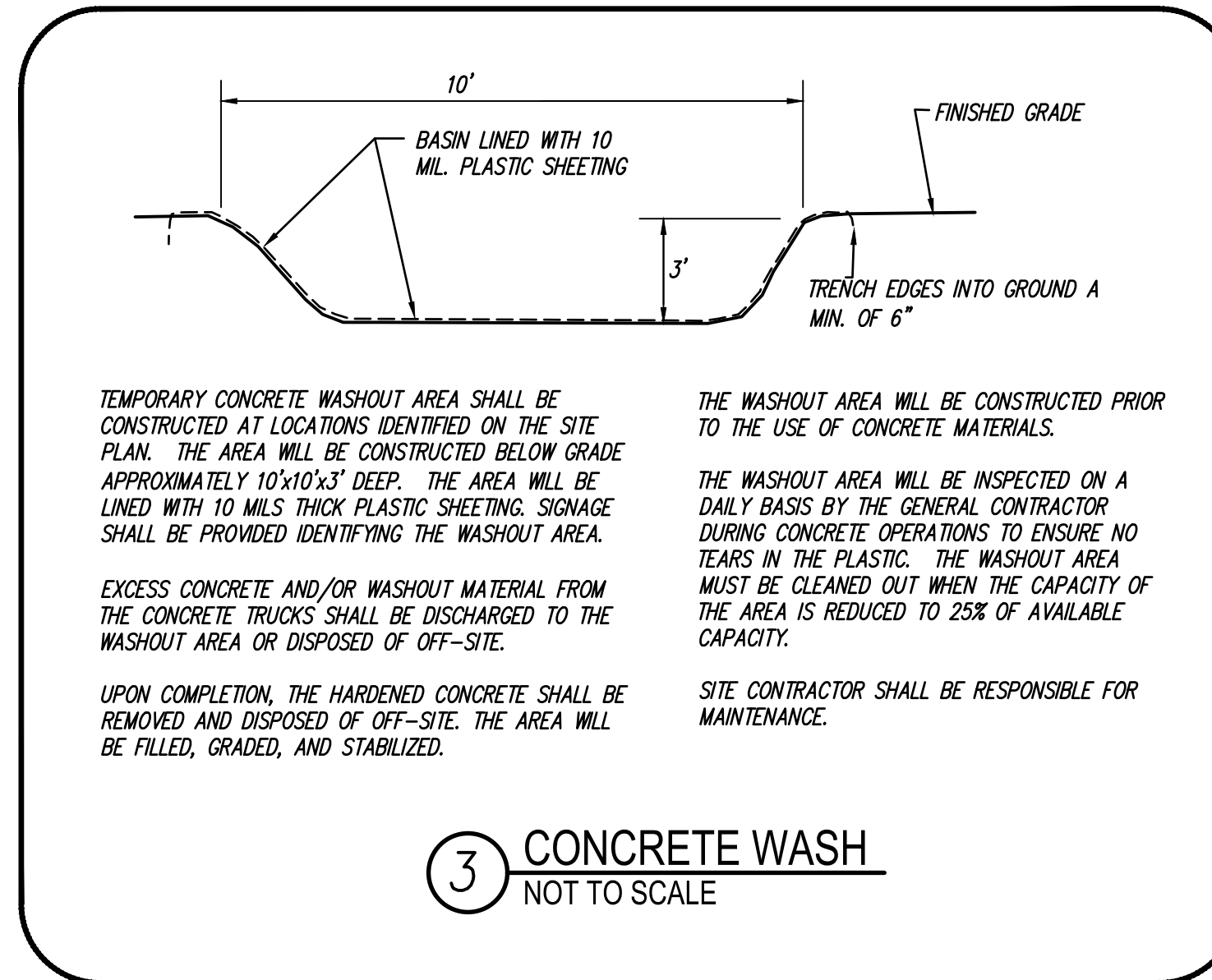
REVISION BLOCK

NO.	DATE	DESC	BY
1	5.10.22	TRC COMMENTS	DH

PROJ. MGR.:	D. HAMEL
FIELD:	J. SALVAGGIO / R. SMITH
DESIGN:	D. HAMEL
DRAWN:	D. HAMEL
CHECKED:	D. GIANGRANDE
DATE:	01-11-2022
FILE:	16042 D.DT.DWG
FBK:	
JOB #:	16042 D

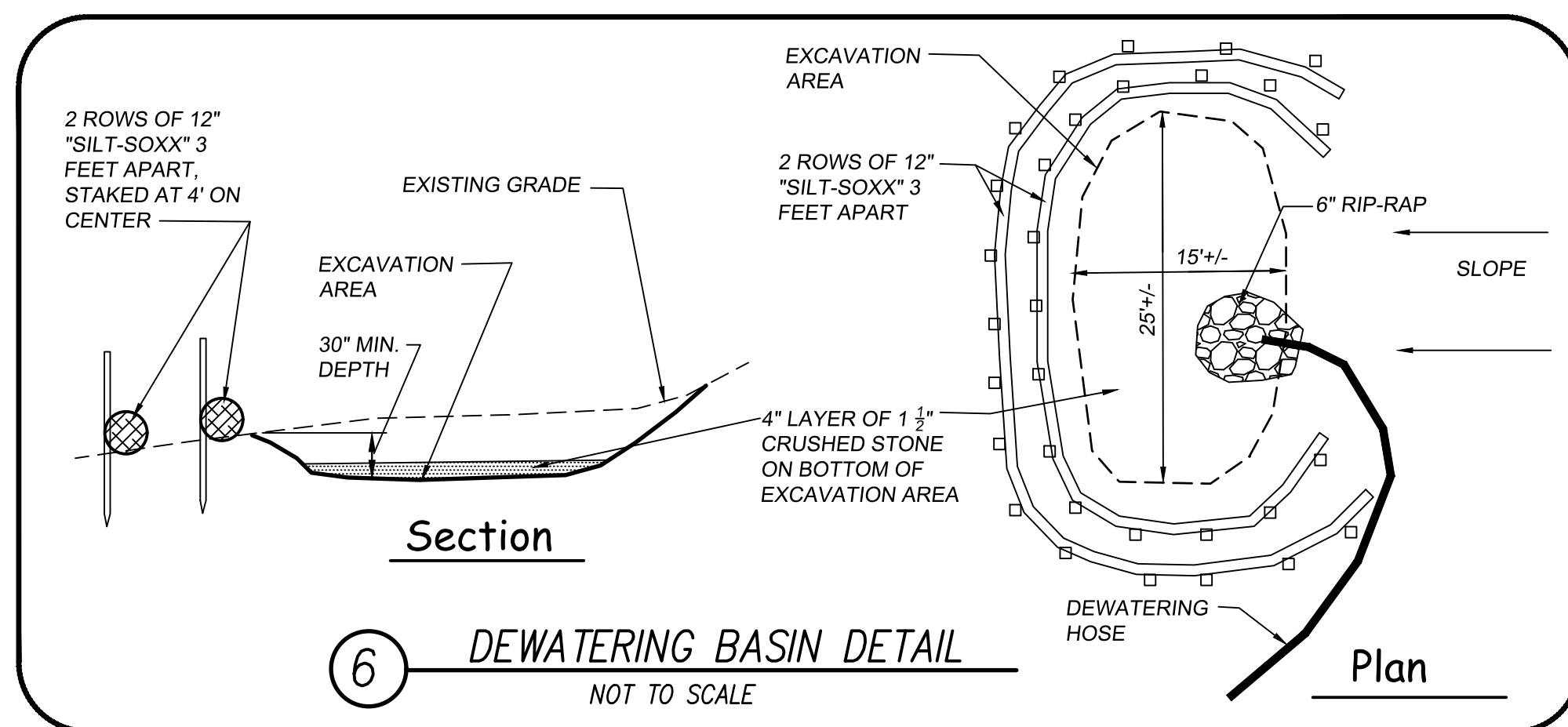
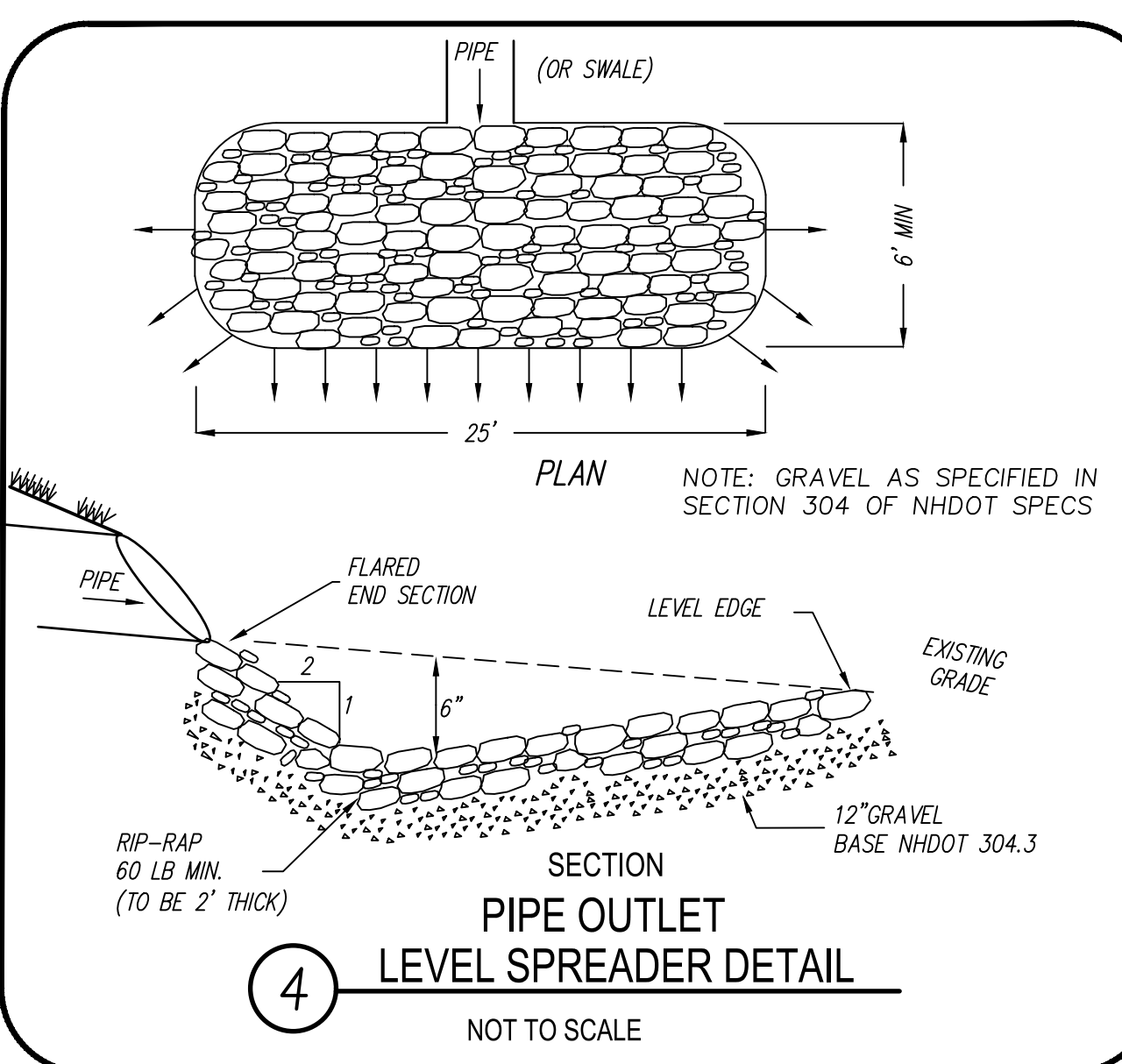
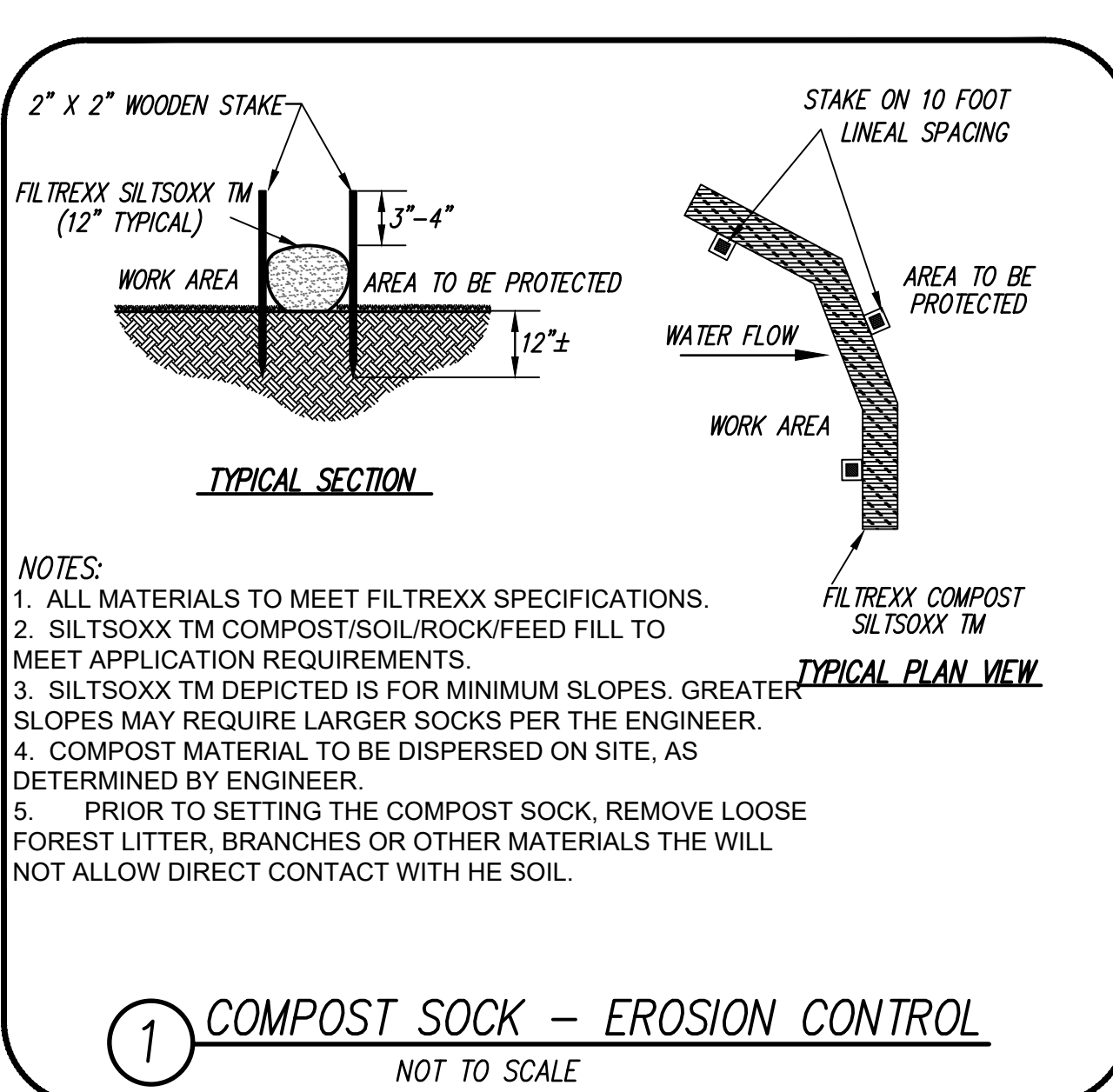
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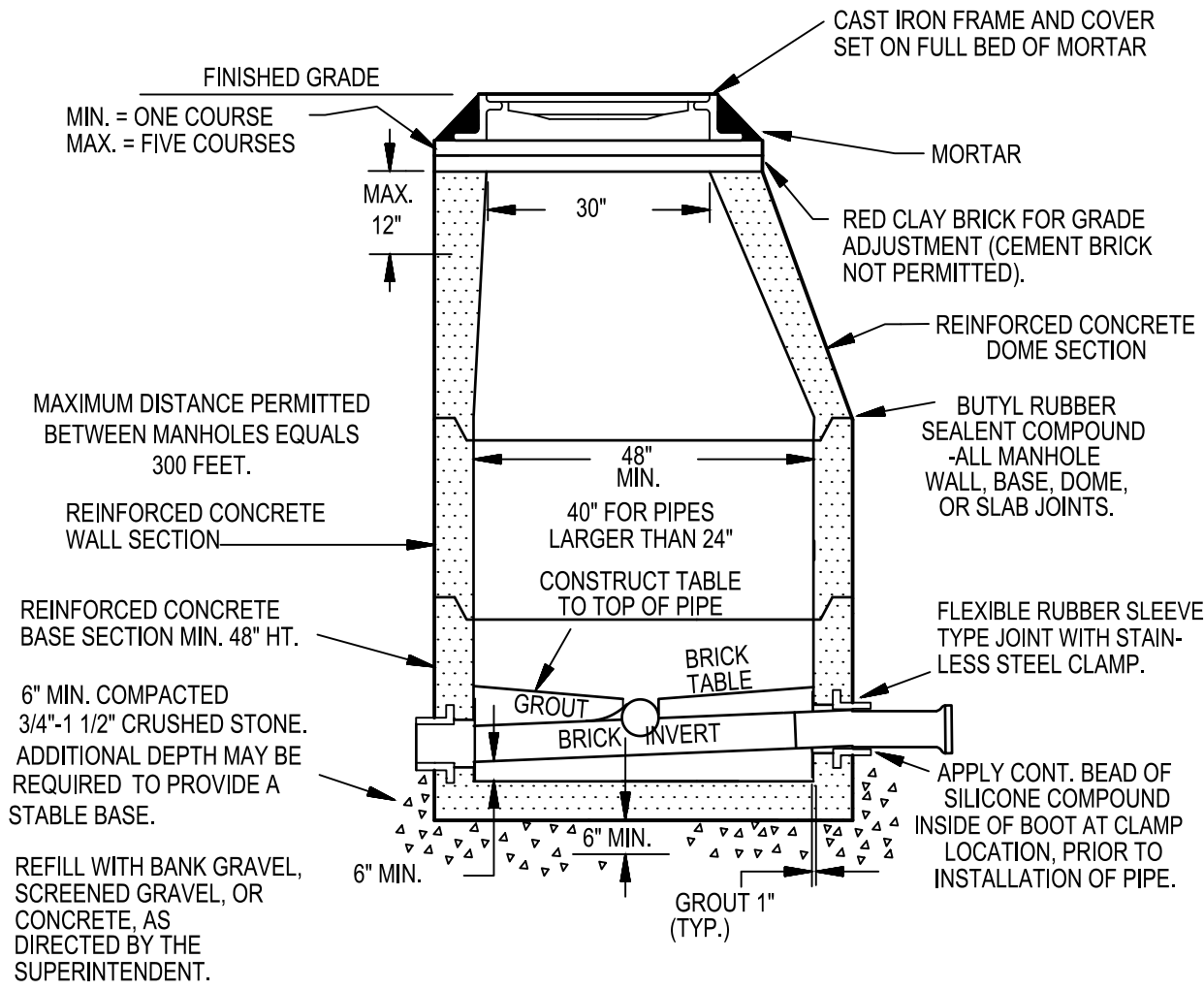
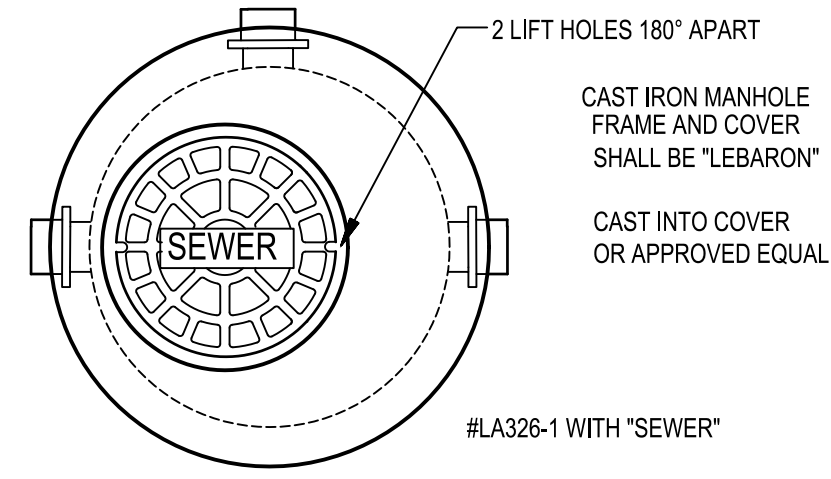
CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_



Construction Specifications

- STONE SIZE - USE 3" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- LENGTH - AS REQUIRED, BUT NOT LESS THAN 75 FEET
- THICKNESS - NOT LESS THAN SIX (6) INCHES.
- WIDTH - TWENTY (20) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
- FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER CLOTH WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
- SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAINFALL EVENT.

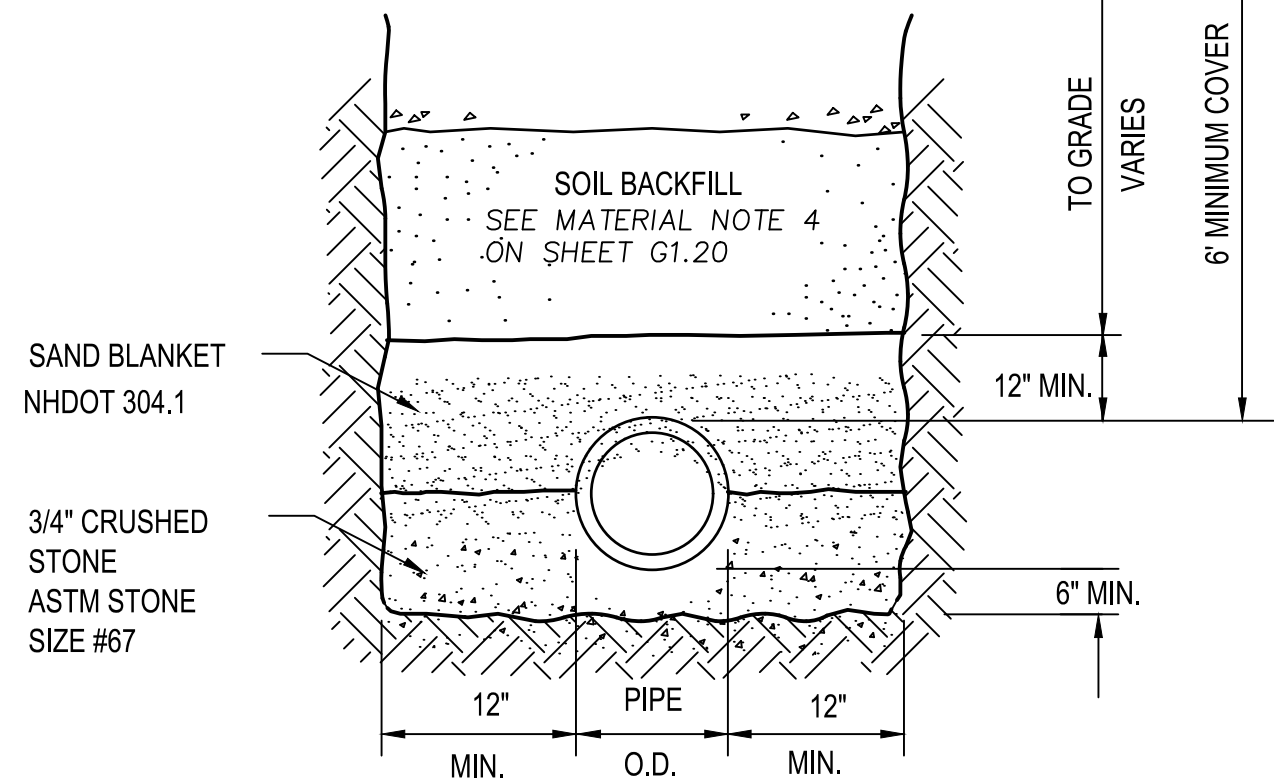




**MANHOLE TESTING: VACUUM TEST MANHOLE FOR LEAKAGE**  
 THE INITIAL VACUUM GAUGE TEST PRESSURE SHALL BE 10 INCHES Hg. THE MINIMUM TEST HOLD FOR A 1 INCH DROP TO 9 INCHES Hg SHALL BE NOT LESS THAN 2 MINUTES FOR MANHOLES LESS THAN 10 FEET DEEP, 2.5 MINUTES FOR MANHOLES 10 TO 15 FEET DEEP, AND NOT LESS THAN 3 MINUTES FOR MANHOLES MORE THAN 15 FEET DEEP.

- NOTES:
- GRAVEL AS SPECIFIED IN SECTION 304 OF NHDOT SPECS
  - SEWER MANHOLE SHALL BE RATED FOR H-20 LOADING
  - BRICK INVERTS TO BE INSTALLED AFTER TESTING
  - NO STEPS IN MANHOLE
  - BRICKS FOR GRADE ADJUSTMENTS ARE A MAXIMUM OF 5 COURSES

**9 SEWER MANHOLE**  
NOT TO SCALE

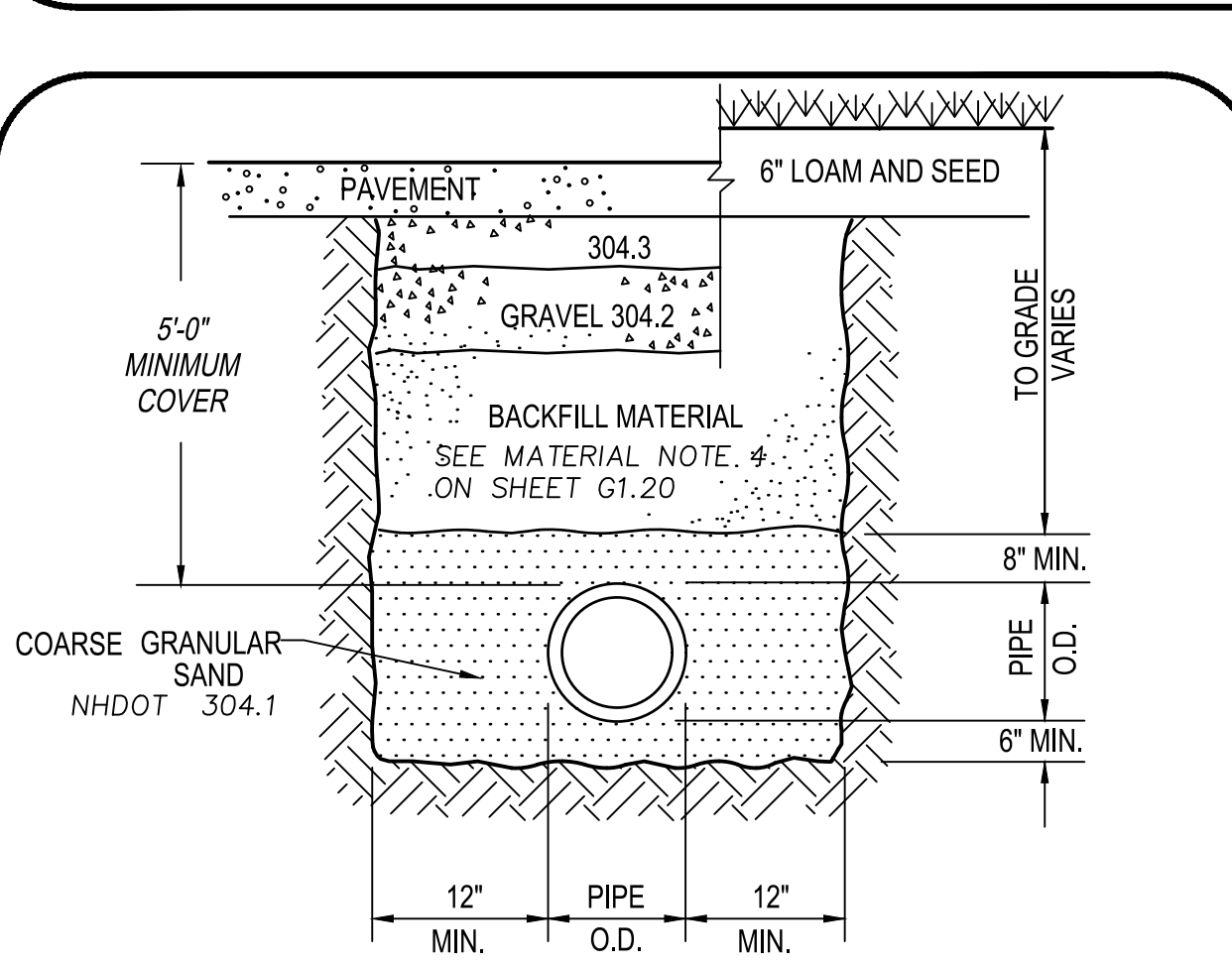
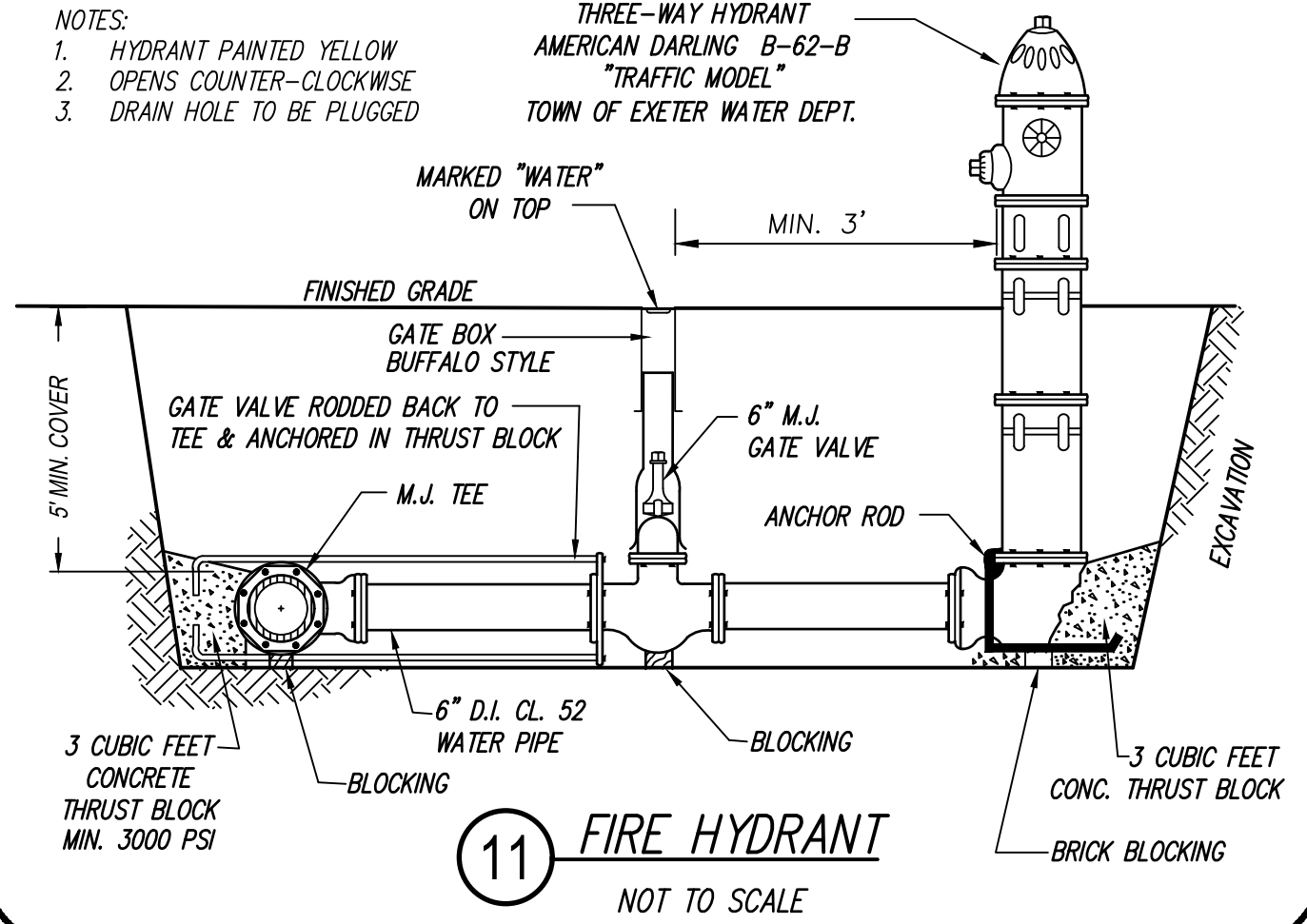


- NOTES:
- GRAVITY SEWER TO BE PVC SDR 35 CONFORMING TO ASTM D3034-04a
  - PLASTIC SEWER PIPE SHALL HAVE A PIPE STIFFNESS RATING OF AT LEAST 46 POUNDS PER SQUARE INCH AT 5% PIPE DIAMETER AS MEASURED WITH ASTM D2412-02 DURING MANUFACTURE.
  - JOINT SEALS OF PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D3212-96(a) AND BE PUSH-ON, BELL-AND-SPIGOT TYPE.
  - SAND BLANKET SHALL BE FREE OF ORGANIC MATERIALS, 100% PASSING 1/2" SIEVE, AND MAXIMUM 15% PASSING #200 SIEVE.
  - COMPACT BEDDING AND SAND BLANKET IN MAXIMUM OF 12" LIFTS.
  - COMPACT BACKFILL MATERIAL IN MAXIMUM OF 12" LIFTS.

**GRAVITY SEWER PIPE TESTING**  
 LOW PRESSURE AIR TESTS SHALL BE USED FOR ALL NEW GRAVITY SEWERS CONFORMING TO ASTM F1417 "STANDARD TEST METHOD OF INSTALLATION ACCEPTANCE OF PLASTIC GRAVITY SEWER LINES USING LOW-PRESSURE AIR" OR UNI-BELL PVC PIPE ASSOCIATION UNI-B-6, "LOW PRESSURE AIR TESTING OF INSTALLED SEWER PIPE (1998)."

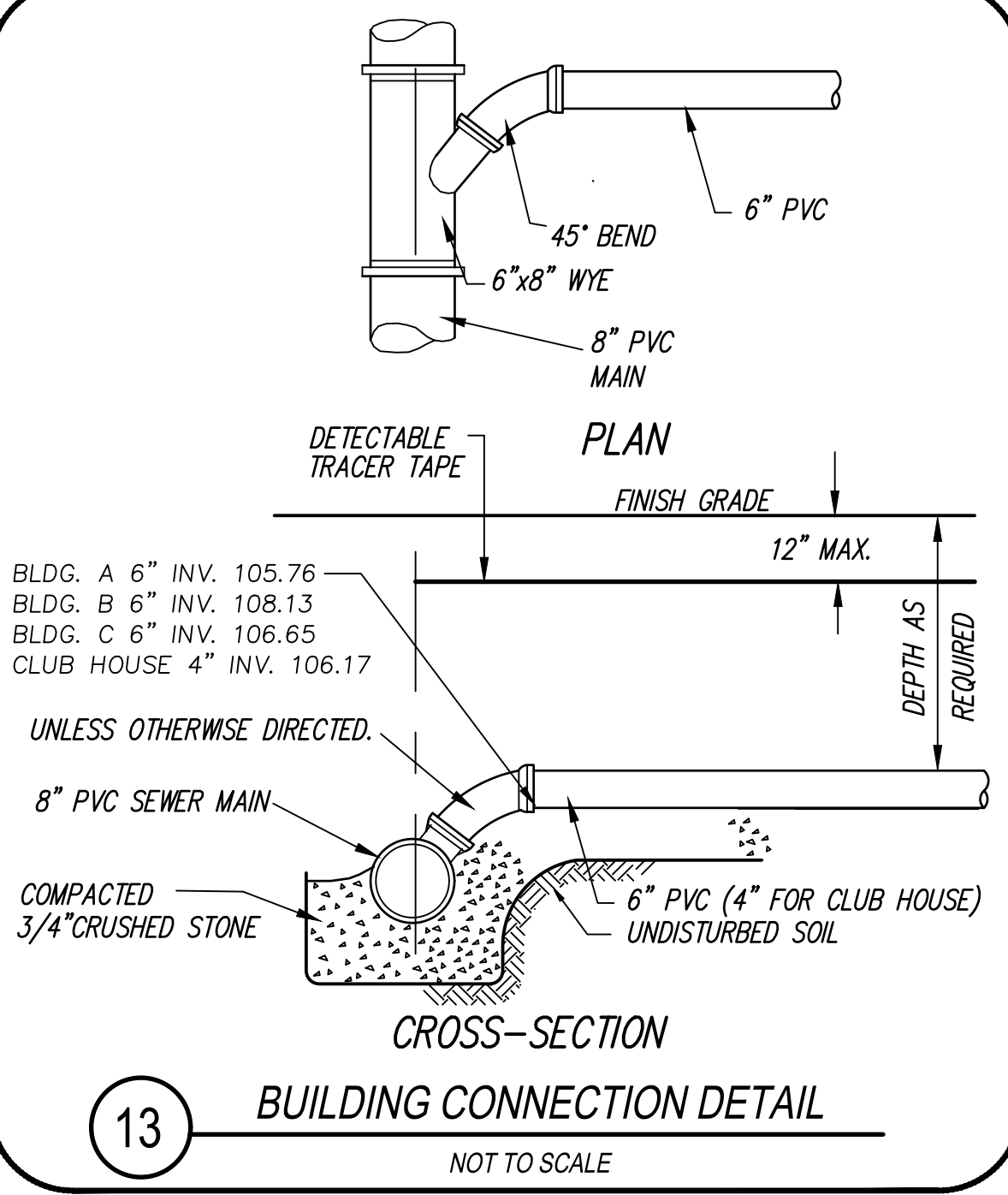
DEFLECTION TEST ALL PLASTIC SEWER PIPE NOT LESS THAN 30 DAYS NOR MORE THAN 90 DAYS FOLLOWING INSTALLATION. MAXIMUM ALLOWABLE DEFLECTION OF FLEXIBLE SEWER PIPE SHALL BE 5 1/2% OF AVERAGE INSIDE DIAMETER.

**10 SEWER TRENCH**  
NOT TO SCALE

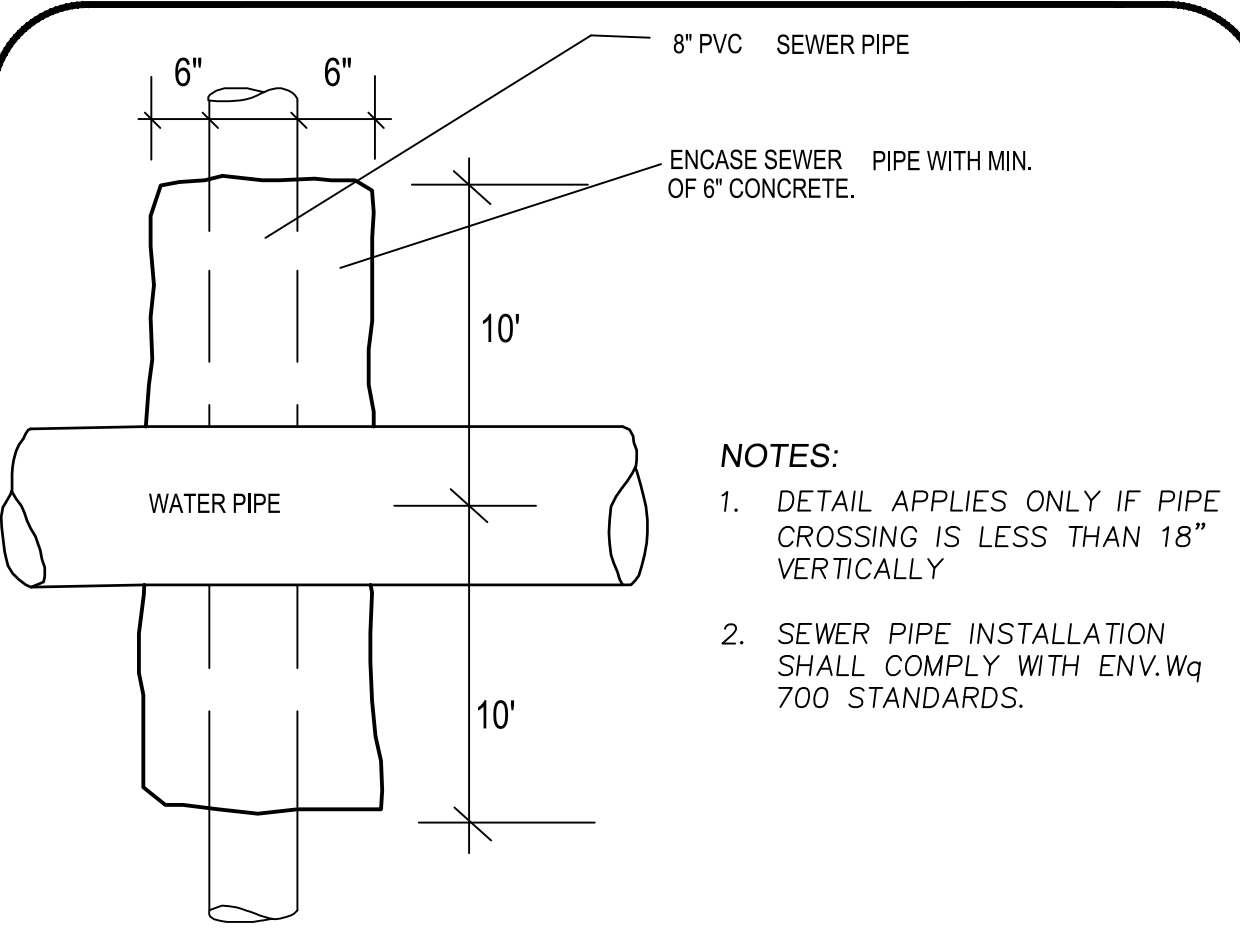


- NOTE:
- SEE SITE PLAN FOR PIPE SIZES AND SERVICE.
  - WATER PIPE TO BE DUCTILE IRON (D.I.) CLASS 52
  - GRAVEL AS SPECIFIED IN SECTION 304 OF NHDOT SPECS

**12 WATER TRENCH**  
NOT TO SCALE

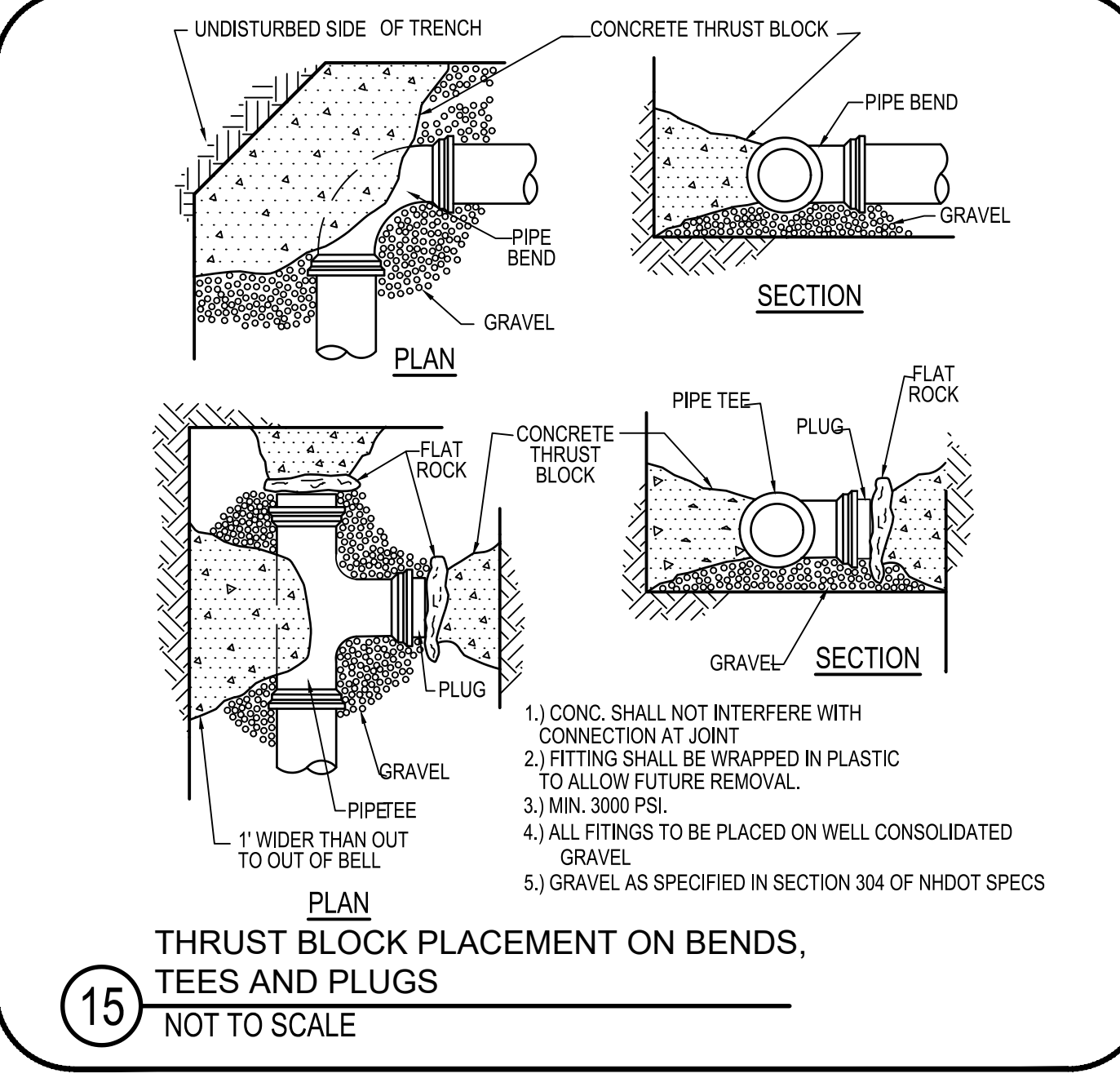


**13 BUILDING CONNECTION DETAIL**  
NOT TO SCALE



**14 SEWER / WATER CROSSING**  
NOT TO SCALE

- NOTES:
- DETAIL APPLIES ONLY IF PIPE CROSSING IS LESS THAN 18" VERTICALLY
  - SEWER PIPE INSTALLATION SHALL COMPLY WITH ENV.Wq 700 STANDARDS.



**15 THRUST BLOCK PLACEMENT ON BENDS, TEES AND PLUGS**  
NOT TO SCALE

- CONC. SHALL NOT INTERFERE WITH CONNECTION AT JOINT
- FITTING SHALL BE WRAPPED IN PLASTIC TO ALLOW FUTURE REMOVAL.
- MIN. 3000 PSI.
- ALL FITTINGS TO BE PLACED ON WELL CONSOLIDATED GRAVEL.
- GRAVEL AS SPECIFIED IN SECTION 304 OF NHDOT SPECS

NOTES:  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

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



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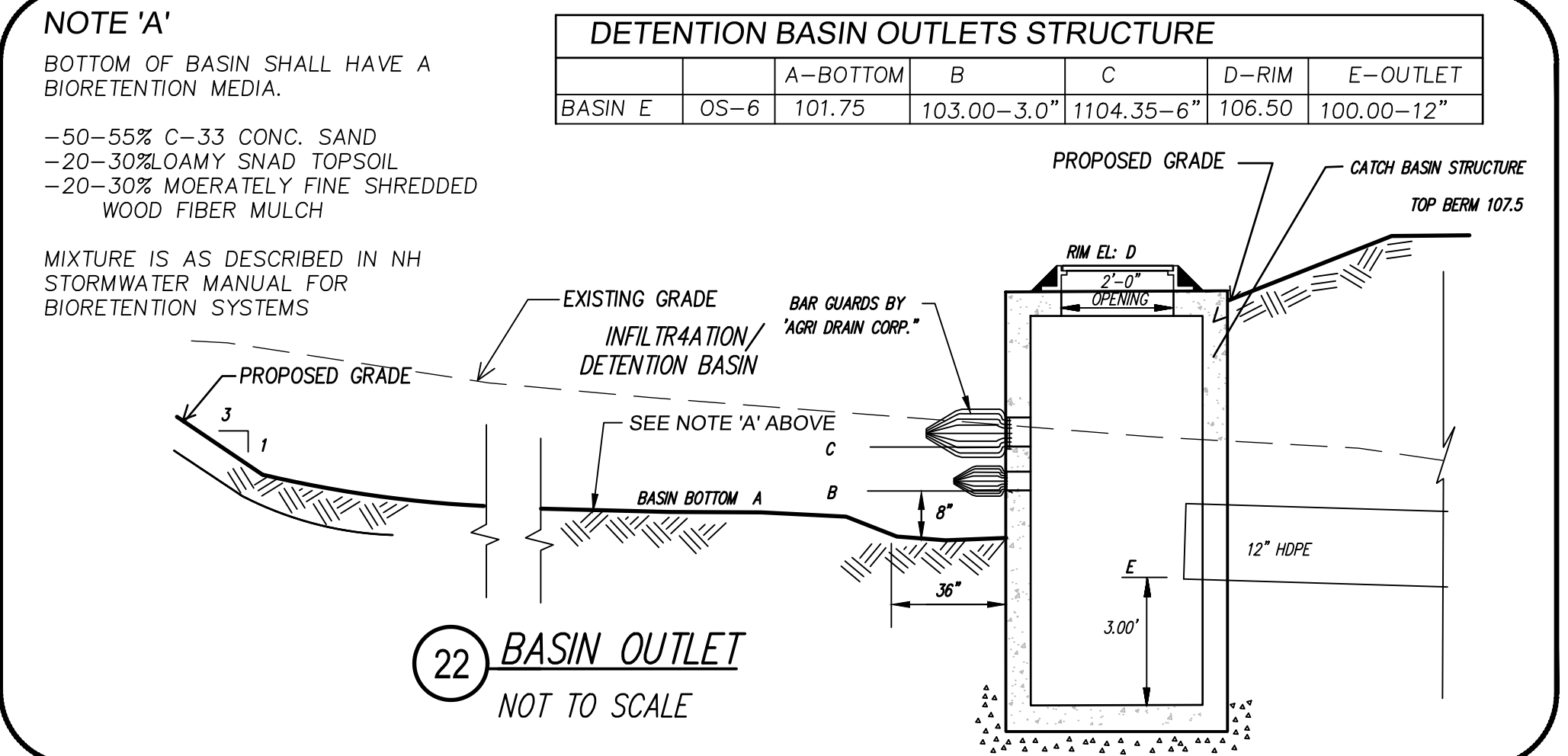
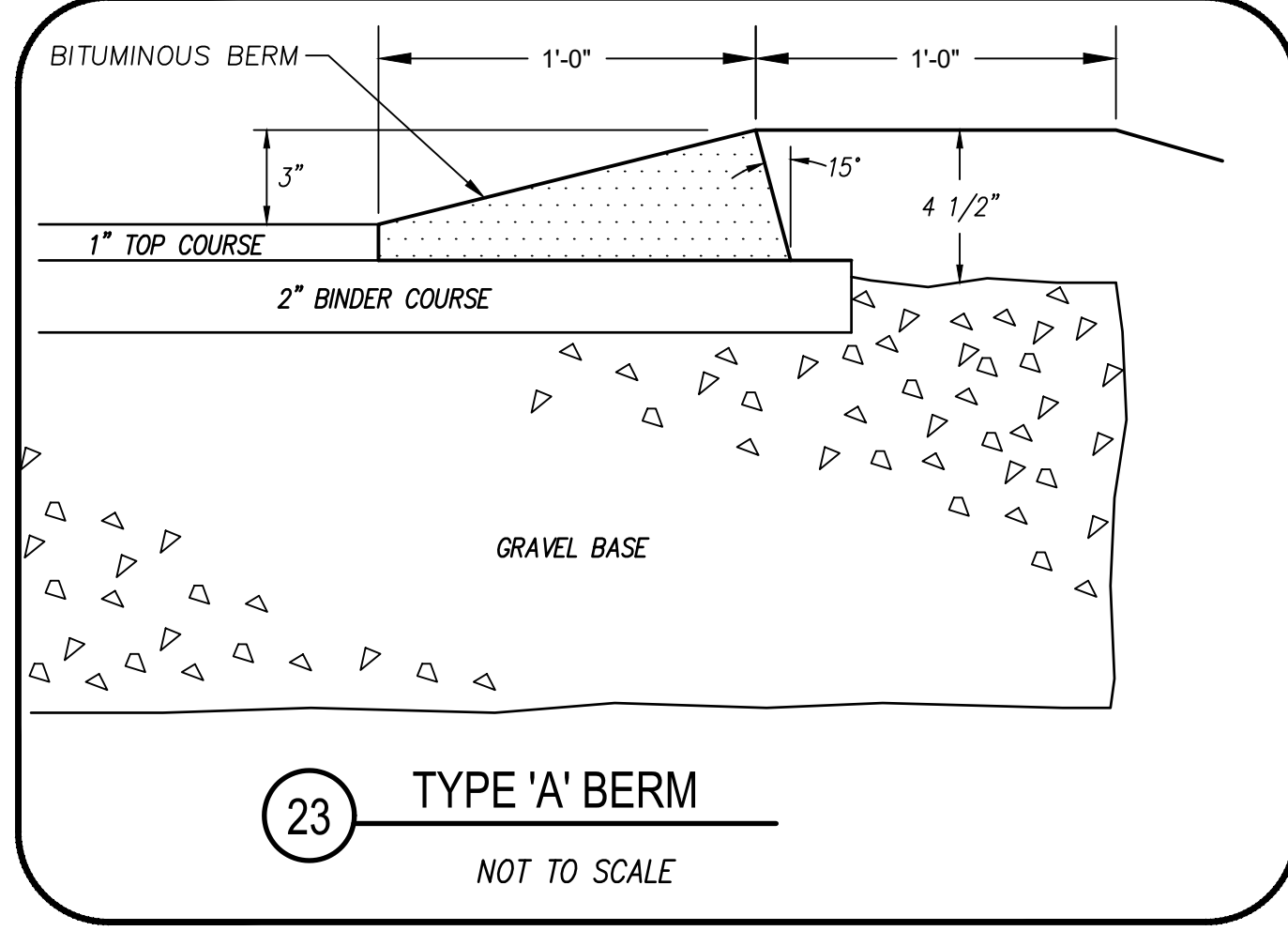
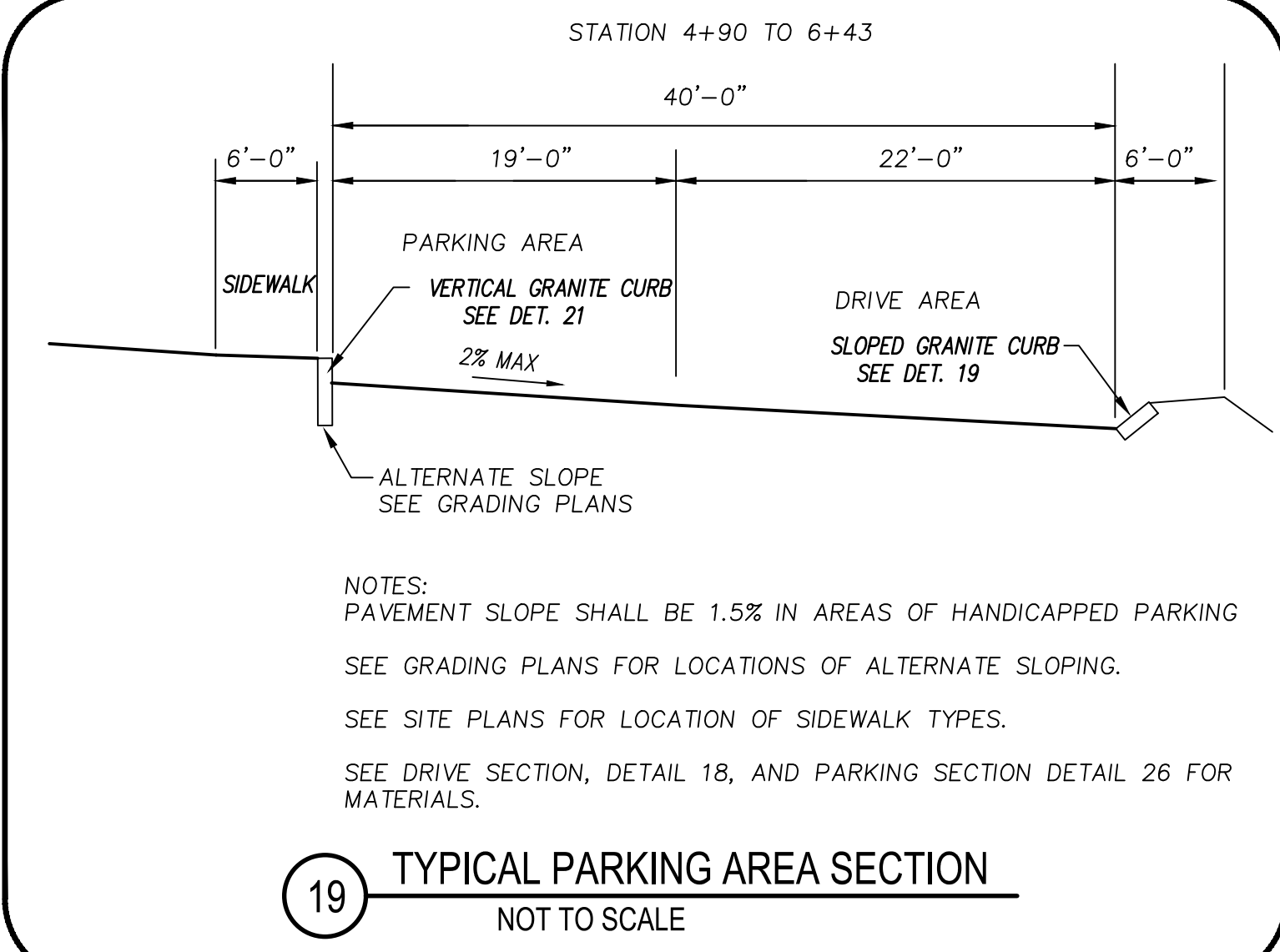
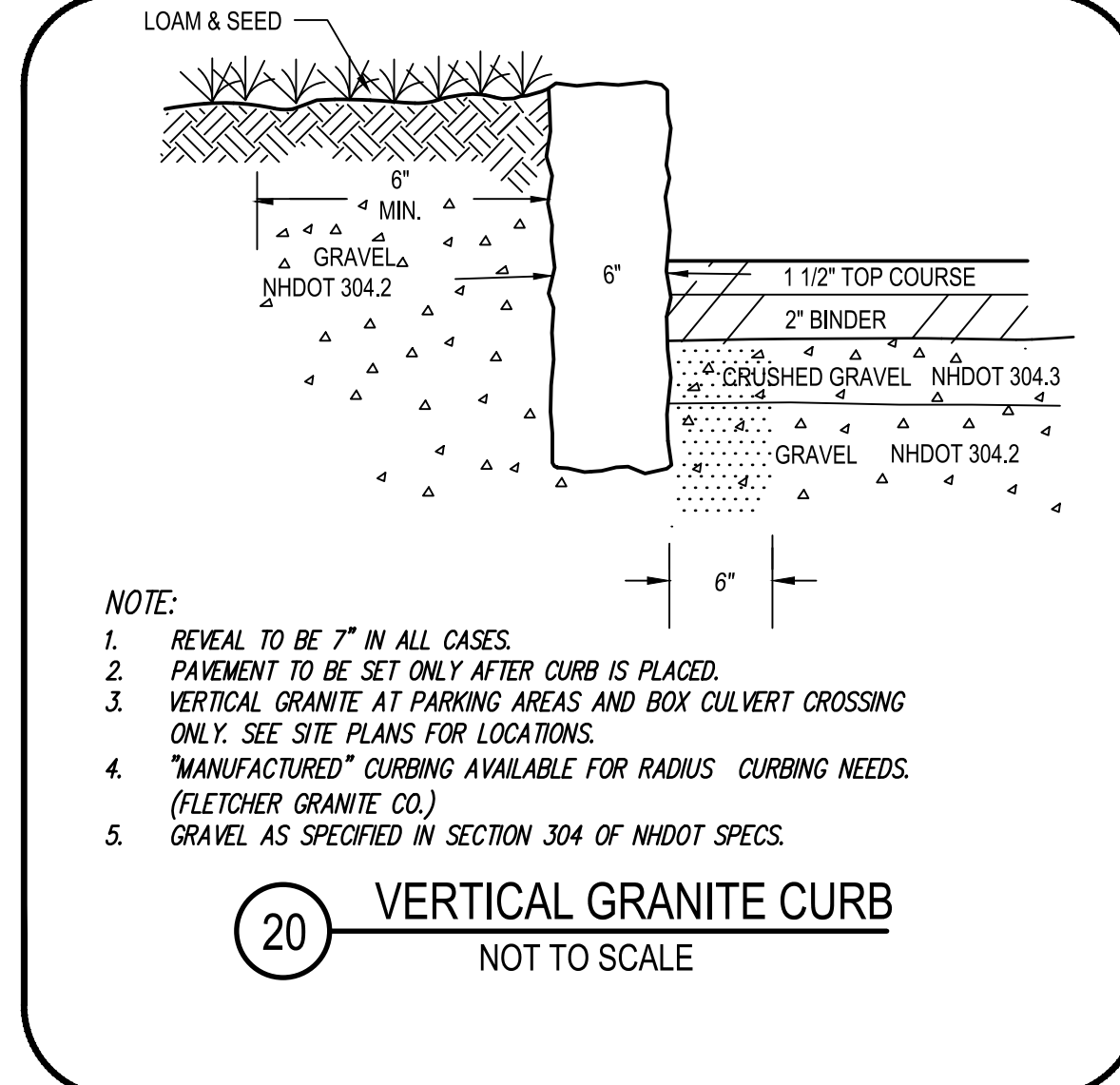
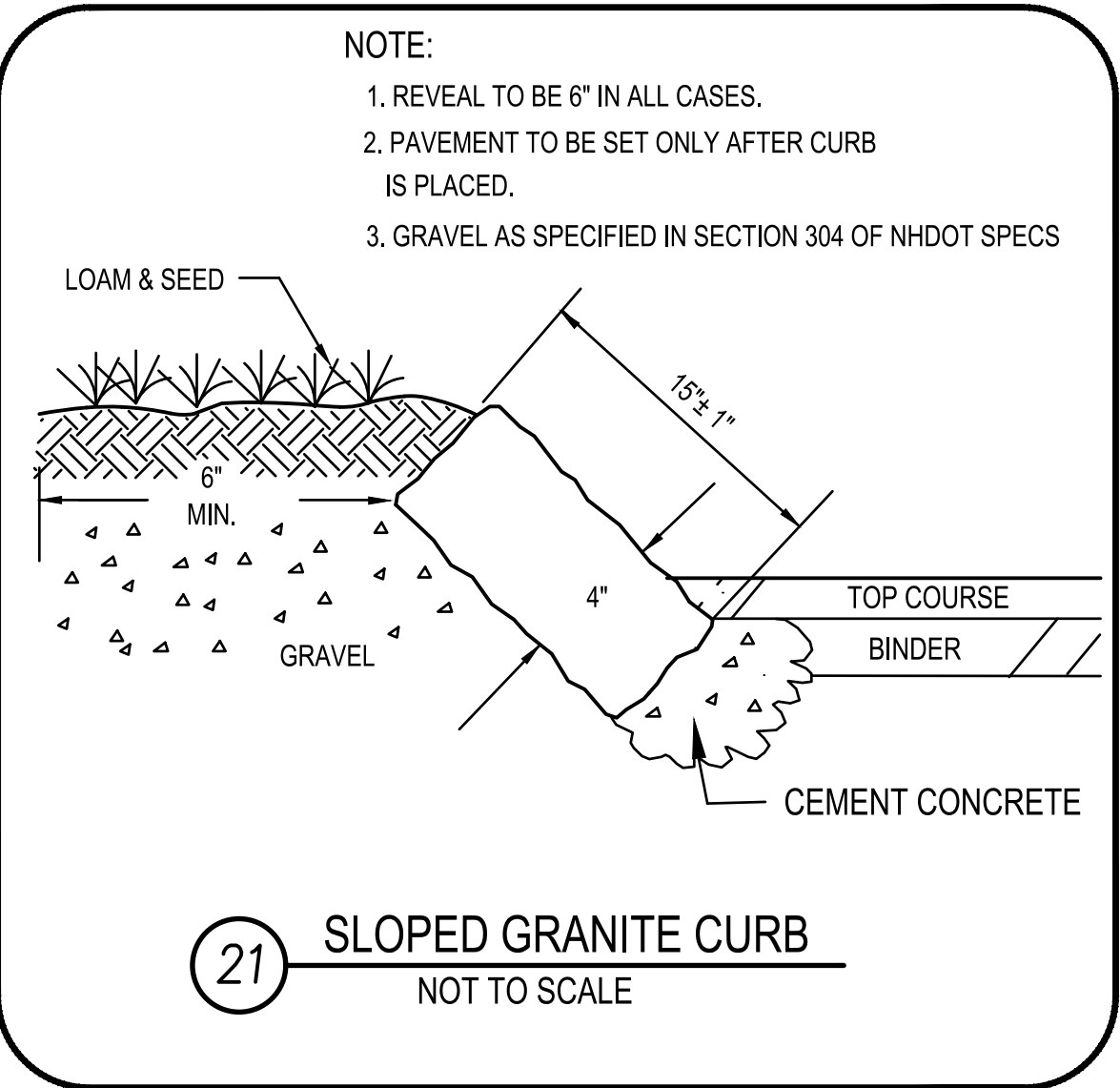
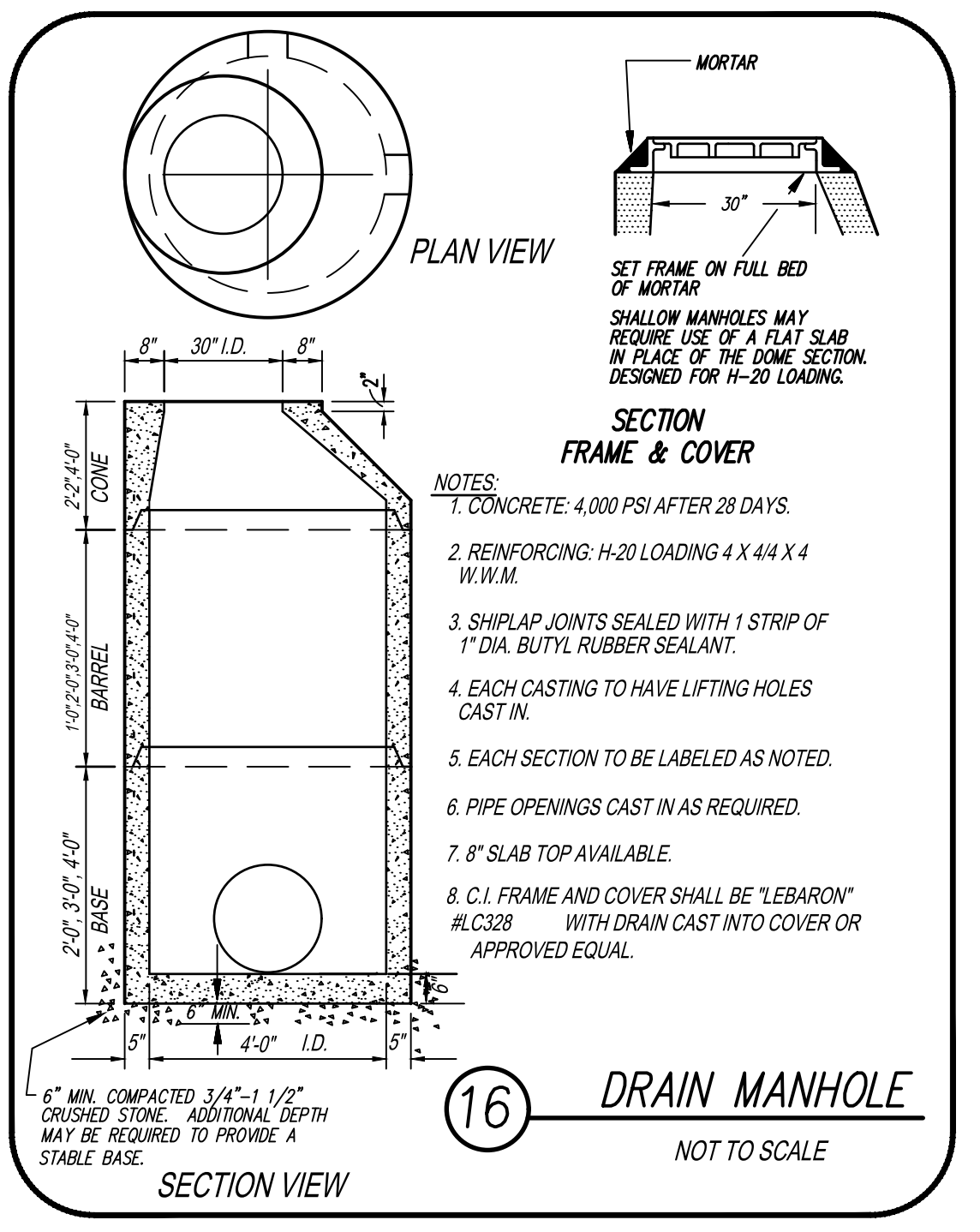
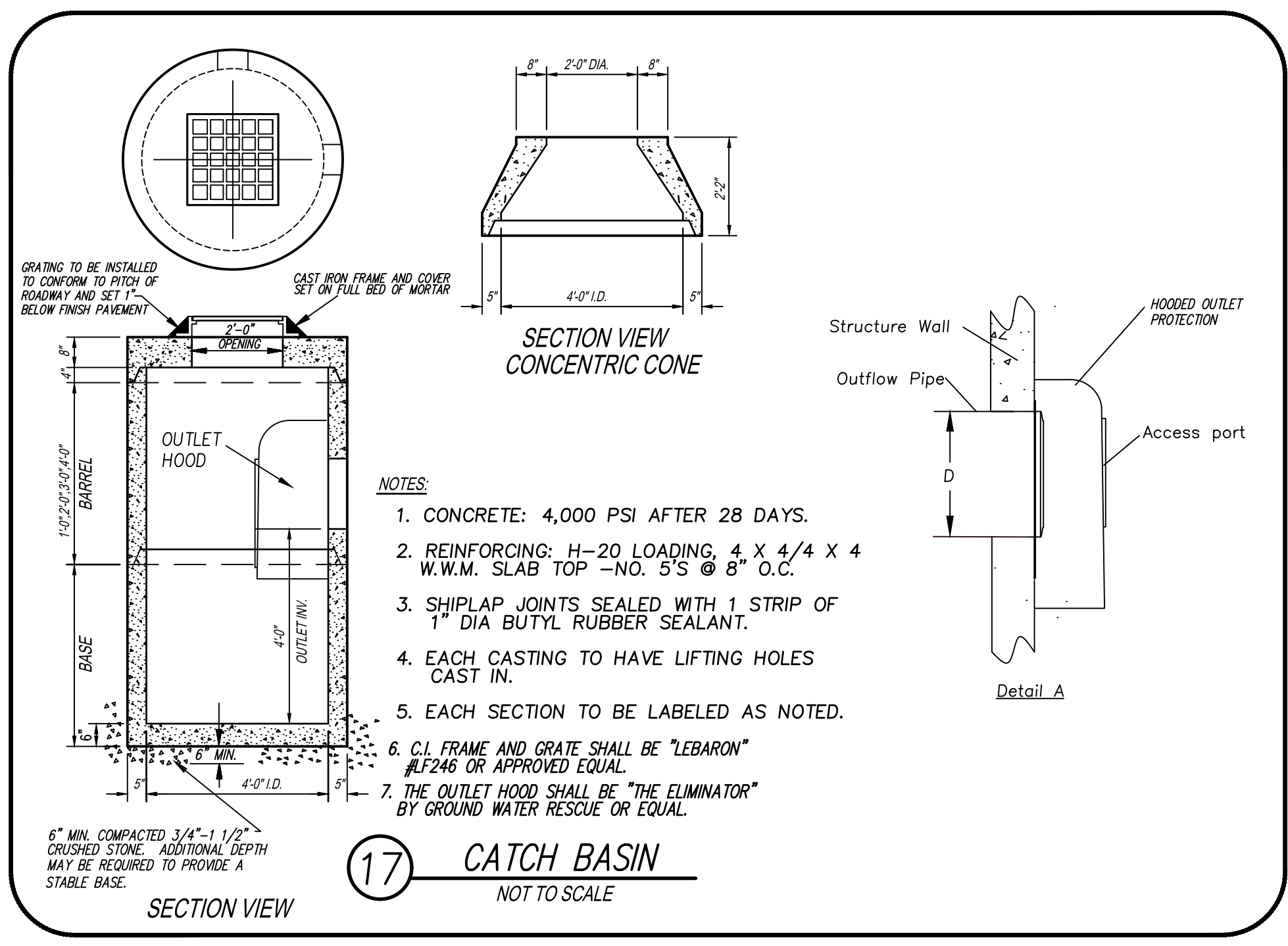
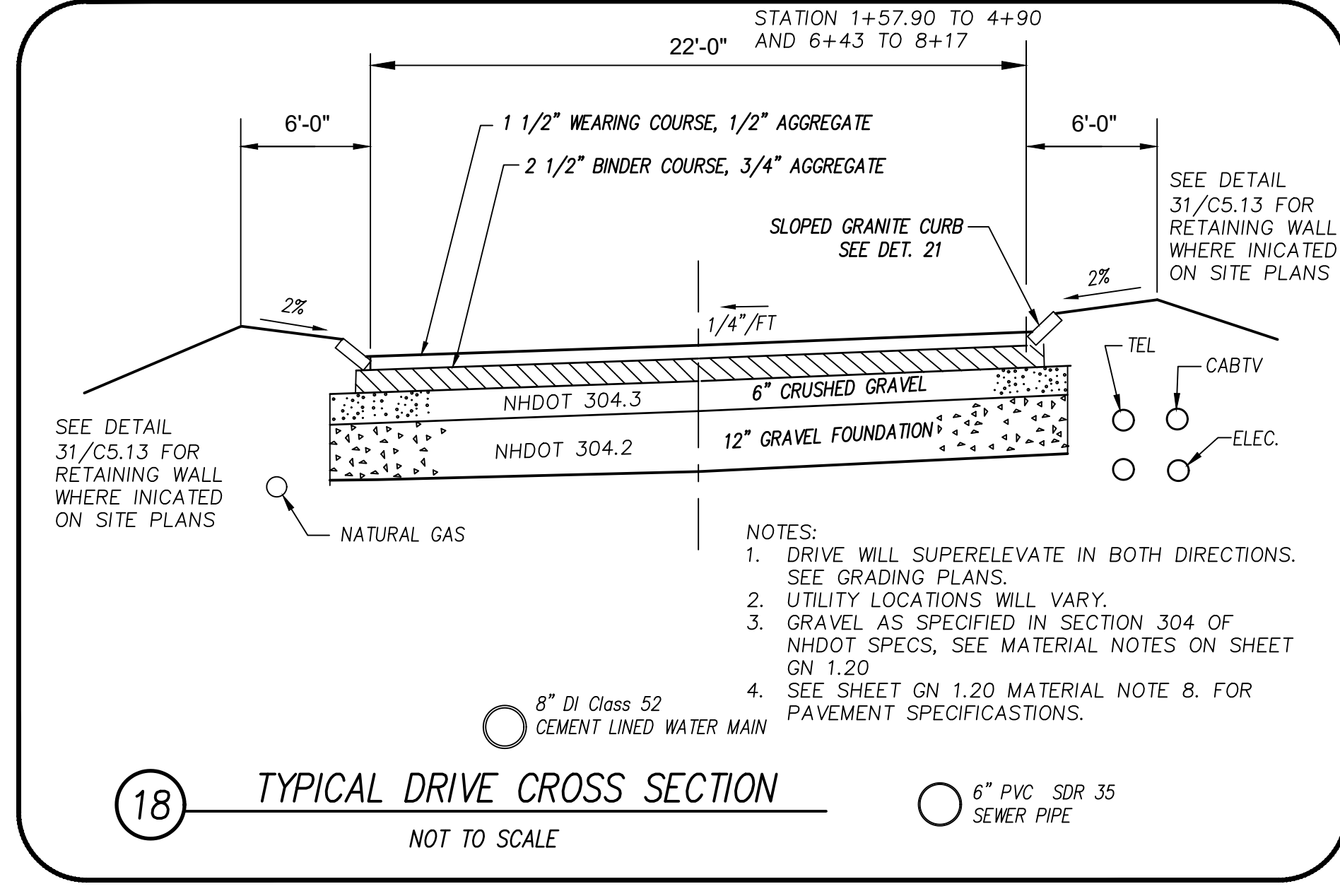
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TOWN OF EXETER PLANNING BOARD

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

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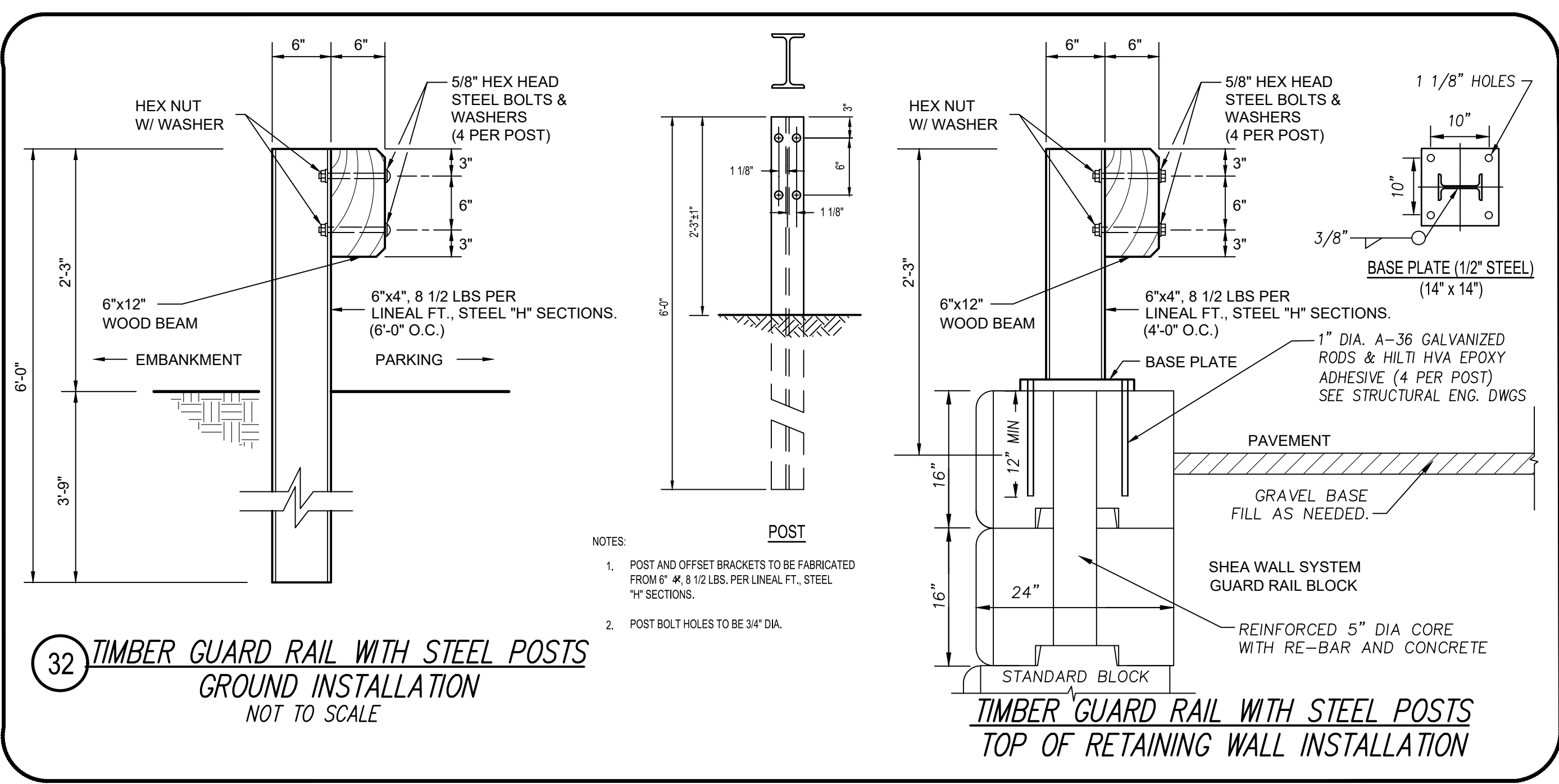
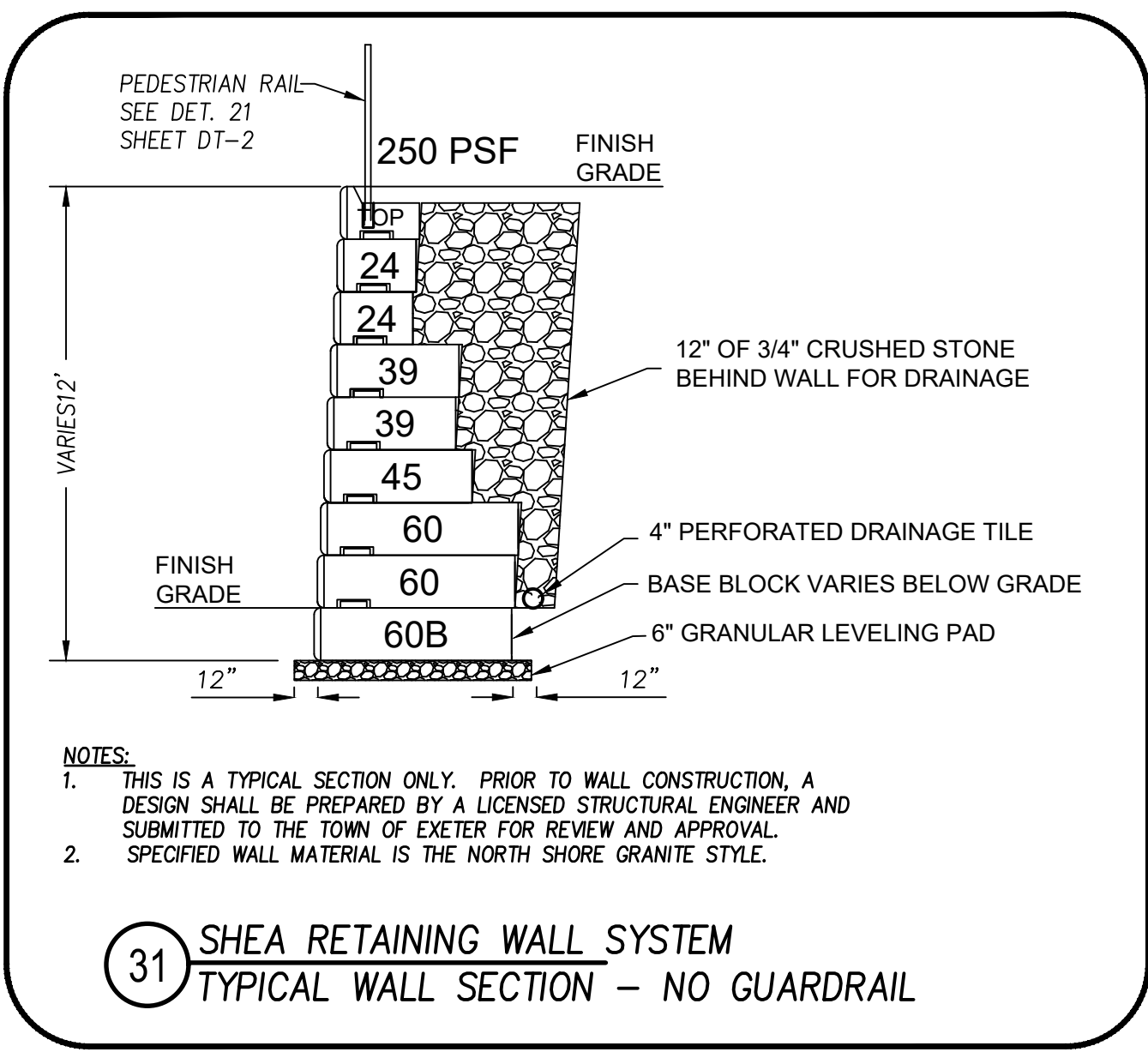
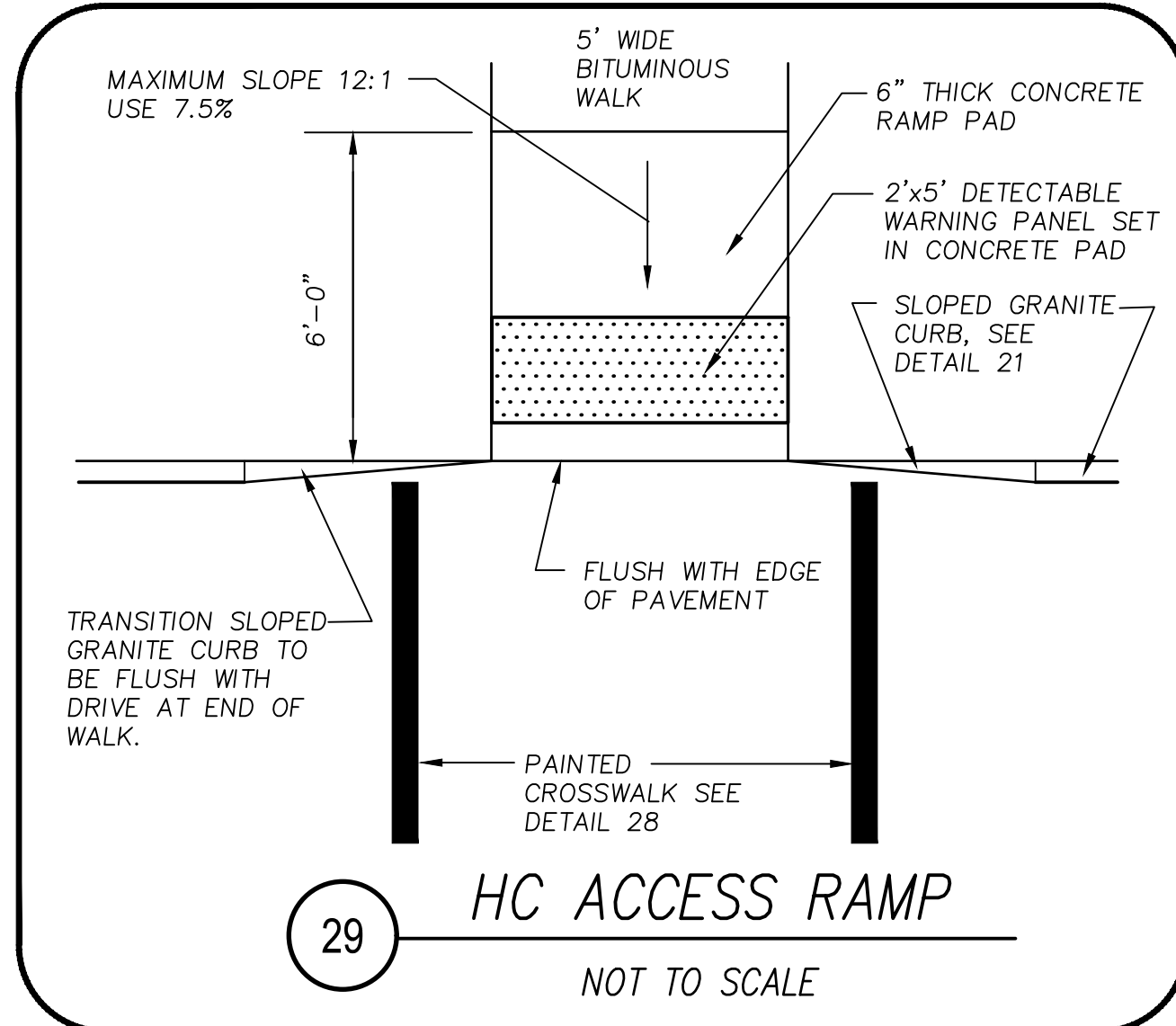
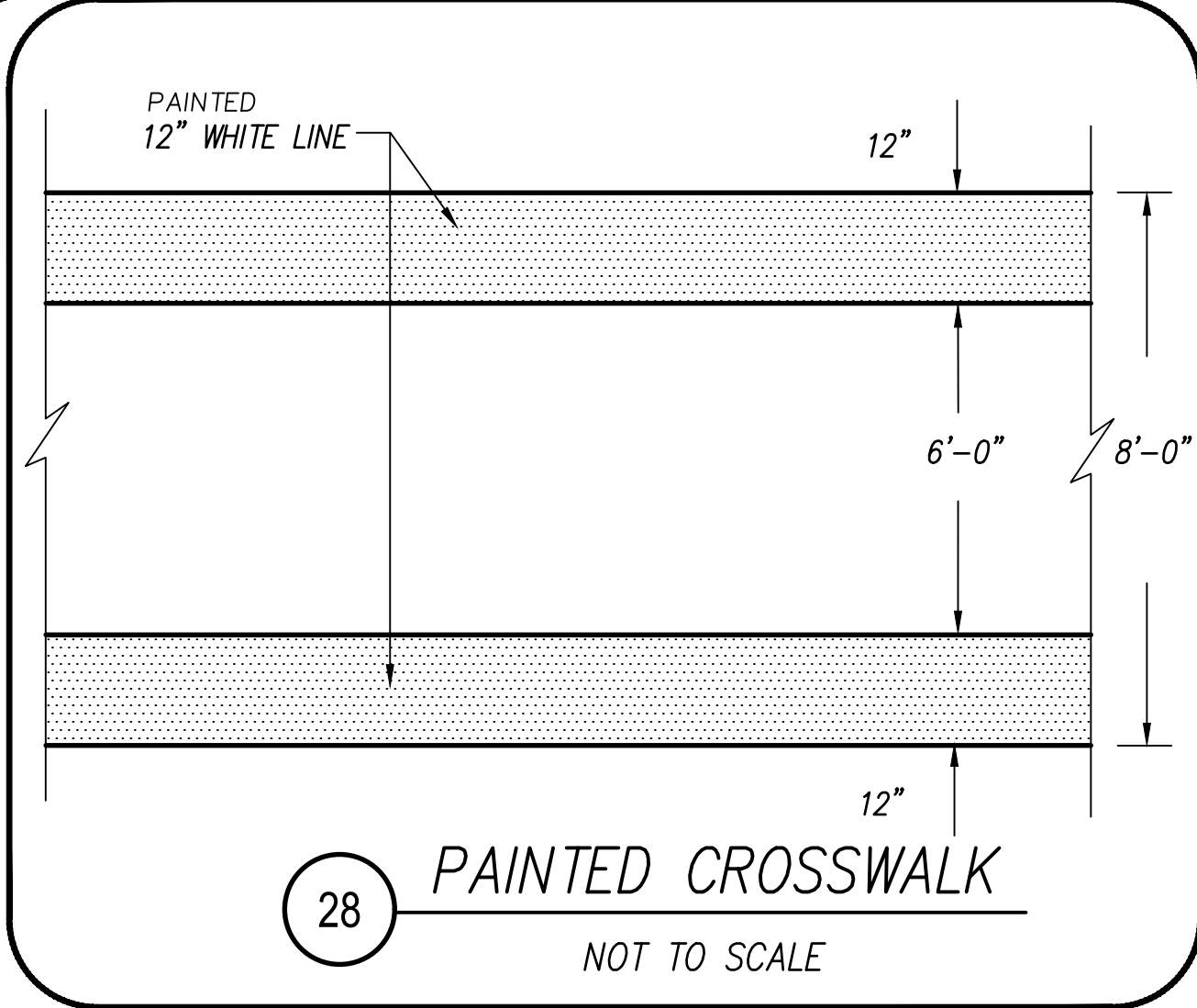
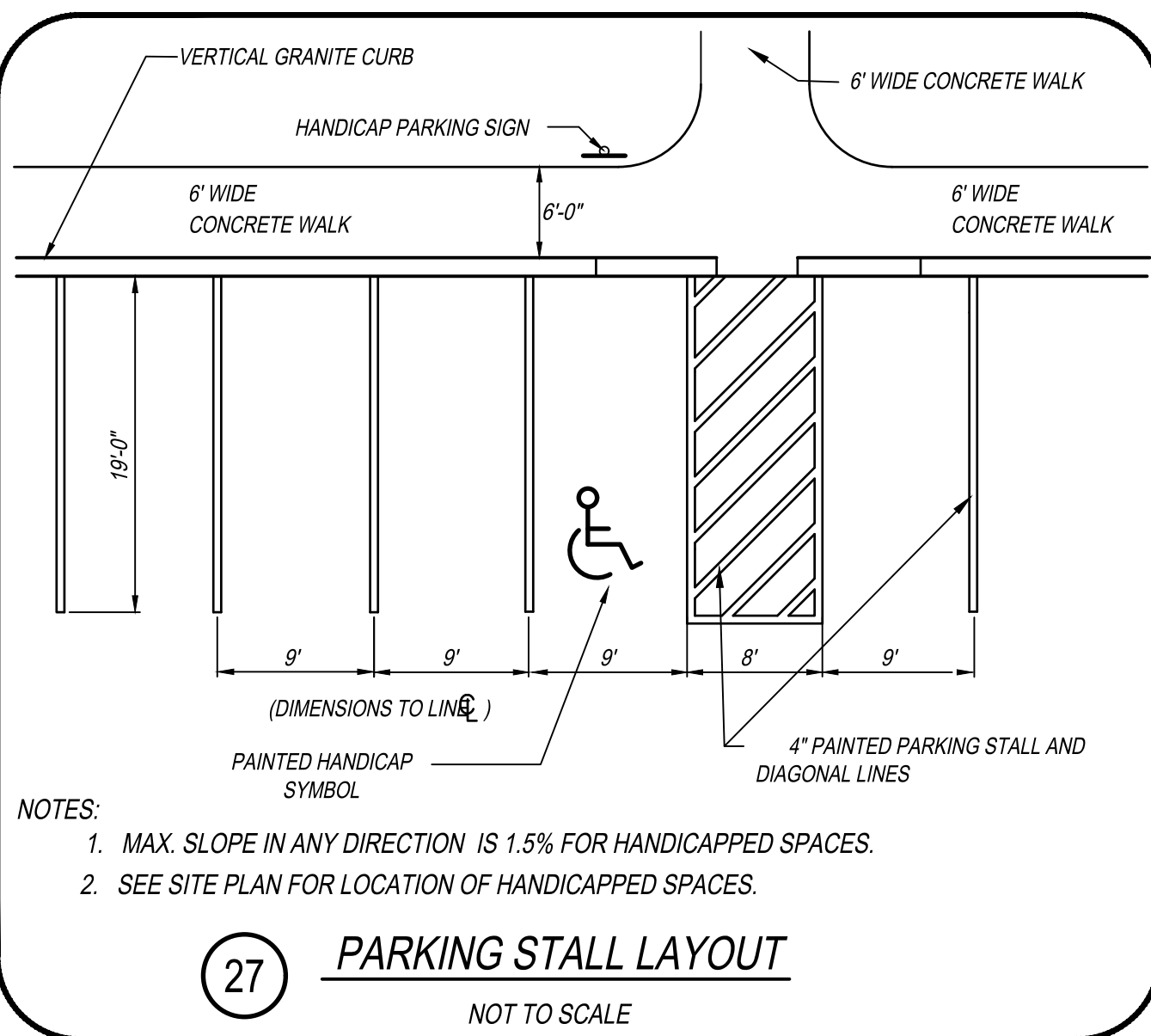
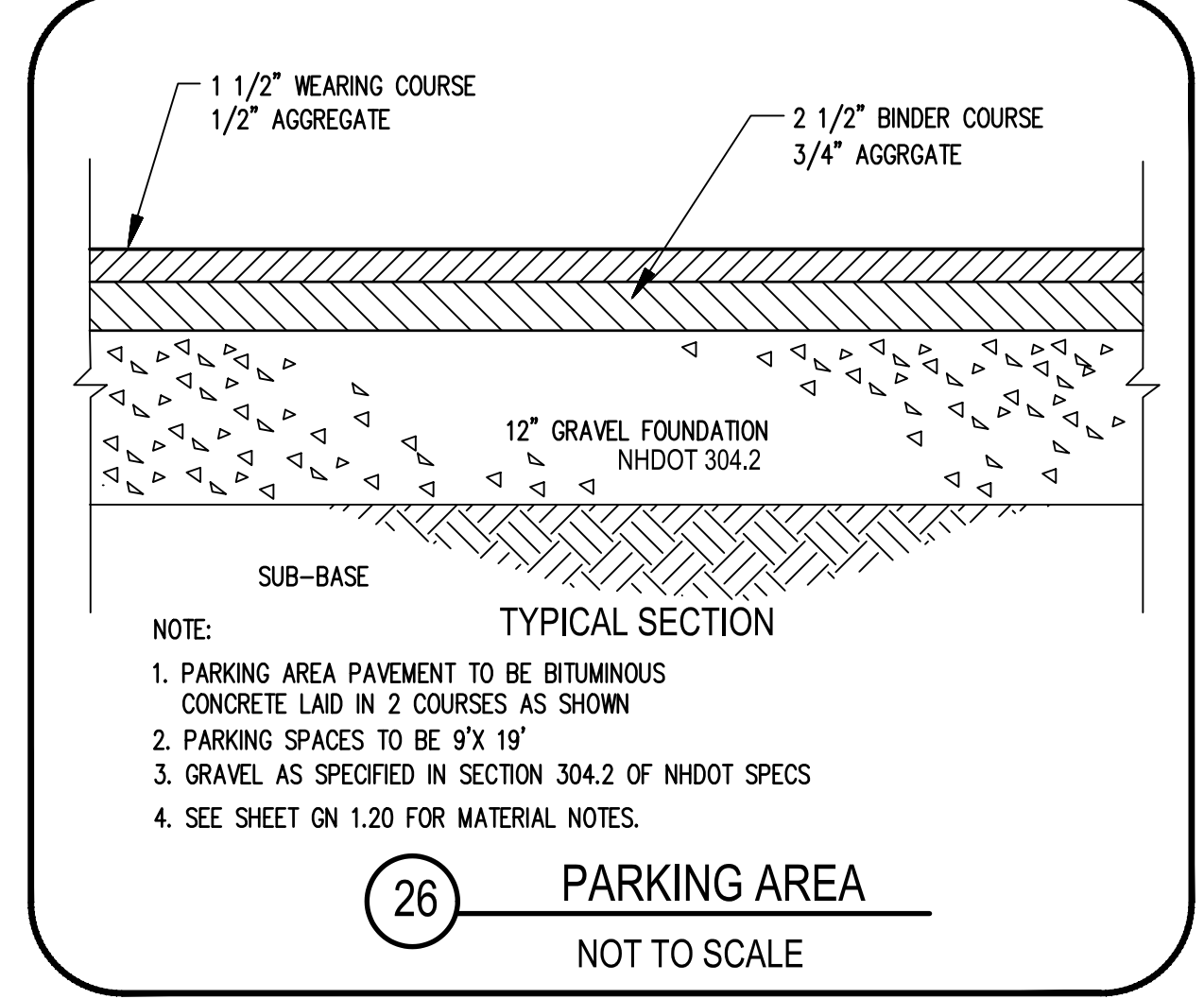
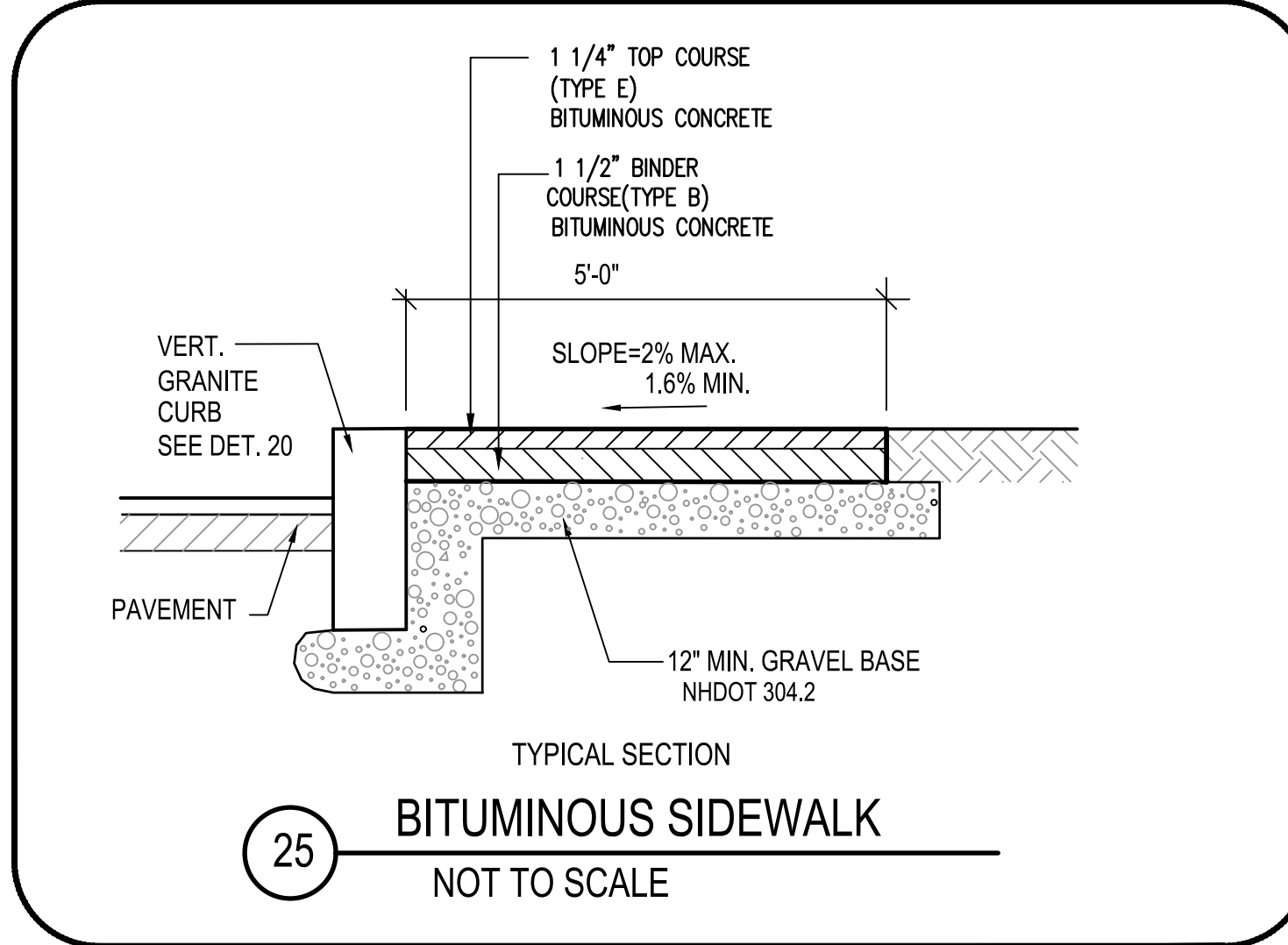
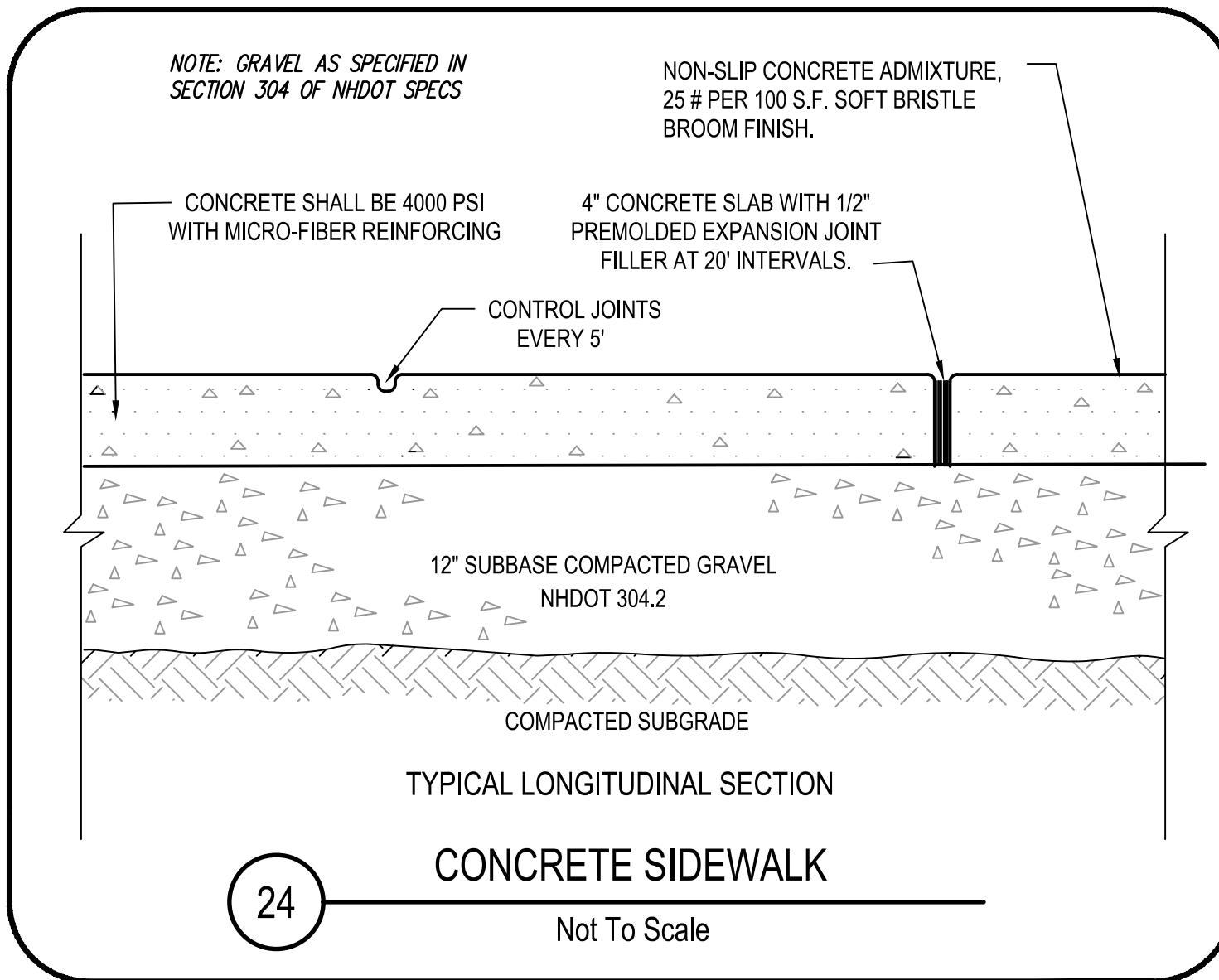
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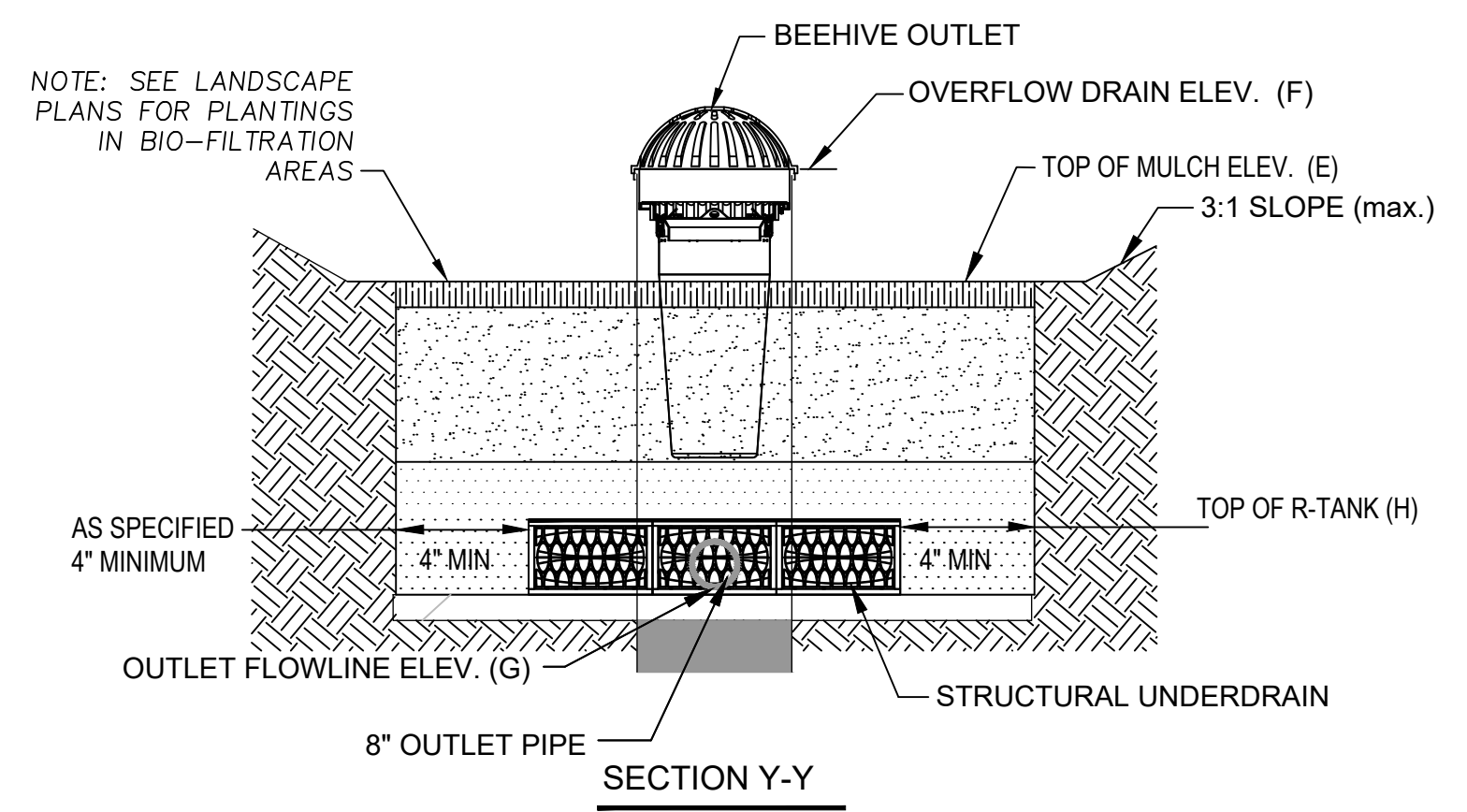
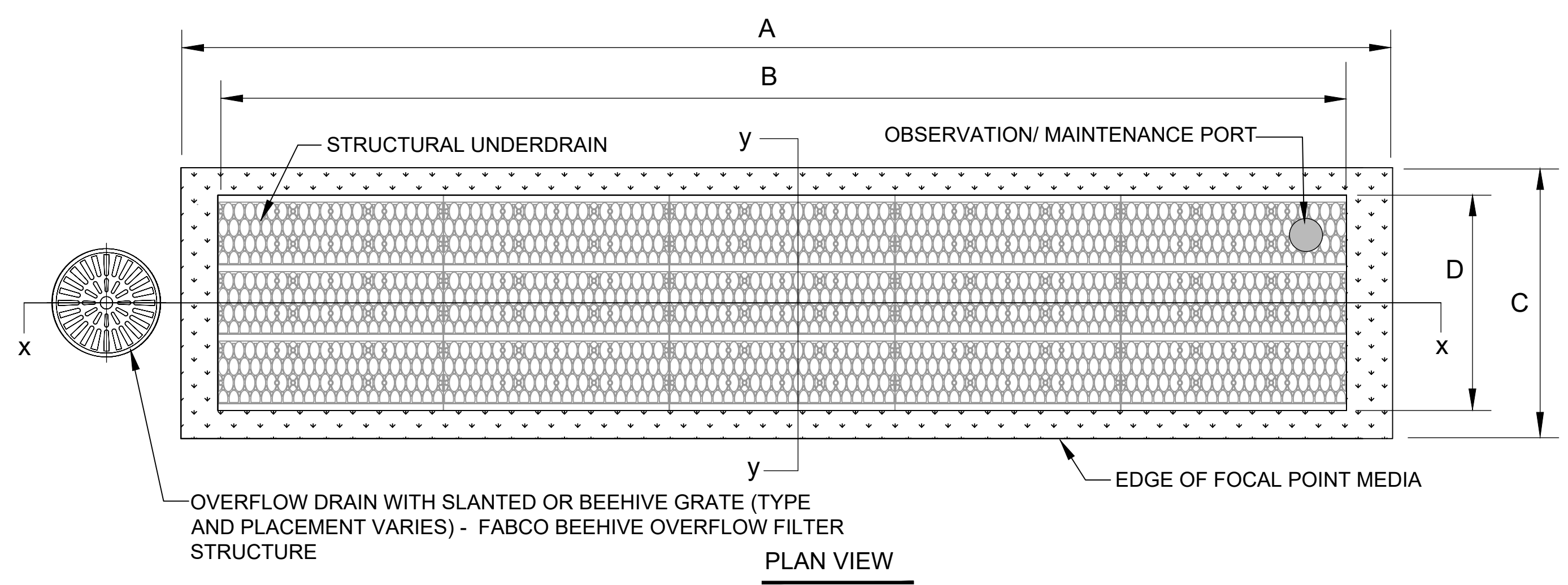
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33

BIO-FILTRATION SYSTEM "FOCAL POINT"

NOT TO SCALE

NOTE: PRODUCTS ON THIS SHEET ARE DISTRIBUTE BY "ACF ENVIRONMENTAL",  
 -25-A PROGRESS AVENUE NASHUA, NH 03062 (603) 589-9255  
 -23 FAITH DR. GORHAM, ME 04038 (207) 272 4431 CONTACT ROBERT WOODMAN

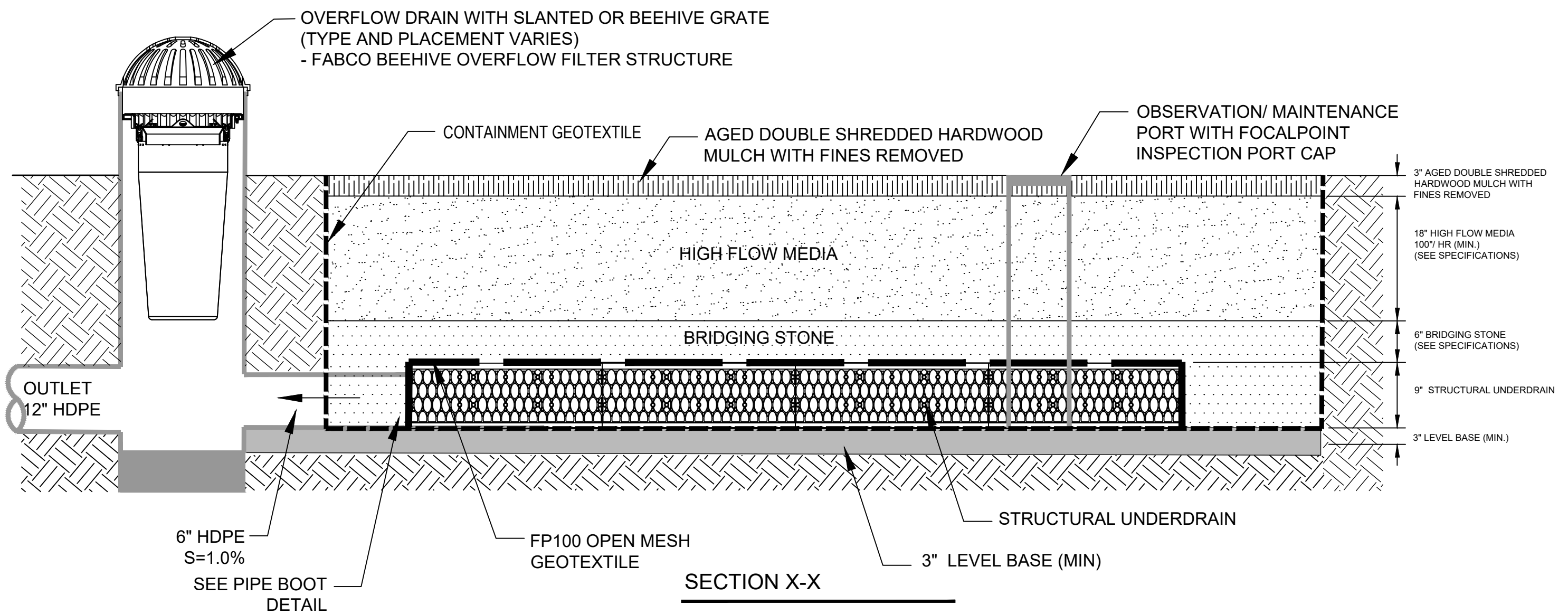


'BEEHIVE' OVERFLOW / OUTLET DATA

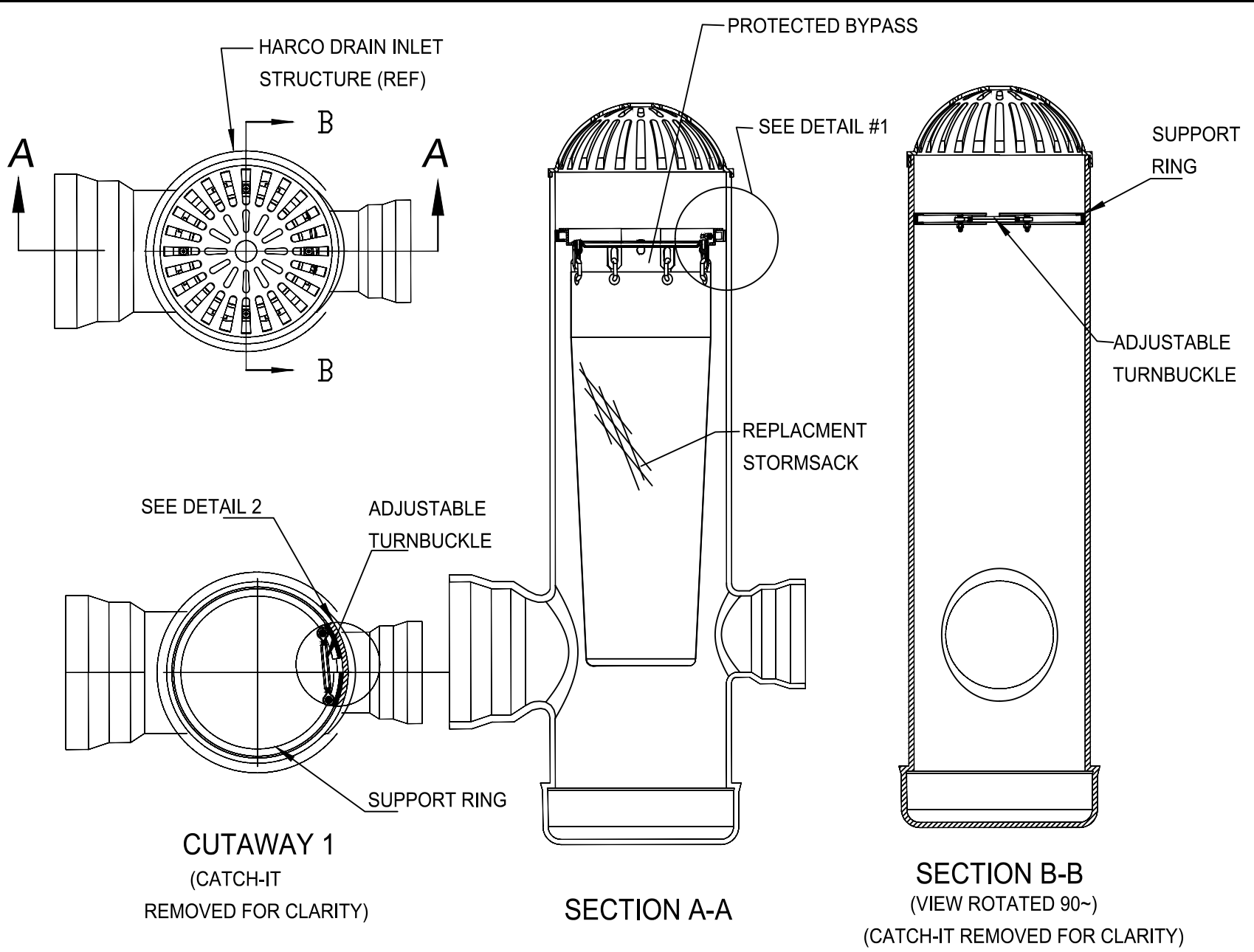
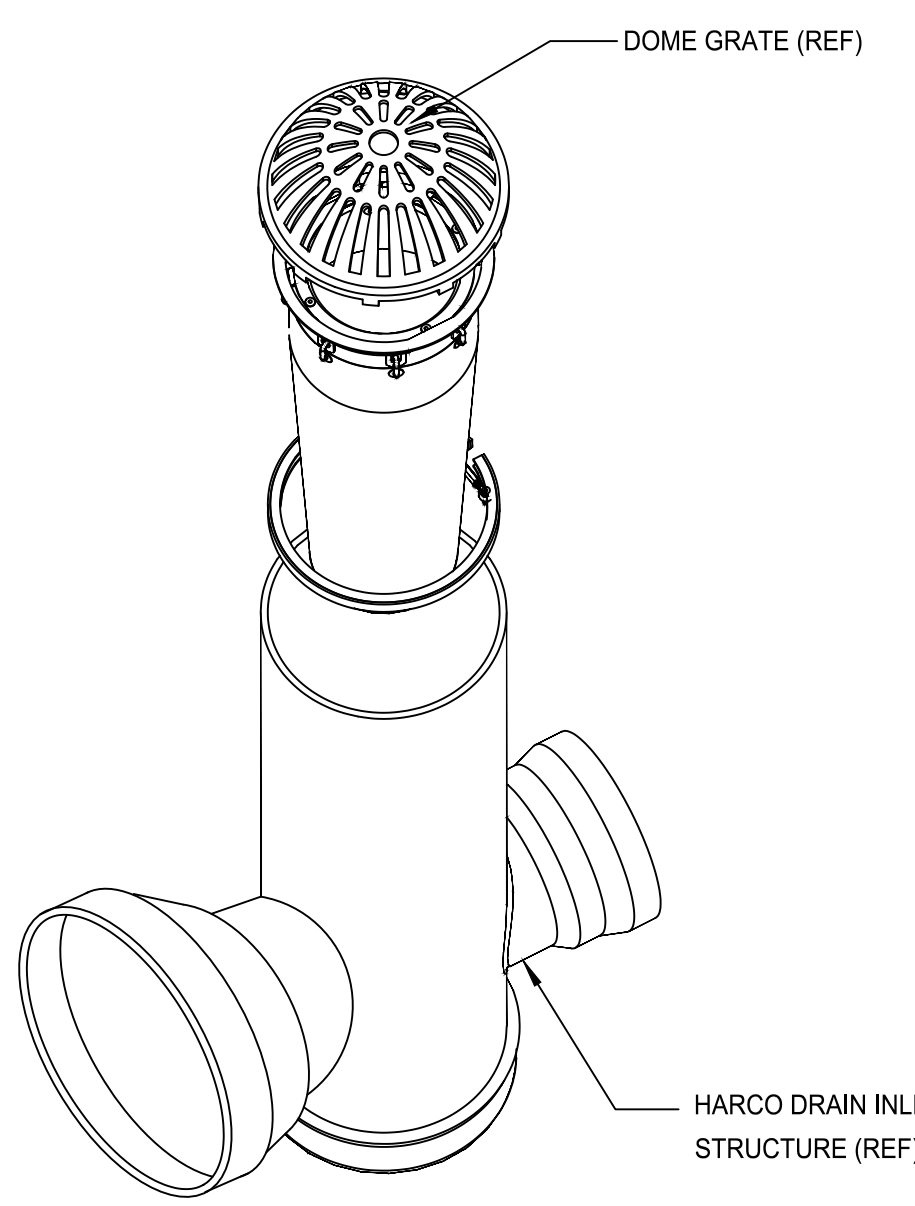
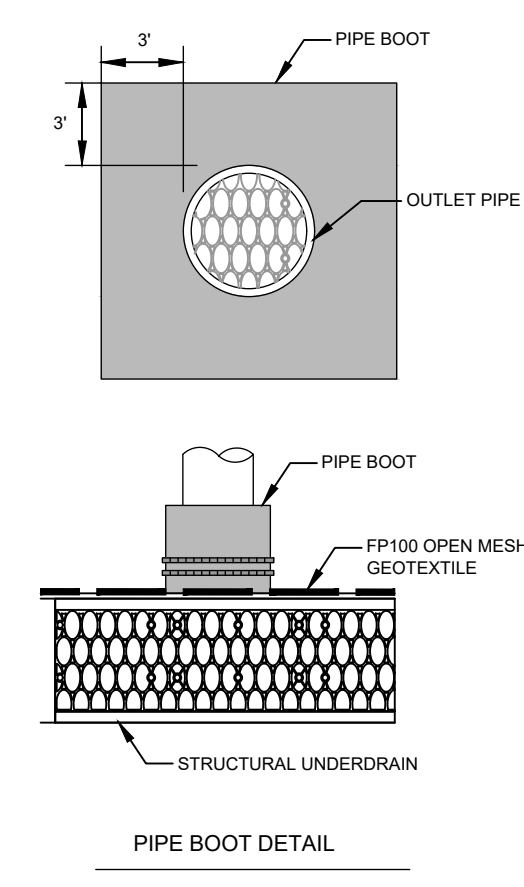
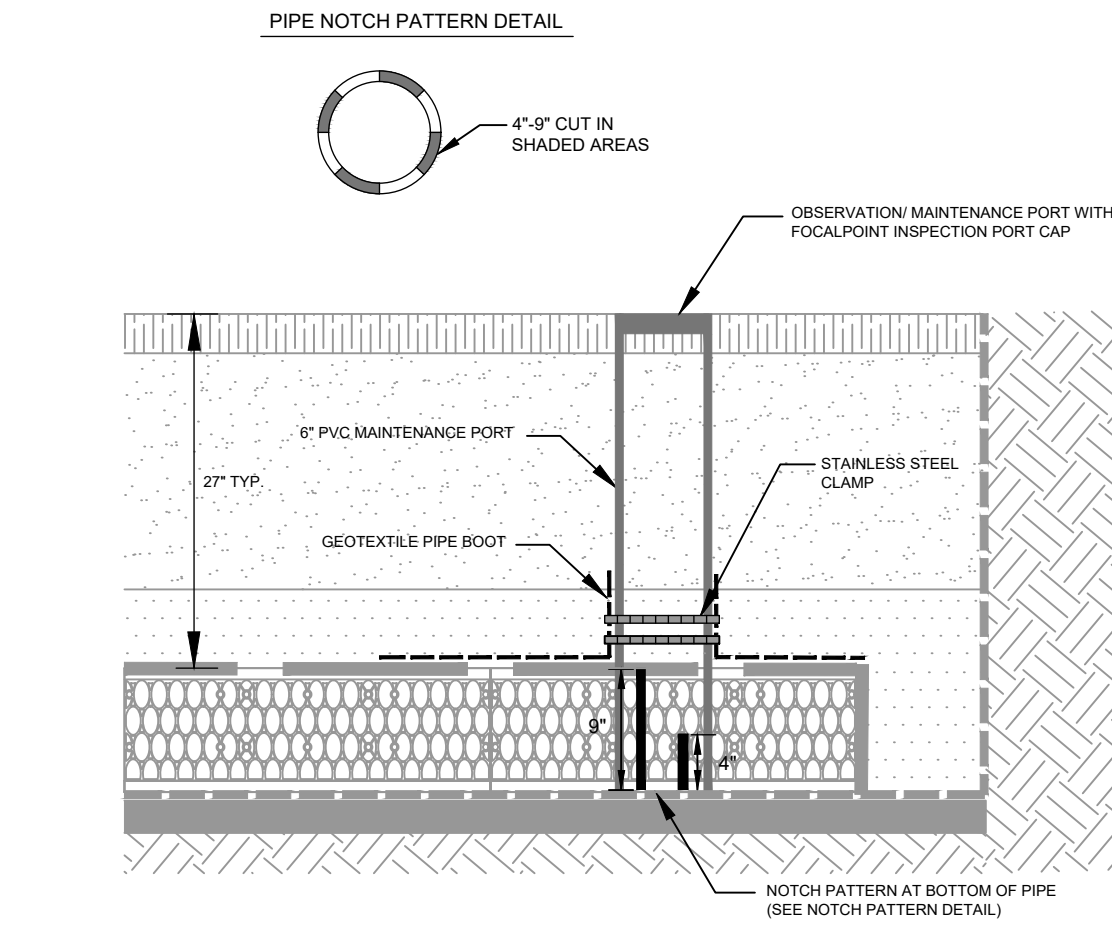
	DIA.	RIM ELEV. 'F'	INLET/INV.	OUTLET/INV.
FP-11	12"	115.00	8"/111.00	8"/111.00
FP-12	12"	107.50	8"/104.00	8"/104.00

FOCAL POINT DATA

	A	B	C	D	E	F	G	H
FP-11	11.00'	9.38' (4 CHAMB)	8.00'	6.56' (5 CHAMB.)	114.20	115.00	111.00	111.95
FP-12	12.00'	9.38' (4 CHAMB)	9.00'	7.87' (6 CHAMB.)	107.00	107.50	104.00	104.75



OBSERVATION / MAINTENANCE PORT



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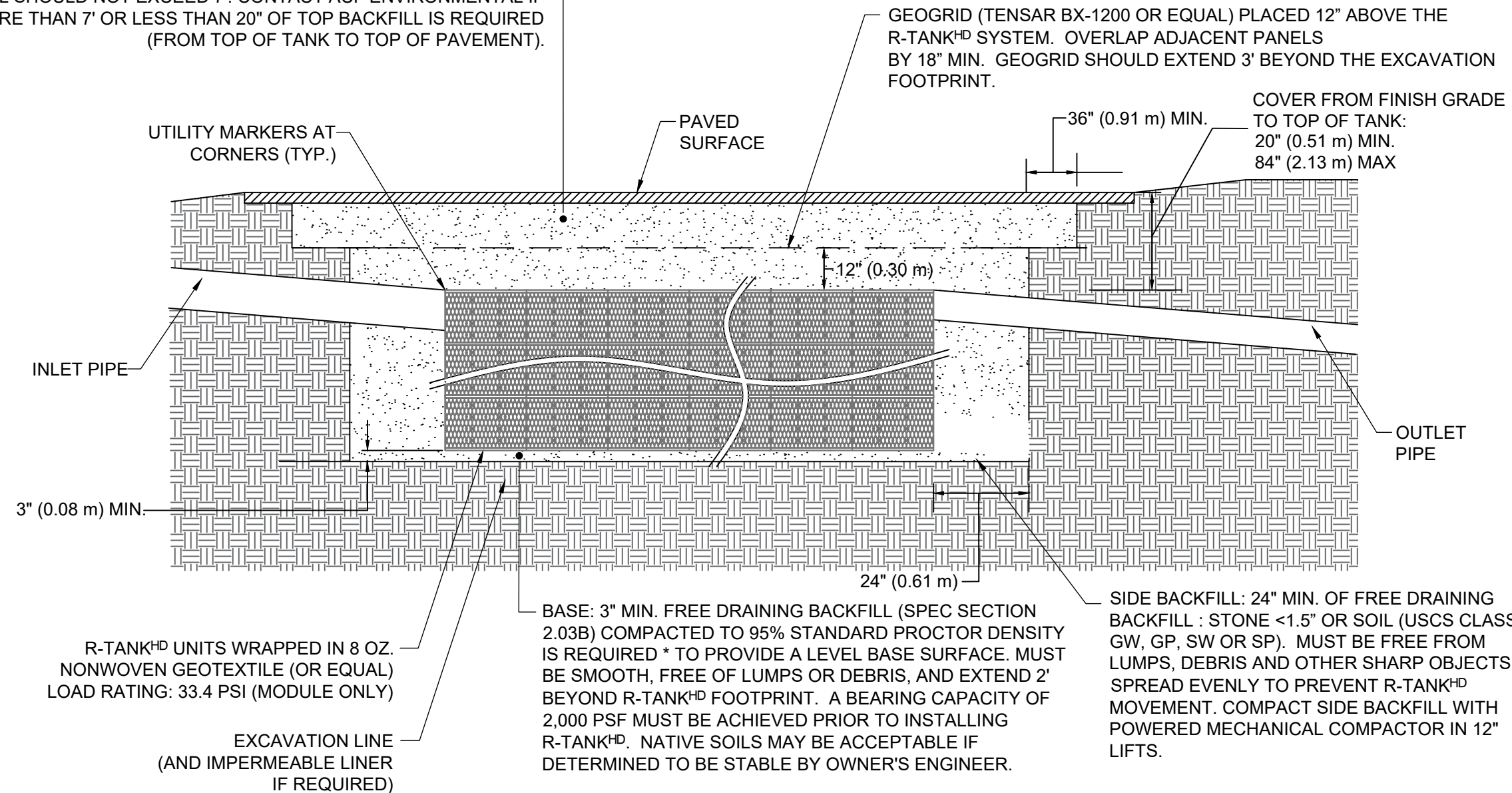
SHEET C5.15

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TOTAL COVER: 20" MINIMUM AND 84" MAXIMUM. FIRST 12" MUST BE FREE DRAINING BACKFILL: STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). ADDITIONAL FILL MAY BE STRUCTURAL FILL (SPEC SECTION 2.03C) STONE OR SOIL (USCS CLASS SM, SP, SW, GM, GP OR GW) WITH MAX CLAY CONTENT <10%, MAX 25% PASSING NO. 200 SIEVE, AND MAX PLASTICITY INDEX OF 4. A MIN. 12" COVER MUST BE MAINTAINED BETWEEN BACKFILL EQUIPMENT AND THE TOP OF THE R-TANK™ SYSTEM AT ALL TIMES. TOTAL HEIGHT OF TOP BACKFILL SHOULD NOT EXCEED 7' OR LESS THAN 20" OF TOP BACKFILL IS REQUIRED (FROM TOP OF TANK TO TOP OF PAVEMENT).

**NOTES:**

- FOR COMPLETE MODULE DATA, SEE APPROPRIATE R-TANK® MODULE SHEET
- INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF H20 LOADING PER THE 1983, 13TH EDITION OF THE AMERICAN ASSOCIATION OF STATE, HIGHWAY AND TRAFFIC OFFICIALS (AASHTO) STANDARD SPECIFICATIONS
- PRE-TREATMENT STRUCTURES NOT SHOWN



\* FOR INFILTRATION APPLICATIONS, BASE SHALL BE 4" MIN. UNCOMPACTED FREE DRAINING BACKFILL (SPEC SECTION 2.03B) TO PROVIDE A LEVEL BASE SURFACE. MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK® FOOTPRINT. A BEARING CAPACITY OF 2,000 PSF MUST BE ACHIEVED PRIOR TO INSTALLING R-TANK®.



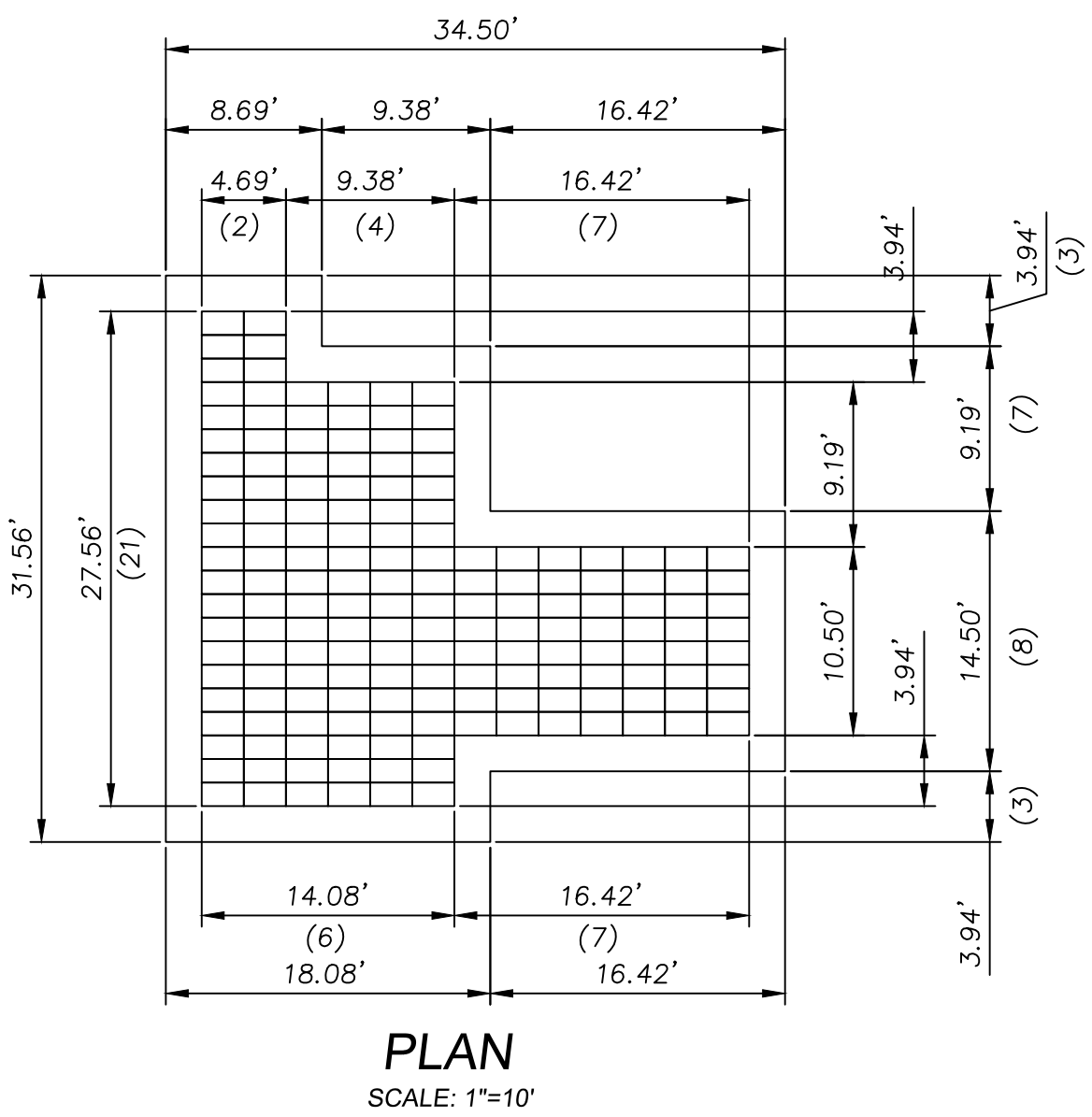
**R-TANK<sup>HD</sup> - HS-20 LOADS**

AUG 2016 REV

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

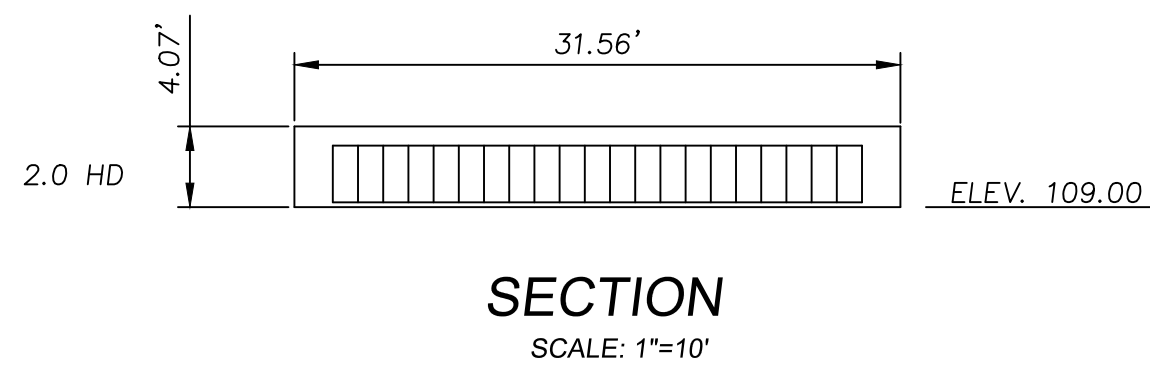
**CONSTRUCTION NOTES:**

- SUBSURFACE INFILTRATION CHAMBER BASINS:**
- DO NOT ALLOW CONSTRUCTION TRAFFIC ON EXPOSED SOIL SURFACE IN AREA OF THE INFILTRATION SYSTEMS. IF FEASIBLE, PERFORM EXCAVATIONS AND ERECTION OUTSIDE THE LIMITS OF THE INFILTRATION SYSTEM
  - AFTER THE INFILTRATION SYSTEM AREA IS EXCAVATED TO THE FINAL DESIGN ELEVATION, THE FLOOR SHOULD BE DEEPLY TILLED WITH A ROTARY TILLER OR A DISC HARROW TO RESTORE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.
  - DO NOT PLACE INFILTRATION SYSTEMS INTO SERVICE UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.



**INFILTRATION SYSTEM 4 (INFIL-4)**  
TOTAL OF 170 2.0 HD CHAMBERS

**34 R-TANK INFILTRATION SYSTEM**

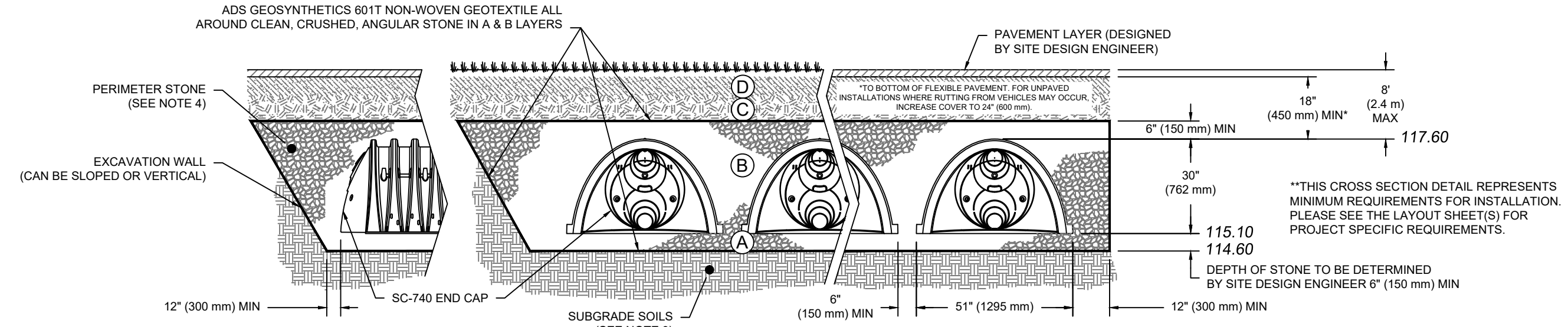


**ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS**

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	<b>FINAL FILL:</b> FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	<b>INITIAL FILL:</b> FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL-GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	<b>EMBEDMENT STONE:</b> FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	NO COMPACTION REQUIRED.
A	<b>FOUNDATION STONE:</b> FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. <sup>2,3</sup>

**PLEASE NOTE:**

1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

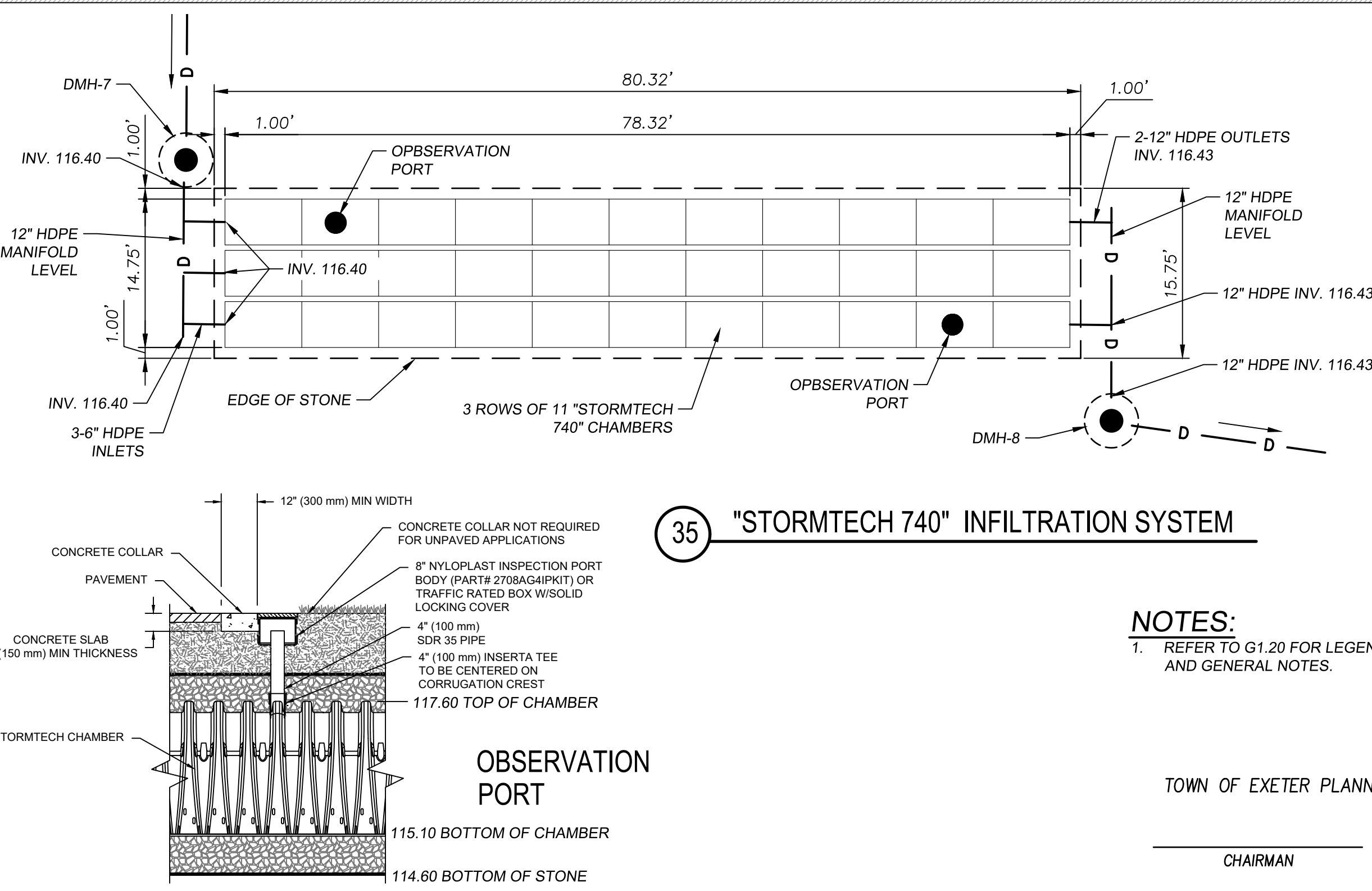


**NOTES:**

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 650 LBS/(MIN. AND B) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C). CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

1

**SC-740 CROSS SECTION DETAIL**



6 CHESTNUT STREET, AMESBURY, MA.

Phone: (978) 388-2157  
CONSULTING ENGINEERS & LAND SURVEYORS SINCE 1988  
www.gm2inc.com

Sheet Title:

**DETAILS**

Project Title:

**Ray Farm Condominium**  
Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

Applicant/Owner:

**Ray Farm, LLC**  
158 Shattuck Way  
Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY
1	5.10.22	TRC COMMENTS	DH

PROJ. MGR.: D. HAMEL
FIELD: J. SALVAGGIO / R. SMITH
DESIGN: D. HAMEL
DRAWN: D. HAMEL
CHECKED: D. GIANGRANDE
DATE: 01-11-2022
FILE: 16042 D.DT.DWG
FBK:
JOB #: 16042 D

SHEET C5.16

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## **Stormwater Analysis**

**“Ray Farm” Building D  
Ray Farmstead Road  
Exeter, New Hampshire**

**Date: March 22, 2022  
Revised May 13, 2022**

Project #16042 Bldg D  
GM2 Associates  
6 Chestnut Street, Amesbury, MA

## TABLE OF CONTENTS

### Stormwater Analysis

Project Narrative / Results / Summary  
Rainfall Table – Northeast Regional Climate Center  
Pre-Development Analysis: Drainage Diagram  
Pre-Development Analysis: 2-year, 10-year, 25-year, 50-year, 100-year  
Post-Development Analysis: Drainage Diagram  
Post Development Analysis: 2-year, 10-year, 25-year 50-year, 100-year

## PROJECT NARRATIVE

### GENERAL

The Parcel is located off Ray Farmstead Road in Exeter, New Hampshire. It is situated in the “Commercial” zoning district. A variance was granted by the Exeter Zoning Board of Adjustments in November 2021 to allow the relocated Building D to have 32 multifamily units in the Commercial Zone. This project is part of the Ray Farm Condominium development approved in 2017. The previously approved plan showed a Building D near the abutting Mobil Station. This proposal is to re-locate Building D to land beyond Building C on land owned by the developer. That land will be combined with the original Ray Farm parcel. The area where Building D was previously approved will be open space and not developed.

The site is wooded with sloping knolls and a intrmittent stream and running from the East of the site to the West. There is another stream that runs from Noith to the South and becomes perinial at the right of way easement to the Carlisle property and is known as Watson Brook. Upland soils on the site are mainly Newfields with some Canton soils on a couple of the knolls. There are wetland soils associated with the streams and swales that cross the site and are mapped as Walpoe. Soil Mapping prepared by Gove Environmental Services located in Exeter, NH. See the accompanying design plans and the Pre-Development Drainage Zones plan in the rear pocket.

## PRE-DEVELOPMENT DRAINAGE CONDITIONS

The Site consists of undeveloped land with subcatchments E1 and E2. See (*Pre-Development Drainage Zones*) and the calculation data for a detailed description of subcatchment data.

## PROPOSED

The proposed development includes the construction of one, four story building with thirty two housing units. The building will have garage located in the basement. Associated utilities, surface parking, stormwater management systems, and landscaping are located onsite. The project will be serviced by municipal water and sewer. Natural gas service will be utilized for the energy source.. See the accompanying design plans for a detailed description of the proposed development.

## STORMWATER MANAGEMENT SYSTEM

The proposed stormwater management system includes; Bio-Treatment systems known as “Focal Point” will treat all the runoff from the paved areas onsite, Subsurface infiltration chambers, Sediment Forebays, Detention Basins, and grass treatment swales, level spreaders, and rip-rap outlet protection. The stormwater systems outlet to the wetland system associated with the stream.

## POST-DEVELOPMENT DRAINAGE CONDITIONS

Drainage patterns resulting from the proposed development are delineated on (*Post-Development Drainage Zones*). Subcatchments D1 and D2 by-passes the Stormwater treatment systems, and comprise of natural landscape and the side slopes of the stormwater systems, drives and buildings.. Subcatchment D8 is a small area flows to the existing Focal Point associated with Building C. D2 thru D7 represents the proposed developed area which flows to the stormwater treatment systems. See (*Post-Development Drainage Zones*) and the calculation data for a detailed description of subcatchment data.

# DESIGN OBJECTIVES / METHODOLOGY

## STORMWATER MANAGEMENT SYSTEM

The design objectives for the on-site storm water drainage system were to safely control, treat, and infiltrate stormwater runoff from the proposed development and to maintain the

overall stormwater runoff conditions of the Site. The drainage system was designed to accommodate runoff resulting from a 2, 10, 25, 50 and 100 year frequency design storm. The general drainage patterns of the Site will remain essentially unaltered. The stormwater flows from offsite a diverted around developed area and does not mix with the stormwater from the developed area.

## RUNOFF QUANTIFICATION

A drainage analysis was performed using pre- and post-development site criteria to estimate the effects of the proposed development on stormwater runoff conditions. Stormwater runoff rates were calculated for the 2, 10, 25, 50 and 100 year design storm events. The analysis was performed using HydroCAD™, a computerized stormwater modeling system that combines SCS hydrology techniques with standard hydraulic equations.

Total site runoff figures were obtained by summing hydrographs and not by direct addition of peak flows from individual subcatchments. Since peak flows from the individual subcatchments occur at different times, the total runoff figure listed may not equal the sum of the individual peak flows from the various subcatchments. This method provides a more realistic total flow figure than that obtained by direct addition of peak flows.

The Rainfall amounts used are from Extreme Precipitation Tables by Northeast Regional Climate Center. The amounts have increased from this table by 15% as suggested by the NHDES Alteration of Terrain regulations.

Rainfall	NRCC	+15%	Total
2 Year	3.18	0.48	3.66
10 Year	4.85	0.73	5.58
25 Year	6.17	0.93	7.10
50 Year	7.41	1.11	8.52
100 Year	8.90	1.34	10.24

## RESULTS

### STORMWATER RUNOFF COMPARISON

The following table summarize hydrologic and hydraulic conditions resulting from pre and post development peak storm water runoff that flow to the southerly property line and shown as Design Point "A".

<b>RESULTS ARE ANALYZED AT SUMMARY REACH "A"</b>		
<b>Storm Event</b>	<b>Pre-Development CFS (Vol. af)</b>	<b>Post-Development CFS (Vol. af)</b>
2	1.50 (0.242 af)	1.16 (0.308 af)
10	6.05 (0.719 af)	5.95 (0.867 af)
25	10.71 (1.197 af)	10.70 (1.391 af)
50	15.56 (1.696 af)	15.04 (1.924 af)
100	21.85 (2.350 af)	20.30 (2.607 af)

### SUMMARY

Existing stormwater runoff drainage patterns will remain essentially unchanged under post-development conditions. The site will continue to drain to the wetland area and stream at the western portion of the site and beyond. Peak discharge rates are slightly lower in the post-developed conditions through the use of the stormwater management systems. The stormwater management system does allow the 100 year storm event to safely pass though without overtopping the berms.

# Extreme Precipitation Tables

## Northeast Regional Climate Center

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

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.975 degrees West
Latitude	43.000 degrees North
Elevation	0 feet
Date/Time	Thu, 27 Jan 2022 11:29:10 -0500

### Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.66	0.82	1.04	1yr	0.71	0.99	1.22	1.57	2.03	2.66	2.86	1yr	2.35	2.75	3.16	3.87	4.48	1yr
2yr	0.32	0.50	0.62	0.81	1.02	1.30	2yr	0.88	1.18	1.51	1.93	2.47	3.18	3.53	2yr	2.82	3.39	3.90	4.63	5.27	2yr
5yr	0.37	0.58	0.73	0.98	1.25	1.61	5yr	1.08	1.46	1.89	2.43	3.13	4.05	4.53	5yr	3.58	4.36	4.98	5.91	6.68	5yr
10yr	0.41	0.65	0.82	1.12	1.46	1.89	10yr	1.26	1.72	2.24	2.89	3.75	4.85	5.49	10yr	4.30	5.28	6.00	7.11	7.99	10yr
25yr	0.48	0.76	0.97	1.34	1.78	2.35	25yr	1.54	2.14	2.79	3.64	4.75	6.17	7.07	25yr	5.46	6.80	7.67	9.10	10.13	25yr
50yr	0.54	0.87	1.11	1.55	2.09	2.78	50yr	1.80	2.53	3.31	4.35	5.69	7.41	8.56	50yr	6.56	8.23	9.25	10.96	12.14	50yr
100yr	0.60	0.97	1.26	1.79	2.44	3.28	100yr	2.11	2.98	3.94	5.19	6.81	8.90	10.38	100yr	7.88	9.98	11.14	13.22	14.55	100yr
200yr	0.68	1.11	1.44	2.07	2.86	3.88	200yr	2.47	3.53	4.66	6.19	8.15	10.69	12.57	200yr	9.46	12.09	13.43	15.95	17.44	200yr
500yr	0.81	1.33	1.74	2.52	3.52	4.83	500yr	3.04	4.40	5.84	7.80	10.34	13.63	16.22	500yr	12.06	15.59	17.20	20.46	22.18	500yr

### Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.37	0.45	0.61	0.75	0.89	1yr	0.64	0.87	0.95	1.25	1.53	2.21	2.52	1yr	1.95	2.43	2.87	3.42	3.95	1yr
2yr	0.32	0.49	0.60	0.81	1.00	1.19	2yr	0.87	1.16	1.37	1.81	2.33	3.07	3.43	2yr	2.72	3.30	3.79	4.49	5.05	2yr
5yr	0.35	0.55	0.68	0.93	1.19	1.41	5yr	1.02	1.38	1.62	2.12	2.74	3.74	4.16	5yr	3.31	4.00	4.59	5.55	6.19	5yr
10yr	0.39	0.60	0.75	1.05	1.35	1.62	10yr	1.17	1.59	1.82	2.41	3.08	4.29	4.81	10yr	3.80	4.62	5.30	6.49	7.08	10yr
25yr	0.45	0.69	0.86	1.22	1.61	1.94	25yr	1.39	1.90	2.12	2.79	3.59	4.81	5.81	25yr	4.26	5.59	6.40	7.96	8.84	25yr
50yr	0.50	0.76	0.95	1.37	1.84	2.23	50yr	1.59	2.18	2.36	3.14	4.03	5.42	6.68	50yr	4.80	6.42	7.37	9.31	10.24	50yr
100yr	0.56	0.85	1.07	1.54	2.11	2.56	100yr	1.82	2.51	2.65	3.51	4.51	6.10	7.66	100yr	5.40	7.37	8.49	10.88	11.84	100yr
200yr	0.63	0.95	1.20	1.74	2.42	2.94	200yr	2.09	2.88	2.95	3.93	5.05	6.82	9.69	200yr	6.04	9.31	9.79	12.73	13.72	200yr
500yr	0.74	1.10	1.41	2.06	2.92	3.55	500yr	2.52	3.47	3.42	4.55	5.89	7.88	11.89	500yr	6.98	11.44	11.80	15.67	16.62	500yr

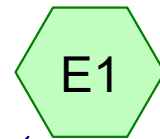
### Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.53	0.72	0.88	1.08	1yr	0.76	1.05	1.26	1.71	2.16	2.94	3.13	1yr	2.60	3.01	3.55	4.22	4.96	1yr
2yr	0.33	0.51	0.63	0.85	1.05	1.26	2yr	0.91	1.23	1.48	1.94	2.48	3.37	3.65	2yr	2.99	3.51	4.04	4.81	5.59	2yr
5yr	0.40	0.62	0.77	1.05	1.34	1.61	5yr	1.15	1.57	1.87	2.47	3.15	4.36	4.93	5yr	3.86	4.74	5.41	6.28	7.20	5yr
10yr	0.47	0.73	0.90	1.26	1.63	1.96	10yr	1.40	1.91	2.25	3.01	3.79	5.43	6.21	10yr	4.81	5.97	6.78	7.76	8.91	10yr
25yr	0.58	0.89	1.11	1.58	2.08	2.54	25yr	1.79	2.48	2.91	3.90	4.84	7.57	8.46	25yr	6.70	8.14	9.12	10.30	11.35	25yr
50yr	0.68	1.04	1.30	1.86	2.51	3.08	50yr	2.16	3.01	3.54	4.74	5.85	9.48	10.71	50yr	8.39	10.30	11.45	12.76	13.94	50yr
100yr	0.81	1.22	1.52	2.20	3.02	3.74	100yr	2.61	3.66	4.31	5.78	7.08	11.88	13.56	100yr	10.51	13.03	14.35	15.83	17.14	100yr
200yr	0.95	1.42	1.80	2.61	3.64	4.56	200yr	3.14	4.45	5.25	7.05	8.55	14.93	15.71	200yr	13.21	15.11	18.02	19.61	21.09	200yr
500yr	1.17	1.75	2.25	3.27	4.65	5.89	500yr	4.01	5.76	6.81	9.19	11.00	20.23	21.10	500yr	17.90	20.28	24.32	26.08	27.79	500yr

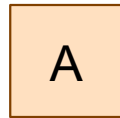




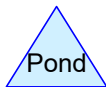
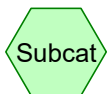
to channel



Exist Watershed



Dsign Point A



## 16042 D Pre Development

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### Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.096	61	>75% Grass cover, Good, HSG B (E2)
0.160	82	Dirt roads, HSG B (E1, E2)
0.029	98	Paved parking, HSG B (E2)
5.107	55	Woods, Good, HSG B (E1, E2)
0.569	70	Woods, Good, HSG C (E1, E2)
0.100	77	Woods, Good, HSG D (E2)



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## Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
5.392	HSG B	E1, E2
0.569	HSG C	E1, E2
0.100	HSG D	E2
0.000	Other	

**16042 D Pre Development**

Type III 24-hr 2 Year Rainfall=3.66"

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**Summary for Subcatchment E1: Exist Watershed**

Runoff = 0.48 cfs @ 12.29 hrs, Volume= 0.066 af, Depth&gt; 0.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

Area (ac)	CN	Description
1.123	55	Woods, Good, HSG B
0.265	70	Woods, Good, HSG C
0.065	82	Dirt roads, HSG B
1.453	59	Weighted Average
1.453		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	58	0.0700	4.26		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	105	0.1800	6.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
1.2	257	0.0600	3.67		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
4.3	275	0.0050	1.06		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
15.4	720	Total			

**Summary for Subcatchment E2: to channel**

Runoff = 1.07 cfs @ 12.45 hrs, Volume= 0.177 af, Depth&gt; 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

Area (ac)	CN	Description
0.029	98	Paved parking, HSG B
3.984	55	Woods, Good, HSG B
0.304	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.095	82	Dirt roads, HSG B
0.096	61	>75% Grass cover, Good, HSG B
4.608	57	Weighted Average
4.579		99.37% Pervious Area
0.029		0.63% Impervious Area

**16042 D Pre Development**

Type III 24-hr 2 Year Rainfall=3.66"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.3	88	0.0800	4.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	70	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	168	0.0400	3.22		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	90	0.1600	6.44		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	22	0.0050	1.14		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
10.5	745	0.0020	1.18	3.55	<b>Channel Flow, Stream Channel</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Earth, cobble bottom, clean sides
21.8	1,208	Total			

**Summary for Reach A: Dsign Point A**

Inflow Area = 6.061 ac, 0.48% Impervious, Inflow Depth > 0.48" for 2 Year event  
 Inflow = 1.50 cfs @ 12.42 hrs, Volume= 0.242 af  
 Outflow = 1.50 cfs @ 12.42 hrs, Volume= 0.242 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

**16042 D Pre Development**

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Type III 24-hr 10 Year Rainfall=5.58"

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**Summary for Subcatchment E1: Exist Watershed**

Runoff = 1.81 cfs @ 12.24 hrs, Volume= 0.186 af, Depth&gt; 1.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

Area (ac)	CN	Description
1.123	55	Woods, Good, HSG B
0.265	70	Woods, Good, HSG C
0.065	82	Dirt roads, HSG B
1.453	59	Weighted Average
1.453		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	58	0.0700	4.26		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	105	0.1800	6.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
1.2	257	0.0600	3.67		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
4.3	275	0.0050	1.06		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
15.4	720	Total			

**Summary for Subcatchment E2: to channel**

Runoff = 4.43 cfs @ 12.35 hrs, Volume= 0.533 af, Depth&gt; 1.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

Area (ac)	CN	Description
0.029	98	Paved parking, HSG B
3.984	55	Woods, Good, HSG B
0.304	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.095	82	Dirt roads, HSG B
0.096	61	>75% Grass cover, Good, HSG B
4.608	57	Weighted Average
4.579		99.37% Pervious Area
0.029		0.63% Impervious Area

**16042 D Pre Development**

Type III 24-hr 10 Year Rainfall=5.58"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.3	88	0.0800	4.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	70	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	168	0.0400	3.22		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	90	0.1600	6.44		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	22	0.0050	1.14		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
10.5	745	0.0020	1.18	3.55	<b>Channel Flow, Stream Channel</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Earth, cobble bottom, clean sides
21.8	1,208	Total			

**Summary for Reach A: Dsign Point A**

Inflow Area = 6.061 ac, 0.48% Impervious, Inflow Depth > 1.42" for 10 Year event  
 Inflow = 6.05 cfs @ 12.32 hrs, Volume= 0.719 af  
 Outflow = 6.05 cfs @ 12.32 hrs, Volume= 0.719 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

**16042 D Pre Development**

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Type III 24-hr 25 Year Rainfall=7.10"

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**Summary for Subcatchment E1: Exist Watershed**

Runoff = 3.13 cfs @ 12.23 hrs, Volume= 0.305 af, Depth&gt; 2.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

Area (ac)	CN	Description
1.123	55	Woods, Good, HSG B
0.265	70	Woods, Good, HSG C
0.065	82	Dirt roads, HSG B
1.453	59	Weighted Average
1.453		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	58	0.0700	4.26		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	105	0.1800	6.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
1.2	257	0.0600	3.67		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
4.3	275	0.0050	1.06		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
15.4	720	Total			

**Summary for Subcatchment E2: to channel**

Runoff = 7.90 cfs @ 12.33 hrs, Volume= 0.892 af, Depth&gt; 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

Area (ac)	CN	Description
0.029	98	Paved parking, HSG B
3.984	55	Woods, Good, HSG B
0.304	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.095	82	Dirt roads, HSG B
0.096	61	>75% Grass cover, Good, HSG B
4.608	57	Weighted Average
4.579		99.37% Pervious Area
0.029		0.63% Impervious Area

**16042 D Pre Development**

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Type III 24-hr 25 Year Rainfall=7.10"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.3	88	0.0800	4.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	70	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	168	0.0400	3.22		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	90	0.1600	6.44		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	22	0.0050	1.14		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
10.5	745	0.0020	1.18	3.55	<b>Channel Flow, Stream Channel</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Earth, cobble bottom, clean sides
21.8	1,208	Total			

**Summary for Reach A: Dsign Point A**

Inflow Area = 6.061 ac, 0.48% Impervious, Inflow Depth > 2.37" for 25 Year event  
 Inflow = 10.71 cfs @ 12.30 hrs, Volume= 1.197 af  
 Outflow = 10.71 cfs @ 12.30 hrs, Volume= 1.197 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

**16042 D Pre Development**

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Type III 24-hr 50 Year Rainfall=8.52"

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**Summary for Subcatchment E1: Exist Watershed**

Runoff = 4.51 cfs @ 12.22 hrs, Volume= 0.429 af, Depth&gt; 3.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

Area (ac)	CN	Description
1.123	55	Woods, Good, HSG B
0.265	70	Woods, Good, HSG C
0.065	82	Dirt roads, HSG B
1.453	59	Weighted Average
1.453		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	58	0.0700	4.26		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	105	0.1800	6.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
1.2	257	0.0600	3.67		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
4.3	275	0.0050	1.06		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
15.4	720	Total			

**Summary for Subcatchment E2: to channel**

Runoff = 11.54 cfs @ 12.32 hrs, Volume= 1.268 af, Depth&gt; 3.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

Area (ac)	CN	Description
0.029	98	Paved parking, HSG B
3.984	55	Woods, Good, HSG B
0.304	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.095	82	Dirt roads, HSG B
0.096	61	>75% Grass cover, Good, HSG B
4.608	57	Weighted Average
4.579		99.37% Pervious Area
0.029		0.63% Impervious Area



**16042 D Pre Development**

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Type III 24-hr 50 Year Rainfall=8.52"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.3	88	0.0800	4.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	70	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	168	0.0400	3.22		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	90	0.1600	6.44		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	22	0.0050	1.14		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
10.5	745	0.0020	1.18	3.55	<b>Channel Flow, Stream Channel</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Earth, cobble bottom, clean sides
21.8	1,208	Total			

**Summary for Reach A: Dsign Point A**

Inflow Area = 6.061 ac, 0.48% Impervious, Inflow Depth > 3.36" for 50 Year event  
 Inflow = 15.56 cfs @ 12.29 hrs, Volume= 1.696 af  
 Outflow = 15.56 cfs @ 12.29 hrs, Volume= 1.696 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

**16042 D Pre Development**

Type III 24-hr 100 Year Rainfall=10.24"

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**Summary for Subcatchment E1: Exist Watershed**

Runoff = 6.27 cfs @ 12.22 hrs, Volume= 0.589 af, Depth&gt; 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

Area (ac)	CN	Description
1.123	55	Woods, Good, HSG B
0.265	70	Woods, Good, HSG C
0.065	82	Dirt roads, HSG B
1.453	59	Weighted Average
1.453		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	58	0.0700	4.26		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	105	0.1800	6.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
1.2	257	0.0600	3.67		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
4.3	275	0.0050	1.06		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
15.4	720	Total			

**Summary for Subcatchment E2: to channel**

Runoff = 16.26 cfs @ 12.31 hrs, Volume= 1.761 af, Depth&gt; 4.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

Area (ac)	CN	Description
0.029	98	Paved parking, HSG B
3.984	55	Woods, Good, HSG B
0.304	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.095	82	Dirt roads, HSG B
0.096	61	>75% Grass cover, Good, HSG B
4.608	57	Weighted Average
4.579		99.37% Pervious Area
0.029		0.63% Impervious Area

**16042 D Pre Development**

Type III 24-hr 100 Year Rainfall=10.24"

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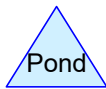
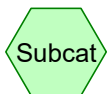
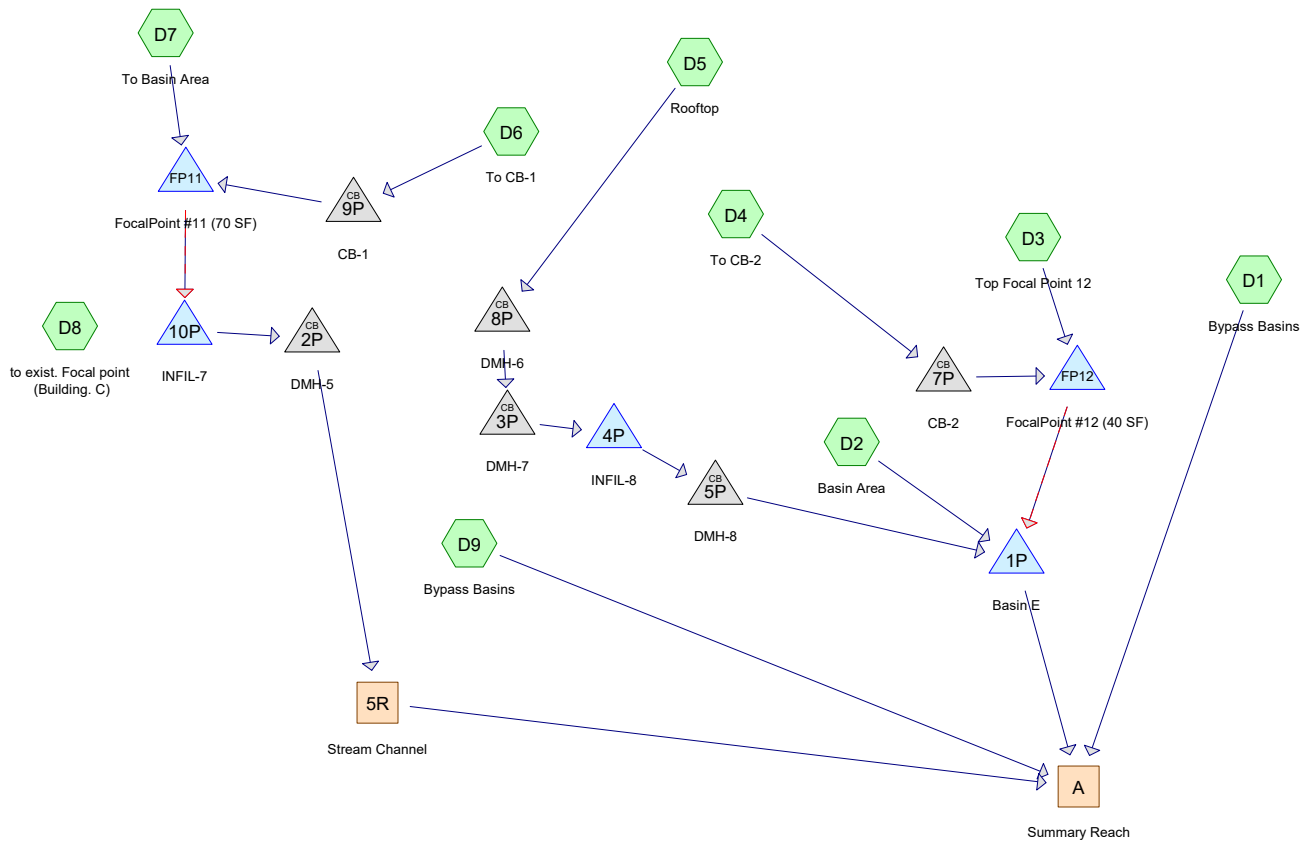
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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.3	88	0.0800	4.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	70	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	168	0.0400	3.22		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	90	0.1600	6.44		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	22	0.0050	1.14		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
10.5	745	0.0020	1.18	3.55	<b>Channel Flow, Stream Channel</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Earth, cobble bottom, clean sides
21.8	1,208	Total			

**Summary for Reach A: Dsign Point A**

Inflow Area = 6.061 ac, 0.48% Impervious, Inflow Depth > 4.65" for 100 Year event  
 Inflow = 21.85 cfs @ 12.28 hrs, Volume= 2.350 af  
 Outflow = 21.85 cfs @ 12.28 hrs, Volume= 2.350 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs



**Routing Diagram for 16042 D Post Development**  
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## 16042 D Post Development

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### Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.286	61	>75% Grass cover, Good, HSG B (D1, D2, D4, D6, D7, D9)
0.061	82	Dirt roads, HSG B (D1, D9)
0.012	96	Gravel surface, HSG B (D3)
0.578	98	Paved parking, HSG B (D3, D4, D6, D7, D8)
0.365	98	Roofs, HSG B (D5)
3.236	55	Woods, Good, HSG B (D1, D3, D9)
0.423	70	Woods, Good, HSG C (D1, D9)
0.100	77	Woods, Good, HSG D (D9)

**16042 D Post Development**

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**Soil Listing (all nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
5.538	HSG B	D1, D2, D3, D4, D5, D6, D7, D8, D9
0.423	HSG C	D1, D9
0.100	HSG D	D9
0.000	Other	

**16042 D Post Development**

Type III 24-hr 2 Year Rainfall=3.66"

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**Summary for Subcatchment D1: Bypass Basins**

Runoff = 0.45 cfs @ 12.23 hrs, Volume= 0.055 af, Depth&gt; 0.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

Area (ac)	CN	Description
0.762	55	Woods, Good, HSG B
0.305	70	Woods, Good, HSG C
0.055	61	>75% Grass cover, Good, HSG B
0.011	82	Dirt roads, HSG B
1.133	60	Weighted Average
1.133		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	71	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	88	0.1700	6.64		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
3.1	551	0.0380	2.92		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
12.9	735	Total			

**Summary for Subcatchment D2: Basin Area**

Runoff = 0.11 cfs @ 12.11 hrs, Volume= 0.010 af, Depth&gt; 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

Area (ac)	CN	Description
0.199	61	>75% Grass cover, Good, HSG B
0.199		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D3: Top Focal Point 12**

Runoff = 0.07 cfs @ 12.11 hrs, Volume= 0.006 af, Depth&gt; 0.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

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Type III 24-hr 2 Year Rainfall=3.66"

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Area (ac)	CN	Description
0.007	98	Paved parking, HSG B
0.012	96	Gravel surface, HSG B
0.062	55	Woods, Good, HSG B
0.081	65	Weighted Average
0.074		91.36% Pervious Area
0.007		8.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D4: To CB-2**

Runoff = 0.81 cfs @ 12.10 hrs, Volume= 0.060 af, Depth> 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

Area (ac)	CN	Description
0.187	98	Paved parking, HSG B
0.381	61	>75% Grass cover, Good, HSG B
0.568	73	Weighted Average
0.381		67.08% Pervious Area
0.187		32.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	15	0.5000	0.29		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.18"
2.0	245	0.0160	2.04		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	28	0.4000	10.18		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.7	100	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
2.4					<b>Direct Entry, Adjustment to 6 min</b>
6.0	388	Total			

**Summary for Subcatchment D5: Rooftop**

Runoff = 1.27 cfs @ 12.09 hrs, Volume= 0.103 af, Depth> 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"



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Area (ac)	CN	Description
0.365	98	Roofs, HSG B
0.365		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D6: To CB-1**

Runoff = 1.26 cfs @ 12.09 hrs, Volume= 0.090 af, Depth&gt; 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

Area (ac)	CN	Description
0.330	98	Paved parking, HSG B
0.180	61	>75% Grass cover, Good, HSG B
0.510	85	Weighted Average
0.180		35.29% Pervious Area
0.330		64.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D7: To Basin Area**

Runoff = 0.15 cfs @ 12.10 hrs, Volume= 0.012 af, Depth&gt; 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

Area (ac)	CN	Description
0.028	98	Paved parking, HSG B
0.110	61	>75% Grass cover, Good, HSG B
0.138	69	Weighted Average
0.110		79.71% Pervious Area
0.028		20.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

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**Summary for Subcatchment D8: to exist. Focal point (Building. C)**

Runoff = 0.09 cfs @ 12.09 hrs, Volume= 0.007 af, Depth> 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

Area (ac)	CN	Description
0.026	98	Paved parking, HSG B
0.026		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D9: Bypass Basins**

Runoff = 0.71 cfs @ 12.45 hrs, Volume= 0.117 af, Depth> 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2 Year Rainfall=3.66"

Area (ac)	CN	Description
0.050	82	Dirt roads, HSG B
2.412	55	Woods, Good, HSG B
0.118	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.361	61	>75% Grass cover, Good, HSG B
3.041	57	Weighted Average
3.041		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.9	257	0.0860	4.72		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	235	0.0550	4.19	4.19	<b>Channel Flow,</b> Area= 1.0 sf Perim= 3.0' r= 0.33' n= 0.040 Mountain streams
10.5	745	0.0020	1.18	3.55	<b>Channel Flow,</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Winding stream, pools & shoals
21.7	1,262	Total			

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## Summary for Reach 5R: Stream Channel

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 1.41" for 2 Year event  
 Inflow = 0.40 cfs @ 12.54 hrs, Volume= 0.076 af  
 Outflow = 0.31 cfs @ 12.71 hrs, Volume= 0.075 af, Atten= 22%, Lag= 10.3 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 1.09 fps, Min. Travel Time= 11.4 min  
 Avg. Velocity = 0.59 fps, Avg. Travel Time= 21.4 min

Peak Storage= 216 cf @ 12.71 hrs  
 Average Depth at Peak Storage= 0.10'  
 Bank-Full Depth= 1.50' Flow Area= 4.5 sf, Capacity= 20.16 cfs

3.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding  
 Length= 750.0' Slope= 0.0120 '/'  
 Inlet Invert= 101.00', Outlet Invert= 92.00'



## Summary for Reach A: Summary Reach

Inflow Area = 6.035 ac, 15.19% Impervious, Inflow Depth > 0.61" for 2 Year event  
 Inflow = 1.16 cfs @ 12.55 hrs, Volume= 0.308 af  
 Outflow = 1.16 cfs @ 12.55 hrs, Volume= 0.308 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

## Summary for Pond 1P: Basin E

Inflow Area = 1.213 ac, 46.08% Impervious, Inflow Depth > 1.25" for 2 Year event  
 Inflow = 1.49 cfs @ 12.21 hrs, Volume= 0.127 af  
 Outflow = 0.15 cfs @ 14.09 hrs, Volume= 0.076 af, Atten= 90%, Lag= 113.0 min  
 Discarded = 0.02 cfs @ 14.09 hrs, Volume= 0.015 af  
 Primary = 0.13 cfs @ 14.09 hrs, Volume= 0.061 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 103.43' @ 14.09 hrs Surf.Area= 2,387 sf Storage= 2,960 cf

Plug-Flow detention time= 235.2 min calculated for 0.076 af (60% of inflow)  
 Center-of-Mass det. time= 137.0 min ( 983.9 - 846.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	101.75'	16,886 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
101.75	1,000	165.0	0	0	1,000
102.00	1,387	180.0	297	297	1,414
104.00	2,863	387.0	4,162	4,459	10,771
106.00	4,468	413.0	7,272	11,731	12,610
107.00	5,875	439.0	5,155	16,886	14,423

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	<b>12.0" Round Culvert</b> L= 33.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.00' / 99.67' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	103.00'	<b>3.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	104.35'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Device 1	106.50'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Discarded	101.75'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.02 cfs @ 14.09 hrs HW=103.43' (Free Discharge)

↳ **5=Exfiltration** (Exfiltration Controls 0.02 cfs)

**Primary OutFlow** Max=0.13 cfs @ 14.09 hrs HW=103.43' TW=0.00' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.13 cfs of 6.47 cfs potential flow)  
 ↳ **2=Orifice/Grate** (Orifice Controls 0.13 cfs @ 2.65 fps)  
 ↳ **3=Orifice/Grate** ( Controls 0.00 cfs)  
 ↳ **4=Orifice/Grate** ( Controls 0.00 cfs)

**Summary for Pond 2P: DMH-5**

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 1.41" for 2 Year event  
 Inflow = 0.40 cfs @ 12.54 hrs, Volume= 0.076 af  
 Outflow = 0.40 cfs @ 12.54 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.40 cfs @ 12.54 hrs, Volume= 0.076 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 109.31' @ 12.54 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	109.00'	<b>12.0" Round Culvert</b> L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 109.00' / 106.50' S= 0.1136 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.40 cfs @ 12.54 hrs HW=109.31' TW=101.07' (Dynamic Tailwater)

↳ **1=Culvert** (Inlet Controls 0.40 cfs @ 1.90 fps)

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## Summary for Pond 3P: DMH-7

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 3.39" for 2 Year event  
 Inflow = 1.27 cfs @ 12.09 hrs, Volume= 0.103 af  
 Outflow = 1.27 cfs @ 12.09 hrs, Volume= 0.103 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.27 cfs @ 12.09 hrs, Volume= 0.103 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 117.21' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	116.40'	<b>12.0" Round Culvert</b> L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.40' / 116.40' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.24 cfs @ 12.09 hrs HW=117.20' TW=116.65' (Dynamic Tailwater)  
 ←1=Culvert (Barrel Controls 1.24 cfs @ 2.51 fps)

## Summary for Pond 4P: INFIL-8

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 3.39" for 2 Year event  
 Inflow = 1.27 cfs @ 12.09 hrs, Volume= 0.103 af  
 Outflow = 0.82 cfs @ 12.20 hrs, Volume= 0.066 af, Atten= 36%, Lag= 6.5 min  
 Discarded = 0.01 cfs @ 5.45 hrs, Volume= 0.015 af  
 Primary = 0.81 cfs @ 12.20 hrs, Volume= 0.051 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 116.84' @ 12.20 hrs Surf.Area= 0.030 ac Storage= 0.044 af

Plug-Flow detention time= 164.7 min calculated for 0.066 af (64% of inflow)  
 Center-of-Mass det. time= 67.8 min ( 814.5 - 746.8 )

Volume	Invert	Avail.Storage	Storage Description
#1A	114.60'	0.028 af	<b>15.75'W x 81.94'L x 3.50'H Field A</b> 0.104 af Overall - 0.035 af Embedded = 0.069 af x 40.0% Voids
#2A	115.10'	0.035 af	<b>ADS_StormTech SC-740 +Cap</b> x 33 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 33 Chambers in 3 Rows
		0.062 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.60'	<b>0.300 in/hr Exfiltration over Surface area</b>
#2	Primary	116.43'	<b>12.0" Round Culvert X 2.00</b> L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.43' / 116.43' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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**Discarded OutFlow** Max=0.01 cfs @ 5.45 hrs HW=114.64' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=0.80 cfs @ 12.20 hrs HW=116.83' TW=114.46' (Dynamic Tailwater)

↑2=Culvert (Barrel Controls 0.80 cfs @ 1.99 fps)

### Summary for Pond 5P: DMH-8

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 1.67" for 2 Year event  
Inflow = 0.81 cfs @ 12.20 hrs, Volume= 0.051 af  
Outflow = 0.81 cfs @ 12.20 hrs, Volume= 0.051 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.81 cfs @ 12.20 hrs, Volume= 0.051 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 114.46' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.00'	<b>12.0" Round Culvert</b> L= 68.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.00' / 104.00' S= 0.1471 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.80 cfs @ 12.20 hrs HW=114.46' TW=102.33' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 0.80 cfs @ 2.30 fps)

### Summary for Pond 7P: CB-2

Inflow Area = 0.568 ac, 32.92% Impervious, Inflow Depth > 1.26" for 2 Year event  
Inflow = 0.81 cfs @ 12.10 hrs, Volume= 0.060 af  
Outflow = 0.81 cfs @ 12.10 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.81 cfs @ 12.10 hrs, Volume= 0.060 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 108.46' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	108.00'	<b>12.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.00' / 107.50' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.81 cfs @ 12.10 hrs HW=108.46' TW=107.34' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 0.81 cfs @ 2.31 fps)

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## Summary for Pond 8P: DMH-6

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 3.39" for 2 Year event  
Inflow = 1.27 cfs @ 12.09 hrs, Volume= 0.103 af  
Outflow = 1.27 cfs @ 12.09 hrs, Volume= 0.103 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.27 cfs @ 12.09 hrs, Volume= 0.103 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 118.59' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.00'	<b>12.0" Round Culvert</b> L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.00' / 117.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.24 cfs @ 12.09 hrs HW=118.58' TW=117.20' (Dynamic Tailwater)  
↑1=Culvert (Inlet Controls 1.24 cfs @ 2.60 fps)

## Summary for Pond 9P: CB-1

Inflow Area = 0.510 ac, 64.71% Impervious, Inflow Depth > 2.13" for 2 Year event  
Inflow = 1.26 cfs @ 12.09 hrs, Volume= 0.090 af  
Outflow = 1.26 cfs @ 12.09 hrs, Volume= 0.090 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.26 cfs @ 12.09 hrs, Volume= 0.090 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 115.49' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.82'	<b>12.0" Round Culvert</b> L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.82' / 114.68' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.24 cfs @ 12.09 hrs HW=115.48' TW=114.67' (Dynamic Tailwater)  
↑1=Culvert (Barrel Controls 1.24 cfs @ 3.18 fps)

## Summary for Pond 10P: INFIL-7

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 1.89" for 2 Year event  
Inflow = 0.50 cfs @ 12.40 hrs, Volume= 0.102 af  
Outflow = 0.41 cfs @ 12.54 hrs, Volume= 0.083 af, Atten= 19%, Lag= 8.1 min  
Discarded = 0.01 cfs @ 9.25 hrs, Volume= 0.007 af  
Primary = 0.40 cfs @ 12.54 hrs, Volume= 0.076 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 110.87' @ 12.54 hrs Surf.Area= 0.017 ac Storage= 0.024 af

Plug-Flow detention time= 107.9 min calculated for 0.083 af (81% of inflow)  
Center-of-Mass det. time= 45.7 min ( 895.4 - 849.7 )

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Volume	Invert	Avail.Storage	Storage Description
#1A	109.00'	0.015 af	<b>17.12'W x 43.88'L x 4.07'H Field A</b> 0.070 af Overall - 0.034 af Embedded = 0.036 af x 40.0% Voids
#2A	109.25'	0.032 af	<b>ACF R-Tank HD 2 x 170 Inside #1</b> Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 170 Chambers in 10 Rows
		0.047 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	110.50'	<b>12.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.50' / 110.44' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	109.00'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.01 cfs @ 9.25 hrs HW=109.05' (Free Discharge)

↳ **2=Exfiltration** (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=0.40 cfs @ 12.54 hrs HW=110.86' TW=109.31' (Dynamic Tailwater)

↳ **1=Culvert** (Barrel Controls 0.40 cfs @ 2.29 fps)

**Summary for Pond FP11: FocalPoint #11 (70 SF)**

Inflow Area =	0.648 ac, 55.25% Impervious, Inflow Depth > 1.89" for 2 Year event
Inflow =	1.42 cfs @ 12.09 hrs, Volume= 0.102 af
Outflow =	0.50 cfs @ 12.40 hrs, Volume= 0.102 af, Atten= 65%, Lag= 18.5 min
Primary =	0.20 cfs @ 11.70 hrs, Volume= 0.095 af
Secondary =	0.30 cfs @ 12.40 hrs, Volume= 0.008 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 115.09' @ 12.40 hrs Surf.Area= 88 sf Storage= 1,159 cf

Plug-Flow detention time= 32.9 min calculated for 0.102 af (100% of inflow)

Center-of-Mass det. time= 32.8 min ( 849.7 - 816.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	111.95'	40 cf	<b>8.00'W x 11.00'L x 2.25'H FocalPoint</b> 198 cf Overall x 20.0% Voids
#2	114.20'	3,745 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		3,785 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.20	1,033	0	0
116.00	1,913	2,651	2,651
116.50	2,462	1,094	3,745



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Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	<b>8.0" Round Culvert</b> L= 41.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 110.79' S= 0.0051 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	111.95'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	115.00'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.20 cfs @ 11.70 hrs HW=112.16' TW=109.81' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.20 cfs of 1.22 cfs potential flow)

↳ **2=Exfiltration** (Exfiltration Controls 0.20 cfs)

**Secondary OutFlow** Max=0.30 cfs @ 12.40 hrs HW=115.09' TW=110.78' (Dynamic Tailwater)

↳ **3=Orifice/Grate** (Weir Controls 0.30 cfs @ 1.00 fps)

**Summary for Pond FP12: FocalPoint #12 (40 SF)**

Inflow Area =	0.649 ac, 29.89% Impervious, Inflow Depth > 1.21" for 2 Year event
Inflow =	0.88 cfs @ 12.10 hrs, Volume= 0.065 af
Outflow =	0.61 cfs @ 12.22 hrs, Volume= 0.065 af, Atten= 31%, Lag= 7.1 min
Primary =	0.25 cfs @ 11.95 hrs, Volume= 0.060 af
Secondary =	0.36 cfs @ 12.22 hrs, Volume= 0.006 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 107.61' @ 12.22 hrs Surf.Area= 108 sf Storage= 335 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 5.2 min ( 853.5 - 848.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	104.75'	49 cf	<b>9.00'W x 12.00'L x 2.25'H FocalPoint</b> 243 cf Overall x 20.0% Voids
#2	107.00'	1,363 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		1,412 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
107.00	380	0	0
108.00	678	529	529
109.00	990	834	1,363

Device	Routing	Invert	Outlet Devices
#1	Primary	104.00'	<b>8.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 104.00' / 103.50' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	104.75'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	107.50'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

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Type III 24-hr 2 Year Rainfall=3.66"

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**Primary OutFlow** Max=0.25 cfs @ 11.95 hrs HW=105.07' TW=101.94' (Dynamic Tailwater)

└─**1=Culvert** (Passes 0.25 cfs of 1.44 cfs potential flow)

└─**2=Exfiltration** (Exfiltration Controls 0.25 cfs)

**Secondary OutFlow** Max=0.32 cfs @ 12.22 hrs HW=107.60' TW=102.40' (Dynamic Tailwater)

└─**3=Orifice/Grate** (Weir Controls 0.32 cfs @ 1.03 fps)

**16042 D Post Development**

Type III 24-hr 10 Year Rainfall=5.58"

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**Summary for Subcatchment D1: Bypass Basins**

Runoff = 1.61 cfs @ 12.20 hrs, Volume= 0.152 af, Depth&gt; 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

Area (ac)	CN	Description
0.762	55	Woods, Good, HSG B
0.305	70	Woods, Good, HSG C
0.055	61	>75% Grass cover, Good, HSG B
0.011	82	Dirt roads, HSG B
1.133	60	Weighted Average
1.133		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	71	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	88	0.1700	6.64		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
3.1	551	0.0380	2.92		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
12.9	735	Total			

**Summary for Subcatchment D2: Basin Area**

Runoff = 0.37 cfs @ 12.10 hrs, Volume= 0.028 af, Depth&gt; 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

Area (ac)	CN	Description
0.199	61	>75% Grass cover, Good, HSG B
0.199		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D3: Top Focal Point 12**

Runoff = 0.19 cfs @ 12.10 hrs, Volume= 0.014 af, Depth&gt; 2.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

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Type III 24-hr 10 Year Rainfall=5.58"

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Area (ac)	CN	Description
0.007	98	Paved parking, HSG B
0.012	96	Gravel surface, HSG B
0.062	55	Woods, Good, HSG B
0.081	65	Weighted Average
0.074		91.36% Pervious Area
0.007		8.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D4: To CB-2**

Runoff = 1.79 cfs @ 12.09 hrs, Volume= 0.128 af, Depth> 2.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

Area (ac)	CN	Description
0.187	98	Paved parking, HSG B
0.381	61	>75% Grass cover, Good, HSG B
0.568	73	Weighted Average
0.381		67.08% Pervious Area
0.187		32.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	15	0.5000	0.29		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.18"
2.0	245	0.0160	2.04		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	28	0.4000	10.18		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.7	100	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
2.4					<b>Direct Entry, Adjustment to 6 min</b>
6.0	388	Total			

**Summary for Subcatchment D5: Rooftop**

Runoff = 1.95 cfs @ 12.09 hrs, Volume= 0.161 af, Depth> 5.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

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Type III 24-hr 10 Year Rainfall=5.58"

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Area (ac)	CN	Description
0.365	98	Roofs, HSG B
0.365		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D6: To CB-1**

Runoff = 2.25 cfs @ 12.09 hrs, Volume= 0.164 af, Depth&gt; 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

Area (ac)	CN	Description
0.330	98	Paved parking, HSG B
0.180	61	>75% Grass cover, Good, HSG B
0.510	85	Weighted Average
0.180		35.29% Pervious Area
0.330		64.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D7: To Basin Area**

Runoff = 0.37 cfs @ 12.10 hrs, Volume= 0.027 af, Depth&gt; 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

Area (ac)	CN	Description
0.028	98	Paved parking, HSG B
0.110	61	>75% Grass cover, Good, HSG B
0.138	69	Weighted Average
0.110		79.71% Pervious Area
0.028		20.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

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**Summary for Subcatchment D8: to exist. Focal point (Building. C)**

Runoff = 0.14 cfs @ 12.09 hrs, Volume= 0.011 af, Depth> 5.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

Area (ac)	CN	Description
0.026	98	Paved parking, HSG B
0.026		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D9: Bypass Basins**

Runoff = 2.93 cfs @ 12.35 hrs, Volume= 0.352 af, Depth> 1.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10 Year Rainfall=5.58"

Area (ac)	CN	Description
0.050	82	Dirt roads, HSG B
2.412	55	Woods, Good, HSG B
0.118	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.361	61	>75% Grass cover, Good, HSG B
3.041	57	Weighted Average
3.041		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.9	257	0.0860	4.72		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	235	0.0550	4.19	4.19	<b>Channel Flow,</b> Area= 1.0 sf Perim= 3.0' r= 0.33' n= 0.040 Mountain streams
10.5	745	0.0020	1.18	3.55	<b>Channel Flow,</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Winding stream, pools & shoals
21.7	1,262	Total			

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## Summary for Reach 5R: Stream Channel

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 3.03" for 10 Year event  
 Inflow = 1.76 cfs @ 12.23 hrs, Volume= 0.164 af  
 Outflow = 1.52 cfs @ 12.32 hrs, Volume= 0.163 af, Atten= 13%, Lag= 5.4 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 1.97 fps, Min. Travel Time= 6.4 min  
 Avg. Velocity = 0.75 fps, Avg. Travel Time= 16.7 min

Peak Storage= 578 cf @ 12.32 hrs  
 Average Depth at Peak Storage= 0.26'  
 Bank-Full Depth= 1.50' Flow Area= 4.5 sf, Capacity= 20.16 cfs

3.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding  
 Length= 750.0' Slope= 0.0120 '/'  
 Inlet Invert= 101.00', Outlet Invert= 92.00'



## Summary for Reach A: Summary Reach

Inflow Area = 6.035 ac, 15.19% Impervious, Inflow Depth > 1.72" for 10 Year event  
 Inflow = 5.95 cfs @ 12.31 hrs, Volume= 0.867 af  
 Outflow = 5.95 cfs @ 12.31 hrs, Volume= 0.867 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

## Summary for Pond 1P: Basin E

Inflow Area = 1.213 ac, 46.08% Impervious, Inflow Depth > 2.74" for 10 Year event  
 Inflow = 4.04 cfs @ 12.12 hrs, Volume= 0.277 af  
 Outflow = 0.41 cfs @ 13.56 hrs, Volume= 0.220 af, Atten= 90%, Lag= 86.5 min  
 Discarded = 0.02 cfs @ 13.56 hrs, Volume= 0.020 af  
 Primary = 0.39 cfs @ 13.56 hrs, Volume= 0.200 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 104.55' @ 13.56 hrs Surf.Area= 3,267 sf Storage= 6,135 cf

Plug-Flow detention time= 229.6 min calculated for 0.220 af (79% of inflow)  
 Center-of-Mass det. time= 160.4 min ( 986.3 - 825.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	101.75'	16,886 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
101.75	1,000	165.0	0	0	1,000
102.00	1,387	180.0	297	297	1,414
104.00	2,863	387.0	4,162	4,459	10,771
106.00	4,468	413.0	7,272	11,731	12,610
107.00	5,875	439.0	5,155	16,886	14,423

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	<b>12.0" Round Culvert</b> L= 33.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.00' / 99.67' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	103.00'	<b>3.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	104.35'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Device 1	106.50'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Discarded	101.75'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.02 cfs @ 13.56 hrs HW=104.55' (Free Discharge)

↳ **5=Exfiltration** (Exfiltration Controls 0.02 cfs)

**Primary OutFlow** Max=0.39 cfs @ 13.56 hrs HW=104.55' TW=0.00' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.39 cfs of 7.61 cfs potential flow)

↳ **2=Orifice/Grate** (Orifice Controls 0.28 cfs @ 5.74 fps)

↳ **3=Orifice/Grate** (Orifice Controls 0.11 cfs @ 1.51 fps)

↳ **4=Orifice/Grate** ( Controls 0.00 cfs)

**Summary for Pond 2P: DMH-5**

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 3.03" for 10 Year event

Inflow = 1.76 cfs @ 12.23 hrs, Volume= 0.164 af

Outflow = 1.76 cfs @ 12.23 hrs, Volume= 0.164 af, Atten= 0%, Lag= 0.0 min

Primary = 1.76 cfs @ 12.23 hrs, Volume= 0.164 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 109.72' @ 12.23 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	109.00'	<b>12.0" Round Culvert</b> L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 109.00' / 106.50' S= 0.1136 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.73 cfs @ 12.23 hrs HW=109.72' TW=101.22' (Dynamic Tailwater)

↳ **1=Culvert** (Inlet Controls 1.73 cfs @ 2.88 fps)



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**Summary for Pond 3P: DMH-7**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 5.29" for 10 Year event  
 Inflow = 1.95 cfs @ 12.09 hrs, Volume= 0.161 af  
 Outflow = 1.95 cfs @ 12.09 hrs, Volume= 0.161 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.95 cfs @ 12.09 hrs, Volume= 0.161 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 117.45' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	116.40'	<b>12.0" Round Culvert</b> L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.40' / 116.40' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.90 cfs @ 12.09 hrs HW=117.44' TW=117.01' (Dynamic Tailwater)  
 ↑1=Culvert (Barrel Controls 1.90 cfs @ 2.90 fps)

**Summary for Pond 4P: INFIL-8**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 5.29" for 10 Year event  
 Inflow = 1.95 cfs @ 12.09 hrs, Volume= 0.161 af  
 Outflow = 1.76 cfs @ 12.13 hrs, Volume= 0.123 af, Atten= 10%, Lag= 2.3 min  
 Discarded = 0.01 cfs @ 3.40 hrs, Volume= 0.016 af  
 Primary = 1.75 cfs @ 12.13 hrs, Volume= 0.107 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 117.04' @ 12.13 hrs Surf.Area= 0.030 ac Storage= 0.048 af

Plug-Flow detention time= 139.3 min calculated for 0.123 af (77% of inflow)  
 Center-of-Mass det. time= 60.7 min ( 800.2 - 739.5 )

Volume	Invert	Avail.Storage	Storage Description
#1A	114.60'	0.028 af	<b>15.75'W x 81.94'L x 3.50'H Field A</b> 0.104 af Overall - 0.035 af Embedded = 0.069 af x 40.0% Voids
#2A	115.10'	0.035 af	<b>ADS_StormTech SC-740 +Cap</b> x 33 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 33 Chambers in 3 Rows
		0.062 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.60'	<b>0.300 in/hr Exfiltration over Surface area</b>
#2	Primary	116.43'	<b>12.0" Round Culvert X 2.00</b> L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.43' / 116.43' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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**Discarded OutFlow** Max=0.01 cfs @ 3.40 hrs HW=114.64' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=1.71 cfs @ 12.13 hrs HW=117.04' TW=114.71' (Dynamic Tailwater)

↑2=Culvert (Barrel Controls 1.71 cfs @ 2.47 fps)

**Summary for Pond 5P: DMH-8**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 3.53" for 10 Year event  
Inflow = 1.75 cfs @ 12.13 hrs, Volume= 0.107 af  
Outflow = 1.75 cfs @ 12.13 hrs, Volume= 0.107 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.75 cfs @ 12.13 hrs, Volume= 0.107 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 114.72' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.00'	<b>12.0" Round Culvert</b> L= 68.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.00' / 104.00' S= 0.1471 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.71 cfs @ 12.13 hrs HW=114.71' TW=103.33' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 1.71 cfs @ 2.87 fps)

**Summary for Pond 7P: CB-2**

Inflow Area = 0.568 ac, 32.92% Impervious, Inflow Depth > 2.70" for 10 Year event  
Inflow = 1.79 cfs @ 12.09 hrs, Volume= 0.128 af  
Outflow = 1.79 cfs @ 12.09 hrs, Volume= 0.128 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.79 cfs @ 12.09 hrs, Volume= 0.128 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 108.73' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	108.00'	<b>12.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.00' / 107.50' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.76 cfs @ 12.09 hrs HW=108.72' TW=107.79' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 1.76 cfs @ 2.90 fps)

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### Summary for Pond 8P: DMH-6

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 5.29" for 10 Year event  
Inflow = 1.95 cfs @ 12.09 hrs, Volume= 0.161 af  
Outflow = 1.95 cfs @ 12.09 hrs, Volume= 0.161 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.95 cfs @ 12.09 hrs, Volume= 0.161 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 118.77' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.00'	<b>12.0" Round Culvert</b> L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.00' / 117.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.90 cfs @ 12.09 hrs HW=118.76' TW=117.44' (Dynamic Tailwater)  
↑1=Culvert (Inlet Controls 1.90 cfs @ 2.97 fps)

### Summary for Pond 9P: CB-1

Inflow Area = 0.510 ac, 64.71% Impervious, Inflow Depth > 3.86" for 10 Year event  
Inflow = 2.25 cfs @ 12.09 hrs, Volume= 0.164 af  
Outflow = 2.25 cfs @ 12.09 hrs, Volume= 0.164 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.25 cfs @ 12.09 hrs, Volume= 0.164 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 115.79' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.82'	<b>12.0" Round Culvert</b> L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.82' / 114.68' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.20 cfs @ 12.09 hrs HW=115.78' TW=115.21' (Dynamic Tailwater)  
↑1=Culvert (Barrel Controls 2.20 cfs @ 3.64 fps)

### Summary for Pond 10P: INFIL-7

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 3.54" for 10 Year event  
Inflow = 2.08 cfs @ 12.16 hrs, Volume= 0.191 af  
Outflow = 1.76 cfs @ 12.23 hrs, Volume= 0.171 af, Atten= 15%, Lag= 3.9 min  
Discarded = 0.01 cfs @ 7.55 hrs, Volume= 0.007 af  
Primary = 1.76 cfs @ 12.23 hrs, Volume= 0.164 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 111.36' @ 12.23 hrs Surf.Area= 0.017 ac Storage= 0.030 af

Plug-Flow detention time= 73.3 min calculated for 0.171 af (90% of inflow)  
Center-of-Mass det. time= 30.8 min ( 860.9 - 830.1 )

**16042 D Post Development**

Type III 24-hr 10 Year Rainfall=5.58"

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Volume	Invert	Avail.Storage	Storage Description
#1A	109.00'	0.015 af	<b>17.12'W x 43.88'L x 4.07'H Field A</b> 0.070 af Overall - 0.034 af Embedded = 0.036 af x 40.0% Voids
#2A	109.25'	0.032 af	<b>ACF R-Tank HD 2 x 170 Inside #1</b> Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 170 Chambers in 10 Rows
		0.047 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	110.50'	<b>12.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.50' / 110.44' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	109.00'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.01 cfs @ 7.55 hrs HW=109.04' (Free Discharge)

↳ **2=Exfiltration** (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=1.73 cfs @ 12.23 hrs HW=111.35' TW=109.72' (Dynamic Tailwater)

↳ **1=Culvert** (Barrel Controls 1.73 cfs @ 3.26 fps)

**Summary for Pond FP11: FocalPoint #11 (70 SF)**

Inflow Area =	0.648 ac, 55.25% Impervious, Inflow Depth > 3.54" for 10 Year event
Inflow =	2.62 cfs @ 12.09 hrs, Volume= 0.191 af
Outflow =	2.08 cfs @ 12.16 hrs, Volume= 0.191 af, Atten= 21%, Lag= 4.4 min
Primary =	0.20 cfs @ 11.45 hrs, Volume= 0.137 af
Secondary =	1.88 cfs @ 12.16 hrs, Volume= 0.054 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 115.32' @ 12.17 hrs Surf.Area= 88 sf Storage= 1,507 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 29.3 min ( 830.1 - 800.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	111.95'	40 cf	<b>8.00'W x 11.00'L x 2.25'H FocalPoint</b> 198 cf Overall x 20.0% Voids
#2	114.20'	3,745 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		3,785 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.20	1,033	0	0
116.00	1,913	2,651	2,651
116.50	2,462	1,094	3,745

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Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	<b>8.0" Round Culvert</b> L= 41.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 110.79' S= 0.0051 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	111.95'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	115.00'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.20 cfs @ 11.45 hrs HW=112.14' TW=110.59' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.20 cfs of 1.20 cfs potential flow)

↳ **2=Exfiltration** (Exfiltration Controls 0.20 cfs)

**Secondary OutFlow** Max=1.81 cfs @ 12.16 hrs HW=115.31' TW=111.25' (Dynamic Tailwater)

↳ **3=Orifice/Grate** (Weir Controls 1.81 cfs @ 1.83 fps)

**Summary for Pond FP12: FocalPoint #12 (40 SF)**

Inflow Area =	0.649 ac, 29.89% Impervious, Inflow Depth > 2.61" for 10 Year event
Inflow =	1.97 cfs @ 12.09 hrs, Volume= 0.141 af
Outflow =	1.92 cfs @ 12.12 hrs, Volume= 0.141 af, Atten= 3%, Lag= 1.3 min
Primary =	0.25 cfs @ 11.70 hrs, Volume= 0.101 af
Secondary =	1.67 cfs @ 12.12 hrs, Volume= 0.041 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 107.80' @ 12.12 hrs Surf.Area= 108 sf Storage= 447 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 5.0 min ( 832.0 - 827.0 )

Volume	Invert	Avail.Storage	Storage Description
#1	104.75'	49 cf	<b>9.00'W x 12.00'L x 2.25'H FocalPoint</b> 243 cf Overall x 20.0% Voids
#2	107.00'	1,363 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		1,412 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
107.00	380	0	0
108.00	678	529	529
109.00	990	834	1,363

Device	Routing	Invert	Outlet Devices
#1	Primary	104.00'	<b>8.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 104.00' / 103.50' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	104.75'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	107.50'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

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**Primary OutFlow** Max=0.25 cfs @ 11.70 hrs HW=105.01' TW=102.10' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.25 cfs of 1.38 cfs potential flow)

↳ **2=Exfiltration** (Exfiltration Controls 0.25 cfs)

**Secondary OutFlow** Max=1.61 cfs @ 12.12 hrs HW=107.79' TW=103.28' (Dynamic Tailwater)

↳ **3=Orifice/Grate** (Weir Controls 1.61 cfs @ 1.76 fps)

**16042 D Post Development**

Type III 24-hr 25 Year Rainfall=7.10"

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**Summary for Subcatchment D1: Bypass Basins**

Runoff = 2.73 cfs @ 12.19 hrs, Volume= 0.247 af, Depth&gt; 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

Area (ac)	CN	Description
0.762	55	Woods, Good, HSG B
0.305	70	Woods, Good, HSG C
0.055	61	>75% Grass cover, Good, HSG B
0.011	82	Dirt roads, HSG B
1.133	60	Weighted Average
1.133		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	71	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	88	0.1700	6.64		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
3.1	551	0.0380	2.92		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
12.9	735	Total			

**Summary for Subcatchment D2: Basin Area**

Runoff = 0.62 cfs @ 12.10 hrs, Volume= 0.045 af, Depth&gt; 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

Area (ac)	CN	Description
0.199	61	>75% Grass cover, Good, HSG B
0.199		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D3: Top Focal Point 12**

Runoff = 0.29 cfs @ 12.10 hrs, Volume= 0.021 af, Depth&gt; 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

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Area (ac)	CN	Description
0.007	98	Paved parking, HSG B
0.012	96	Gravel surface, HSG B
0.062	55	Woods, Good, HSG B
0.081	65	Weighted Average
0.074		91.36% Pervious Area
0.007		8.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D4: To CB-2**

Runoff = 2.62 cfs @ 12.09 hrs, Volume= 0.188 af, Depth> 3.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

Area (ac)	CN	Description
0.187	98	Paved parking, HSG B
0.381	61	>75% Grass cover, Good, HSG B
0.568	73	Weighted Average
0.381		67.08% Pervious Area
0.187		32.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	15	0.5000	0.29		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.18"
2.0	245	0.0160	2.04		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	28	0.4000	10.18		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.7	100	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
2.4					<b>Direct Entry, Adjustment to 6 min</b>
6.0	388	Total			

**Summary for Subcatchment D5: Rooftop**

Runoff = 2.48 cfs @ 12.09 hrs, Volume= 0.207 af, Depth> 6.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"



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Area (ac)	CN	Description
0.365	98	Roofs, HSG B
0.365		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D6: To CB-1**

Runoff = 3.04 cfs @ 12.09 hrs, Volume= 0.224 af, Depth&gt; 5.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

Area (ac)	CN	Description
0.330	98	Paved parking, HSG B
0.180	61	>75% Grass cover, Good, HSG B
0.510	85	Weighted Average
0.180		35.29% Pervious Area
0.330		64.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D7: To Basin Area**

Runoff = 0.57 cfs @ 12.09 hrs, Volume= 0.041 af, Depth&gt; 3.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

Area (ac)	CN	Description
0.028	98	Paved parking, HSG B
0.110	61	>75% Grass cover, Good, HSG B
0.138	69	Weighted Average
0.110		79.71% Pervious Area
0.028		20.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

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**Summary for Subcatchment D8: to exist. Focal point (Building. C)**

Runoff = 0.18 cfs @ 12.09 hrs, Volume= 0.015 af, Depth> 6.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

Area (ac)	CN	Description
0.026	98	Paved parking, HSG B
0.026		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D9: Bypass Basins**

Runoff = 5.23 cfs @ 12.32 hrs, Volume= 0.589 af, Depth> 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25 Year Rainfall=7.10"

Area (ac)	CN	Description
0.050	82	Dirt roads, HSG B
2.412	55	Woods, Good, HSG B
0.118	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.361	61	>75% Grass cover, Good, HSG B
3.041	57	Weighted Average
3.041		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.9	257	0.0860	4.72		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	235	0.0550	4.19	4.19	<b>Channel Flow,</b> Area= 1.0 sf Perim= 3.0' r= 0.33' n= 0.040 Mountain streams
10.5	745	0.0020	1.18	3.55	<b>Channel Flow,</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Winding stream, pools & shoals
21.7	1,262	Total			

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## Summary for Reach 5R: Stream Channel

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 4.40" for 25 Year event  
 Inflow = 2.69 cfs @ 12.22 hrs, Volume= 0.237 af  
 Outflow = 2.51 cfs @ 12.29 hrs, Volume= 0.236 af, Atten= 7%, Lag= 3.9 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 2.36 fps, Min. Travel Time= 5.3 min  
 Avg. Velocity = 0.84 fps, Avg. Travel Time= 15.0 min

Peak Storage= 797 cf @ 12.29 hrs  
 Average Depth at Peak Storage= 0.35'  
 Bank-Full Depth= 1.50' Flow Area= 4.5 sf, Capacity= 20.16 cfs

3.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding  
 Length= 750.0' Slope= 0.0120 '/'  
 Inlet Invert= 101.00', Outlet Invert= 92.00'



## Summary for Reach A: Summary Reach

Inflow Area = 6.035 ac, 15.19% Impervious, Inflow Depth > 2.77" for 25 Year event  
 Inflow = 10.70 cfs @ 12.29 hrs, Volume= 1.391 af  
 Outflow = 10.70 cfs @ 12.29 hrs, Volume= 1.391 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

## Summary for Pond 1P: Basin E

Inflow Area = 1.213 ac, 46.08% Impervious, Inflow Depth > 4.02" for 25 Year event  
 Inflow = 5.63 cfs @ 12.12 hrs, Volume= 0.406 af  
 Outflow = 1.06 cfs @ 12.62 hrs, Volume= 0.341 af, Atten= 81%, Lag= 29.9 min  
 Discarded = 0.03 cfs @ 12.62 hrs, Volume= 0.022 af  
 Primary = 1.04 cfs @ 12.62 hrs, Volume= 0.319 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 105.15' @ 12.62 hrs Surf.Area= 3,742 sf Storage= 8,244 cf

Plug-Flow detention time= 183.2 min calculated for 0.340 af (84% of inflow)  
 Center-of-Mass det. time= 124.5 min ( 940.8 - 816.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	101.75'	16,886 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
101.75	1,000	165.0	0	0	1,000
102.00	1,387	180.0	297	297	1,414
104.00	2,863	387.0	4,162	4,459	10,771
106.00	4,468	413.0	7,272	11,731	12,610
107.00	5,875	439.0	5,155	16,886	14,423

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	<b>12.0" Round Culvert</b> L= 33.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.00' / 99.67' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	103.00'	<b>3.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	104.35'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Device 1	106.50'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Discarded	101.75'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.03 cfs @ 12.62 hrs HW=105.15' (Free Discharge)

↳ **5=Exfiltration** (Exfiltration Controls 0.03 cfs)

**Primary OutFlow** Max=1.04 cfs @ 12.62 hrs HW=105.15' TW=0.00' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 1.04 cfs of 8.15 cfs potential flow)  
 ↳ **2=Orifice/Grate** (Orifice Controls 0.34 cfs @ 6.85 fps)  
 ↳ **3=Orifice/Grate** (Orifice Controls 0.70 cfs @ 3.57 fps)  
 ↳ **4=Orifice/Grate** ( Controls 0.00 cfs)

**Summary for Pond 2P: DMH-5**

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 4.40" for 25 Year event  
 Inflow = 2.69 cfs @ 12.22 hrs, Volume= 0.237 af  
 Outflow = 2.69 cfs @ 12.22 hrs, Volume= 0.237 af, Atten= 0%, Lag= 0.0 min  
 Primary = 2.69 cfs @ 12.22 hrs, Volume= 0.237 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 110.01' @ 12.22 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	109.00'	<b>12.0" Round Culvert</b> L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 109.00' / 106.50' S= 0.1136 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.67 cfs @ 12.22 hrs HW=110.00' TW=101.33' (Dynamic Tailwater)

↳ **1=Culvert** (Inlet Controls 2.67 cfs @ 3.40 fps)

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**Summary for Pond 3P: DMH-7**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 6.79" for 25 Year event  
 Inflow = 2.48 cfs @ 12.09 hrs, Volume= 0.207 af  
 Outflow = 2.48 cfs @ 12.09 hrs, Volume= 0.207 af, Atten= 0%, Lag= 0.0 min  
 Primary = 2.48 cfs @ 12.09 hrs, Volume= 0.207 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 117.68' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	116.40'	<b>12.0" Round Culvert</b> L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.40' / 116.40' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.42 cfs @ 12.09 hrs HW=117.65' TW=117.11' (Dynamic Tailwater)  
 ↑1=Culvert (Barrel Controls 2.42 cfs @ 3.16 fps)

**Summary for Pond 4P: INFIL-8**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 6.79" for 25 Year event  
 Inflow = 2.48 cfs @ 12.09 hrs, Volume= 0.207 af  
 Outflow = 2.29 cfs @ 12.12 hrs, Volume= 0.169 af, Atten= 8%, Lag= 2.1 min  
 Discarded = 0.01 cfs @ 2.50 hrs, Volume= 0.016 af  
 Primary = 2.29 cfs @ 12.12 hrs, Volume= 0.153 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 117.14' @ 12.12 hrs Surf.Area= 0.030 ac Storage= 0.050 af

Plug-Flow detention time= 126.1 min calculated for 0.169 af (82% of inflow)  
 Center-of-Mass det. time= 58.2 min ( 794.4 - 736.2 )

Volume	Invert	Avail.Storage	Storage Description
#1A	114.60'	0.028 af	<b>15.75'W x 81.94'L x 3.50'H Field A</b> 0.104 af Overall - 0.035 af Embedded = 0.069 af x 40.0% Voids
#2A	115.10'	0.035 af	<b>ADS_StormTech SC-740 +Cap</b> x 33 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 33 Chambers in 3 Rows
		0.062 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.60'	<b>0.300 in/hr Exfiltration over Surface area</b>
#2	Primary	116.43'	<b>12.0" Round Culvert X 2.00</b> L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.43' / 116.43' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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**Discarded OutFlow** Max=0.01 cfs @ 2.50 hrs HW=114.64' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=2.22 cfs @ 12.12 hrs HW=117.13' TW=114.85' (Dynamic Tailwater)

↑2=Culvert (Barrel Controls 2.22 cfs @ 2.66 fps)

## Summary for Pond 5P: DMH-8

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 5.02" for 25 Year event  
Inflow = 2.29 cfs @ 12.12 hrs, Volume= 0.153 af  
Outflow = 2.29 cfs @ 12.12 hrs, Volume= 0.153 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.29 cfs @ 12.12 hrs, Volume= 0.153 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 114.86' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.00'	<b>12.0" Round Culvert</b> L= 68.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.00' / 104.00' S= 0.1471 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.22 cfs @ 12.12 hrs HW=114.85' TW=104.14' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 2.22 cfs @ 3.13 fps)

## Summary for Pond 7P: CB-2

Inflow Area = 0.568 ac, 32.92% Impervious, Inflow Depth > 3.96" for 25 Year event  
Inflow = 2.62 cfs @ 12.09 hrs, Volume= 0.188 af  
Outflow = 2.62 cfs @ 12.09 hrs, Volume= 0.188 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.62 cfs @ 12.09 hrs, Volume= 0.188 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 108.97' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	108.00'	<b>12.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.00' / 107.50' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.58 cfs @ 12.09 hrs HW=108.96' TW=107.90' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 2.58 cfs @ 3.33 fps)

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**Summary for Pond 8P: DMH-6**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 6.79" for 25 Year event  
 Inflow = 2.48 cfs @ 12.09 hrs, Volume= 0.207 af  
 Outflow = 2.48 cfs @ 12.09 hrs, Volume= 0.207 af, Atten= 0%, Lag= 0.0 min  
 Primary = 2.48 cfs @ 12.09 hrs, Volume= 0.207 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 118.92' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.00'	<b>12.0" Round Culvert</b> L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.00' / 117.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.42 cfs @ 12.09 hrs HW=118.90' TW=117.65' (Dynamic Tailwater)  
 ↑1=Culvert (Inlet Controls 2.42 cfs @ 3.24 fps)

**Summary for Pond 9P: CB-1**

Inflow Area = 0.510 ac, 64.71% Impervious, Inflow Depth > 5.28" for 25 Year event  
 Inflow = 3.04 cfs @ 12.09 hrs, Volume= 0.224 af  
 Outflow = 3.04 cfs @ 12.09 hrs, Volume= 0.224 af, Atten= 0%, Lag= 0.0 min  
 Primary = 3.04 cfs @ 12.09 hrs, Volume= 0.224 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 116.07' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.82'	<b>12.0" Round Culvert</b> L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.82' / 114.68' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.97 cfs @ 12.09 hrs HW=116.04' TW=115.42' (Dynamic Tailwater)  
 ↑1=Culvert (Barrel Controls 2.97 cfs @ 3.94 fps)

**Summary for Pond 10P: INFIL-7**

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 4.91" for 25 Year event  
 Inflow = 2.85 cfs @ 12.15 hrs, Volume= 0.265 af  
 Outflow = 2.70 cfs @ 12.22 hrs, Volume= 0.245 af, Atten= 5%, Lag= 3.9 min  
 Discarded = 0.01 cfs @ 6.50 hrs, Volume= 0.008 af  
 Primary = 2.69 cfs @ 12.22 hrs, Volume= 0.237 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 111.66' @ 12.22 hrs Surf.Area= 0.017 ac Storage= 0.034 af

Plug-Flow detention time= 59.6 min calculated for 0.245 af (92% of inflow)  
 Center-of-Mass det. time= 26.3 min ( 846.2 - 820.0 )

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Volume	Invert	Avail.Storage	Storage Description
#1A	109.00'	0.015 af	<b>17.12'W x 43.88'L x 4.07'H Field A</b> 0.070 af Overall - 0.034 af Embedded = 0.036 af x 40.0% Voids
#2A	109.25'	0.032 af	<b>ACF R-Tank HD 2 x 170 Inside #1</b> Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 170 Chambers in 10 Rows
		0.047 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	110.50'	<b>12.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.50' / 110.44' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	109.00'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.01 cfs @ 6.50 hrs HW=109.04' (Free Discharge)

↳ **2=Exfiltration** (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=2.67 cfs @ 12.22 hrs HW=111.65' TW=110.00' (Dynamic Tailwater)

↳ **1=Culvert** (Barrel Controls 2.67 cfs @ 3.69 fps)

**Summary for Pond FP11: FocalPoint #11 (70 SF)**

Inflow Area =	0.648 ac, 55.25% Impervious, Inflow Depth > 4.91" for 25 Year event
Inflow =	3.61 cfs @ 12.09 hrs, Volume= 0.265 af
Outflow =	2.85 cfs @ 12.15 hrs, Volume= 0.265 af, Atten= 21%, Lag= 3.9 min
Primary =	0.20 cfs @ 11.10 hrs, Volume= 0.166 af
Secondary =	2.65 cfs @ 12.15 hrs, Volume= 0.099 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 115.49' @ 12.15 hrs Surf.Area= 88 sf Storage= 1,779 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 27.5 min ( 820.0 - 792.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	111.95'	40 cf	<b>8.00'W x 11.00'L x 2.25'H FocalPoint</b> 198 cf Overall x 20.0% Voids
#2	114.20'	3,745 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		3,785 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.20	1,033	0	0
116.00	1,913	2,651	2,651
116.50	2,462	1,094	3,745



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Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	<b>8.0" Round Culvert</b> L= 41.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 110.79' S= 0.0051 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	111.95'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	115.00'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.20 cfs @ 11.10 hrs HW=112.09' TW=110.74' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.20 cfs of 1.16 cfs potential flow)

↳ **2=Exfiltration** (Exfiltration Controls 0.20 cfs)

**Secondary OutFlow** Max=2.64 cfs @ 12.15 hrs HW=115.49' TW=111.60' (Dynamic Tailwater)

↳ **3=Orifice/Grate** (Orifice Controls 2.64 cfs @ 3.36 fps)

**Summary for Pond FP12: FocalPoint #12 (40 SF)**

Inflow Area =	0.649 ac, 29.89% Impervious, Inflow Depth > 3.86" for 25 Year event
Inflow =	2.92 cfs @ 12.09 hrs, Volume= 0.209 af
Outflow =	2.74 cfs @ 12.12 hrs, Volume= 0.209 af, Atten= 6%, Lag= 1.7 min
Primary =	0.25 cfs @ 11.60 hrs, Volume= 0.132 af
Secondary =	2.49 cfs @ 12.12 hrs, Volume= 0.077 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 107.92' @ 12.12 hrs Surf.Area= 108 sf Storage= 527 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 5.3 min ( 821.7 - 816.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	104.75'	49 cf	<b>9.00'W x 12.00'L x 2.25'H FocalPoint</b> 243 cf Overall x 20.0% Voids
#2	107.00'	1,363 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		1,412 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
107.00	380	0	0
108.00	678	529	529
109.00	990	834	1,363

Device	Routing	Invert	Outlet Devices
#1	Primary	104.00'	<b>8.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 104.00' / 103.50' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	104.75'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	107.50'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

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**Primary OutFlow** Max=0.25 cfs @ 11.60 hrs HW=105.00' TW=102.56' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.25 cfs of 1.38 cfs potential flow)

↳ **2=Exfiltration** (Exfiltration Controls 0.25 cfs)

**Secondary OutFlow** Max=2.43 cfs @ 12.12 hrs HW=107.91' TW=104.15' (Dynamic Tailwater)

↳ **3=Orifice/Grate** (Orifice Controls 2.43 cfs @ 3.09 fps)

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## Summary for Subcatchment D1: Bypass Basins

Runoff = 3.87 cfs @ 12.19 hrs, Volume= 0.345 af, Depth> 3.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

Area (ac)	CN	Description
0.762	55	Woods, Good, HSG B
0.305	70	Woods, Good, HSG C
0.055	61	>75% Grass cover, Good, HSG B
0.011	82	Dirt roads, HSG B
1.133	60	Weighted Average
1.133		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	71	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	88	0.1700	6.64		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
3.1	551	0.0380	2.92		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
12.9	735	Total			

## Summary for Subcatchment D2: Basin Area

Runoff = 0.87 cfs @ 12.10 hrs, Volume= 0.063 af, Depth> 3.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

Area (ac)	CN	Description
0.199	61	>75% Grass cover, Good, HSG B
0.199		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

## Summary for Subcatchment D3: Top Focal Point 12

Runoff = 0.40 cfs @ 12.09 hrs, Volume= 0.029 af, Depth> 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

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Area (ac)	CN	Description
0.007	98	Paved parking, HSG B
0.012	96	Gravel surface, HSG B
0.062	55	Woods, Good, HSG B
0.081	65	Weighted Average
0.074		91.36% Pervious Area
0.007		8.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D4: To CB-2**

Runoff = 3.43 cfs @ 12.09 hrs, Volume= 0.246 af, Depth> 5.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

Area (ac)	CN	Description
0.187	98	Paved parking, HSG B
0.381	61	>75% Grass cover, Good, HSG B
0.568	73	Weighted Average
0.381		67.08% Pervious Area
0.187		32.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	15	0.5000	0.29		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.18"
2.0	245	0.0160	2.04		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	28	0.4000	10.18		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.7	100	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
2.4					<b>Direct Entry, Adjustment to 6 min</b>
6.0	388	Total			

**Summary for Subcatchment D5: Rooftop**

Runoff = 2.98 cfs @ 12.09 hrs, Volume= 0.249 af, Depth> 8.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

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Area (ac)	CN	Description
0.365	98	Roofs, HSG B
0.365		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D6: To CB-1**

Runoff = 3.77 cfs @ 12.09 hrs, Volume= 0.282 af, Depth&gt; 6.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

Area (ac)	CN	Description
0.330	98	Paved parking, HSG B
0.180	61	>75% Grass cover, Good, HSG B
0.510	85	Weighted Average
0.180		35.29% Pervious Area
0.330		64.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D7: To Basin Area**

Runoff = 0.76 cfs @ 12.09 hrs, Volume= 0.054 af, Depth&gt; 4.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

Area (ac)	CN	Description
0.028	98	Paved parking, HSG B
0.110	61	>75% Grass cover, Good, HSG B
0.138	69	Weighted Average
0.110		79.71% Pervious Area
0.028		20.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

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**Summary for Subcatchment D8: to exist. Focal point (Building. C)**

Runoff = 0.21 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 8.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

Area (ac)	CN	Description
0.026	98	Paved parking, HSG B
0.026		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D9: Bypass Basins**

Runoff = 7.63 cfs @ 12.32 hrs, Volume= 0.837 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 Year Rainfall=8.52"

Area (ac)	CN	Description
0.050	82	Dirt roads, HSG B
2.412	55	Woods, Good, HSG B
0.118	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.361	61	>75% Grass cover, Good, HSG B
3.041	57	Weighted Average
3.041		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.9	257	0.0860	4.72		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	235	0.0550	4.19	4.19	<b>Channel Flow,</b> Area= 1.0 sf Perim= 3.0' r= 0.33' n= 0.040 Mountain streams
10.5	745	0.0020	1.18	3.55	<b>Channel Flow,</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Winding stream, pools & shoals
21.7	1,262	Total			

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## Summary for Reach 5R: Stream Channel

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 5.71" for 50 Year event  
 Inflow = 3.16 cfs @ 12.24 hrs, Volume= 0.308 af  
 Outflow = 3.06 cfs @ 12.30 hrs, Volume= 0.307 af, Atten= 3%, Lag= 3.6 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 2.53 fps, Min. Travel Time= 4.9 min  
 Avg. Velocity = 0.90 fps, Avg. Travel Time= 13.9 min

Peak Storage= 908 cf @ 12.30 hrs  
 Average Depth at Peak Storage= 0.40'  
 Bank-Full Depth= 1.50' Flow Area= 4.5 sf, Capacity= 20.16 cfs

3.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding  
 Length= 750.0' Slope= 0.0120 '/'  
 Inlet Invert= 101.00', Outlet Invert= 92.00'



## Summary for Reach A: Summary Reach

Inflow Area = 6.035 ac, 15.19% Impervious, Inflow Depth > 3.82" for 50 Year event  
 Inflow = 15.04 cfs @ 12.28 hrs, Volume= 1.924 af  
 Outflow = 15.04 cfs @ 12.28 hrs, Volume= 1.924 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

## Summary for Pond 1P: Basin E

Inflow Area = 1.213 ac, 46.08% Impervious, Inflow Depth > 5.27" for 50 Year event  
 Inflow = 6.92 cfs @ 12.12 hrs, Volume= 0.533 af  
 Outflow = 1.44 cfs @ 12.59 hrs, Volume= 0.459 af, Atten= 79%, Lag= 28.1 min  
 Discarded = 0.03 cfs @ 12.59 hrs, Volume= 0.024 af  
 Primary = 1.41 cfs @ 12.59 hrs, Volume= 0.435 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 105.78' @ 12.59 hrs Surf.Area= 4,274 sf Storage= 10,770 cf

Plug-Flow detention time= 163.1 min calculated for 0.458 af (86% of inflow)  
 Center-of-Mass det. time= 109.8 min ( 919.2 - 809.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	101.75'	16,886 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
101.75	1,000	165.0	0	0	1,000
102.00	1,387	180.0	297	297	1,414
104.00	2,863	387.0	4,162	4,459	10,771
106.00	4,468	413.0	7,272	11,731	12,610
107.00	5,875	439.0	5,155	16,886	14,423

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	<b>12.0" Round Culvert</b> L= 33.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.00' / 99.67' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	103.00'	<b>3.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	104.35'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Device 1	106.50'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Discarded	101.75'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.03 cfs @ 12.59 hrs HW=105.78' (Free Discharge)

↳ **5=Exfiltration** (Exfiltration Controls 0.03 cfs)

**Primary OutFlow** Max=1.41 cfs @ 12.59 hrs HW=105.78' TW=0.00' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 1.41 cfs of 8.69 cfs potential flow)  
 ↳ **2=Orifice/Grate** (Orifice Controls 0.39 cfs @ 7.84 fps)  
 ↳ **3=Orifice/Grate** (Orifice Controls 1.03 cfs @ 5.23 fps)  
 ↳ **4=Orifice/Grate** ( Controls 0.00 cfs)

**Summary for Pond 2P: DMH-5**

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 5.71" for 50 Year event  
 Inflow = 3.16 cfs @ 12.24 hrs, Volume= 0.308 af  
 Outflow = 3.16 cfs @ 12.24 hrs, Volume= 0.308 af, Atten= 0%, Lag= 0.0 min  
 Primary = 3.16 cfs @ 12.24 hrs, Volume= 0.308 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 110.20' @ 12.24 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	109.00'	<b>12.0" Round Culvert</b> L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 109.00' / 106.50' S= 0.1136 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.15 cfs @ 12.24 hrs HW=110.19' TW=101.39' (Dynamic Tailwater)

↳ **1=Culvert** (Inlet Controls 3.15 cfs @ 4.01 fps)



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**Summary for Pond 3P: DMH-7**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 8.19" for 50 Year event  
 Inflow = 2.98 cfs @ 12.09 hrs, Volume= 0.249 af  
 Outflow = 2.98 cfs @ 12.09 hrs, Volume= 0.249 af, Atten= 0%, Lag= 0.0 min  
 Primary = 2.98 cfs @ 12.09 hrs, Volume= 0.249 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 117.88' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	116.40'	<b>12.0" Round Culvert</b> L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.40' / 116.40' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.90 cfs @ 12.09 hrs HW=117.85' TW=117.19' (Dynamic Tailwater)  
 ←1=Culvert (Barrel Controls 2.90 cfs @ 3.70 fps)

**Summary for Pond 4P: INFIL-8**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 8.19" for 50 Year event  
 Inflow = 2.98 cfs @ 12.09 hrs, Volume= 0.249 af  
 Outflow = 2.79 cfs @ 12.12 hrs, Volume= 0.211 af, Atten= 7%, Lag= 1.9 min  
 Discarded = 0.01 cfs @ 1.95 hrs, Volume= 0.016 af  
 Primary = 2.78 cfs @ 12.12 hrs, Volume= 0.195 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 117.23' @ 12.12 hrs Surf.Area= 0.030 ac Storage= 0.051 af

Plug-Flow detention time= 116.4 min calculated for 0.211 af (85% of inflow)  
 Center-of-Mass det. time= 55.6 min ( 789.6 - 734.1 )

Volume	Invert	Avail.Storage	Storage Description
#1A	114.60'	0.028 af	<b>15.75'W x 81.94'L x 3.50'H Field A</b> 0.104 af Overall - 0.035 af Embedded = 0.069 af x 40.0% Voids
#2A	115.10'	0.035 af	<b>ADS_StormTech SC-740 +Cap</b> x 33 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 33 Chambers in 3 Rows
		0.062 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.60'	<b>0.300 in/hr Exfiltration over Surface area</b>
#2	Primary	116.43'	<b>12.0" Round Culvert X 2.00</b> L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.43' / 116.43' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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**Discarded OutFlow** Max=0.01 cfs @ 1.95 hrs HW=114.64' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=2.70 cfs @ 12.12 hrs HW=117.21' TW=115.01' (Dynamic Tailwater)

↑2=Culvert (Barrel Controls 2.70 cfs @ 2.82 fps)

### Summary for Pond 5P: DMH-8

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 6.41" for 50 Year event  
Inflow = 2.78 cfs @ 12.12 hrs, Volume= 0.195 af  
Outflow = 2.78 cfs @ 12.12 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.78 cfs @ 12.12 hrs, Volume= 0.195 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 115.04' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.00'	<b>12.0" Round Culvert</b> L= 68.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.00' / 104.00' S= 0.1471 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.70 cfs @ 12.12 hrs HW=115.01' TW=104.76' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 2.70 cfs @ 3.43 fps)

### Summary for Pond 7P: CB-2

Inflow Area = 0.568 ac, 32.92% Impervious, Inflow Depth > 5.20" for 50 Year event  
Inflow = 3.43 cfs @ 12.09 hrs, Volume= 0.246 af  
Outflow = 3.43 cfs @ 12.09 hrs, Volume= 0.246 af, Atten= 0%, Lag= 0.0 min  
Primary = 3.43 cfs @ 12.09 hrs, Volume= 0.246 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 109.32' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	108.00'	<b>12.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.00' / 107.50' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.36 cfs @ 12.09 hrs HW=109.29' TW=108.08' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 3.36 cfs @ 4.28 fps)

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### Summary for Pond 8P: DMH-6

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 8.19" for 50 Year event  
Inflow = 2.98 cfs @ 12.09 hrs, Volume= 0.249 af  
Outflow = 2.98 cfs @ 12.09 hrs, Volume= 0.249 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.98 cfs @ 12.09 hrs, Volume= 0.249 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 119.12' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.00'	<b>12.0" Round Culvert</b> L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.00' / 117.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.90 cfs @ 12.09 hrs HW=119.09' TW=117.85' (Dynamic Tailwater)  
↑1=Culvert (Inlet Controls 2.90 cfs @ 3.70 fps)

### Summary for Pond 9P: CB-1

Inflow Area = 0.510 ac, 64.71% Impervious, Inflow Depth > 6.64" for 50 Year event  
Inflow = 3.77 cfs @ 12.09 hrs, Volume= 0.282 af  
Outflow = 3.77 cfs @ 12.09 hrs, Volume= 0.282 af, Atten= 0%, Lag= 0.0 min  
Primary = 3.77 cfs @ 12.09 hrs, Volume= 0.282 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 116.42' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.82'	<b>12.0" Round Culvert</b> L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.82' / 114.68' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.44 cfs @ 12.09 hrs HW=116.39' TW=115.56' (Dynamic Tailwater)  
↑1=Culvert (Inlet Controls 3.44 cfs @ 4.38 fps)

### Summary for Pond 10P: INFIL-7

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 6.23" for 50 Year event  
Inflow = 3.34 cfs @ 12.17 hrs, Volume= 0.336 af  
Outflow = 3.17 cfs @ 12.24 hrs, Volume= 0.316 af, Atten= 5%, Lag= 4.5 min  
Discarded = 0.01 cfs @ 5.65 hrs, Volume= 0.008 af  
Primary = 3.16 cfs @ 12.24 hrs, Volume= 0.308 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 111.87' @ 12.24 hrs Surf.Area= 0.017 ac Storage= 0.037 af

Plug-Flow detention time= 51.9 min calculated for 0.316 af (94% of inflow)  
Center-of-Mass det. time= 23.6 min ( 836.2 - 812.6 )

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Volume	Invert	Avail.Storage	Storage Description
#1A	109.00'	0.015 af	<b>17.12'W x 43.88'L x 4.07'H Field A</b> 0.070 af Overall - 0.034 af Embedded = 0.036 af x 40.0% Voids
#2A	109.25'	0.032 af	<b>ACF R-Tank HD 2 x 170 Inside #1</b> Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 170 Chambers in 10 Rows
		0.047 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	110.50'	<b>12.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.50' / 110.44' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	109.00'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.01 cfs @ 5.65 hrs HW=109.04' (Free Discharge)

↳ **2=Exfiltration** (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=3.15 cfs @ 12.24 hrs HW=111.86' TW=110.19' (Dynamic Tailwater)

↳ **1=Culvert** (Barrel Controls 3.15 cfs @ 4.01 fps)

**Summary for Pond FP11: FocalPoint #11 (70 SF)**

Inflow Area =	0.648 ac, 55.25% Impervious, Inflow Depth > 6.23" for 50 Year event
Inflow =	4.53 cfs @ 12.09 hrs, Volume= 0.336 af
Outflow =	3.34 cfs @ 12.17 hrs, Volume= 0.336 af, Atten= 26%, Lag= 4.6 min
Primary =	0.20 cfs @ 10.60 hrs, Volume= 0.189 af
Secondary =	3.13 cfs @ 12.17 hrs, Volume= 0.147 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 115.69' @ 12.17 hrs Surf.Area= 88 sf Storage= 2,113 cf

Plug-Flow detention time= 26.3 min calculated for 0.336 af (100% of inflow)

Center-of-Mass det. time= 26.3 min ( 812.6 - 786.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	111.95'	40 cf	<b>8.00'W x 11.00'L x 2.25'H FocalPoint</b> 198 cf Overall x 20.0% Voids
#2	114.20'	3,745 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		3,785 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.20	1,033	0	0
116.00	1,913	2,651	2,651
116.50	2,462	1,094	3,745

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Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	<b>8.0" Round Culvert</b> L= 41.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 110.79' S= 0.0051 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	111.95'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	115.00'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.20 cfs @ 10.60 hrs HW=112.13' TW=110.74' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.20 cfs of 1.19 cfs potential flow)

↳ **2=Exfiltration** (Exfiltration Controls 0.20 cfs)

**Secondary OutFlow** Max=3.10 cfs @ 12.17 hrs HW=115.67' TW=111.79' (Dynamic Tailwater)

↳ **3=Orifice/Grate** (Orifice Controls 3.10 cfs @ 3.95 fps)

**Summary for Pond FP12: FocalPoint #12 (40 SF)**

Inflow Area =	0.649 ac, 29.89% Impervious, Inflow Depth > 5.08" for 50 Year event
Inflow =	3.83 cfs @ 12.09 hrs, Volume= 0.275 af
Outflow =	3.33 cfs @ 12.14 hrs, Volume= 0.275 af, Atten= 13%, Lag= 2.8 min
Primary =	0.25 cfs @ 11.35 hrs, Volume= 0.158 af
Secondary =	3.08 cfs @ 12.14 hrs, Volume= 0.116 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 108.16' @ 12.14 hrs Surf.Area= 108 sf Storage= 693 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 5.5 min ( 814.4 - 808.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	104.75'	49 cf	<b>9.00'W x 12.00'L x 2.25'H FocalPoint</b> 243 cf Overall x 20.0% Voids
#2	107.00'	1,363 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		1,412 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
107.00	380	0	0
108.00	678	529	529
109.00	990	834	1,363

Device	Routing	Invert	Outlet Devices
#1	Primary	104.00'	<b>8.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 104.00' / 103.50' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	104.75'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	107.50'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

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**Primary OutFlow** Max=0.25 cfs @ 11.35 hrs HW=104.90' TW=102.82' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.25 cfs of 1.27 cfs potential flow)

↳ **2=Exfiltration** (Exfiltration Controls 0.25 cfs)

**Secondary OutFlow** Max=3.05 cfs @ 12.14 hrs HW=108.15' TW=104.89' (Dynamic Tailwater)

↳ **3=Orifice/Grate** (Orifice Controls 3.05 cfs @ 3.88 fps)

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**Summary for Subcatchment D1: Bypass Basins**

Runoff = 5.34 cfs @ 12.18 hrs, Volume= 0.472 af, Depth&gt; 5.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

Area (ac)	CN	Description
0.762	55	Woods, Good, HSG B
0.305	70	Woods, Good, HSG C
0.055	61	>75% Grass cover, Good, HSG B
0.011	82	Dirt roads, HSG B
1.133	60	Weighted Average
1.133		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.2	71	0.0900	4.83		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.2	88	0.1700	6.64		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
3.1	551	0.0380	2.92		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
12.9	735	Total			

**Summary for Subcatchment D2: Basin Area**

Runoff = 1.20 cfs @ 12.09 hrs, Volume= 0.085 af, Depth&gt; 5.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

Area (ac)	CN	Description
0.199	61	>75% Grass cover, Good, HSG B
0.199		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D3: Top Focal Point 12**

Runoff = 0.54 cfs @ 12.09 hrs, Volume= 0.038 af, Depth&gt; 5.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

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Area (ac)	CN	Description
0.007	98	Paved parking, HSG B
0.012	96	Gravel surface, HSG B
0.062	55	Woods, Good, HSG B
0.081	65	Weighted Average
0.074		91.36% Pervious Area
0.007		8.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D4: To CB-2**

Runoff = 4.42 cfs @ 12.09 hrs, Volume= 0.319 af, Depth> 6.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

Area (ac)	CN	Description
0.187	98	Paved parking, HSG B
0.381	61	>75% Grass cover, Good, HSG B
0.568	73	Weighted Average
0.381		67.08% Pervious Area
0.187		32.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	15	0.5000	0.29		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.18"
2.0	245	0.0160	2.04		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	28	0.4000	10.18		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.7	100	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
2.4					<b>Direct Entry, Adjustment to 6 min</b>
6.0	388	Total			

**Summary for Subcatchment D5: Rooftop**

Runoff = 3.59 cfs @ 12.09 hrs, Volume= 0.301 af, Depth> 9.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"



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Area (ac)	CN	Description
0.365	98	Roofs, HSG B
0.365		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D6: To CB-1**

Runoff = 4.65 cfs @ 12.09 hrs, Volume= 0.352 af, Depth&gt; 8.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

Area (ac)	CN	Description
0.330	98	Paved parking, HSG B
0.180	61	>75% Grass cover, Good, HSG B
0.510	85	Weighted Average
0.180		35.29% Pervious Area
0.330		64.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D7: To Basin Area**

Runoff = 1.00 cfs @ 12.09 hrs, Volume= 0.072 af, Depth&gt; 6.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

Area (ac)	CN	Description
0.028	98	Paved parking, HSG B
0.110	61	>75% Grass cover, Good, HSG B
0.138	69	Weighted Average
0.110		79.71% Pervious Area
0.028		20.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

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**Summary for Subcatchment D8: to exist. Focal point (Building. C)**

Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 9.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

Area (ac)	CN	Description
0.026	98	Paved parking, HSG B
0.026		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment D9: Bypass Basins**

Runoff = 10.75 cfs @ 12.31 hrs, Volume= 1.162 af, Depth> 4.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100 Year Rainfall=10.24"

Area (ac)	CN	Description
0.050	82	Dirt roads, HSG B
2.412	55	Woods, Good, HSG B
0.118	70	Woods, Good, HSG C
0.100	77	Woods, Good, HSG D
0.361	61	>75% Grass cover, Good, HSG B
3.041	57	Weighted Average
3.041		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	25	0.0100	0.04		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.18"
0.9	257	0.0860	4.72		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.9	235	0.0550	4.19	4.19	<b>Channel Flow,</b> Area= 1.0 sf Perim= 3.0' r= 0.33' n= 0.040 Mountain streams
10.5	745	0.0020	1.18	3.55	<b>Channel Flow,</b> Area= 3.0 sf Perim= 5.0' r= 0.60' n= 0.040 Winding stream, pools & shoals
21.7	1,262	Total			

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## Summary for Reach 5R: Stream Channel

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 7.32" for 100 Year event  
 Inflow = 3.74 cfs @ 12.24 hrs, Volume= 0.395 af  
 Outflow = 3.65 cfs @ 12.30 hrs, Volume= 0.393 af, Atten= 2%, Lag= 3.5 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 2.68 fps, Min. Travel Time= 4.7 min  
 Avg. Velocity = 0.97 fps, Avg. Travel Time= 12.9 min

Peak Storage= 1,019 cf @ 12.30 hrs  
 Average Depth at Peak Storage= 0.45'  
 Bank-Full Depth= 1.50' Flow Area= 4.5 sf, Capacity= 20.16 cfs

3.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding  
 Length= 750.0' Slope= 0.0120 '/'  
 Inlet Invert= 101.00', Outlet Invert= 92.00'



## Summary for Reach A: Summary Reach

Inflow Area = 6.035 ac, 15.19% Impervious, Inflow Depth > 5.18" for 100 Year event  
 Inflow = 20.30 cfs @ 12.27 hrs, Volume= 2.607 af  
 Outflow = 20.30 cfs @ 12.27 hrs, Volume= 2.607 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

## Summary for Pond 1P: Basin E

Inflow Area = 1.213 ac, 46.08% Impervious, Inflow Depth > 6.82" for 100 Year event  
 Inflow = 8.49 cfs @ 12.12 hrs, Volume= 0.690 af  
 Outflow = 1.77 cfs @ 12.59 hrs, Volume= 0.606 af, Atten= 79%, Lag= 28.1 min  
 Discarded = 0.04 cfs @ 12.59 hrs, Volume= 0.026 af  
 Primary = 1.73 cfs @ 12.59 hrs, Volume= 0.579 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 106.49' @ 12.59 hrs Surf.Area= 5,131 sf Storage= 14,072 cf

Plug-Flow detention time= 152.5 min calculated for 0.604 af (88% of inflow)  
 Center-of-Mass det. time= 103.4 min ( 906.0 - 802.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	101.75'	16,886 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
101.75	1,000	165.0	0	0	1,000
102.00	1,387	180.0	297	297	1,414
104.00	2,863	387.0	4,162	4,459	10,771
106.00	4,468	413.0	7,272	11,731	12,610
107.00	5,875	439.0	5,155	16,886	14,423

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	<b>12.0" Round Culvert</b> L= 33.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.00' / 99.67' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	103.00'	<b>3.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	104.35'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Device 1	106.50'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Discarded	101.75'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.04 cfs @ 12.59 hrs HW=106.49' (Free Discharge)

↳ **5=Exfiltration** (Exfiltration Controls 0.04 cfs)

**Primary OutFlow** Max=1.73 cfs @ 12.59 hrs HW=106.49' TW=0.00' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 1.73 cfs of 9.25 cfs potential flow)  
 ↳ **2=Orifice/Grate** (Orifice Controls 0.43 cfs @ 8.83 fps)  
 ↳ **3=Orifice/Grate** (Orifice Controls 1.30 cfs @ 6.61 fps)  
 ↳ **4=Orifice/Grate** ( Controls 0.00 cfs)

**Summary for Pond 2P: DMH-5**

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 7.32" for 100 Year event  
 Inflow = 3.74 cfs @ 12.24 hrs, Volume= 0.395 af  
 Outflow = 3.74 cfs @ 12.24 hrs, Volume= 0.395 af, Atten= 0%, Lag= 0.0 min  
 Primary = 3.74 cfs @ 12.24 hrs, Volume= 0.395 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 110.48' @ 12.24 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	109.00'	<b>12.0" Round Culvert</b> L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 109.00' / 106.50' S= 0.1136 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.72 cfs @ 12.24 hrs HW=110.47' TW=101.44' (Dynamic Tailwater)

↳ **1=Culvert** (Inlet Controls 3.72 cfs @ 4.74 fps)

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**Summary for Pond 3P: DMH-7**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 9.89" for 100 Year event  
 Inflow = 3.59 cfs @ 12.09 hrs, Volume= 0.301 af  
 Outflow = 3.59 cfs @ 12.09 hrs, Volume= 0.301 af, Atten= 0%, Lag= 0.0 min  
 Primary = 3.59 cfs @ 12.09 hrs, Volume= 0.301 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 118.09' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	116.40'	<b>12.0" Round Culvert</b> L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.40' / 116.40' S= 0.0000 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.32 cfs @ 12.09 hrs HW=118.06' TW=117.29' (Dynamic Tailwater)  
 ↑1=Culvert (Inlet Controls 3.32 cfs @ 4.23 fps)

**Summary for Pond 4P: INFIL-8**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 9.89" for 100 Year event  
 Inflow = 3.59 cfs @ 12.09 hrs, Volume= 0.301 af  
 Outflow = 3.39 cfs @ 12.12 hrs, Volume= 0.263 af, Atten= 5%, Lag= 1.7 min  
 Discarded = 0.01 cfs @ 1.55 hrs, Volume= 0.016 af  
 Primary = 3.38 cfs @ 12.12 hrs, Volume= 0.247 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 117.32' @ 12.12 hrs Surf.Area= 0.030 ac Storage= 0.053 af

Plug-Flow detention time= 107.0 min calculated for 0.263 af (87% of inflow)  
 Center-of-Mass det. time= 52.1 min ( 784.4 - 732.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	114.60'	0.028 af	<b>15.75'W x 81.94'L x 3.50'H Field A</b> 0.104 af Overall - 0.035 af Embedded = 0.069 af x 40.0% Voids
#2A	115.10'	0.035 af	<b>ADS_StormTech SC-740 +Cap</b> x 33 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 33 Chambers in 3 Rows
		0.062 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	114.60'	<b>0.300 in/hr Exfiltration over Surface area</b>
#2	Primary	116.43'	<b>12.0" Round Culvert X 2.00</b> L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.43' / 116.43' S= 0.0000 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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**Discarded OutFlow** Max=0.01 cfs @ 1.55 hrs HW=114.64' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=3.29 cfs @ 12.12 hrs HW=117.31' TW=115.26' (Dynamic Tailwater)

↑2=Culvert (Barrel Controls 3.29 cfs @ 3.00 fps)

## Summary for Pond 5P: DMH-8

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 8.11" for 100 Year event  
Inflow = 3.38 cfs @ 12.12 hrs, Volume= 0.247 af  
Outflow = 3.38 cfs @ 12.12 hrs, Volume= 0.247 af, Atten= 0%, Lag= 0.0 min  
Primary = 3.38 cfs @ 12.12 hrs, Volume= 0.247 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 115.30' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.00'	<b>12.0" Round Culvert</b> L= 68.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.00' / 104.00' S= 0.1471 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.29 cfs @ 12.12 hrs HW=115.26' TW=105.36' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 3.29 cfs @ 4.19 fps)

## Summary for Pond 7P: CB-2

Inflow Area = 0.568 ac, 32.92% Impervious, Inflow Depth > 6.75" for 100 Year event  
Inflow = 4.42 cfs @ 12.09 hrs, Volume= 0.319 af  
Outflow = 4.42 cfs @ 12.09 hrs, Volume= 0.319 af, Atten= 0%, Lag= 0.0 min  
Primary = 4.42 cfs @ 12.09 hrs, Volume= 0.319 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 109.86' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	108.00'	<b>12.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.00' / 107.50' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=4.32 cfs @ 12.09 hrs HW=109.81' TW=108.34' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 4.32 cfs @ 5.50 fps)

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**Summary for Pond 8P: DMH-6**

Inflow Area = 0.365 ac, 100.00% Impervious, Inflow Depth > 9.89" for 100 Year event  
 Inflow = 3.59 cfs @ 12.09 hrs, Volume= 0.301 af  
 Outflow = 3.59 cfs @ 12.09 hrs, Volume= 0.301 af, Atten= 0%, Lag= 0.0 min  
 Primary = 3.59 cfs @ 12.09 hrs, Volume= 0.301 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 119.40' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.00'	<b>12.0" Round Culvert</b> L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.00' / 117.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.49 cfs @ 12.09 hrs HW=119.35' TW=118.06' (Dynamic Tailwater)  
 ↑1=Culvert (Inlet Controls 3.49 cfs @ 4.44 fps)

**Summary for Pond 9P: CB-1**

Inflow Area = 0.510 ac, 64.71% Impervious, Inflow Depth > 8.29" for 100 Year event  
 Inflow = 4.65 cfs @ 12.09 hrs, Volume= 0.352 af  
 Outflow = 4.65 cfs @ 12.09 hrs, Volume= 0.352 af, Atten= 0%, Lag= 0.0 min  
 Primary = 4.65 cfs @ 12.09 hrs, Volume= 0.352 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 117.06' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.82'	<b>12.0" Round Culvert</b> L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.82' / 114.68' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=4.20 cfs @ 12.09 hrs HW=116.97' TW=115.73' (Dynamic Tailwater)  
 ↑1=Culvert (Inlet Controls 4.20 cfs @ 5.35 fps)

**Summary for Pond 10P: INFIL-7**

Inflow Area = 0.648 ac, 55.25% Impervious, Inflow Depth > 7.85" for 100 Year event  
 Inflow = 3.85 cfs @ 12.18 hrs, Volume= 0.424 af  
 Outflow = 3.74 cfs @ 12.24 hrs, Volume= 0.404 af, Atten= 3%, Lag= 3.7 min  
 Discarded = 0.01 cfs @ 4.85 hrs, Volume= 0.008 af  
 Primary = 3.74 cfs @ 12.24 hrs, Volume= 0.395 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
 Peak Elev= 112.03' @ 12.24 hrs Surf.Area= 0.017 ac Storage= 0.039 af

Plug-Flow detention time= 45.0 min calculated for 0.404 af (95% of inflow)  
 Center-of-Mass det. time= 21.2 min ( 827.0 - 805.8 )

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Volume	Invert	Avail.Storage	Storage Description
#1A	109.00'	0.015 af	<b>17.12'W x 43.88'L x 4.07'H Field A</b> 0.070 af Overall - 0.034 af Embedded = 0.036 af x 40.0% Voids
#2A	109.25'	0.032 af	<b>ACF R-Tank HD 2 x 170 Inside #1</b> Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 170 Chambers in 10 Rows
		0.047 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	110.50'	<b>12.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 110.50' / 110.44' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	109.00'	<b>0.300 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.01 cfs @ 4.85 hrs HW=109.04' (Free Discharge)

↳ **2=Exfiltration** (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=3.72 cfs @ 12.24 hrs HW=112.03' TW=110.47' (Dynamic Tailwater)

↳ **1=Culvert** (Barrel Controls 3.72 cfs @ 4.74 fps)

**Summary for Pond FP11: FocalPoint #11 (70 SF)**

Inflow Area =	0.648 ac, 55.25% Impervious, Inflow Depth > 7.85" for 100 Year event
Inflow =	5.65 cfs @ 12.09 hrs, Volume= 0.424 af
Outflow =	3.85 cfs @ 12.18 hrs, Volume= 0.424 af, Atten= 32%, Lag= 5.4 min
Primary =	0.20 cfs @ 10.10 hrs, Volume= 0.213 af
Secondary =	3.65 cfs @ 12.18 hrs, Volume= 0.211 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Peak Elev= 115.93' @ 12.18 hrs Surf.Area= 88 sf Storage= 2,558 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 25.3 min ( 805.8 - 780.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	111.95'	40 cf	<b>8.00'W x 11.00'L x 2.25'H FocalPoint</b> 198 cf Overall x 20.0% Voids
#2	114.20'	3,745 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		3,785 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.20	1,033	0	0
116.00	1,913	2,651	2,651
116.50	2,462	1,094	3,745



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Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	<b>8.0" Round Culvert</b> L= 41.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 110.79' S= 0.0051 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	111.95'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	115.00'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.20 cfs @ 10.10 hrs HW=112.12' TW=110.75' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.20 cfs of 1.19 cfs potential flow)

↳ **2=Exfiltration** (Exfiltration Controls 0.20 cfs)

**Secondary OutFlow** Max=3.63 cfs @ 12.18 hrs HW=115.92' TW=111.98' (Dynamic Tailwater)

↳ **3=Orifice/Grate** (Orifice Controls 3.63 cfs @ 4.62 fps)

**Summary for Pond FP12: FocalPoint #12 (40 SF)**

Inflow Area =	0.649 ac, 29.89% Impervious, Inflow Depth > 6.61" for 100 Year event
Inflow =	4.95 cfs @ 12.09 hrs, Volume= 0.358 af
Outflow =	4.05 cfs @ 12.15 hrs, Volume= 0.358 af, Atten= 18%, Lag= 3.6 min
Primary =	0.25 cfs @ 11.10 hrs, Volume= 0.187 af
Secondary =	3.80 cfs @ 12.15 hrs, Volume= 0.171 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs  
Peak Elev= 108.51' @ 12.15 hrs Surf.Area= 108 sf Storage= 962 cf

Plug-Flow detention time= 5.7 min calculated for 0.358 af (100% of inflow)  
Center-of-Mass det. time= 5.7 min ( 807.5 - 801.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	104.75'	49 cf	<b>9.00'W x 12.00'L x 2.25'H FocalPoint</b> 243 cf Overall x 20.0% Voids
#2	107.00'	1,363 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) -Impervious
		1,412 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
107.00	380	0	0
108.00	678	529	529
109.00	990	834	1,363

Device	Routing	Invert	Outlet Devices
#1	Primary	104.00'	<b>8.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 104.00' / 103.50' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	104.75'	<b>100.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.10'
#3	Secondary	107.50'	<b>12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

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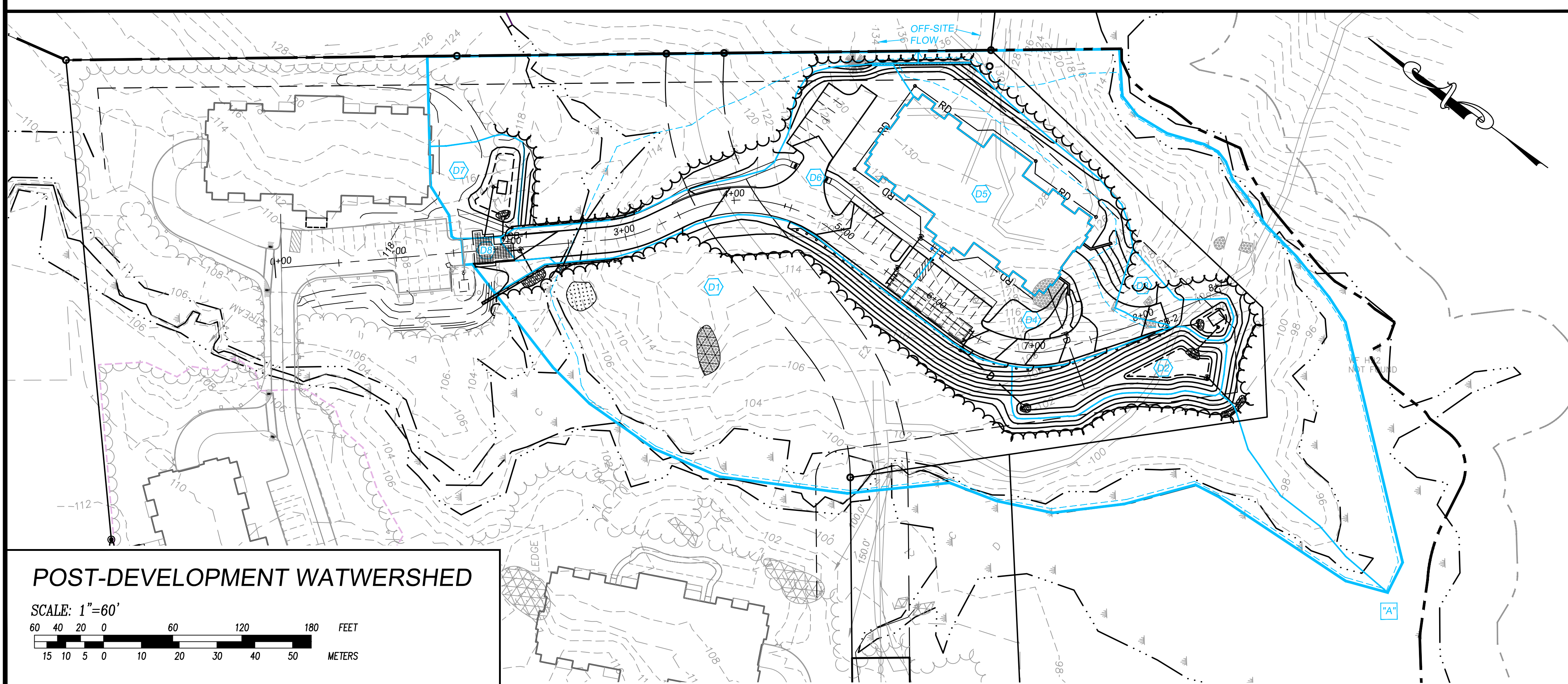
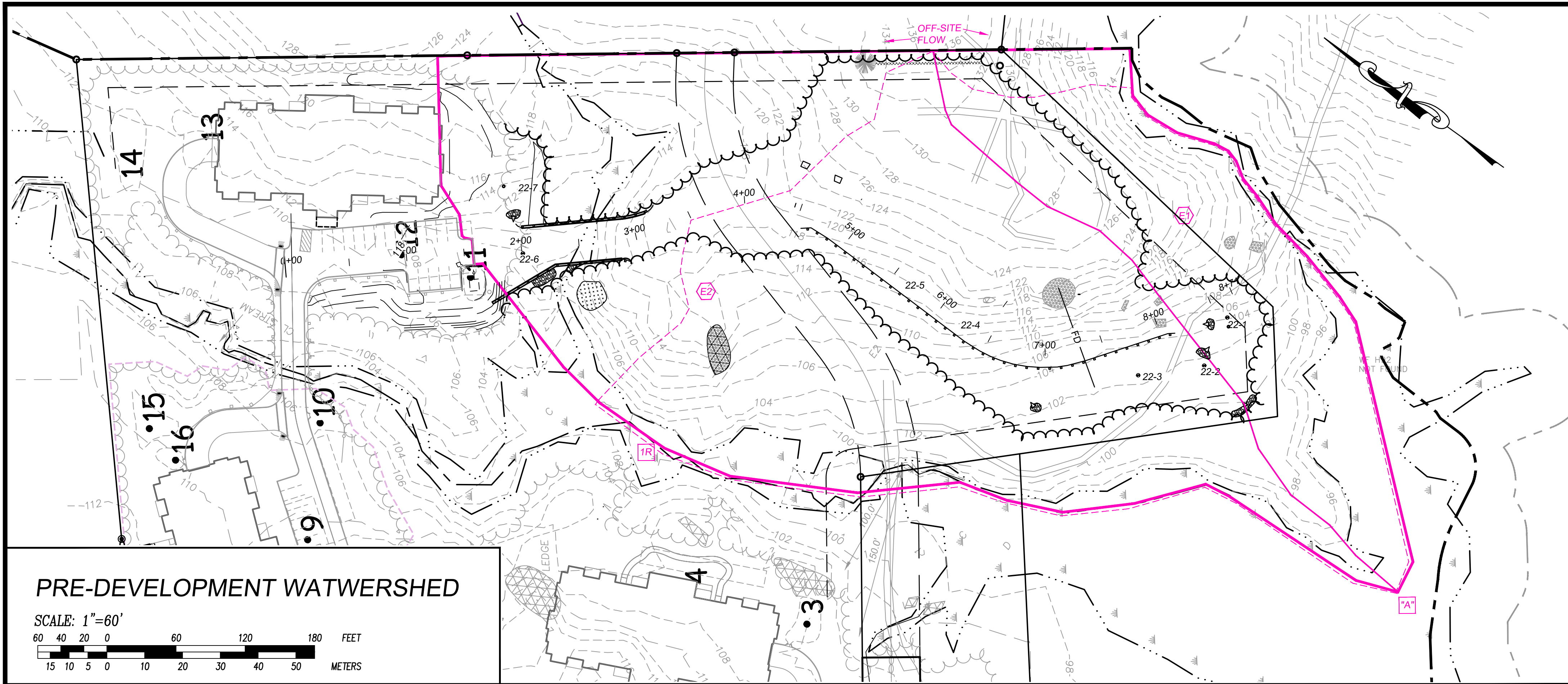
**Primary OutFlow** Max=0.25 cfs @ 11.10 hrs HW=104.95' TW=103.14' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 0.25 cfs of 1.32 cfs potential flow)

↳ **2=Exfiltration** (Exfiltration Controls 0.25 cfs)

**Secondary OutFlow** Max=3.79 cfs @ 12.15 hrs HW=108.51' TW=105.58' (Dynamic Tailwater)

↳ **3=Orifice/Grate** (Orifice Controls 3.79 cfs @ 4.83 fps)



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**Ray Farm  
Condominium**

Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:

Ray Farm, LLC  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK				
NO.	DATE	DESC	BY	
1	4.26-22	REVISE WET IMPACTS	DH	

**NOTES:**  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

TOWN OF EXETER PLANNING BOARD

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

PROJ. MGR: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D GR.DWG  
 FBK:  
 JOB #: 16042 D



6 CHESTNUT STREET, AMESBURY, MA.  
 Phone: (978) 388-2157  
 CONSULTING ENGINEERS &  
 LAND SURVEYORS SINCE 1988  
 www.gm2inc.com

Sheet Title:

# WETLAND IMPACT PLAN

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

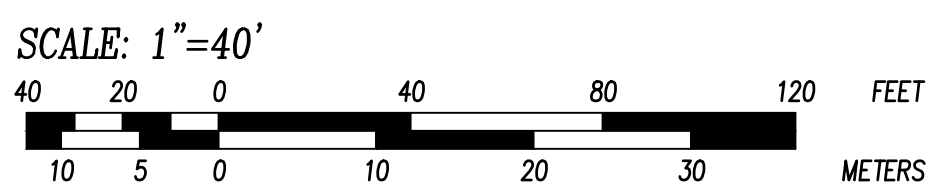
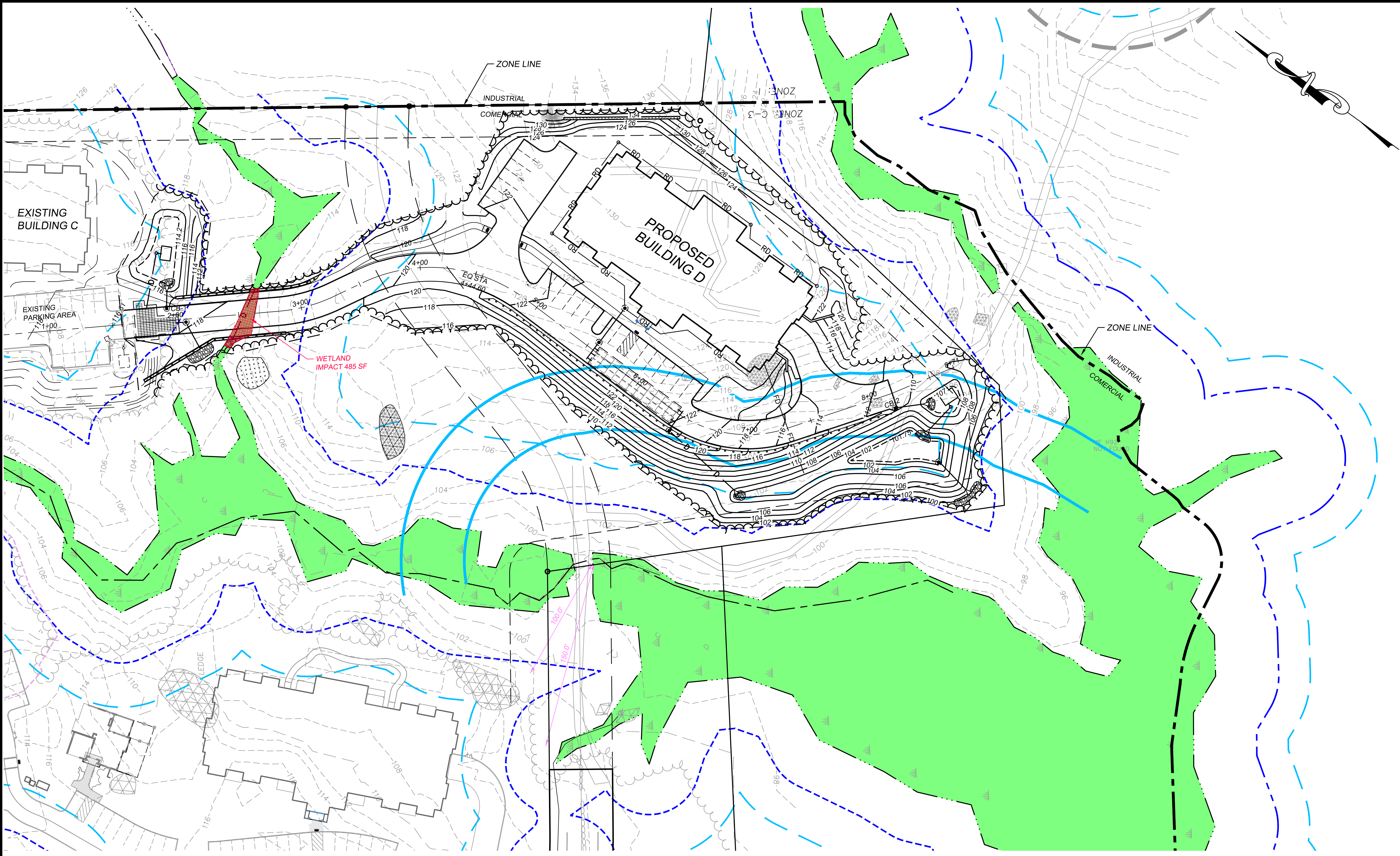
Applicant/Owner:

Ray Farm, LLC  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK				
NO.	DATE	DESC	BY	
1	4.26-22	REVISE WET IMPACTS	DH	

PROJ. MGR: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
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 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D GR.DWG  
 FBK:  
 JOB #: 16042 D

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



**DIRECT WETLAND IMPACTS**

WETLAND IMPACT - AREA 1 485 SF

**TOTAL WETLAND IMPACT 485 SF**

**NOTES:**  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

K:\PROJ CIVIL\_3D\2016\16042 BLDG DIV.0 SHEET FILES\16042 D GR.DWG D:\hame\5/16/2022 7:36 PM



6 CHESTNUT STREET, AMESBURY, MA.  
 Phone: (978) 388-2157  
 CONSULTING ENGINEERS &  
 LAND SURVEYORS SINCE 1988  
 www.gm2inc.com

# WETLAND AND SHORELAND BUFFER IMPACT PLAN

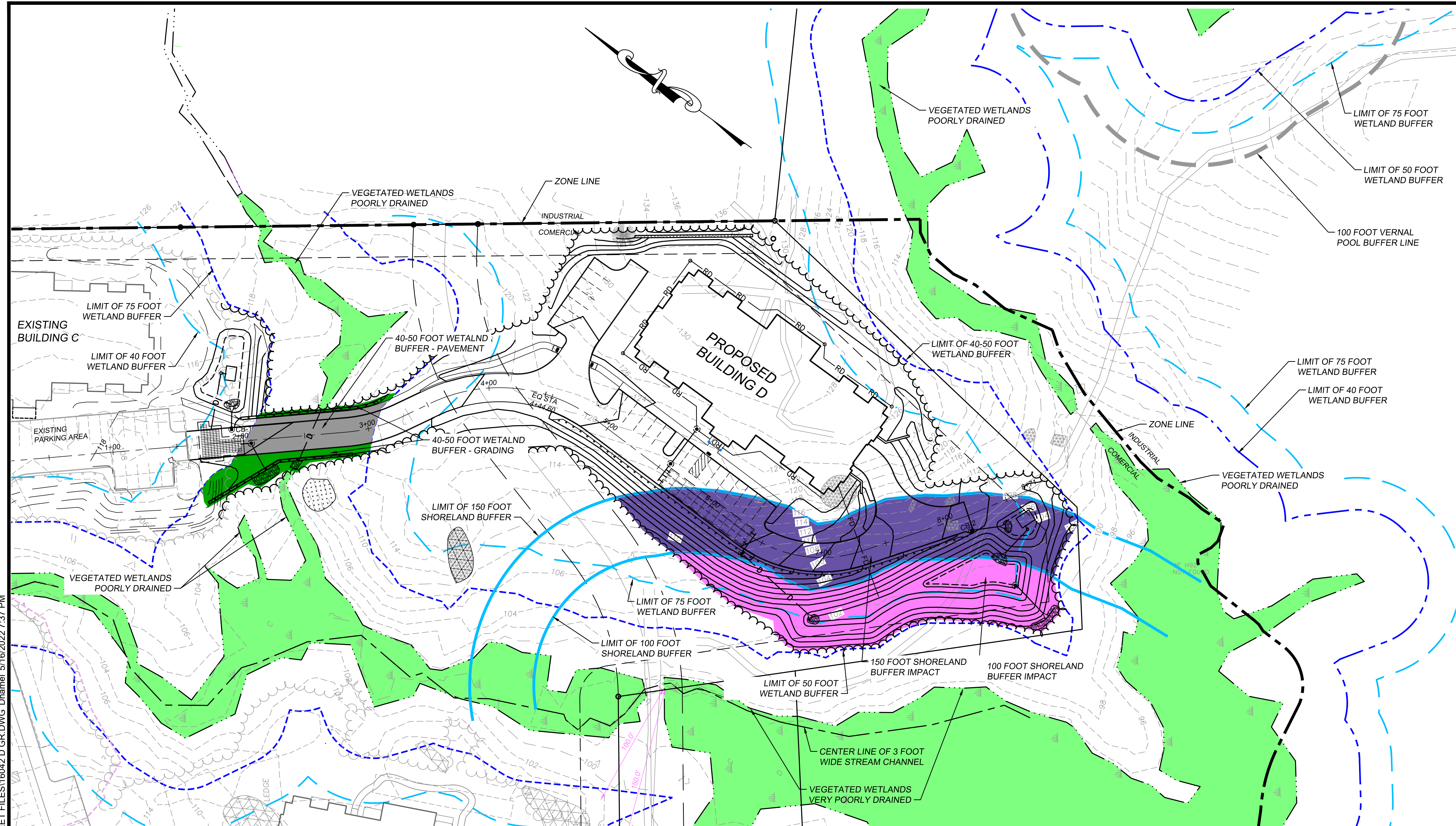
## Ray Farm Condominium

Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

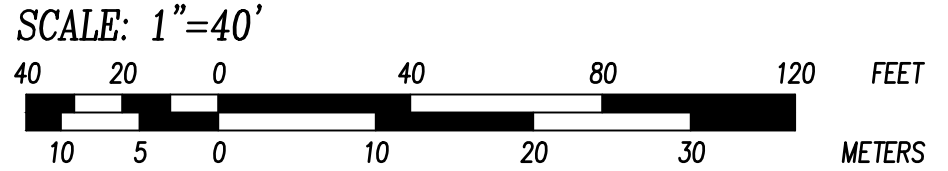
Applicant/Owner:

Ray Farm, LLC  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK				
NO.	DATE	DESC	BY	
1	4.26-22	REVISE WET IMPACTS	DH	



K:\PROJ CIVIL\_3D\2016\16042 BLDG D\1.0 SHEET FILES\16042 D GR.DWG D:\1.0 SHEET FILES\16042 D GR.DWG D:\1.0 SHEET FILES\16042 D GR.DWG 5/16/2022 7:37 PM



### WETLAND BUFFER IMPACTS

	40-50 FOOT WETLAND BUFFER IMPACT - PAVEMENT	2858 SF
	40-50 FOOT WETLAND BUFFER IMPACT - GRAVEL	0 SF
	40-50 FOOT WETLAND BUFFER IMPACT - GRADING	2489 SF
	75 FOOT WETLAND BUFFER IMPACT	0 SF
<b>TOTAL WETLAND BUFFER IMPACTS</b>		<b>5,347 SF</b>

### SHORELAND BUFFER IMPACTS

	100 FOOT SHORELAND BUFFER IMPACT	9128 SF
	150 FOOT SHORELAND BUFFER IMPACT	16,560 SF
<b>TOTAL SHORELAND BUFFER IMPACT</b>		<b>25,688 SF SF</b>

**NOTES:**  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

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

PROJ. MGR.: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D GR.DWG  
 FBK:  
 JOB #: 16042 D

Russell F. Hilliard  
James F. Raymond  
Barton L. Mayer  
Heather M. Burns  
Lauren Simon Irwin  
Michael S. McGrath\*  
Jeanne S. Saffan\*\*  
Susan Aileen Lowry  
Michael P. Courtney\*  
Peter W. Leberman  
Nathan C. Midolo\*\*\*  
Brooke Lovett Shilo  
Stephanie J. Thomson\*\*\*\*



Serving New Hampshire since 1908

*Of Counsel*  
Norman H. Makechnie  
Jeffrey R. Crocker

\* Also admitted in MA  
\*\* Also admitted in MA & NY  
\*\*\* Also admitted in MN  
\*\*\*\* Also admitted in VT

May 16, 2022

**RECEIVED**

**MAY 17 2022**

**EXETER PLANNING OFFICE**

*Via Fax and U.S. Mail*

Langdon Plumer, Chair  
Exeter Planning Board  
10 Front Street  
Exeter, NH 03833-3792

Re: Application of CKT Associates for Site Plan Review (May 26, 2022 Hearing)  
Planning Board Case #22-3

Dear Chair Plumer:

I represent W. Scott Carlisle, III, owner of property adjoining the parcel that is the subject of this application.

Mr. Carlisle has a right-of-way over the CKT property as depicted on the enclosed road design (prepared by CKT) that has been approved by the Town, as well as the subdivision of his property shown on the enclosed plan and approval letter. This right-of-way is also part of the Town's TIF District, to be constructed in accordance with the approved road design (as has CKT's portion of the road).

The application's supporting documents depict ways, parking, and site work associated with the proposed relocation of the building being placed directly on the layout of the TIF road accessing his property.

CKT's proposed road crossing interferes with the approved TIF road design: it is several feet higher than the TIF road, designed to continue from the existing road to Mr. Carlisle's land, and includes incompatible sidewalks and utilities.

Mr. Carlisle wants your Board to be aware that he does not consent to this, or any interference with, the Town's TIF road and his right-of-way.

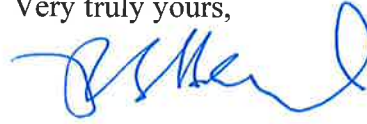
Mr. Carlisle and I plan to attend the hearing on the application and will answer any questions the Board may have.

159 Middle Street, Portsmouth, NH 03801  
Concord – Hillsborough – Peterborough – Portsmouth

May 16, 2022  
Page 2

Thank you for your consideration.

Very truly yours,



Russell F. Hilliard  
rhilliard@uptonhatfield.com  
(603) 436-7046

RFH/sem  
Enclosures

cc: W. Scott Carlisle, III (w/ Enclosures)(via Electronic Mail only)  
Justin L. Pasay, Esq. (w/ Enclosures)(via Electronic Mail only)  
Walter L. Mitchell (w/ Enclosures)(via Electronic Mail only)



## TOWN OF EXETER, NEW HAMPSHIRE

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

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

August 25, 2017

W. Scott Carlisle, III  
14 Cass Street  
Exeter, New Hampshire 03833

Re: PB Case #17-26 W. Scott Carlisle, III  
Minor Subdivision - Property off of Epping Road, Exeter, N.H  
Tax Map Parcel #40-12

Dear Mr. Carlisle:

Please be advised that at the meeting of August 24<sup>th</sup>, 2017, the Exeter Planning Board voted to **APPROVE** the above-captioned application for a minor subdivision, as presented, subject to the following conditions:

1. A dwg file of the subdivision plan shall be provided to the Town Planner showing all property lines and monumentation prior to signing the final plans;
2. This approval shall not be final until the applicant presents to the Board, and the Board and its engineers approve, a design for both the un-built portion of the so-called TIF road to the applicant's property, and the roadway and cul-de-sac within the property;
3. The potential discrepancy regarding the location of the common boundary line between the subject parcel and the abutting parcel (Tax Map 47 Lot 8) shall be resolved between the property owners; and,
4. These conditions shall be met prior to recording the subdivision plan.

The Board also approved the following waivers from the Site Plan Review and Subdivision Regulations in conjunction with the minor subdivision plan:

- Section 7.4.7 – Natural Features for significant trees - 16" diameter (caliper) or greater
- Section 7.5.4 – High Intensity Soil Survey (HISS) information

Both of the above waivers shall be specific to this subdivision application and shall not apply to any subsequent application submitted for the property.

Please feel free to contact the Planning Department at 773-6114 with any questions.

Sincerely,

Langdon J. Plumer  
Chairman  
Exeter Planning Board

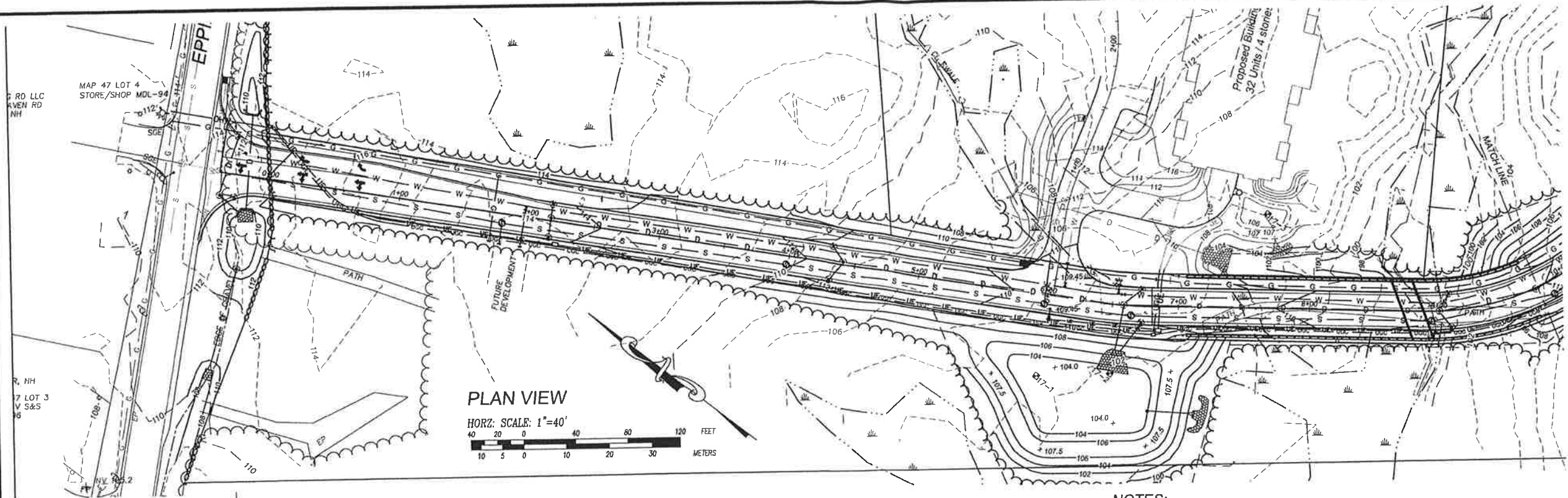
cc: ✓ Jonathan S. Ring, P.E., President, Jones & Beach Engineers, Inc.  
Douglas Eastman, Building Inspector/Code Enforcement Officer

LJP:bsm

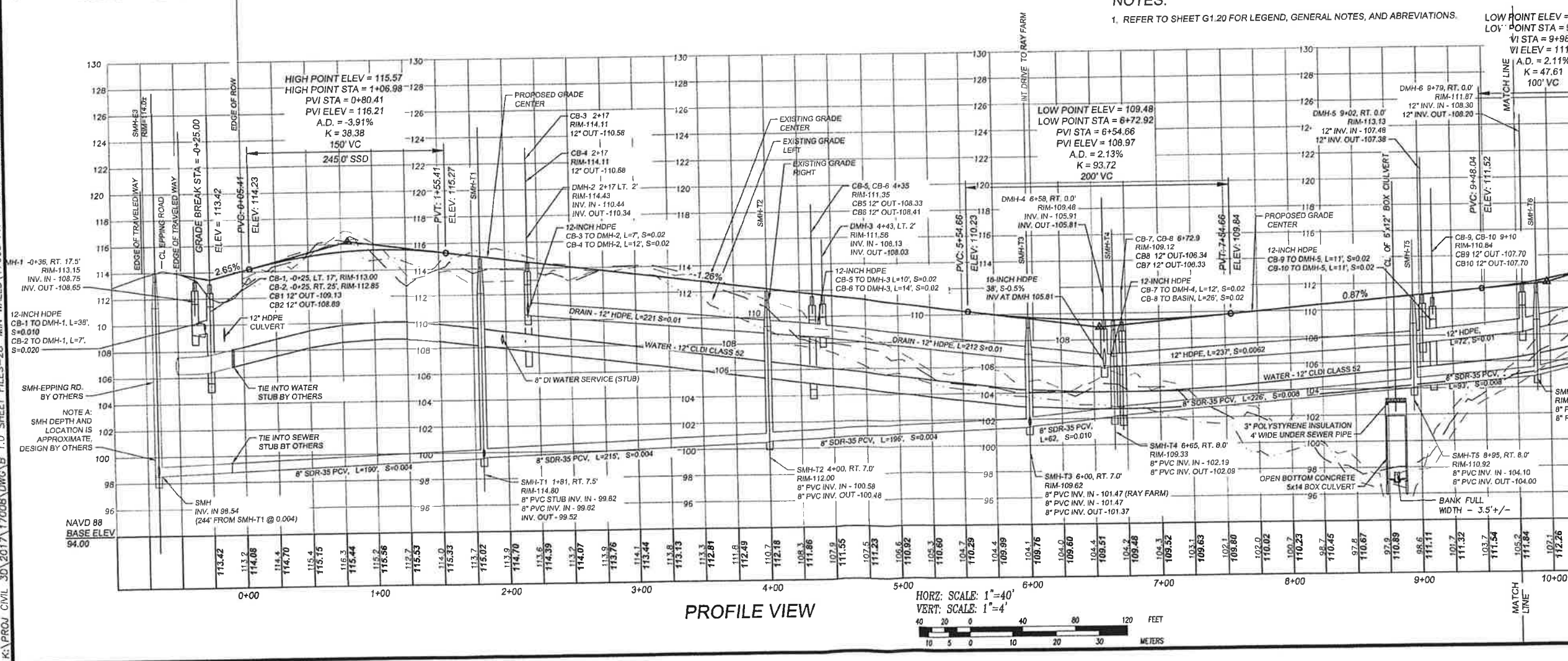
f:\town planner\planning\decision letters\pb #17-26 carlisle subdivision -epping road-let.docx



K:\PROJ CIVIL\_3D\2017\17006\DWG\B 1.0 SHEET FILES-28' MIN WALLS\17006 PR-TIF.DWG D:\Home 7/17/2018 3:07 PM



**NOTES:**  
 1. REFER TO SHEET G120 FOR LEGEND, GENERAL NOTES, AND ABBREVIATIONS.



APPROVED BY THE TOWN OF EXETER  
 DEPARTMENT OF PUBLIC WORKS

DATE: \_\_\_\_\_



297 ELM STREET, AMESBURY, MA.  
 Phone: (978) 388-2157 Fax: (978) 388-0428  
 CONSULTING ENGINEERS &  
 LAND SURVEYORS SINCE 1975  
 Visit us on the WEB at www.cammett.com

Sheet Title:  
**Plan / Profile**

Project Title:  
**"TIF Road"**  
 Proposed Road  
 off Epping Road  
 Exeter, NH 03833  
 Rockingham County

Applicant:  
**Town of Exeter**  
 10 Front Street  
 Exeter NH 03833

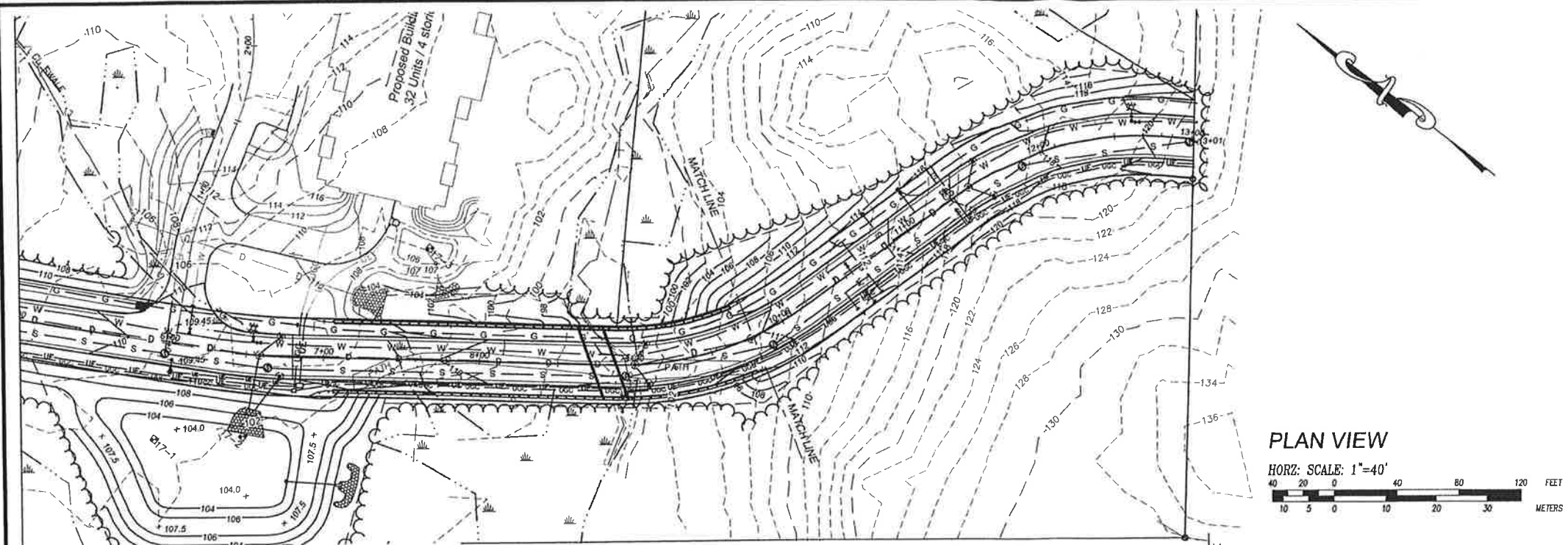
Owner:  
**CKT & Associates**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION			
NO.	DATE	DESCRIPTION	BY
1	2-26-18	SUBMIT TO TOWN	DH
2	4-20-18	WIDEN ROAD TO 28'	DH
3	7-02-18	REVISE PHASE II	DH
4	7-18-18	FINAL SUBMISSION	DH

PROFESSIONAL ENGINEER  
 STATE OF NEW HAMPSHIRE  
 ROBERT B. BLANCHETTE, JR.  
 No. 15366  
 10 July 2018

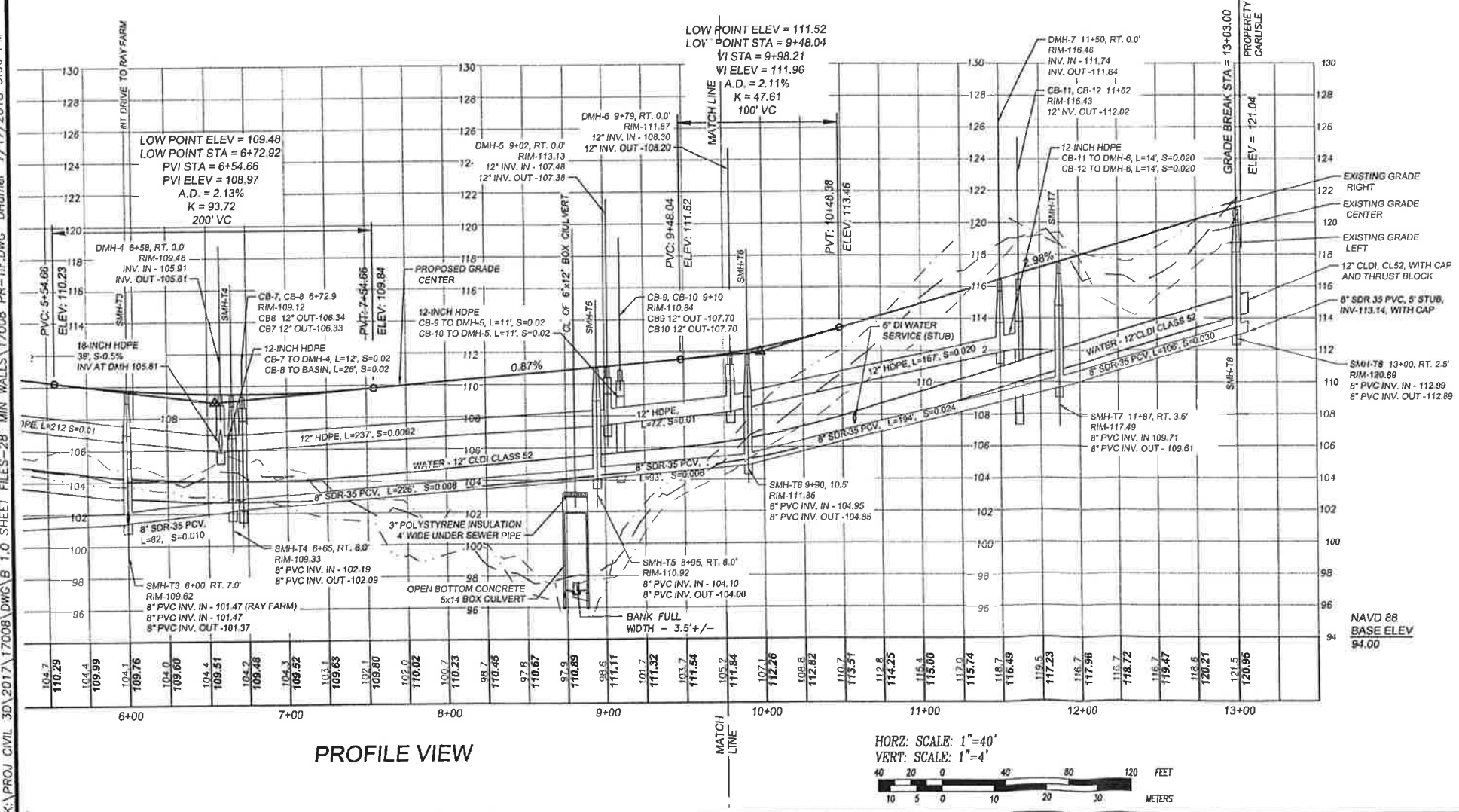
PROJ MGR.: D. HAMEL  
 FIELD: M. MICHAUD / A. BICK  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: W. CAMMETT / R. BALNCHETTE  
 DATE: 2/20/2018  
 FILE: 17006 PR-TIF.DWG  
 FBK:  
 JOB #: 17006

K:\PROJ\CIVIL\3D\17008\DWG\B.1.0 SHEET FILES\28' MIN WALLS\17008\_PR-TIF.DWG D:\Hamel 7/17/2018 3:05 PM



**PLAN VIEW**  
 HORZ. SCALE: 1"=40'  
 40 20 0 40 80 120 FEET  
 10 5 0 10 20 30 METERS

**NOTES:**  
 1. REFER TO SHEET G1.20 FOR LEGEND, GENERAL NOTES, AND ABBREVIATIONS.



APPROVED BY THE TOWN OF EXETER  
 DEPARTMENT OF PUBLIC WORKS  
 DATE: \_\_\_\_\_



297 ELM STREET, AMESBURY, MA.  
 Phone: (978) 388-2157 Fax: (978) 388-0428  
 CONSULTING ENGINEERS &  
 LAND SURVEYORS SINCE 1975  
 Visit us on the WEB at www.cammett.com

Sheet Title:  
**Plan / Profile**

Project Title:  
**"TIF Road"**  
 Proposed Road  
 off Epping Road  
 Exeter, NH 03833  
 Rockingham County

Applicant:  
 Town of Exeter  
 10 Front Street  
 Exeter NH 03833

Owner:  
 CKT & Associates  
 158 Shattuck Way  
 Newington, NH 03801

REVISION			
NO.	DATE	DESCRIPTION	BY
1	2-26-18	SUBMIT TO TOWN	DH
2	4-20-18	WIDEN ROAD TO 28'	DH
3	7-02-18	REVISE PHASE II	DH
4	7-16-18	FINAL SUBMISSION	DH

PROFESSIONAL ENGINEER  
 STATE OF NEW HAMPSHIRE  
 ROBERT  
 BLANCHETTE JR.  
 No. 15291  
 LICENSED  
 PROFESSIONAL ENGINEER  
 CIVIL  
 Date: 10 JULY 2018

PROJ. MGR.: D. HAMEL  
 FIELD: M. MICHAUD / A. BICK  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: W. CAMMETT / R. BALANCHETTE  
 DATE: 2/20/2018  
 FILE: 17008\_PR-TIF.DWG  
 FBK:  
 JOB #: 17008

**PLAN REFERENCES**

1. "FLAT OF LAND EXETER, N.H. FOR W. SCOTT CARLISLE, III" BY DURGIN-SCHOFIELD ASSOCIATES, DATED FEBRUARY 23, 1989, RECORDED AT RCRO AS PLAN D-19078.
2. "FLAT OF LAND EXETER, N.H. FOR W. SCOTT CARLISLE, III" BY DURGIN-SCHOFIELD ASSOCIATES, DATED APRIL 26, 1988, RECORDED AT RCRO AS PLAN D-17892.
3. "A SURVEY AND LAYOUT OF A RIGHT-OF-WAY SEE NOTE #7 PREPARED FOR W. SCOTT CARLISLE III AND SITUATED IN THE TOWN OF EXETER, N.H.," DATED MARCH 17, 2003, PREPARED BY RSL LAYOUT & DESIGN, INC., RECORDED AT RCRO AS PLAN D-30523.
4. "SUBDIVISION PLAN OF LAND WATSON BROOK WOOD CO. EXETER, NH", PREPARED BY HOLDEN ENGINEERING & SURVEYING, INC., DATED DECEMBER 24, 1986, RECORDED AT THE RCRO AS PLAN D-16287.
5. "PLAN OF LAND ASSESSORS MAP 40 LOT 11 PREPARED FOR ALLIANCE ENERGY", PREPARED BY MHF DESIGN CONSULTANTS, INC., DATED MAY 14, 2012, RECORDED AT THE RCRO AS PLAN D-37224.
6. "PLANS OF PROPOSED F.A.P. PROJECT NO. F018-2(8) NH PROJECT NO P-3380 SOUTH SIDE ROAD", DATED JUNE 1, 1959.
7. "MINOR SUBDIVISION PLAN FOR RAY FARM ACTIVE ADULT COMMUNITY", PREPARED BY CAMMETT ENGINEERING, DATED MAY 8, 2017, AS LAST REVISED, AND TO BE RECORDED.

**LEGEND**

EXISTING	PROPOSED	DESCRIPTION
—	—	PROPERTY LINES
—	—	IRON PIPE/IRON ROD
—	—	DRILL HOLE FOUND
—	—	BOUND FOUND
—	—	ROW FENCE POST
—	—	TREE W/ WIRE
—	—	STUMPS W/ WIRE
—	—	MAJOR CONTOUR
—	—	MINOR CONTOUR
—	—	FRESHWATER WETLANDS LINE
—	—	IRON ROD/DRILL HOLE
—	—	STONE/GRANITE BOUND
—	—	FENCE POST

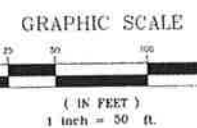
**ABUTTERS**

- TAX MAP 40 LOT 13**  
TOWN OF EXETER CONSERVATION COMMISSION  
10 FRONT STREET  
EXETER, NH 03833  
BK: 3667 PG: 2469
- TAX MAP 40 LOT 14**  
STATE OF NEW HAMPSHIRE  
PO BOX 463  
CONCORD, NH 03302  
BK: 2368 PG: 1332
- TAX MAP 47 LOT 4**  
164 EPPING ROAD, LLC  
3 BROOKHAVEN ROAD  
KINGSTON, NH 03848  
BK: 3775 PG: 0784
- TAX MAP 40 LOT 8**  
STATE OF NEW HAMPSHIRE  
PO BOX 483  
CONCORD, NH 03302  
BK: 2992 PG: 896
- TAX MAP 40 LOT 11**  
NET LEASE REALTY I, INC.  
ATTN: INGRID IRVAN  
450 S ORANGE AVE., SUITE 90  
ORLANDO, FL 32801  
BK: 5731 PG: 1874
- TAX MAP 47 LOT 8**  
CKT ASSOCIATES  
158 SHATTUCK WAY  
NEWINGTON, NH 03801  
BK: 3231 PG: 2722  
SEE PLAN REF. 2

STATE OF N.H. ROUTE 101 EASTBOUND

6" x 6" BOUND FND  
0.8' EXPOSED  
N14°15'24"E  
(S14°15'24"E  
0.27')  
SURVEY TIE-LINE

IRON PIN FND  
1.2' EXPOSED  
RSL #490



TAX MAP 40 LOT 13

**TAX MAP 40 LOT 12**  
PROPOSED EXISTING AREA  
802,124 S.F.  
18.41 AC.  
(AREA PER PROPERTY LINES  
FROM PLAN, REF. 1 D-19078  
18.55 AC.)

LOT 2  
241,379 S.F.  
5.54 ACRES

LOT 3  
190,312 S.F.  
4.36 ACRES

LOT 1  
350,058 S.F.  
8.04 ACRES

**TAX MAP 40 LOT 11**  
NET LEASE REALTY I, INC.  
ATTN: INGRID IRVAN  
450 S ORANGE AVE., SUITE 90  
ORLANDO, FL 32801  
BK: 5731 PG: 1874

AREA "A"  
2,386 S.F.  
0.06 AC.

**TAX MAP 47 LOT 8**  
CKT ASSOCIATES  
158 SHATTUCK WAY  
NEWINGTON, NH 03801  
BK: 3231 PG: 2722  
SEE PLAN REF. 2

AREA "B"  
480 S.F.  
0.01 AC.

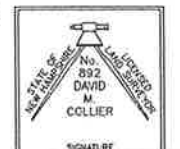
AREA "C"  
2,780 S.F.  
0.06 AC.

**TAX MAP 47 LOT 9**  
CKT ASSOCIATES  
158 SHATTUCK WAY  
NEWINGTON, NH 03801  
BK: 3231 PG: 2722  
SEE PLAN REF. 2

**CERTIFICATION:**

I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEEDS BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

THIS SURVEY CONFORMS TO A CATEGORY 1 CONDITION 1 SURVEY AS DEFINED IN SECTION 4.1 OF THE N.H.L.S.A. ETHICS AND STANDARDS.



**DAVID M. COLLIER, LLS 892** DATE: \_\_\_\_\_  
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

**PROJECT PARCEL**  
TOWN OF EXETER  
TAX MAP 40, LOT 12

**APPLICANT/OWNER**  
W. SCOTT CARLISLE, III  
14 CASS STREET  
EXETER, NH 03833  
BK 4244, PG 1653

**TOTAL PROPOSED LOT AREA**  
802,124 SQ. FT.  
18.41 ACRES

TOWN OF EXETER PLANNING BOARD CASE NO. 17-26  
CHAIRPERSON \_\_\_\_\_ DATE: \_\_\_\_\_

Design: JSR Draft: PLB Date: 8/1/16  
Checked: JSR Scale: 1"=50' Project No.: 15098  
Drawing Name: 15098-CONCEPT.dwg  
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

REV.	DATE	REVISION	BY
5	8/28/19	ISSUED ROAD DESIGN FOR REVIEW	PLB
4	1/29/19	REVISED FOR CONCEPTUAL ROAD DESIGN	PLB
3	12/20/17	MINOR REVISIONS	PLB
2	9/20/17	REVISED PER PLANNING BOARD CONDITIONS	PLB
1	7/11/17	ISSUED FOR PLANNING BOARD	PLB
REV.	DATE	REVISION	BY

Designed and Produced in NH

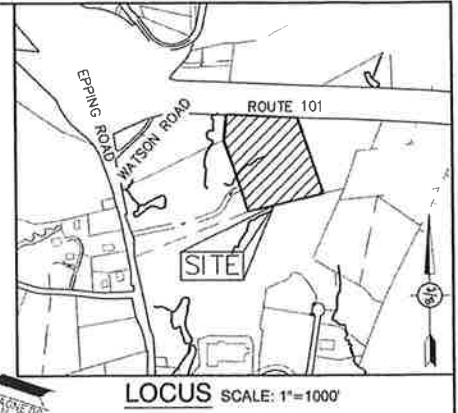
**J/B Jones & Beach Engineers, Inc.**  
Civil Engineering Services  
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885  
603-772-4746  
FAX: 603-772-0227  
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: **LOT LINE ADJUSTMENT & SUBDIVISION PLAN TAX MAP 40 LOT 12 & TAX MAP 47 LOT 8**

Project: **CARLISLE SUBDIVISION OFF EPPING ROAD, EXETER, NH**

Owner of Record: **W. SCOTT CARLISLE, III & CKT ASSOCIATES**  
14 CASS STREET, EXETER, NH 03833 & 158 SHATTUCK WAY, NEWINGTON, NH 03801

DRAWING No. **A1**  
SHEET 1 OF 4  
JBE PROJECT NO. 15098



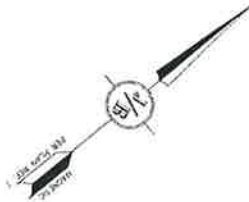
**SUBDIVISION NOTES:**

1. THE INTENT OF THIS PLAN IS TO PROVIDE A LOT LINE ADJUSTMENT WITH MAP 40 LOT 12 AND MAP 47 LOT 8, AND THEN TO SUBDIVIDE MAP 40 LOT 12 INTO THREE (3) LOTS FOR COMMERCIAL DEVELOPMENT PURPOSES, TO BE SERVICED BY MUNICIPAL WATER AND SEWER WITH ACCESS VIA THE PROPOSED TOWN OF EXETER T.I.F. ROAD.
2. ZONING DISTRICT: INDUSTRIAL  
LOT AREA MINIMUM = 40,000 S.F.  
LOT FRONTAGE MINIMUM = 150'  
BUILDING SETBACKS (MINIMUM):  
FRONT SETBACK = 50'  
SIDE SETBACK = 20'  
REAR SETBACK = 50'  
WETLAND NO CUT/NO DISTURB SETBACK = 40'  
WETLAND PARKING/BUILDING SETBACK = 75'  
MAX. BUILDING HEIGHT = 50'  
MAX. BUILDING COVERAGE = 40%  
OPEN SPACE MINIMUM = 25%
3. SUBJECT PROPERTY IS NOT LOCATED WITHIN FEDERALLY DESIGNATED 100 YEAR FLOOD HAZARD ZONE, REFERENCE FEMA COMMUNITY PANEL NUMBERS: 33015C0238E, 33015C0401E, 33015C0239E, AND 33015C0402E, DATED MAY 17, 2005.
4. GRANITE BOUNDS TO BE SET AT ALL ROADWAY POINTS OF CURVATURE AND TANGENCY. IRON RODS WITH SURVEY CAPS TO BE SET AT ALL PROPERTY CORNERS AND ANGLE POINTS, UNLESS OTHERWISE INDICATED. ALL MONUMENTS SET ARE 5/8" IRON RODS WITH ALUMINUM CAPS MARKED "JONES & BEACH ENGINEERS BOUNDARY, DO NOT DISTURB STRATHAM, N.H." AS SHOWN.
5. WETLANDS WERE DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. DURING SUMMER, 2015, AND LOCATED BY JONES & BEACH ENGINEERS, INC.
6. LANDOWNERS ARE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING PERMITTING REQUIRED UNDER THESE REGULATIONS.
7. UPON APPROVAL BY THE TOWN, THE PROPOSED ROAD WILL BE CONVEYED TO THE TOWN.
8. ALL BOOK AND PAGE NUMBERS REFER TO THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
9. THE TAX MAP AND LOT NUMBERS AND ABUTTING OWNERS ARE BASED ON THE TOWN OF EXETER TAX RECORDS AND ARE SUBJECT TO CHANGE.
10. THIS SURVEY IS NOT A CERTIFICATION TO OWNERSHIP OR TITLE OF LANDS SHOWN. OWNERSHIP AND ENCUMBRANCES ARE MATTERS OF TITLE EXAMINATION NOT OF A BOUNDARY SURVEY. THE INTENT OF THIS PLAN IS TO RETRACE THE BOUNDARY LINES OF DEEDS REFERENCED HEREON. OWNERSHIP OF ADJOINING PROPERTIES IS ACCORDING TO ASSESSOR'S RECORDS. THIS PLAN MAY OR MAY NOT INDICATE ALL ENCUMBRANCES EXPRESSED, IMPLIED OR PRESCRIPTIVE.
11. ANY USE OF THIS PLAN AND OR ACCOMPANYING DESCRIPTIONS SHOULD BE DONE WITH LEGAL COUNSEL TO BE CERTAIN THAT TITLES ARE CLEAR, THAT INFORMATION IS CURRENT, AND THAT ANY NECESSARY CERTIFICATES ARE IN PLACE FOR A PARTICULAR CONVEYANCE, OR OTHER USES.
12. PARCEL "1" TO BE DEEDED FROM MAP 40, LOT 12 TO MAP 47, LOT 8, AND IS THE TOTAL OF AREA "A", PLUS AREA "B", AND AREA "C".



**PLAN REFERENCE**

1. "T.F. ROAD" PROPOSED ROAD OFF EPPING ROAD, EXETER, NH 03833 FOR THE TOWN OF EXETER AT 10 FRONT STREET, EXETER NH 03833 BY CHAMMETT ENGINEERING AT 287 ELM STREET, AMESBURY, MA, DATED FEBRUARY 28, 2018, LAST REVISED 7-18-18

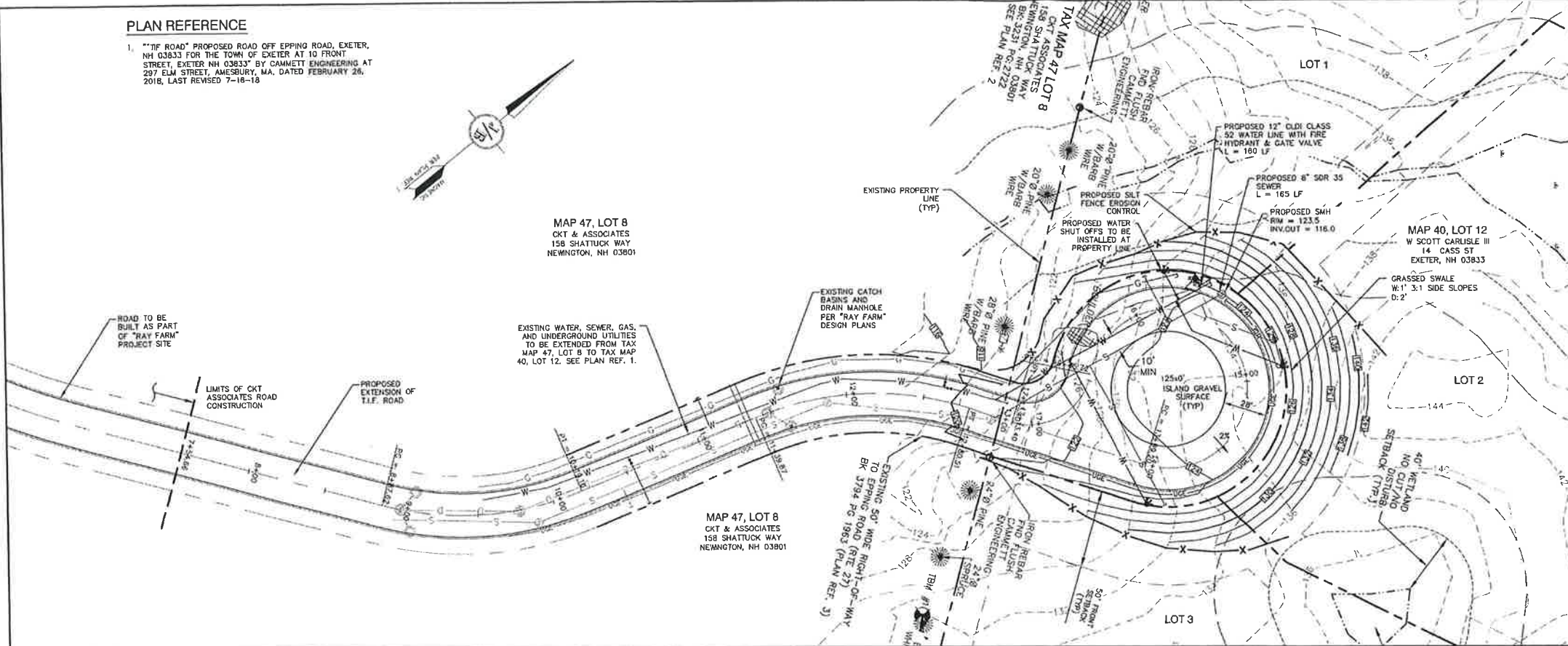


MAP 47, LOT 8  
CKT & ASSOCIATES  
158 SHATTUCK WAY  
NEWINGTON, NH 03801

EXISTING WATER, SEWER, GAS,  
AND UNDERGROUND UTILITIES  
TO BE EXTENDED FROM TAX  
MAP 47, LOT 8 TO TAX MAP  
40, LOT 12. SEE PLAN REF. 1.

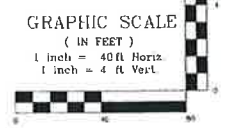
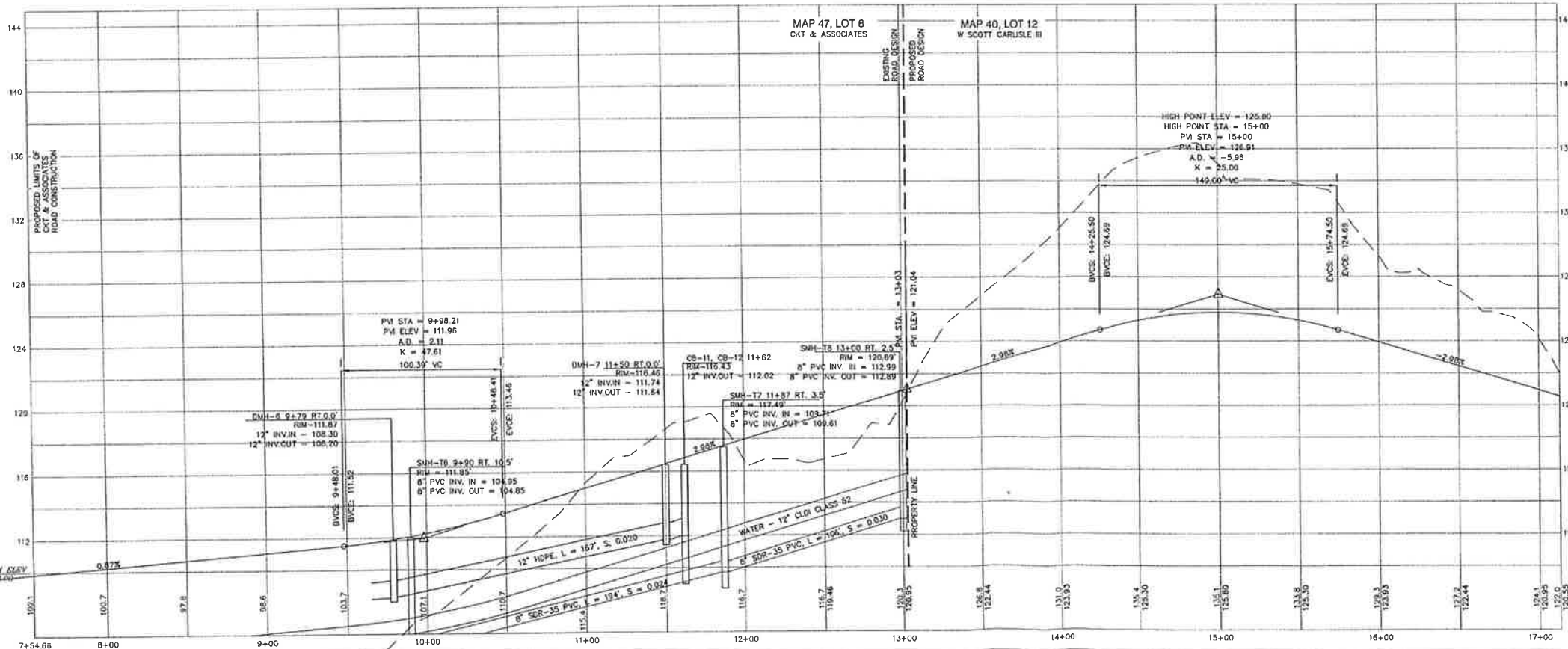
MAP 47, LOT 8  
CKT & ASSOCIATES  
158 SHATTUCK WAY  
NEWINGTON, NH 03801

MAP 40, LOT 12  
W SCOTT CARLISLE III  
14 CASS ST  
EXETER, NH 03833



**NOTES:**

- THIS SITE WILL REQUIRE A USEPA NPDES PERMIT FOR STORMWATER DISCHARGE FOR THE CONSTRUCTION SITE. THE CONSTRUCTION SITE OPERATOR SHALL DEVELOP AND IMPLEMENT A CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN (SWPPP), WHICH SHALL REMAIN ON SITE AND BE MADE ACCESSIBLE TO THE PUBLIC. THE CONSTRUCTION SITE OPERATOR SHALL SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA REGIONAL OFFICE SEVEN DAYS PRIOR TO COMMENCEMENT OF ANY WORK ON SITE. EPA WILL POST THE NOI AT [HTTP://CFPUB.EPA.GOV/NPDES/STORMWATER/NOI/NOISEARCH.CFM](http://cfpub.epa.gov/npdes/stormwater/noi/noisearch.cfm). AUTHORIZATION IS GRANTED UNDER THE PERMIT ONCE THE NOI IS SHOWN IN "ACTIVE" STATUS ON THIS WEBSITE. A COMPLETED NOTICE OF TERMINATION SHALL BE SUBMITTED TO THE NPDES PERMITTING AUTHORITY WITHIN 30 DAYS AFTER EITHER OF THE FOLLOWING CONDITIONS HAVE BEEN MET:
  - FINAL STABILIZATION HAS BEEN ACHIEVED ON ALL PORTIONS OF THE SITE FOR WHICH THE PERMITTEE IS RESPONSIBLE; OR
  - ANOTHER OPERATOR/PERMITTEE HAS ASSUMED CONTROL OVER ALL AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED. PROVIDE DPW WITH A COPY OF THE NOTICE OF TERMINATION (NOT).
- ALL ROAD AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR THE TOWN, AND NHDOT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
- AS-BUILT PLANS TO BE SUBMITTED TO THE TOWN PRIOR TO ACCEPTANCE OF THE ROADWAY.
- DEVELOPER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
- CONTRACTOR TO COORDINATE AND COMPLETE ALL WORK REQUIRED FOR THE RELOCATION AND/OR INSTALLATION OF ELECTRIC, CATV, TELEPHONE, AND FIRE ALARM PER UTILITY DESIGN AND STANDARDS. LOCATIONS SHOWN ARE APPROXIMATE. LOW PROFILE STRUCTURES SHALL BE USED TO THE GREATEST EXTENT POSSIBLE.
- THIS PLAN HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC. 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 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.
- SILTATION AND EROSION CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION, SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN UNTIL SITE HAS BEEN STABILIZED WITH PERMANENT VEGETATION. SEE DETAIL SHEET E1 FOR ADDITIONAL NOTES ON EROSION CONTROL.
- ALL DISTURBED AREAS NOT STABILIZED BY NOVEMBER 1st SHALL BE COVERED WITH AN EROSION CONTROL BLANKET. PRODUCT TO BE SPECIFIED BY THE ENGINEER.
- FINAL DRAINAGE, GRADING AND EROSION PROTECTION MEASURES SHALL CONFORM TO REGULATIONS OF THE PUBLIC WORKS DEPARTMENT.
- CONTRACTOR TO VERIFY EXISTING UTILITIES AND TO NOTIFY ENGINEER OF ANY DISCREPANCY IMMEDIATELY.
- FUTURE DRIVEWAYS TO BE REVIEWED AND APPROVED BY PUBLIC WORKS. ALL DRIVEWAYS TO HAVE CULVERTS UNLESS APPROVED BY THE TOWN ROAD AGENT.
- RETAINING WALLS SHALL BE DESIGNED AND STAMPED BY A LICENSED PROFESSIONAL ENGINEER. CONTRACTOR SHALL COORDINATE WITH MANUFACTURER PRIOR TO INSTALLATION.
- DRAINAGE INSPECTION AND MAINTENANCE SCHEDULE: SILT 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 SWALES WILL BE REMOVED IF IT IS DEEPER THAN SIX INCHES, AND IS TO BE REMOVED FROM SWALES BELOW THE INLET OF CULVERTS SEMIANNUALLY, AS WELL AS FROM CATCH BASINS, FOLLOWING MAJOR STORM EVENTS, THE STAGE DISCHARGE CUTLET STRUCTURES ARE TO BE INSPECTED AND ANY DEBRIS REMOVED FROM THE ORIFICE, TRASH TRAP AND EMERGENCY SPILL WAY. INFREQUENTLY, SEDIMENT MAY ALSO HAVE TO BE REMOVED FROM THE SUMP OF THE STRUCTURE.
- CONTRACTOR MUST HAVE A VALID PIPE INSTALLER'S LICENSE FROM THE PUBLIC WORKS DEPARTMENT BEFORE WORKING ON ANY DRAINAGE AND/OR UTILITY CONSTRUCTION.
- ALL DRAINAGE INFRASTRUCTURE SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING ANY RUNOFF TO IT.
- COMPACTION TESTING SERVICES (I.E. NUCLEAR DENSITY TESTS) ARE TO BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER RETAINED BY THE CONTRACTOR FOR ROADWAY CONSTRUCTION.
- ROADWAY TO BE CONSTRUCTED PER DETAILS BY OTHERS. SEE PLAN REF. 1.



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Design: JSR    Draft: PLB    Date: 8/1/18  
 Checked: JSR    Scale: 1"=50'    Project No.: 15098  
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REV	DATE	REVISION	BY
5	6/28/19	ISSUED ROAD DESIGN FOR REVIEW	PLB
4	1/29/19	REVISED FOR CONCEPTUAL ROAD DESIGN	PLB
3	12/20/17	MINOR REVISIONS	PLB
2	9/20/17	REVISED PER PLANNING BOARD CONDITIONS	PLB
1	7/11/17	ISSUED FOR PLANNING BOARD	PLB

Designed and Produced in NH

**J/B Jones & Beach Engineers, Inc.**  
 Civil Engineering Services

85 Portsmouth Ave.    603-772-4746  
 PO Box 219    FAX: 603-772-0227  
 Stratham, NH 03885    E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	<b>PLAN AND PROFILE</b>
Project:	<b>CARLISLE SUBDIVISION OFF EPPING ROAD, EXETER, NH</b>
Owner of Record:	W. SCOTT CARLISLE, III    &    CKT ASSOCIATES 14 CASS STREET, EXETER, NH 03833    158 SHATTUCK WAY, NEWINGTON, NH 03801

DRAWING No.  
**P1**  
SHEET 3 OF 4  
JBE PROJECT NO. 15098

**TEMPORARY EROSION CONTROL NOTES**

- THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME. AT NO TIME SHALL AN AREA IN EXCESS OF 5 ACRES BE EXPOSED AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
- EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED, DIRECTED BY THE ENGINEER.
- ALL DISTURBED AREAS (INCLUDING POUD AREAS BELOW THE PROPOSED WATERLINE) SHALL BE RETURNED TO PROPOSED GRADES AND ELEVATIONS. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 6" OF SCREENED ORGANIC LOAM AND SEEDED WITH SEED MIXTURE 'C' AT A RATE NOT LESS THAN 1.10 POUNDS OF SEED PER 1,000 S.F. OF AREA (48 LBS. / ACRE).
- SILT FENCES AND OTHER BARRIERS SHALL BE INSPECTED EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 0.25" OR GREATER. ALL DAMAGED AREAS SHALL BE REPAIRED, AND SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
- AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND RE-VEGETATED.
- AREAS MUST BE SEEDED AND MULCHED OR OTHERWISE PERMANENTLY STABILIZED WITHIN 3 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 14 DAYS OF THE INITIAL DISTURBANCE OF SOIL. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
- ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER) 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 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
- AFTER NOVEMBER 15th, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3" OF CRUSHED GRAVEL PER NH007 ITEM 304.3.
- 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 STONE OR RIPRAP HAS BEEN INSTALLED, OR
  - EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
- FUGITIVE DUST CONTROL IS REQUIRED TO BE CONTROLLED IN ACCORDANCE WITH ENV-A 1000, AND THE PROJECT IS TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
- PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR'S NAME, ADDRESS, AND PHONE NUMBER SHALL BE SUBMITTED TO DES VIA EMAIL (SEE BELOW).
- PRIOR TO CONSTRUCTION, A PHASING PLAN THAT DELINEATES EACH PHASE OF THE PROJECT SHALL BE SUBMITTED. ALL TEMPORARY SEDIMENT BASINS THAT WILL BE NEEDED FOR DEWATERING WORK AREAS SHALL BE LOCATED AND IDENTIFIED ON THIS PLAN.
- IN ORDER TO ENSURE THE STABILITY OF THE SITE AND EFFECTIVE IMPLEMENTATION OF THE SEDIMENT AND EROSION CONTROL MEASURES SPECIFIED IN THE PLANS FOR THE DURATION OF CONSTRUCTION, THE CONTRACTOR SHALL BE IN STRICT COMPLIANCE WITH THE FOLLOWING INSPECTION AND MAINTENANCE REQUIREMENTS IN ADDITION TO THOSE CALLED FOR IN THE SMPPP:
  - A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL OR A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE ("MONITOR") SHALL BE EMPLOYED TO INSPECT THE SITE FROM THE START OF ALTERATION OF TERRAIN ACTIVITIES UNTIL THE SITE IS IN FULL COMPLIANCE WITH THE SITE SPECIFIC PERMIT ("PERMIT").
  - DURING THIS PERIOD, THE MONITOR SHALL INSPECT THE SUBJECT SITE AT LEAST ONCE A WEEK, AND IF POSSIBLE, DURING ANY 1/2 INCH OR GREATER RAIN EVENT (I.E. 1/2 INCH OF PRECIPITATION OR MORE WITHIN A 24 HOUR PERIOD). IF UNABLE TO BE PRESENT DURING SUCH A STORM, THE MONITOR SHALL INSPECT THE SITE WITHIN 24 HOURS OF THIS EVENT.
  - THE MONITOR SHALL PROVIDE TECHNICAL ASSISTANCE AND RECOMMENDATIONS TO THE CONTRACTOR ON THE APPROPRIATE BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROLS REQUIRED TO MEET THE REQUIREMENTS OF RSA 485 A:17 AND ALL APPLICABLE DES PERMIT CONDITIONS.
  - WITHIN 24 HOURS OF EACH INSPECTION, THE MONITOR SHALL SUBMIT A REPORT TO DES VIA EMAIL (RIDGELY MAUCK AT: RIDGELY.MAUCK@DES.NH.GOV).
  - THE MONITOR SHALL MEET WITH DES TO DECIDE UPON A REPORT FORMAT. THE REPORT FORMAT SHALL BE REVIEWED AND APPROVED BY DES PRIOR TO THE START OF CONSTRUCTION.

**SEEDING SPECIFICATIONS**

- GRADING AND SHAPING**
  - SLOPES SHALL NOT BE STEEPER THAN 2:1 WITHOUT APPROPRIATE EROSION CONTROL MEASURES AS SPECIFIED ON THE PLANS (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 FERTILIZER AND LIME MIXED INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A 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. TYPES 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.)
  - SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDRASEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH 2/8 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
  - REFER TO THE "SEEDING GUIDE" AND "SEEDING RATES" TABLES ON THIS SHEET FOR APPROPRIATE SEED MIXTURES AND RATES OF SEEDING. ALL LEGUMES (CROWNVETCH, BIRDSFOOT, TREFOL AND FLATPEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT PRIOR TO THEIR INTRODUCTION TO THE SITE.
  - WHEN SEEDING AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDING AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20th OR FROM AUGUST 10th TO SEPTEMBER 1st.
- 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 S.F.
- MAINTENANCE TO ESTABLISH A STAND**
  - PLANTED AREAS 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 PERENNIALS TAKE 2 TO 3 YEARS TO BECOME FULLY ESTABLISHED.
  - IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, ANNUAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

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	FAIR	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	EXCELLENT	EXCELLENT	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, COD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
PLAY AREAS AND ATHLETIC FIELDS (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	E	FAIR	EXCELLENT	EXCELLENT	2/
	F	FAIR	EXCELLENT	EXCELLENT	2/
GRAVEL PIT, SEE NH-PM-24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.					

1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE BELOW.  
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.

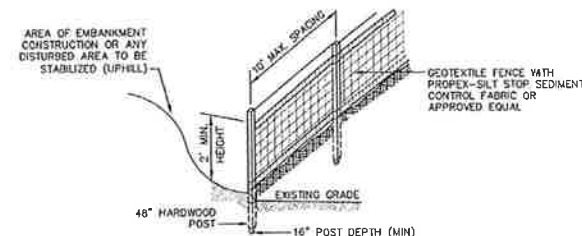
NOTE: TEMPORARY SEED MIX FOR STABILIZATION OF TURF SHALL BE WINTER RYE OR OATS AT A RATE OF 3.5 LBS. PER 1000 S.F. AND SHALL BE PLACED PRIOR TO OCTOBER 15th, IF PERMANENT SEEDING NOT YET COMPLETE.

**SEEDING GUIDE**

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	0.35
CREeping RED FESCUE	10	0.25
CROWN VETCH	15	0.35
OR FLAT PEA	30	0.75
TOTAL	40 OR 55	0.95 OR 1.35
C TALL FESCUE	20	0.45
CREeping RED FESCUE	20	0.45
BIRDS FOOT TREFOL	8	0.20
TOTAL	48	1.10
D TALL FESCUE	20	0.45
FLAT PEA	30	0.75
TOTAL	50	1.20
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

1/ FOR HEAVY USE ATHLETIC FIELDS CONSULT THE UNIVERSITY OF NEW HAMPSHIRE COOPERATIVE EXTENSION TURF SPECIALIST FOR CURRENT VARIETIES AND SEEDING RATES.

**SEEDING RATES**

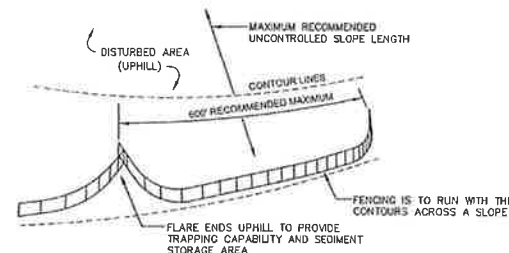


**CONSTRUCTION SPECIFICATIONS:**

- WOVEN FABRIC FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP, MID AND BOTTOM AND EMBEDDED IN THE GROUND A MINIMUM OF 8" AND THEN COVERED WITH SOIL.
- THE FENCE POSTS SHALL BE A MINIMUM OF 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 6", FOLDED AND STAPLED TO PREVENT SEDIMENT FROM BY-PASSING.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED AND PROPERLY DISPOSED OF WHEN IT IS 6" DEEP OR VISIBLE 'BULGES' DEVELOP IN THE SILT FENCE.
- PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE FOR SEDIMENT STORAGE.

**SILT FENCE**

NOT TO SCALE



- 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 REVEGETATED.

**MAINTENANCE:**

- SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE DONE 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.

Design: JSR	Draft: PLB	Date: 8/1/18
Checked: JSR	Scale: AS NOTED	Project No.: 15098
Drawing Name: 15098-CONCEPT.dwg		
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**J/B Jones & Beach Engineers, Inc.**  
 Civil Engineering Services  
 85 Portsmouth Ave. PO Box 219 Stratham, NH 03885  
 603-772-4746  
 FAX: 603-772-0227  
 E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	<b>EROSION AND SEDIMENT CONTROL DETAILS</b>
Project:	<b>CARLISLE SUBDIVISION OFF EPPING ROAD, EXETER, NH</b>
Owner of Record:	W. SCOTT CARLISLE, III & CKT ASSOCIATES 14 CASS STREET, EXETER, NH 03833 & 158 SHATTUCK WAY, NEWINGTON, NH 03801

DRAWING No.	<b>E1</b>
SHEET 4 OF 4	JBE PROJECT NO. 15098

**Lot Line Adjustment**

**Multi-family Site Plan Review**

**Ray Farm – Re-location of Building D**

**Date: March 28- 2022**

Prepared by GM2 Associates  
6 Chestnut Street Suite 110  
Amesbury, MA

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Abutters Mailing stickers (3 sets)

Filling Fee Calculations

Application Fee

Waiver Requests – Parking Setbacks, Parking Spaces, Wetland impacts, Roadway Design

Site – Civil Plans (7 sets of 23 full size Sheets and 15 sets of 11x17 size under separate cover)

Architectural Plans (7 sets of 2 full size Sheets and 15 sets of 11x17 size under separate cover)

Lighting Plan (7 full size plans and 15 11x17 Plans under separate cover)

Wetland impact, Wetland Buffer Impact, and Stormwater Water plans

(7 color sets of 3 full size sheet and 15 color sets of 3 11x17 sheets under separate cover)

Stormwater Analysis (7 booklets 8.5x11 sheets under separate cover)

Stormwater BMP Maintenance Manual





March 22, 2022

Langdon Plumer, Chair  
Exeter Planning Board  
10 Front Street  
Exeter, NH 03833

Re: Site Plan Review Application  
Ray Farm – Building D re-location

Dear Chair Plumer and Board Members:

This Firm represents Ray Farm, LLC (the “Applicant”), which is the declarant of the Ray Farm Condominium, a 55+ senior living development in Exeter located on property off of Ray Farmstead Road which is further identified as Town Tax Map 47, Lot 8 (the “Ray Farm Property” or the “Project”). By this letter, the Applicant requests a Site Plan Review with the Planning Board on 12 May 2022 pursuant to Section 6.1.1 of the Site Plan Review and Subdivision Regulations of the Town of Exeter.

By way of brief background, the Project, as approved by the Planning Board on 27 July 2017, consists of four distinct residential buildings (Buildings A – D) containing 116 units, a 2,000 sf clubhouse, and corresponding site improvements, all serviced by a private driveway accessed via Ray Farmstead Road. As approved, Buildings A, B and C are identical in design, size and footprint, and each contains 32 dwelling units. Building D was approved to be located in close proximity to Epping Road and the Mobil Gas Station and has a different design than Buildings A, B and C, containing only 20 dwelling units.

Since the Project’s approval, Ray Farmstead Road was built and accepted by the Town as Town Road, and Buildings A and B, as well as the clubhouse, are finished and completely occupied. Building C is being constructed and will be completed shortly in the spring of 2022. More than 40% of the units in Building C are pre-sold.

As the Applicant considered the completion of the Project via construction of Building D as originally approved, a more attractive alternative emerged. Specifically, the Applicant now proposes the relocation of Building D to abutting property to the southeast of the Ray Farm Property identified as Tax Map 47, Lot 8.1 (the “Applicant’s Abutting Property”). The Applicant proposes to construct the relocated Building D in the identical manner as Buildings A, B and C, inclusive of 32 units instead of the 20 units Building D was approved for in 2017. The proposed relocation of Building D is depicted on the plans provided herewith by GM2 Engineering (formally W.C. Cammett Engineering). The relocated Building D would be accessed via an extended internal roadway from Building C, which would require minor wetland crossing.

*Headquarters*  
115 GLASTONBURY BLVD  
GLASTONBURY CT 06033  
860.659.1416

10 CABOT ROAD  
SUITE 101B  
MEDFORD MA 02155  
617.776.3350

6 CHESTNUT ST  
SUITE 110  
AMESBURY MA 01913  
978.388.2157

197 LOUDON RD  
SUITE 310  
CONCORD NH 03301  
603.856.7854

200 MAIN ST  
PAWTUCKET RI 02860  
401.726.4084

To accomplish its redesign, the Applicant proposes to consolidate approximately 4.29-acres of the upland area of the Applicant's Abutting Property and combine the same with the Ray Farm Property (Town Tax Map 47, Lot 8). The additional 4.29 acres added to the Ray Farm Property would be the site of the relocated Building D.

The net result of the Applicant's proposal would be a Ray Farm Property that is approximately 15.76 acres in size rather than the existing 11.46 acres. Reconfigured as proposed, the Ray Farm Property would continue to comply in all respects with all local Zoning regulations and would have less density than what was approved by the Planning Board in 2017. The area of the Ray Farm Property which was originally approved to accommodate Building D, will remain an open space area of the Ray Farm Project.

In support of its proposal, the Applicant received approval from the Zoning Board of Adjustment on November 17, 2021 to permit an age-restricted use for the proposed relocation of Building D on the Applicant's Abutting Property, which is Zoned in the C-3 Zoning District, and to increase the total number of residential units in the Project from 116 to 128.

The remnant area of the Applicant's Abutting Property post-subdivision and consultation will be approximately 3.16 acres in size, will have ample frontage along Epping Road and Ray Farmstead Road, will remain in the C-3 Zoning District, will comply in all respects with applicable Zoning regulations and could accommodate viable C-3 commercial development in the future.

The Applicant's proposal will require a Wetlands Conservation District Conditional Use Permit and Shoreland Protection District Conditional Use Permit and the Applicant welcomes any comments the Planning Board may have regarding these prospective applications.

In the meantime, if you have any questions do not hesitate to contact me.

Very truly yours,

GM2 Associates



Denis M. Hamel, CPESC

Project Manager

cc: Jonathan Shafmaster  
Justin Pasay, Esq. DT&C. PLLC  
Brendan Quigley, Gove Environmental

# Town of Exeter



## Planning Board Application for

- **Minor Site Plan Review**
- **Minor Subdivision**
- **Lot Line Adjustment**

*January 2019*



## **Town of Exeter Application for Minor Subdivision, Minor Site Plan, and/or Lot Line Adjustment**

**Date:** January 2019

**Memo To:** Applicants for Minor Subdivision, Minor Site Plan, and/or Lot Line Adjustment

**From:** Planning Department

**Re:** Guidelines for Processing Applications

The goal of the Planning Board is to process applications as quickly and efficiently as possible. To this end, we have designed an application procedure which is simple and easy to follow (see attached). If some of the information being requested seems irrelevant, please check with the Planning Department office, it may be that your particular proposal does not warrant such information.

It is strongly recommended that prior to submitting an application you discuss your proposal informally with the Town Planner. The Town Planner will review your proposal for conformance with the applicable Town regulations and advise you as to the procedures for obtaining Planning Board approval. Please contact the Planning Department office at (603) 773-6112 to schedule an appointment.

The key to receiving a prompt decision from the Planning Board is to adhere closely to the Board's procedures. A chart outlining the "Planning Board Review Process" is attached for your information. Please be aware that a technical review of your proposal by the Technical Review Committee (TRC) will likely precede Planning Board determination. Staff will gladly review the Application process with you so that you understand the various milestones in the process. A checklist is attached to this application to assist you in preparing your plans.

Copies of the applicable "Site Review and Subdivision Regulations" are available on-line on the Town's web site ([www.exeternh.gov](http://www.exeternh.gov)) or maybe purchased at the Planning Department office on the second floor to the Town Office Building located at 10 Front Street.

It is strongly recommended that you become familiar with these regulations, as they are the basis for review and approval.



**TOWN OF EXETER, NH**  
**APPLICATION FOR MINOR SITE PLAN REVIEW,**  
**MINOR SUBDIVISION and/or LOT LINE ADJUSTMENT**

A completed application shall contain the following items, although please note that some items may not apply such as waivers or conditional use permit:

- |  |       |
|--|-------|
| 1. Application for Hearing   | ( X ) |
| 2. Abutter's List Keyed to the Tax Map (including name and business address of all professionals responsible for the submission (engineer, landscape architect, wetland scientist, etc.) | ( X ) |
| 3. Checklist for plan requirements   | ( X ) |
| 4. Letter of Explanation   | ( X ) |
| 5. Written request and justification for waiver(s) from Site Plan/Sub Regulations  |       |
| 6. Application to Connect and/or Discharge to Town of Exeter Sewer, Water, or Storm Water Drainage System(s) - if applicable   | ( )   |
| 7. Application Fees  | ( X ) |
| 8. Seven (7) copies of 24'x36' plan set  | ( X ) |
| 9. Fifteen (15) 11"x 17" copies of the plan set  | ( X ) |
| 10. Three (3) pre-printed 1"x 2 5/8" labels for each abutter, the applicant and all consultants.   | ( X ) |

**NOTES:** All required submittals must be presented to the Planning Department Office for distribution to other Town departments. Any material submitted directly to other departments will not be considered.



**TOWN OF EXETER  
MINOR SUBDIVISION, MINOR  
SITE PLAN, AND/OR LOT LINE  
ADJUSTMENT APPLICATION**

**OFFICE USE ONLY**

**THIS IS AN APPLICATION FOR:**

MINOR SITE PLAN  
 MINOR (3lots or less)  
SUBDIVISION                       LOTS  
 LOT LINE ADJUSTMENT

_____	<b>APPLICATION</b>
_____	<b>DATE RECEIVED</b>
_____	<b>APPLICATION FEE</b>
_____	<b>PLAN REVIEW FEE</b>
_____	<b>ABUTTER FEE</b>
_____	<b>LEGAL NOTICE FEE</b>
_____	<b>INSPECTION FEE</b>
_____	<b>TOTAL FEES</b>
_____	<b>AMOUNT REFUNDED</b>

1. **NAME OF LEGAL OWNER OF RECORD:** CKT Associate

**ADDRESS:** 158 Shattuck Way Newington NH 03801

**TELEPHONE:** (603) 431-3170

2. **NAME OF APPLICANT:** Willey Creek Company

**ADDRESS:** 158 Shattuck Way Newington, NH 03801

**TELEPHONE:** (603) 431-3170

3. **RELATIONSHIP OF APPLICANT TO PROPERTY IF OTHER THAN OWNER:** \_\_\_\_\_

Same

(Written permission from Owner is required, please attach.)

4. **DESCRIPTION OF PROPERTY:**

**ADDRESS:** off Rayfarmstead Road

**TAX MAP:** 47      **PARCEL #:** 8-1, 9      **ZONING DISTRICT:** C3

**AREA OF ENTIRE TRACT:** 15.75 Acres      **PORTION BEING DEVELOPED:** 2.55 Acres



5. **EXPLANATION OF PROPOSAL:** Add land the the Rasy Farm project to re-locate Buil;dinf D

\_\_\_\_\_

\_\_\_\_\_

6. **ARE MUNICIPAL SERVICES AVAILABLE? (YES/NO)** Yes  
**IF YES, WATER AND SEWER SUPERINTENDENT MUST GRANT WRITTEN APPROVAL FOR CONNECTION. IF NO, SEPTIC SYSTEM MUST COMPLY WITH W.S.P.C.C. REQUIREMENTS.**

7. **LIST ALL MAPS, PLANS AND OTHER ACCOMPANYING MATERIAL SUBMITTED WITH THIS APPLICATION:**

<u>ITEM:</u>	<u>NUMBER OF COPIES</u>
A. <u>Lot Line Adjustment Plan</u>	_____
B. _____	_____
C. _____	_____
D. _____	_____
E. _____	_____
F. _____	_____

8. **ANY DEED RESTRICTIONS AND COVENANTS THAT APPLY OR ARE CONTEMPLATED (YES/NO)** Yes exist ROW easement IF YES, ATTACH COPY.

9. **NAME AND PROFESSION OF PERSON DESIGNING PLAN:**

**NAME:** Robert E. Smith jr  
**ADDRESS:** 6 Chestnut Street Suite 110 Amesbury, MA  
**PROFESSION:** Profesional Land Surveyor **TELEPHONE:** (978) 572-6431

10. **LIST ALL IMPROVEMENTS AND UTILITIES TO BE INSTALLED:** \_\_\_\_\_

water, sewer, gas, underground electric, underground com

\_\_\_\_\_



**11. HAVE ANY SPECIAL EXCEPTIONS OR VARIANCES BEEN GRANTED BY THE ZONING BOARD OF ADJUSTMENT TO THIS PROPERTY PREVIOUSLY?**

(Please check with the Planning Department Office to verify) (YES/NO) Yes IF YES, LIST BELOW AND NOTE ON PLAN.

---

Variance from Zoning Board of Adjustment to allow 32 Unit Residential building in the C3 district

---

**NOTICE:**

I CERTIFY THAT THIS APPLICATION AND THE ACCOMPANYING PLANS AND SUPPORTING INFORMATION HAVE BEEN PREPARED IN CONFORMANCE WITH ALL APPLICABLE TOWN REGULATIONS, INCLUDING BUT NOT LIMITED TO THE "SITE PLAN REVIEW AND SUBDIVISION REGULATION" AND THE ZONING ORDINANCE. FURTHERMORE, IN ACCORDANCE WITH THE REQUIREMENTS OF THE "SITE PLAN REVIEW AND SUBDIVISION REGULATIONS", I AGREE TO PAY ALL COSTS ASSOCIATED WITH THE REVIEW OF THIS APPLICATION.

DATE 3-28-2022 APPLICANT'S SIGNATURE

ACCORDING TO RSA 676.4.I (c), THE PLANNING BOARD MUST DETERMINE WHETHER THE APPLICATION IS COMPLETE WITHIN 30 DAYS OF SUBMISSION. THE PLANNING BOARD MUST ACT TO EITHER APPROVE, CONDITIONALLY APPROVE, OR DENY AN APPLICATION WITHIN SIXTY FIVE (65) DAYS OF ITS ACCEPTANCE BY THE BOARD AS A COMPLETE APPLICATION. A SEPARATE FORM ALLOWING AN EXTENSION OR WAIVER TO THIS REQUIREMENT MAY BE SUBMITTED BY THE APPLICANT.





**ABUTTERS:** PLEASE LIST ALL PERSONS WHOSE PROPERTY IS LOCATED IN NEW HAMPSHIRE AND ADJOINS OR IS DIRECTLY ACROSS THE STREET OR STREAM FROM THE LAND UNDER CONSIDERATION BY THE BOARD. THIS LIST SHALL BE COMPILED FROM THE EXETER TAX ASSESSOR'S RECORDS.

**See Attached List**

TAX MAP \_\_\_\_\_  
NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_

TAX MAP \_\_\_\_\_  
NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_

TAX MAP \_\_\_\_\_  
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TAX MAP \_\_\_\_\_  
NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_

**Please attach additional sheets if needed**



## **CHECKLIST FOR LOT LINE ADJUSTMENT, MINOR SITE PLAN, or MINOR SUBDIVISION PLAN PREPARATION**

The checklist on the following page has been prepared to assist you in the preparation of your subdivision plan. The checklist items listed correspond to the subdivision plan requirements set forth in Section 7 of the "Site Plan Review and Subdivision Regulations". Unless otherwise indicated, all section references within this checklist refer to these regulations. Each of the items listed on this checklist must be addressed prior to the technical review of subdivision plans by the Technical Review Committee (TRC). See Section 6.5 of the "Site Plan Review and Subdivision Regulations". This checklist **DOES NOT** include all of the detailed information required for subdivision and lot line adjustment plans and therefore should not be the sole basis for the preparation of these plans. For a complete listing of subdivision plan requirements, please refer to Section 7 of the "Site Plan Review and Subdivision Regulations". In addition to these required plan items, the Planning Board will review subdivision plans based upon the standards set forth in Sections 8 and 9 of the "Site Plan Review and Subdivision regulations". As the applicant, it is **YOUR RESPONSIBILITY** to familiarize yourself with these standards and to prepare your plans in conformance with them.

Please complete this checklist by marking each item listed in the column labeled "Applicant" with one of the following: "X" (information provided); "NA" (note applicable); "W" (waiver requested). For all checklist items marked "NA", a final determination regarding applicability will be made by the TRC. For all items marked "W", please refer to Section 11 of the "Site Plan Review and Subdivision Regulations" for the proper waiver request procedure. All waiver requests will be acted upon by the Planning Board at a public hearing. Please contact the Planning Department office, if you have any questions concerning the proper completion of this checklist.

All of the required information for the plans listed in the checklist must be provided on separate sheets, unless otherwise approved by the TRC.

**NOTE: AN INCOMPLETE CHECKLIST WILL BE GROUNDS FOR REJECTION OF YOUR APPLICATION.**

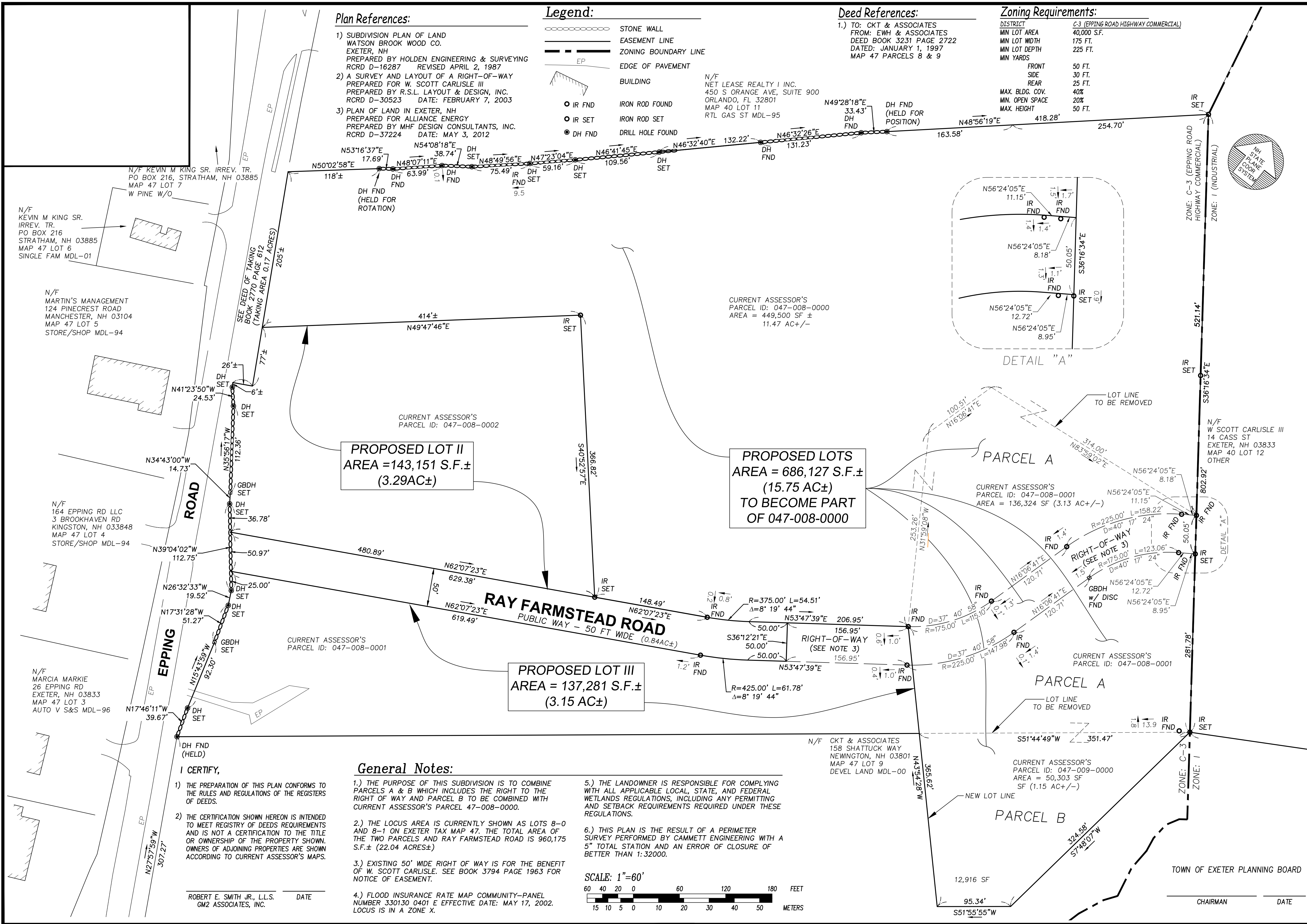


## CHECK LIST FOR MINOR SITE PLAN REVIEW, MINOR SUBDIVISION AND LOT LINE ADJUSTMENT

APPLICANT	TRC	REQUIRED EXHIBITS, SEE REGULATION 6.6.2.4
<input checked="" type="checkbox"/>	<input type="checkbox"/>	a) The name and address of the property owner, authorized agent, the person or firm preparing the plan, and the person or firm preparing any other data to be included in the plan.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	b) Title of the site plan, subdivision or lot line adjustment, including Planning Board Case Number.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	c) Scale, north arrow, and date prepared.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	d) Location of the land/site under consideration together with the names and address of all owners of record of abutting properties and their existing use.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	e) Tax map reference for the land/site under consideration, together with those of abutting properties.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	f) Zoning (including overlay) district references.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	g) A vicinity sketch showing the location of the land/site in relation to the surrounding public street system and other pertinent location features within a distance of 1,000-feet.
<input type="checkbox"/>	<input type="checkbox"/>	h) For minor site plan review only, a description of the existing site and proposed changes thereto, including, but not limited to, buildings and accessory structures, parking and loading areas, signage, lighting, landscaping, and the amount of land to be disturbed.
<input type="checkbox"/>	<input type="checkbox"/>	i) If deemed necessary by the Town Planner, natural features including watercourses and water bodies, tree lines, and other significant vegetative cover, topographic features and any other environmental features which are significant to the site plan review or subdivision design process.
<input type="checkbox"/>	<input type="checkbox"/>	j) If deemed necessary by the Town Planner, existing contours at intervals not to exceed 2-feet with spot elevations provided when the grade is less than 5%. All datum provided shall reference the latest applicable US Coast and Geodetic Survey datum and should be noted on the plan.
<input type="checkbox"/>	<input type="checkbox"/>	k) If deemed necessary by the Town Planner for proposed lots not served by municipal water and sewer utilities, a High Intensity Soil Survey (HISS) of the entire site, or portion thereof. Such soil surveys shall be prepared and stamped by a certified soil scientist in accordance with the standards established by the Rockingham County Conservation District. Any cover letters or explanatory data provided by the certified soil scientist shall also be submitted.
<input type="checkbox"/>	<input type="checkbox"/>	l) State and federal jurisdictional wetlands, including delineation of required setbacks.
<input type="checkbox"/>	<input type="checkbox"/>	m) A note as follows: "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."
<input checked="" type="checkbox"/>	<input type="checkbox"/>	n) Surveyed exterior property lines including angles and bearings, distances, monument locations, and size of the entire parcel. A professional land surveyor licensed in New Hampshire must attest to said plan.



K:\PROJ\CIVIL 3D\2016\16042\DWG\16042.1 SHEET FILES\16042 SUB\_NOV 2021.DWG D:\hamel 3/26/2022 1:53 PM



**Plan References:**

- 1) SUBDIVISION PLAN OF LAND WATSON BROOK WOOD CO. EXETER, NH PREPARED BY HOLDEN ENGINEERING & SURVEYING RCRD D-16287 REVISED APRIL 2, 1987
- 2) A SURVEY AND LAYOUT OF A RIGHT-OF-WAY PREPARED FOR W. SCOTT CARLISLE III PREPARED BY R.S.L. LAYOUT & DESIGN, INC. RCRD D-30523 DATE: FEBRUARY 7, 2003
- 3) PLAN OF LAND IN EXETER, NH PREPARED FOR ALLIANCE ENERGY PREPARED BY MHF DESIGN CONSULTANTS, INC. RCRD D-37224 DATE: MAY 3, 2012

**Legend:**

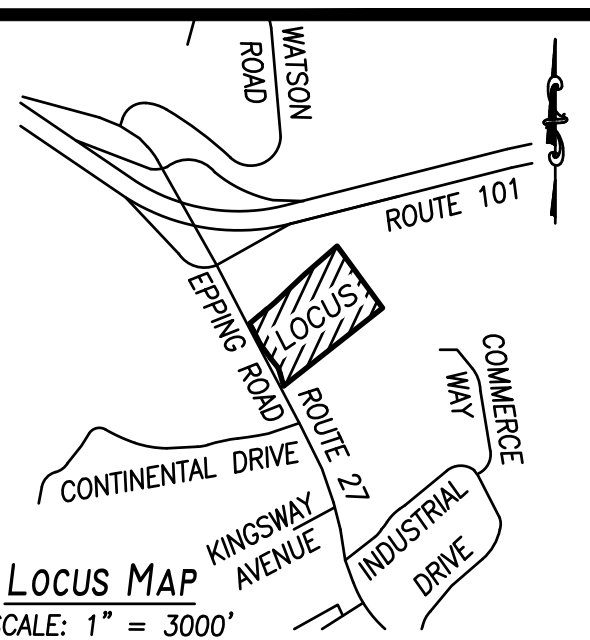
- STONE WALL
- EASEMENT LINE
- ZONING BOUNDARY LINE
- EDGE OF PAVEMENT
- BUILDING
- IRON ROD FOUND
- IRON ROD SET
- DRILL HOLE FOUND

**Deed References:**

- 1.) TO: CKT & ASSOCIATES FROM: EWH & ASSOCIATES DEED BOOK 3231 PAGE 2722 DATED: JANUARY 1, 1997 MAP 47 PARCELS 8 & 9

**Zoning Requirements:**

DISTRICT	C-3 (EPPING ROAD HIGHWAY COMMERCIAL)
MIN LOT AREA	40,000 SF.
MIN LOT WIDTH	175 FT.
MIN LOT DEPTH	225 FT.
MIN YARDS	
FRONT	50 FT.
SIDE	30 FT.
REAR	25 FT.
MAX. BLDG. COV.	40%
MIN. OPEN SPACE	20%
MAX. HEIGHT	50 FT.



LOCUS MAP SCALE: 1" = 3000'

**G&M2**  
 6 CHESTNUT STREET, AMESBURY, MA.  
 Phone: (978) 388-2157  
 CONSULTING ENGINEERS &  
 LAND SURVEYORS SINCE 1988  
 www.gm2inc.com

Sheet Title:  
**Lot Line Adjustment Plan**  
 Project Title:  
**"Ray Farm" Active Adult Community**  
 Epping Road  
 Exeter, NH 03833  
 Rockingham County

Applicant:  
**Willey Creek Company**  
 158 Shattuck Way  
 Newington, NH 03801  
 Owner:  
**CKT & Associates**  
 158 Shattuck Way  
 Newington, NH 03801

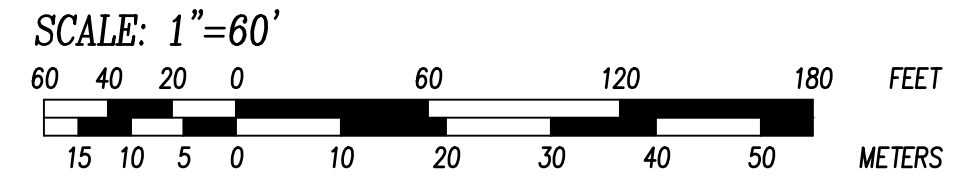
REVISION			
NO.	DATE	DESCRIPTION	BY
1	11.23.21	MINOR EDITS	RS
2	02.01.22	MINOR EDITS	RS

PROJ. MGR.: D. HAMEL
FIELD: M. MICHAUD / A. BICK
DESIGN: D. HAMEL
DRAWN: J. SALVAGGIO
CHECKED: R. SMITH
DATE: 11-03-21
FILE: 16042 SUB NOV 2021.DWG
FBK:
JOB #: 16042

PROJ. MGR.: D. HAMEL  
 FIELD: M. MICHAUD / A. BICK  
 DESIGN: D. HAMEL  
 DRAWN: J. SALVAGGIO  
 CHECKED: R. SMITH  
 DATE: 11-03-21  
 FILE: 16042 SUB NOV 2021.DWG  
 FBK:  
 JOB #: 16042  
 SHEET 1 of 1 VI.10

**General Notes:**

- 1.) THE PREPARATION OF THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.
- 2.) THE CERTIFICATION SHOWN HEREON IS INTENDED TO MEET REGISTRY OF DEEDS REQUIREMENTS AND IS NOT A CERTIFICATION TO THE TITLE OR OWNERSHIP OF THE PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE SHOWN ACCORDING TO CURRENT ASSESSOR'S MAPS.
- 3.) THE PURPOSE OF THIS SUBDIVISION IS TO COMBINE PARCELS A & B WHICH INCLUDES THE RIGHT TO THE RIGHT OF WAY AND PARCEL B TO BE COMBINED WITH CURRENT ASSESSOR'S PARCEL 47-008-0000.
- 4.) THE LOCUS AREA IS CURRENTLY SHOWN AS LOTS 8-0 AND 8-1 ON EXETER TAX MAP 47. THE TOTAL AREA OF THE TWO PARCELS AND RAY FARMSTEAD ROAD IS 960,175 S.F.± (22.04 ACRES±)
- 5.) 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.
- 6.) THIS PLAN IS THE RESULT OF A PERIMETER SURVEY PERFORMED BY CAMMETT ENGINEERING WITH A 5" TOTAL STATION AND AN ERROR OF CLOSURE OF BETTER THAN 1:32000.
- 7.) EXISTING 50' WIDE RIGHT OF WAY IS FOR THE BENEFIT OF W. SCOTT CARLISLE. SEE BOOK 3794 PAGE 1963 FOR NOTICE OF EASEMENT.
- 8.) FLOOD INSURANCE RATE MAP COMMUNITY-PANEL NUMBER 330130 0401 E EFFECTIVE DATE: MAY 17, 2002. LOCUS IS IN A ZONE X.



I CERTIFY,  
 ROBERT E. SMITH JR., L.L.S. DATE  
 GM2 ASSOCIATES, INC.

CHAIRMAN DATE

# **Town of Exeter**



## **Planning Board Application for Site Plan Review**

*October 2019*



## SITE PLAN REVIEW APPLICATION CHECKLIST

A COMPLETED APPLICATION FOR SITE PLAN REVIEW MUST CONTAIN THE FOLLOWING

1. Application for Hearing ( X )
2. Abutter's List Keyed to Tax Map ( X )  
(including the name and business address of every engineer, architect,  
land surveyor, or soils scientist whose professional seal appears on any  
plan submitted to the Board)
3. Completed- " Checklist for Site Plan Review" ( X )
4. Letter of Explanation ( X )
5. Written Request for Waiver (s) from " Site Plan Review and Subdivision  
Regulations" ( X )  
(if applicable)
6. Completed "Preliminary Application to Connect and /or Discharge to Town  
of Exeter- Sewer, Water or Storm Water Drainage System(s)"( if applicable) ( X )
7. Planning Board Fees ( X )
8. Seven (7) full-sized copies of Site Plan ( X )
9. Fifteen (15) 11"x17" copies of the final plan to be submitted **TEN DAYS**  
**PRIOR** to the public hearing date. ( X )
10. Three (3) pre-printed 1"x 2 5/8" labels for each abutter, the applicant and  
all consultants. ( X )

**NOTES:** All required submittals must be presented to the Planning Department office for distribution to other Town departments. Any material submitted directly to other departments will not be considered.



# TOWN OF EXETER, NH APPLICATION FOR SITE PLAN REVIEW

### OFFICE USE ONLY

**THIS IS AN APPLICATION FOR:**

- COMMERCIAL SITE PLAN REVIEW
- INDUSTRIAL SITE PLAN REVIEW
- MULTI-FAMILY SITE PLAN REVIEW
- MINOR SITE PLAN REVIEW
- INSTITUTIONAL/NON-PROFIT SPR

_____	APPLICATION #
_____	DATE RECEIVED
_____	APPLICATION FEE
_____	PLAN REVIEW FEE
_____	ABUTTERS FEE
_____	LEGAL NOTICE FEE
_____	TOTAL FEES

_____	INSPECTION FEE
_____	INSPECTION COST
_____	REFUND (IF ANY)

1. NAME OF LEGAL OWNER OF RECORD: CKT Associates

\_\_\_\_\_ TELEPHONE: ( 603 ) 431-3170

ADDRESS: 158 Shattuck Way Newington, NH 03801

2. NAME OF APPLICANT: Willey Creek Co.

ADDRESS: 158 Shattuck Way Newington NH 03801

\_\_\_\_\_ TELEPHONE: ( 603 ) 431-3170

3. RELATIONSHIP OF APPLICANT TO PROPERTY IF OTHER THAN OWNER: \_\_\_\_\_

Same

(Written permission from Owner is required, please attach.)

4. DESCRIPTION OF PROPERTY: Wooded with variable slopes with areas of wetlands

ADDRESS: off Ray Farmstead Road

TAX MAP: 47 PARCEL #: 8-1, 9 ZONING DISTRICT: C3

AREA OF ENTIRE TRACT: 15.75 Acres PORTION BEING DEVELOPED: 2.55 Acres





5. **ESTIMATED TOTAL SITE DEVELOPMENT COST \$** \$1.2 million+/-
6. **EXPLANATION OF PROPOSAL:** Re-locate previopusly approved Building D to new location shown on the attached plans along will all required apputances
7. **ARE MUNICIPAL SERVICES AVAILABLE? (YES/NO)** Yes

If yes, Water and Sewer Superintendent must grant written approval for connection.  
If no, septic system must comply with W.S.P.C.C. requirements.

8. **LIST ALL MAPS, PLANS AND OTHER ACCOMPANYING MATERIAL SUBMITTED WITH THIS APPLICATION:**

<u>ITEM:</u>	<u>NUMBER OF COPIES</u>
A. <u>Site - Civil Plans (23 Sheets)</u>	<u>7 full size, 15 11x17</u>
B. <u>Architectural (2 Sheets)</u>	<u>7 Full size, 15 11x17</u>
C. <u>Wetland impact plans (3 Sheets)</u>	<u>7 Full size, 15 11x17</u>
D. <u>Stormwater Analysis booklet</u>	<u>7 sets</u>
E. _____	_____
F. _____	_____

9. **ANY DEED RESTRICTIONS AND COVENANTS THAT APPLY OR ARE CONTEMPLATED (YES/NO)** Yes, exist ROW Easement **IF YES, ATTACH COPY.**

10. **NAME AND PROFESSION OF PERSON DESIGNING PLAN:**

**NAME:** David Giangrande, PE Denis Hamel, CPESC

**ADDRESS:** 6 Chestnut Street Suite 110 Amesbury, MA 01903

**PROFESSION:** Civil Engineer **TELEPHONE:** ( 978 ) 572-6429

11. **LIST ALL IMPROVEMENTS AND UTILITIES TO BE INSTALLED:**

Tie into existing water and sewer lines of the Ray Farm project, new stormwater mitigation BMP's.  
Paved access drive from near existing Building C to the re-located Building D along with parking, lighting landscappings and walkways. Temporary construction access to Commerce Way.



**12. HAVE ANY SPECIAL EXCEPTIONS OR VARIANCES BEEN GRANTED BY THE ZONING BOARD OF ADJUSTMENT TO THIS PROPERTY PREVIOUSLY?**

IF YES, DESCRIBE BELOW. (Please check with the Planning Department Office to verify)

A Variance was granted by the Zoning Board of Adjustment to allow a 32 unit multifamily building in the C3 Commercial Zone.

**13. WILL THE PROPOSED PROJECT INVOLVE DEMOLITION OF ANY EXISTING BUILDINGS OR APPURTENANCES? IF YES, DESCRIBE BELOW.**

(Please note that any proposed demolition may require review by the Exeter Heritage Commission in accordance with Article 5, Section 5.3.5 of the Exeter Zoning Ordinance).

No

**14. WILL THE PROPOSED PROJECT REQUIRE A "NOTICE OF INTENT TO EXCAVATE" (State of NH Form PA-38)? IF YES, DESCRIBE BELOW.**

No

**NOTICE:** I CERTIFY THAT THIS APPLICATION AND THE ACCOMPANYING PLANS AND SUPPORTING INFORMATION HAVE BEEN PREPARED IN CONFORMANCE WITH ALL APPLICABLE REGULATIONS; INCLUDING BUT NOT LIMITED TO THE "SITE PLAN REVIEW AND SUBDIVISION REGULATIONS" AND THE ZONING ORDINANCE. FURTHERMORE, IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 15.2 OF THE "SITE PLAN REVIEW AND SUBDIVISION REGULATIONS", I AGREE TO PAY ALL COSTS ASSOCIATED WITH THE REVIEW OF THIS APPLICATION.

DATE 3-24-22 OWNER'S SIGNATURE [Signature]

ACCORDING TO RSA 676.4.I ( c ), THE PLANNING BOARD MUST DETERMINE WHETHER THE APPLICATION IS COMPLETE WITHIN 30 DAYS OF SUBMISSION. THE PLANNING BOARD MUST ACT TO APPROVE, CONDITIONALLY APPROVE, OR DENY AN APPLICATION WITHIN SIXTY FIVE (65) DAYS OF ITS ACCEPTANCE BY THE BOARD AS A COMPLETE APPLICATION. A SEPARATE FORM ALLOWING AN EXTENSION OR WAIVER TO THIS REQUIREMENT MAY BE SUBMITTED BY THE APPLICANT.



**ABUTTERS:** PLEASE LIST ALL PERSONS WHOSE PROPERTY IS LOCATED IN NEW HAMPSHIRE AND ADJOINS OR IS DIRECTLY ACROSS THE STREET OR STREAM FROM THE LAND UNDER CONSIDERATION BY THE BOARD. THIS LIST SHALL BE COMPILED FROM THE EXETER TAX ASSESSOR'S RECORDS.

**See Attached List**

TAX MAP \_\_\_\_\_  
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**Please attach additional sheets, if needed**



## **CHECKLIST FOR SITE PLAN REVIEW**

The checklist on the following page has been prepared to assist you in the preparation of your site plan. The checklist items listed correspond to the site plan requirements set forth in Section 7 of the "Site Plan Review and Subdivision Regulations". Unless otherwise indicated, all section references within this checklist refer to these regulations. Each of the items listed on this checklist must be addressed by the applicant prior to technical review of the site plan by the Technical Review Committee (TRC) See section 6.5. of the "Site Plan Review and Subdivision Regulations". This checklist **DOES NOT** include all of the detailed information required for site plan preparation and therefore should not be the sole basis for the preparation of these plans. For a complete listing of site plan requirements, please refer to Section 7 of the "Site Plan Review and Subdivision Regulations". In addition to these required plan items, the Planning Board will review site plans based upon the standards set forth in Sections 8 and 9 of the "Site Plan Review and Subdivision Regulations". As the applicant, it is **YOUR RESPONSIBILITY** to familiarize yourself with these standards and to prepare your plans in conformance with them.

Please complete this checklist by marking each item in the column labeled "Applicant" with one of the following: "X: (information provided); "NA" (not applicable); "W: (waiver requested). For all checklist items marked "NA", a final determination regarding applicability will be made by the TRC. For all items marked "W", please refer to Section 13 of the "Site Plan Review and Subdivision Regulations" for the proper request procedure to be followed. If waivers are requested, a justification letter for requested waivers is strongly suggested. All waiver requests will be acted upon by the Planning Board at a public hearing. Please contact the Planning Department office if you have any questions concerning the proper completion of this checklist.

All of the required information for the plans listed in the checklist must be provided on separate sheets, unless otherwise approved by the TRC.

**NOTE: AN INCOMPLETE CHECKLIST WILL BE GROUNDS FOR REJECTION OF YOUR APPLICATION.**



# SITE PLAN REQUIREMENTS

## 7.4 Existing Site Conditions Plan

Submission of this plan will not be applicable in all cases. The applicability of such a plan will be considered by the TRC during its review process as outlined in Section 6.5 Technical Review Committee (TRC) of these regulations. The purpose of this plan is to provide general information on the site, its existing conditions, and to provide the base data from which the site plan or subdivision will be designed. The plan shall show the following:

APPLICANT	TRC	REQUIRED EXHIBITS
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.1 Names, addresses, and telephone numbers of the owner, applicant, and person(s) or firm(s) preparing the plan.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.2 Location of the site under consideration, together with the current names and addresses of owners of record, of abutting properties and their existing land use.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.3 Title, date, north arrow, scale, and Planning Board Case Number.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.4 Tax map reference for the site under consideration, together with those of abutting properties.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.5 Zoning (including overlay) district references.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.6 A vicinity sketch or aerial photo showing the location of the land/site in relation to the surrounding public street system and other pertinent location features within a distance of 2,000-feet, or larger area if deemed necessary by the Town Planner.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.7 Natural features including watercourses and water bodies, tree lines, significant trees (20-inches or greater in diameter at breast height) and other significant vegetative cover, topographic features, and any other environmental features that are important to the site design process.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.8 Man-made features such as, but not limited to, existing roads, structures, and stone walls. The plan shall also indicate which features are to be retained and which are to be removed or altered.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.9 Existing contours at intervals not to exceed 2-feet with spot elevations provided when the grade is less than 5%. All datum provided shall reference the latest applicable US Coast and Geodetic Survey datum and should be noted on the plan.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.10 A High Intensity Soil Survey (HISS) of the entire site, or appropriate portion thereof. Such soil surveys shall be prepared by a certified soil scientist in accordance with the standards established by the Rockingham County Conservation District. Any cover letters or explanatory data provided by the certified soil scientist shall also be submitted.



<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.11 State and Federally designated wetlands, setback information, total wetlands proposed to be filled, other pertinent information and the following wetlands note: "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."
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.12 Surveyed property lines including angles and bearings, distances, monument locations, and size of the entire parcel. A professional land surveyor licensed in New Hampshire must attest to said plan.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.13 The lines of existing abutting streets and driveway locations within 200-feet of the site.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.14 The location, elevation, and layout of existing catch basins and other surface drainage features.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.15 The shape, size, height, location, and use of all existing structures on the site and approximate location of structures within 200-feet of the site.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.16 The size and location of all existing public and private utilities, including off-site utilities to which connection is planned.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.17 The location of all existing easements, rights-of-way, and other encumbrances.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.18 All floodplain information, including the contours of the 100-year flood elevation, based upon the Flood Insurance Rate Map for Exeter, as prepared by the Federal Emergency Management Agency, dated May 17, 1982.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.19 All other features which would fully explain the existing conditions of the site.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.4.20 Name of the site plan or subdivision.



### 7.5 Proposed Site Conditions Plan (Pertains to Site Plans Only)

The purpose of this plan is to illustrate and fully explain the proposed changes taking place within the site. The proposed site conditions plan shall depict the following:

APPLICANT	TRC	REQUIRED EXHIBITS
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.1 Proposed grades and topographic contours at intervals not to exceed 2-feet with spot elevations where grade is less than 5%. All datum provided shall reference the latest applicable US Coast and Geodetic Survey datum and should be noted on the plan.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.2 The location and layout of proposed drainage systems and structures including elevations for catch basins.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.3 The shape, size, height, and location of all proposed structures, including expansion of existing structures on the site and first floor elevation(s). Building elevation(s) and a rendering of the proposed structure(s).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.4 High Intensity Soil Survey (HISS) information for the site, including the total area of wetlands proposed to be filled.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.5 State and Federally designated wetlands, setback information, total wetlands proposed to be filled, other pertinent information and the following wetlands note: "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."
<input type="checkbox"/> N/A	<input type="checkbox"/>	7.5.6 Location and timing patterns of proposed traffic control devices.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.7 The location, width, curbing and paving of all existing and proposed streets, street rights-of-way, easements, alleys, driveways, sidewalks and other public ways. The plan shall indicate the direction of travel for one-way streets. See Section 9.14 – Roadways, Access Points, and Fire Lanes for further guidance.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.8 The location, size and layout of off-street parking, including loading zones. The plan shall indicate the calculations used to determine the number of parking spaces required and provided. See Section 9.13 – Parking Areas for further guidance.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.9 The size and location of all proposed public and private utilities, including but not limited to: water lines, sewage disposal facilities, gas lines, power lines, telephone lines, cable lines, fire alarm connection, and other utilities.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.10 The location, type, and size of all proposed landscaping, screening, green space, and open space areas.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.11 The location and type of all site lighting, including the cone(s) of illumination to a measurement of 0.5-foot-candle.
<input type="checkbox"/>	<input type="checkbox"/>	7.5.12 The location, size, and exterior design of all proposed signs to be located on the site.
<input type="checkbox"/>	<input type="checkbox"/>	7.5.13 The type and location of all solid waste disposal facilities and accompanying screening.



<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.14 Location of proposed on-site snow storage.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.15 Location and description of all existing and proposed easement(s) and/or right-of-way.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.16 A note indicating that: "All water, sewer, road (including parking lot), and drainage work shall be constructed in accordance with Section 9.5 Grading, Drainage, and Erosion & 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.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.5.17 Signature block for Board approval

**OTHER PLAN REQUIREMENTS (See Section Indicated)**

- 7.7 Construction plan
- 7.8 Utilities plan
- 7.9 Grading, drainage and erosion & sediment control plan
- 7.10 Landscape plan
- 7.11 Drainage Improvements and Storm Water Management Plan
- 7.12 Natural Resources Plan
- 7.13 Yield Plan



Abutter List for Ray Farm - Parcels 47-8 & 47-9

March 20, 2022

<b>abutters_id_fiel</b>	<b>abutters_owner1</b>	<b>abutters_address</b>	<b>abutters_town</b>	<b>abuta</b>	<b>abutte</b>	<b>abutters_location</b>
047-008-0001	CKT ASSOCIATES	158 SHATTUCK WAY	NEWINGTON	NH	03801	RAY FARMSTEAD RD
047-008-0002	CKT ASSOCIATES	158 SHATTUCK WAY	NEWINGTON	NH	03801	RAY FARMSTEAD RD
047-011-0000	BOATOFGARTEN LLC	PO BOX 4430	MANCHESTER	NH	03108	32 INDUSTRIAL DR
040-012-0000	CARLISLE W SCOTT III	14 CASS ST	EXETER	NH	03833	ROUTE 101
047-005-0000	GLADSTONE REALTY LLC	12 BILLS WAY	BEDFORD	NH	03110	166 EPPING RD
040-011-0000	NET LEASE REALTY I INC	450 S ORANGE AVE SUITE 900	ORLANDO	FL	32801	191 EPPING RD
049-008-0000	EXETER TOWN OF	10 FRONT STREET	EXETER	NH	03833	0 ROUTE 101
039-003-0000	EXETER TOWN OF	10 FRONT STREET	EXETER	NH	03833	FORT ROCK TOWN FOREST
055-058-0000	STOCKBRIDGE REAL ESTATE LLC	141 EPPING RD	EXETER	NH	03833	141 EPPING RD
055-055-0000	BARR PROPERTIES REALTY TRUST	143 GILES RD	EAST KINGSTON	NH	03827	150 EPPING RD
055-056-0002	EXETER CROWN PROPERTY LLC	PO BOX 216	STRATHAM	NH	03885	2 KINGS WAY AVE
047-006-0000	GATEWAY AT EXETER LLC	20 TRAFALGAR SQUARE SUITE 610	NASHUA	NH	03063	170 EPPING RD
047-010-0000	DRAGONFLY REALTY LLC	101 EMERSON RD	MILFORD	NH	03055	151 EPPING RD
047-001-0001	156 EPPING ROAD LLC	156 EPPING RD UNIT 1	EXETER	NH	03833	156 EPPING RD
047-001-0002	158 EPPING ROAD LLC	156 EPPING ROAD	EXETER	NH	03833	158 EPPING RD
048-002-0000	NORTHEAST DISTRIBUTION LTD	11 COMMERCE WAY	EXETER	NH	03833	11 COMMERCE WAY
048-003-0000	C MARINE DYNAMICS REALTY LLC	8 COMMERCE WAY	EXETER	NH	03833	8 COMMERCE WAY
055-056-0001	GRANITE GROUP PROPERTIES LLC	6 STORRS ST	CONCORD	NH	03301	152 EPPING RD
047-007-0000	GATEWAY AT EXETER LLC	20 TRAFALGAR SQUARE SUITE 610	NASHUA	NH	03063	EPPING RD
047-012-0000	SIDNEY TRUST	C/O WALL INDUSTRIES	WESTFORD	MA	01886	37 INDUSTRIAL DR
047-002-0000	DABROWSKI REALTY HOLDINGS OF NH LLC	6920 POINTE INVERNESS WAY 301	FT WAYNE	IN	46804	160 EPPING RD
047-003-0000	MARKIE MARCIA	26 EPPING RD	EXETER	NH	03833	162 EPPING RD
040-013-0000	EXETER TOWN OF	10 FRONT STREET	EXETER	NH	03833	0 ROUTE 101
055-057-0000	EPPING RD 149 LLC	12 KINGSTON RD UNIT D	EXETER	NH	03833	149 EPPING RD
047-009-0000	CKT ASSOCIATES	158 SHATTUCK WAY	NEWINGTON	NH	03801	159 EPPING RD
047-009-0001	BEZIO SCHULTZ STPIERRE	40 INDUSTRIAL DR	EXETER	NH	03833	40 INDUSTRIAL DR
047-004-0000	BAKERPROP LLC	953 ISLINGTON ST #230	PORTSMOUTH	NH	03801	164 EPPING RD
047-008-0000	RAY FARM LLC	158 SHATTUCK WAY	NEWINGTON	NH	03108	15 WLLEY CREEK RD
	David Giangrande, PE	6 Chestnut Street Suite 110	Amesbury	MA	01913	
	Robert E. Smith Jr. LLS	6 Chestnut Street Suite 110	Amesbury	MA	01913	
	James Gove, CSS, CWS	8 Continental Drive Unit H	EXETER	NH	03833	
	Brendan Quigley, CWS	8 Continental Drive Unit H	EXETER	NH	03833	

**WAIVER FOR PARKING SETBACKS FROM BUILDING**

The Applicant requests a waiver from the requirements of Section 11.3.1.2 of the Site Plan Review and Subdivision Regulations to allow less than 25 feet between Building D and the driveway as follows:

Closest Distance	Furthest Distance	Average Distance
14.9'	30.0'	25.5'

**SITE PLAN REVIEW REGULATIONS WAIVER REQUIREMENTS:**

**13.1.1 Where the Board finds that extraordinary hardships, practical difficulties, or unnecessary expense would result from strict compliance with the foregoing regulations or the purposes of these regulations may be served to a greater extent by an alternative proposal, it may approve waivers to these regulations. The purpose of granting waivers under provisions of these regulation shall be to insure that an applicant is not unduly burdened, as opposed to merely inconvenienced, by said regulations. The Board shall not approve any waiver(s) unless a majority of those present shall fine that:**

**13.1.2. The granting of the waiver will not be detrimental to the public safety, health and welfare or injurious to other property, and will promote the public interest.**

The site has been designed to allow for safe pedestrian and vehicular traffic notwithstanding its location within the setback. Allowing the reduced setback allows less impact to the wetland buffers on the site. There is a substantial amount of landscaping proposed for the areas between the buildings and the parking and/or access drives which will achieve the objective of the regulation.

**13.1.3 The waiver will not, in any manner, vary the provisions of the Exeter Zoning Ordinance, Exeter Master Plan, or official maps.**

Allowing this reduced setback will not violate the spirit of the Zoning Ordinance or Exeter Master Plan and will allow less impact in the wetland buffer.

**13.1.4 Such waiver(s) will substantially secure the objectives, standards and requirements of these regulations.**

Granting this waiver would secure the objectives, standards and requirements of the Town's regulation by reducing impacts on the wetland buffer without impacting public safety or the aesthetics of the project which will be thoroughly landscaped.

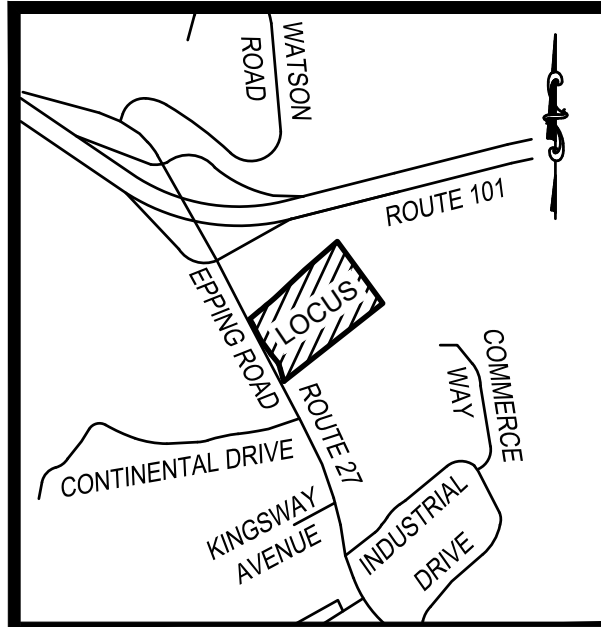
**13.1.5 A particular and identifiable hardship exists or a specific circumstance warrants the granting of a waiver. Factors to be considered in determining the existence of the hardship shall include, but not be limited to: topography; existing site features; geographic location of the property; and size/magnitude of project being evaluated.**

Given the site's existing topography and wetlands, granting this waiver offers greater protection to allow more of the site to remain in its nature state and further protects the wetlands.

Respectfully submitted,  
WILLEY CREEK CO., LLC

---

Johnathan Shafmaster



LOCUS MAP  
SCALE: 1" = 3000'

# Ray Farm

## Active Adult Community

### Site Development Plans for Building D off Ray Farmstead Road, Exeter, NH

#### SHEET INDEX

G1.10	TITLE SHEET
G1.20	GENERAL NOTES, LEGEND, & ABBREVIATIONS
V1.10	MINOR SUBDIVISION PLAN
V1.11, V1.12	EXISTING CONDITIONS
C1.10	OVERALL SITE PLAN
C1.11, C1.12	SITE PLANS
C1.21 TO C1.23	GRADING AND DRAINAGE PLANS
C1.31, 1.32	UTILITY PLANS
C1.41, 1.42	PLAN & PROFILES
C1.51, 1.52	EROSION AND SEDIMENT CONTROL PLANS
C5.11 TO C5.16	DETAILS
C1.24	WETLAND IMPACTS
C1.25	WETLAND BUFFER IMPACT PLAN
C1.26	WATERSHED PLAN



6 CHESTNUT STREET, AMESBURY, MA.  
Phone: (978) 388-2157  
CONSULTING ENGINEERS &  
LAND SURVEYORS SINCE 1988  
www.gm2inc.com

Sheet Title:

## TITLE SHEET

Project Title:

**Ray Farm  
Condominium**  
Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

Applicant/Owner:

**Ray Farm, LLC**  
158 Shattuck Way  
Newington, NH 03801

#### DIMENSIONAL REQUIREMENTS (C-3 DISTRICT)

	REQUIRED
MINIMUM LOT AREA	40,000 SF
MINIMUM LOT WIDTH	175 FEET
MINIMUM LOT DEPTH	225 FEET
MINIMUM YARD SETBACKS	
FRONT	50 FEET
SIDE	30 FEET
REAR	25 FEET
MAXIMUM BUILDING COVERAGE	40 %
MINIMUM OPEN SPACE	20 %
MAXIMUM HEIGHT	50 FEET

#### LOCUS PARCEL

OKT ASSOCIATES  
MAP 47, PARCELS, 8 & 9  
(SEE MINOR SUBDIVISION PLAN V1.10)

#### TOTAL SITE DENSITY

TOTAL PARCEL AREA  
15.75 Acres (686,127 SF)  
TOTAL NUMBER OF UNITS - 128  
DENSITY = 5,360.4 SF PER UNIT

#### TOTAL SITE DATA

PROPOSED USE - ACTIVE ADULT COMMUNITY (VARIANCE GRANTED)  
4 BUILDINGS WITH 4-32 UNIT BUILDINGS, = 128 UNITS

PARKING REQUIRED - 128 UNITS x 2 SPACES PER UNIT +  
1 SPACE PER 4 UNITS = 288 SPACES REQUIRED

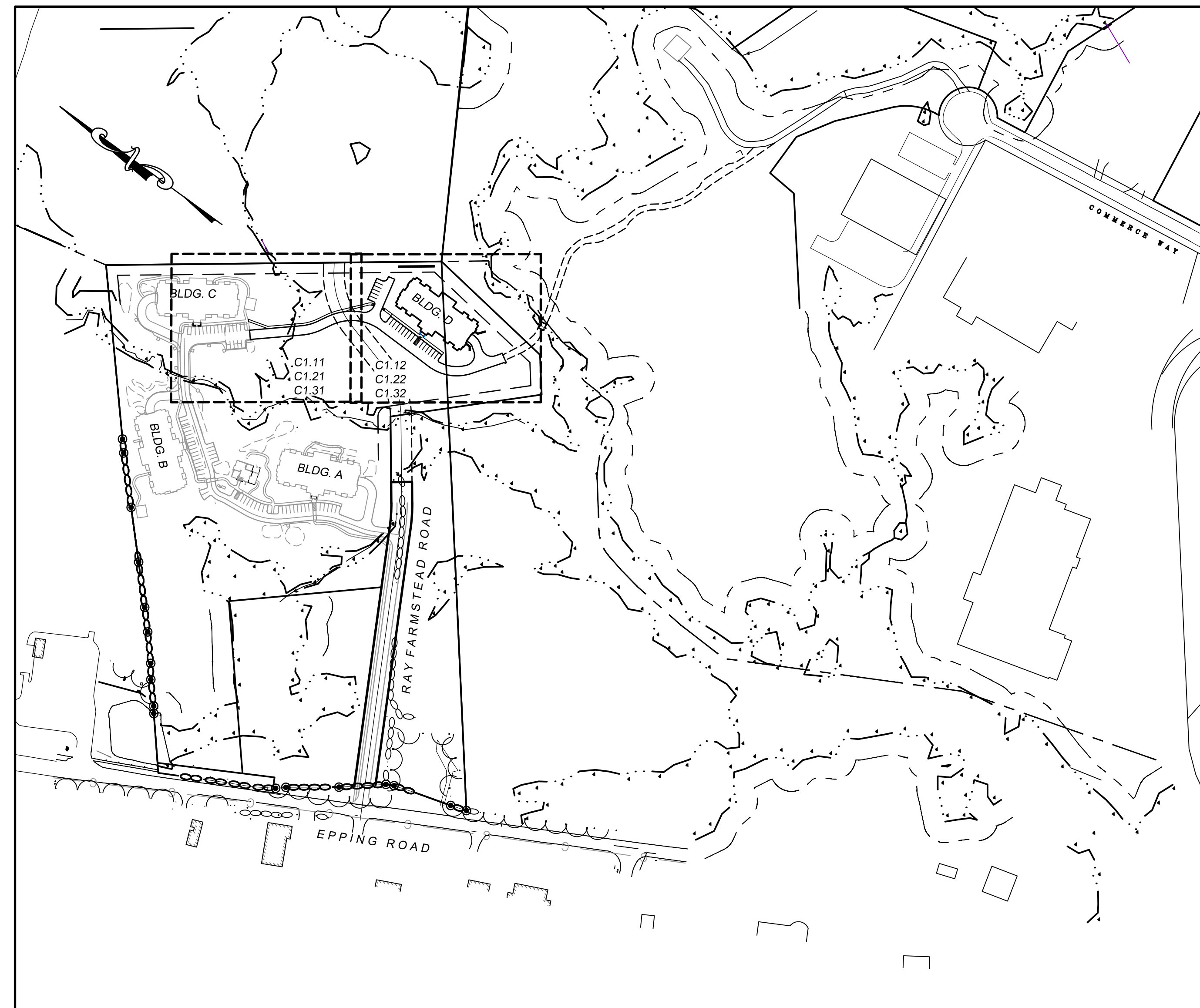
PARKING PROVIDED - 1233 TOTAL (1.82 SPACES/UNIT) (WAIVER  
REQUESTED) 144 IN PARKING GARAGE BELOW BUILDINGS  
89 SURFACE PARKING

#### WAIVERS

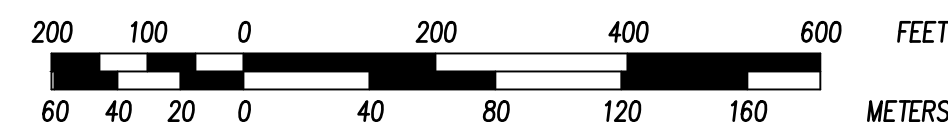
1. WAIVER FOR WETLAND IMPACTS - 9.9.2 SITE PLAN REVIEW REGULATIONS
2. WAIVER FOR PARKING - 5.6.5 ZONING ORDINANCE
3. WAIVER FOR ROADWAY DESIGN PLANS - 7.5.7 AND 7.7 SITE PLAN REVIEW REGULATIONS
4. WAIVER FOR PARKING SETBACKS - 11.3.1.2 SITE PLAN REVIEW REGULATIONS
5. WAIVER FOR RECREATIONAL AREAS - 11.3.4 SITE PLAN REVIEW REGULATIONS

#### PERMITS

ALTERATION OF TERRAIN - AOT 1335 (PREVIOUSLY APPROVED)  
ALTERATION OF TERRAIN - AOT XXXX (FOR BUILDING D)  
DREDGE AND FILL - FILE NO. 2017-01530 (PREVIOUSLY APPROVED)  
DREDGE AND FILL - FILE NO. XXXX-XXX (ASSOCIATED WITH BUILDING D)



SCALE: 1"=200'



TOWN OF EXETER PLANNING BOARD

CHAIRMAN DATE

#### REVISION BLOCK

NO.	DATE	DESC	BY

PROJ. MGR: D. HAMEL  
FIELD: J. SALVAGGIO / R. SMITH  
DESIGN: D. HAMEL  
DRAWN: D. HAMEL  
CHECKED: D. GIANGRANDE  
DATE: 01-11-2022  
FILE: 16042 D.TL.DWG  
FBK:  
JOB #: 16042 D

SHEET G1.10

## GENERAL NOTES

- ELEVATIONS BASED ON NAVD 1988. PLANS ARE NH STATE PLAIN NAD83 COORDINATE SYSTEM.
- OWNERS OF ADJOINING PROPERTIES ARE SHOWN ACCORDING TO CURRENT ASSESSOR'S MAPS AND DO NOT CONSTITUTE CERTIFICATION TO TITLE OR OWNERSHIP.
- EXISTING CONDITIONS DATA FROM AN ON THE GROUND SURVEY CONDUCTED BY W.C. CAMMETT ENG., NOVEMBER OF 2016 THROUGH APRIL OF 2017, AND GM2 ASSOCIATES IN DECEMBER OF 2021.
- WETLANDS AND SOILS INFORMATION PROVIDED BY GOVE ENVIRONMENTAL SERVICES.
- THERE IS NO FLOOD PLAIN ON THIS SITE ACCORDING TO THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NUMBER 330130 0401 E.
- THE ORIGINAL PARCEL IS LOCATED AT 183 EPPING ROAD AND IS SHOWN AS LOT 8 ON EXETER TAX MAP 47. IT HAS AN AREA OF 960,175 S.F.± (22.04 ACRES±).
- EXISTING 50' WIDE RIGHT OF WAY IS FOR THE BENEFIT OF N. SCOTT CARLISLE. SEE BOOK 3794 PAGE 1963 FOR NOTICE OF EASEMENT.
- THE PERIMETER SURVEY PERFORMED BY W.C. CAMMETT ENG. WITH A 5" TOTAL STATION AND AN ERROR OF CLOSURE OF BETTER THAN 1:32,000.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, WATER AND ANY OTHER PRIVATE OR MUNICIPAL UTILITIES WITH THE APPROPRIATE UTILITY COMPANY.
- WHERE EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER OF RECORD FOR RESOLUTION OF THE CONFLICT.
- EXISTING UTILITY POLES, WILL BE RELOCATED BY OTHERS, IF NECESSARY.
- EXCAVATION SHALL ONLY OCCUR WITHIN THE LIMIT OF WORK, AS SHOWN.
- IF AREAS OUTSIDE THE LIMIT OF PROPOSED WORK IS DISTURBED BY THE CONTRACTOR'S OPERATIONS, THE AREAS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
- JOINTS BETWEEN NEW BITUMINOUS CONCRETE ROADWAY PAVEMENT AND SAW CUT EXISTING PAVEMENT SHALL BE SEALED WITH BITUMEN, INFRARED SEAL, AND BACK SANDED.
- EXISTING SIGNS AND/OR MAILBOXES WITHIN THE PROJECT LIMITS THAT ARE DISTURBED SHALL BE REMOVED AND RELOCATED AS APPLICABLE.
- ALL DISTURBED AREAS OUTSIDE OF THE NEW PAVEMENT LIMITS SHALL BE LOAMED (4" MINIMUM DEPTH) AND SEEDED.
- A MINIMUM OF 10' HORIZONTAL AND 18" VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN WATER MAINS AND SEWER LINES.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE EXETER WATER AND SEWER DEPARTMENT WHEN MAKING THE CONNECTIONS.
- ALL WORK SHALL COMPLY WITH EXETER'S "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER" NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.

## MATERIAL NOTES

- CRUSHED GRAVEL - NHDOT 304.3
- GRAVEL - NHDOT 304.2
- SAND - NHDOT 304.1
- BACKFIL MATERIAL - EARTH MATERIAL FREE FROM ROCKS LARGER THAN 3", DEBRIS, STUMPS, CLAY, ORGANIC MATTER, ICE, FROZEN SOIL, AND EXCESSIVE MOISTURE.
- LOAM - NHDOT 641.2.1
- CRUSHED STONE - GRADED CRUSHED ROCK TO THE SIZE SPECIFIED, WITH LESS THAN 2% FINES PASSING THE #200 SIEVE.
- PLACING AND COMPACTION OF FILL MATERIALS SHALL COMPLY WITH NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SECTION 304.3.4, 304.3.5, AND 304.3.6.
- PAVEMENTS SHALL COMPLY WITH SECTIONS 401, 403, AND 410 OF NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

## CONSTRUCTION NOTES

- PRIOR TO ANY EXCAVATION, DIG-SAFE AND EXETER DPW (603-773-6157) SHALL BE NOTIFIED TO LOCATE ALL PERTINENT UTILITIES INCLUDING WATER, SEWER, AND DRAINAGE.
- THIS PROJECT IS BE TO MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF rsa 430:53 AND CHAPTER Agr 3800 RELATIVE TO INVASIVE SPECIES.
- ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY RAINFALL OF ONE HALF INCH OR MORE.
- DO NOT CLEAR AND STRIP THE ENTIRE SITE AT ONE TIME. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION. IN NO CASE SHALL MORE THAN 3 ACRES BE DISTURBED AT ONE TIME. STABILIZE THE AREA BEFORE MOVING ON TO THE NEXT AREA. DISTURBED AREAS REMAINING OPEN FOR MORE THAN 30 DAYS, SHALL BE STABILIZED.
- WOODY MATERIAL REMOVED DURING THE CLEARING PROCESS MAY BE GROUND UP AND USED AS MULCH FOR EROSION CONTROL TO STABILIZE APPROPRIATE AREAS.
- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
  - BASE COURSE GRAVEL HAS BEEN INSTALLED IN AREAS TO BE PAVED
  - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
  - A MINIMUM OF 3 INCH OF NON EROSION MATERIAL SUCH AS RIP-RAP HAS BEEN INSTALLED
  - OR EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED
- ALL AREAS SHALL BE STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE SEEDING SPECIFICATIONS ARE AS FOLLOWS:

### TEMPORARY SEEDING FOR EROSION CONTROL DURING CONSTRUCTION:

SPECIES	POUNDS/1000 SF	REMARKS
WINTER RYE	2.5	BEST FOR FALL SEEDING. AUG. 15 TO SEPT. 15. SEED TO A DEPTH OF 1"
OATS	2.0	BEST FOR SPRING SEEDING. NO LATER THAN MAY 15. SEED TO A DEPTH OF 1"
ANNUAL RYEGRASS	1.0	SEED EARLY SPRING. AUG. 15 TO SEPT. 15. SEED TO A DEPTH OF 0.25"
PERNIAL RYEGRASS	0.7	SEED BETWEEN APRIL 1 TO AUG. 15. SEED TO A DEPTH OF 0.5"

### PERMANENT VEGETATION SEED MIXTURE:

SPECIES	POUNDS/1000 SF
TALL FESCUE	0.45
CREeping RED FESCUE	0.45
BIRDSFOOT TREFOLI	0.20
TOTAL	1.10

- ALL RE-VEGETATED AREAS THAT DO NOT EXHIBIT 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS (ON 3:1 SLOPES OR GREATER). SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, OR SECURING WITH ANCHORED NETTING. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER SNOW OR FROZEN GROUND AND SHALL BE COMPLETED PRIOR TO AN ACCUMULATION OF SNOW AND/OR FROST.
- ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
- AFTER NOVEMBER 15, INCOMPLETE ROADS 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.
- CONCRETE WASH OUT SHALL BE CONDUCTED IN THE AREAS SHOWN ON SHEET C1.51" AND USE THE CONCRETE WASH OUT DETAIL SHOWN ON SHEET C5.11.
- NO STUMPS OR DEBRIS SHALL BE BURIED ONSITE. ALL STUMPS AND CONSTRUCTION DEBRIS SHALL BE STORED ONSITE UNTIL THEY CAN BE DISPOSED OFF SITE IN A FACILITY CAPABLE OF HANDLING SUCH MATERIALS.
- TEMPORARY PORTABLE TOILETS SHALL BE PROVIDED AND PROPERLY MAINTAINED ONSITE FOR THE DURATION OF THE PROJECT.
- VEHICLE MAINTENANCE SHALL BE PERFORMED OFF SITE. ANY VEHICLE LEAKING OIL OR GREASE SHALL BE IMMEDIATELY REPAIRED OR REMOVED FROM THE SITE. FUEL AND OILS SHALL BE STORED IN AN APPROVED LOCATION AND COMPLY WITH LOCAL, STATE, AND FEDERAL REGULATIONS. IN NO CASE SHALL THEY BE STORED WITHIN 100' OF WETLAND AREAS.

## LEGEND

### EXISTING

	EXISTING CONTOURS
	SPOT GRADE
	WETLAND BOUNDARY
	WETLAND FLAG
	CENTER LINE STREAM
	SIGN
	LIGHT POLE
	FLARED END SECTION
	GUY WIRE
	UTILITY POLE
	CATCH BASIN
	DRAIN MANHOLE
	SEWER MANHOLE
	FIRE HYDRANT
	WATER VALVE
	GAS VALVE
	DRAINAGE LINE
	GAS LINE (APPROX.)
	OVERHEAD WIRE
	TREE LINE
	STONE WALL
	DECIDUOUS TREE
	CONIFEROUS TREE
	SIDEWALK
	EDGE OF PAVEMENT
	BUILDING
	TEST PIT
	IRON ROD FOUND
	IRON ROD SET
	DRILL HOLE FOUND
	MAIL BOX
	CONCRETE SURFACE
	METAL GUARD RAIL
	EASEMENT LINE
	ZONING BOUNDARY LINE
	PROPERTY LINE
	LEDGER
	FLAG POLE
	POST (METAL)
	40' WETLAND BUFFER
	50' WETLAND BUFFER
	75' WETLAND BUFFER
	BIKE TRAIL LINE (APPROX.)
	WATERSHED (FROM GIS)
	DRAIN ZONE LINE
	SOIL LINE (BY GOVE)
	SOIL TYPE (BY GOVE)

### CONSTRUCTION LAYOUT CONTROL

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL VERTICAL AND HORIZONTAL LOCATIONS OF SITE ELEMENTS INCLUDING BUT NOT LIMITED BUILDINGS, UTILITIES, ROADS, AND GRADING. THE OWNER WILL PROVIDE HORIZONTAL AND VERTICAL CONTROL POINT DESCRIPTIONS AND LOCATIONS TO THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN, PROTECT, AND ESTABLISH NEW IF NECESSARY, ALL CONTROL POINTS DURING THE DURATION OF THE PROJECT.

### GEOTECHNICAL TESTING

THE OWNER MAY RETAIN A GEOTECHNICAL ENGINEER TO PERFORM TESTING OF COMPLETED SITE WORK INCLUDING BUT NOT LIMITED TO THE INSTALLATION OF; GRAVEL, CRUSHED STONE, SAND, COMMON FILL, COMPACTION, AND CONCRETE. THE CONTRACTOR SHALL COOPERATE WITH THE HIRED GEOTECHNICAL ENGINEER AND ALLOW FULL ACCESS TO THE SITE AND DELIVERY RECEIPTS OF MATERIALS DELIVERED. WHEN TESTING RESULTS INDICATE NON-COMPLIANCE WITH THE CONTRACT DOCUMENTS AND/OR STANDARD CONSTRUCTION PRACTICES, THE CONTRACTOR SHALL CORRECT THE DEFICIENCY AT NO COST TO THE OWNER.

### PROPOSED

	CONTOUR
	SPOT GRADE
	RIP-RAP
	EROSION CONTROL
	SIGN
	LIGHT POLE
	GUY WIRE
	UTILITY POLE
	CATCH BASIN
	DRAIN MANHOLE
	FLARED END SECTION
	SEWER MANHOLE
	FIRE HYDRANT
	WATER VALVE
	WELL
	TELEPHONE AND CATV PEDESTAL
	TREE
	SHRUB
	PERCOLATION TEST
	DEEP HOLE TEST
	DRAIN PIPE
	UNDERGROUND COMMUNICATION (TELEPHONE, CATV)
	UNDERGROUND ELECTRIC
	SEWER PIPE (GRAVITY)
	SEWER PIPE (FORCE MAIN)
	ROOF DRAIN
	FOUNDATION DRAIN
	WATER PIPE
	GAS PIPE
	OVERHEAD WIRES
	FENCE
	CURBING
	GUARD RAIL
	RETAINING WALL
	TREE LINE
	DETAIL CALL
	BUILDING
	PORTLAND CEMENT CONCRETE
	GRAVEL
	BITUMINOUS CONCRETE
	LANDSCAPING

### CONTRACTOR RESPONSIBILITIES

THE OWNER SHALL PROVIDE THE CONTRACTOR COPIES OF ALL PERMITS ISSUED FOR THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL PERMIT REQUIREMENTS THAT HAVE BEEN ISSUED FOR THIS PROJECT INCLUDING BUT NOT LIMITED TO; NPDES CONSTRUCTION GENERAL PERMIT ISSUED BY THE EPA, ALTERATION OF TERRAIN PERMIT ISSUED BY NHDES, SITE PLAN REVIEW PERMIT ISSUED BY THE TOWN OF EXETER, AND THE DREDGE AND FILL PERMIT ISSUED BY NHDES WETLANDS BUREAU. CONTRACTOR SHALL MAINTAIN THE SITE IN AN ORDERLY FASHION. ALL CONSTRUCTION EQUIPMENT SHALL BE PROPERLY MAINTAINED AND SECURED WHEN NOT IN USE. THE CONTRACTOR SHALL MAINTAIN RECORDS OF THE SIZE AND LOCATION (INCLUDING SWING TIES), OF ALL UNDERGROUND UTILITIES INSTALLED. THE RECORDS SHALL BE MADE AVAILABLE TO THE OWNER UPON REQUEST. THE CONTRACTOR SHALL PROVIDE A CONSTRUCTION SCHEDULE TO THE OWNER FOR REVIEW AND APPROVAL PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES. THE SCHEDULE SHALL BE UPDATED ON A WEEKLY BASIS AT A MINIMUM.

## ABBREVIATIONS

### UTILITIES

RCP	REINFORCED CONCRETE PIPE
PVC	POLYVINYLCHLORIDE PIPE
C.I.	CAST IRON PIPE
COND	CONDUIT
D.I.	DUCTILE IRON PIPE
HYD.	HYDRANT
INV.	INVERT ELEVATION
UP	UTILITY POLE
TSV & B	TAPPING SLEEVE, VALVE AND BOX

### GENERAL

PROP.	PROPOSED
MIN.	MINIMUM
MAX.	MAXIMUM
EXIST.	EXISTING
STA	STATION
GRAN.	GRANITE
DRIVE	DRIVEWAY
ELEV.	ELEVATION
N.T.S.	NOT TO SCALE
TYP.	TYPICAL
APPROX.	APPROXIMATE
CEM. CONC.	CEMENT CONCRETE
BIT. CONC.	BITUMINOUS CONCRETE
ROW	RIGHT OF WAY
CL	CENTERLINE
WALK	SIDEWALK
TBM	TEMPORARY BENCH MARK
SGE	SLOPED GRANITE EDGING

### TREES

12" B	12" BIRCH
12" C	12" CEDAR
12" M	12" MAPLE
12" O	12" OAK
12" P	12" PINE

### ROADWAY

H.P.	HIGH POINT
L.P.	LOW POINT
A.D.	ALGEBRAIC DIFFERENCE
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
PRC	POINT OF REVERSE CURVATURE
PCC	POINT OF COMPOUND CURVATURE
CC	CENTER OF CURVE
PVC	POINT OF VERTICAL CURVATURE
PVT	POINT OF VERTICAL TANGENCY
PVRC	POINT OF VERTICAL REVERSE CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
OD	OUTSIDE DIAMETER
ID	INSIDE DIAMETER
DIA. Ø	DIAMETER
R	RADIUS
TYP.	TYPICAL
L	LENGTH
DP.	DEPTH
EQ.	EQUIVALENT

TOWN OF EXETER PLANNING BOARD

CHAIRMAN DATE



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Sheet Title:

## General Notes

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

Applicant/Owner:

Ray Farm, LLC  
158 Shattuck Way  
Newington, NH 03801

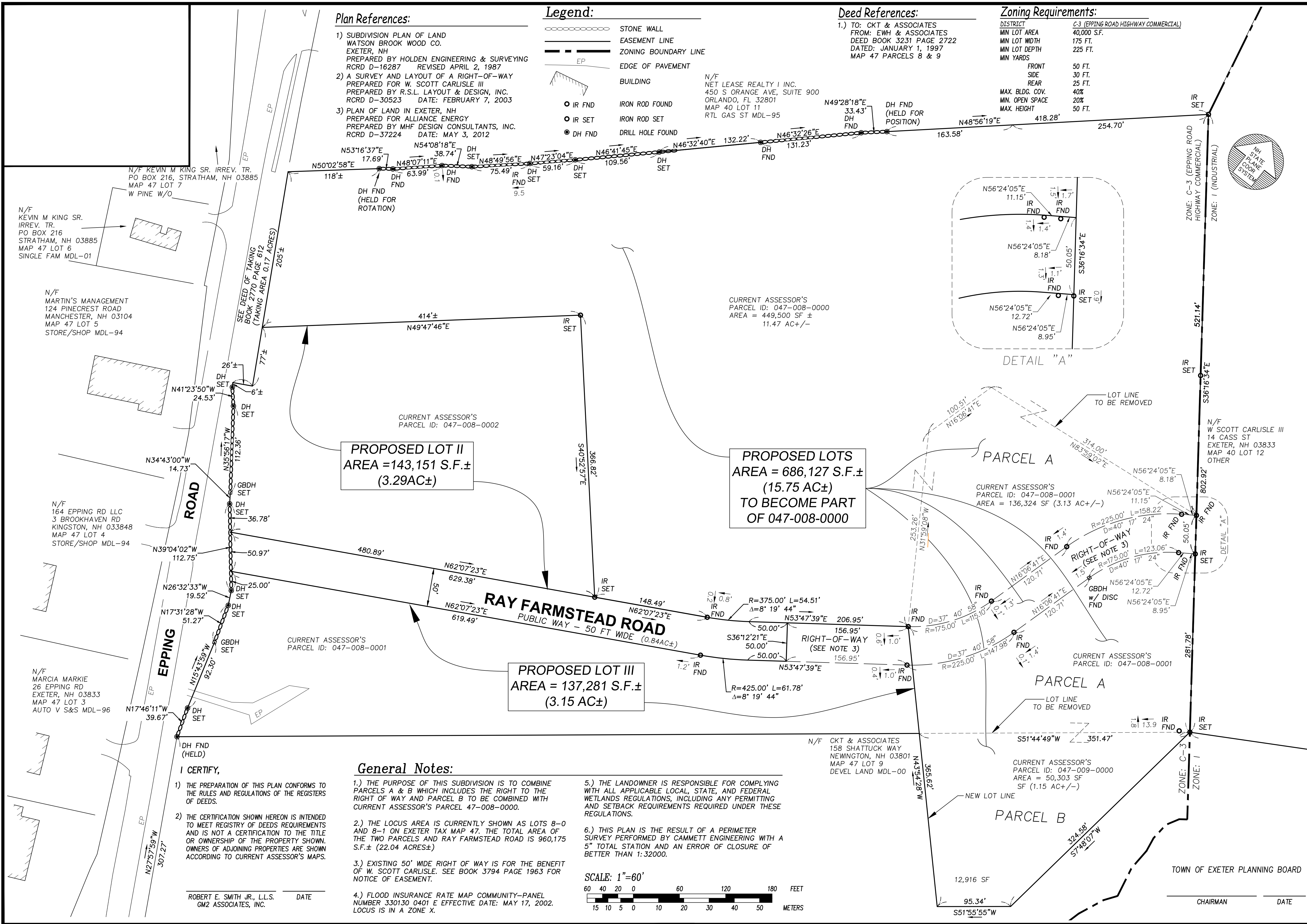
### REVISION BLOCK

NO.	DATE	DESC	BY

PROJ. MGR.: D. HAMEL  
FIELD: J. SALVAGGIO / R. SMITH  
DESIGN: D. HAMEL  
DRAWN: D. HAMEL  
CHECKED: D. GIANGRANDE  
DATE: 01-11-2022  
FILE: 16042 D GN.DWG  
FBK:  
JOB #: 16042 D

SHEET G1.20

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**Plan References:**

- 1) SUBDIVISION PLAN OF LAND WATSON BROOK WOOD CO. EXETER, NH PREPARED BY HOLDEN ENGINEERING & SURVEYING RCRD D-16287 REVISED APRIL 2, 1987
- 2) A SURVEY AND LAYOUT OF A RIGHT-OF-WAY PREPARED FOR W. SCOTT CARLISLE III PREPARED BY R.S.L. LAYOUT & DESIGN, INC. RCRD D-30523 DATE: FEBRUARY 7, 2003
- 3) PLAN OF LAND IN EXETER, NH PREPARED FOR ALLIANCE ENERGY PREPARED BY MHF DESIGN CONSULTANTS, INC. RCRD D-37224 DATE: MAY 3, 2012

**Legend:**

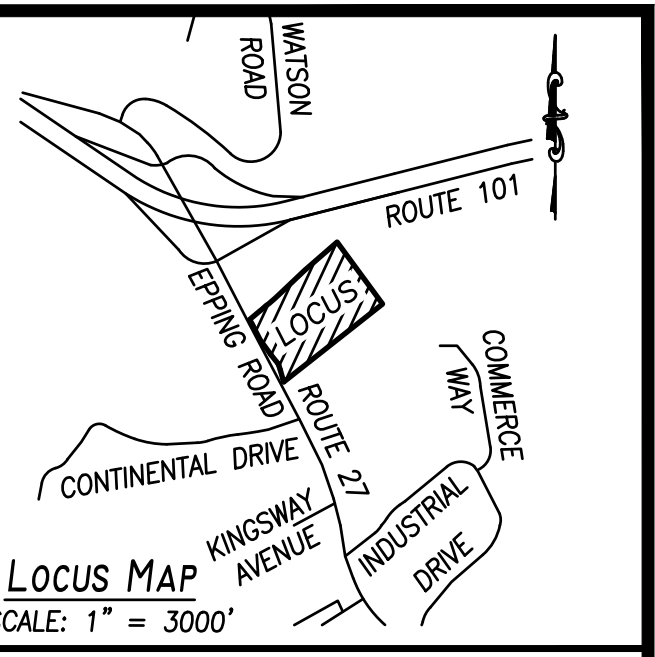
- STONE WALL
- EASEMENT LINE
- ZONING BOUNDARY LINE
- EDGE OF PAVEMENT
- BUILDING
- IRON ROD FOUND
- IRON ROD SET
- DRILL HOLE FOUND

**Deed References:**

- 1.) TO: CKT & ASSOCIATES FROM: EWH & ASSOCIATES DEED BOOK 3231 PAGE 2722 DATED: JANUARY 1, 1997 MAP 47 PARCELS 8 & 9

**Zoning Requirements:**

DISTRICT	C-3 (EPPING ROAD HIGHWAY COMMERCIAL)
MIN LOT AREA	40,000 SF.
MIN LOT WIDTH	175 FT.
MIN LOT DEPTH	225 FT.
MIN YARDS	
FRONT	50 FT.
SIDE	30 FT.
REAR	25 FT.
MAX. BLDG. COV.	40%
MIN. OPEN SPACE	20%
MAX. HEIGHT	50 FT.



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Sheet Title:  
**Lot Line Adjustment Plan**  
 Project Title:  
**"Ray Farm" Active Adult Community**  
 Epping Road  
 Exeter, NH 03833  
 Rockingham County

Applicant:  
**Willey Creek Company**  
 158 Shattuck Way  
 Newington, NH 03801  
 Owner:  
**CKT & Associates**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION			
NO.	DATE	DESCRIPTION	BY
1	11.23.21	MINOR EDITS	RS
2	02.01.22	MINOR EDITS	RS

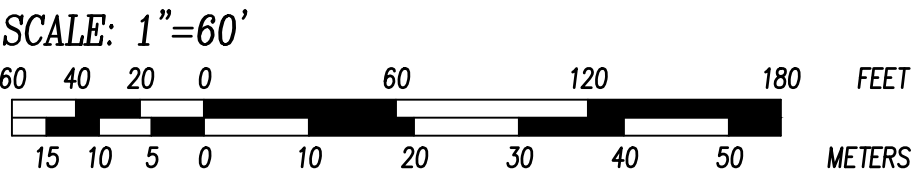
PROJ. MGR.: D. HAMEL
FIELD: M. MICHAUD / A. BICK
DESIGN: D. HAMEL
DRAWN: J. SALVAGGIO
CHECKED: R. SMITH
DATE: 11-03-21
FILE: 16042 SUB NOV 2021.DWG
FBK:
JOB #: 16042

I CERTIFY,  
 1.) THE PREPARATION OF THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.  
 2.) THE CERTIFICATION SHOWN HEREON IS INTENDED TO MEET REGISTRY OF DEEDS REQUIREMENTS AND IS NOT A CERTIFICATION TO THE TITLE OR OWNERSHIP OF THE PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE SHOWN ACCORDING TO CURRENT ASSESSOR'S MAPS.

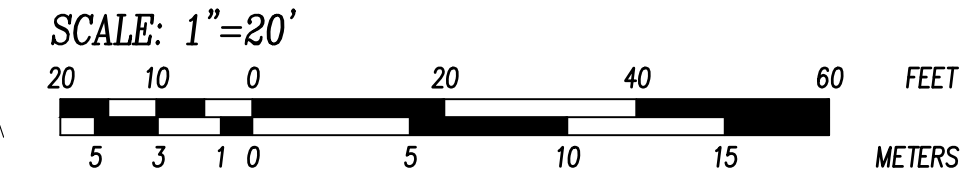
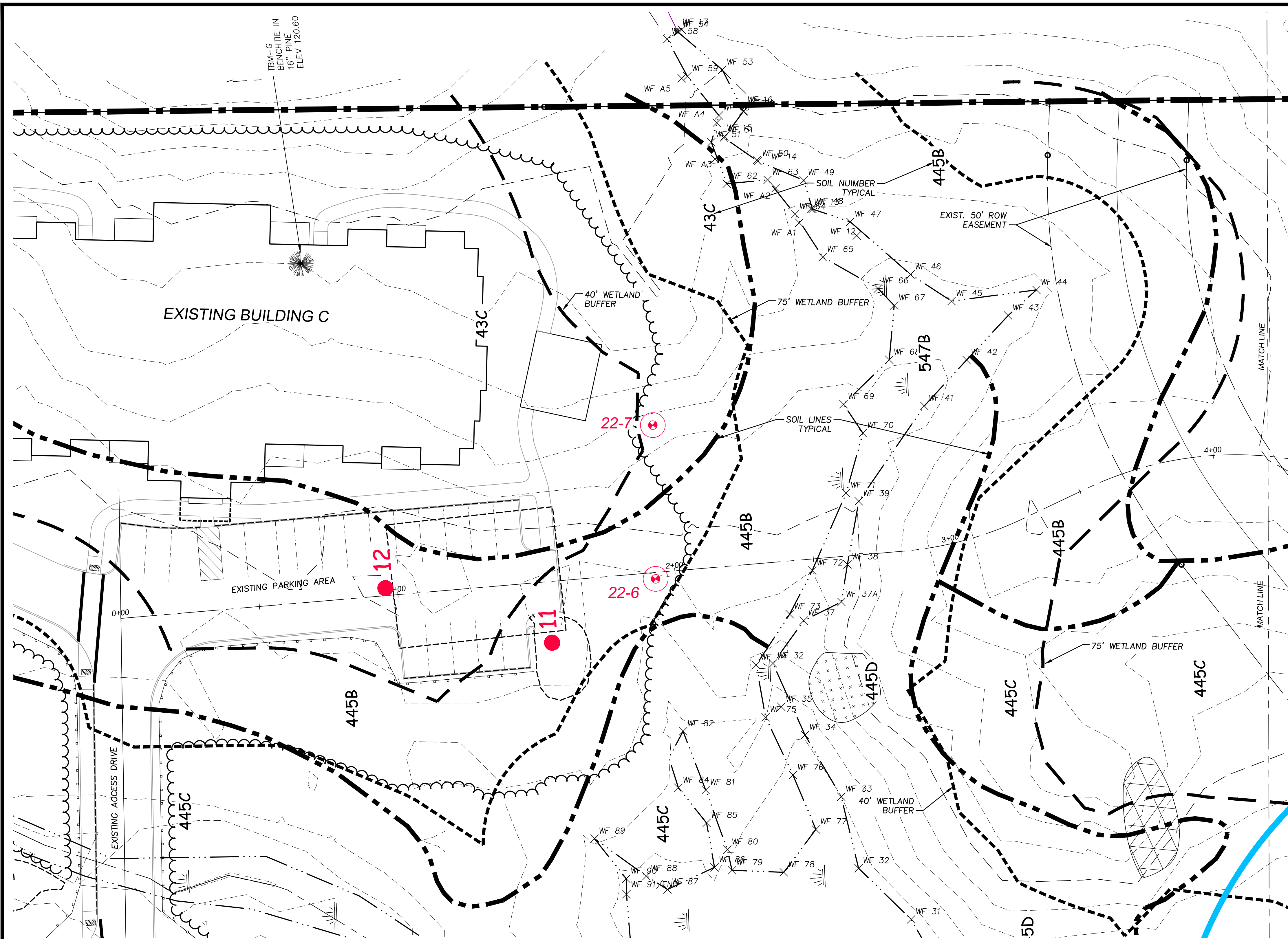
ROBERT E. SMITH JR., L.L.S. DATE  
 GM2 ASSOCIATES, INC.

**General Notes:**

- 1.) THE PURPOSE OF THIS SUBDIVISION IS TO COMBINE PARCELS A & B WHICH INCLUDES THE RIGHT TO THE RIGHT OF WAY AND PARCEL B TO BE COMBINED WITH CURRENT ASSESSOR'S PARCEL 47-008-0000.
- 2.) THE LOCUS AREA IS CURRENTLY SHOWN AS LOTS 8-0 AND 8-1 ON EXETER TAX MAP 47. THE TOTAL AREA OF THE TWO PARCELS AND RAY FARMSTEAD ROAD IS 960,175 S.F.± (22.04 ACRES±)
- 3.) EXISTING 50' WIDE RIGHT OF WAY IS FOR THE BENEFIT OF W. SCOTT CARLISLE. SEE BOOK 3794 PAGE 1963 FOR NOTICE OF EASEMENT.
- 4.) FLOOD INSURANCE RATE MAP COMMUNITY-PANEL NUMBER 330130 0401 E EFFECTIVE DATE: MAY 17, 2002. LOCUS IS IN A ZONE X.
- 5.) 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.
- 6.) THIS PLAN IS THE RESULT OF A PERIMETER SURVEY PERFORMED BY CAMMETT ENGINEERING WITH A 5" TOTAL STATION AND AN ERROR OF CLOSURE OF BETTER THAN 1:32000.



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Sheet Title:  
**EXISTING  
 CONDITIONS**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY

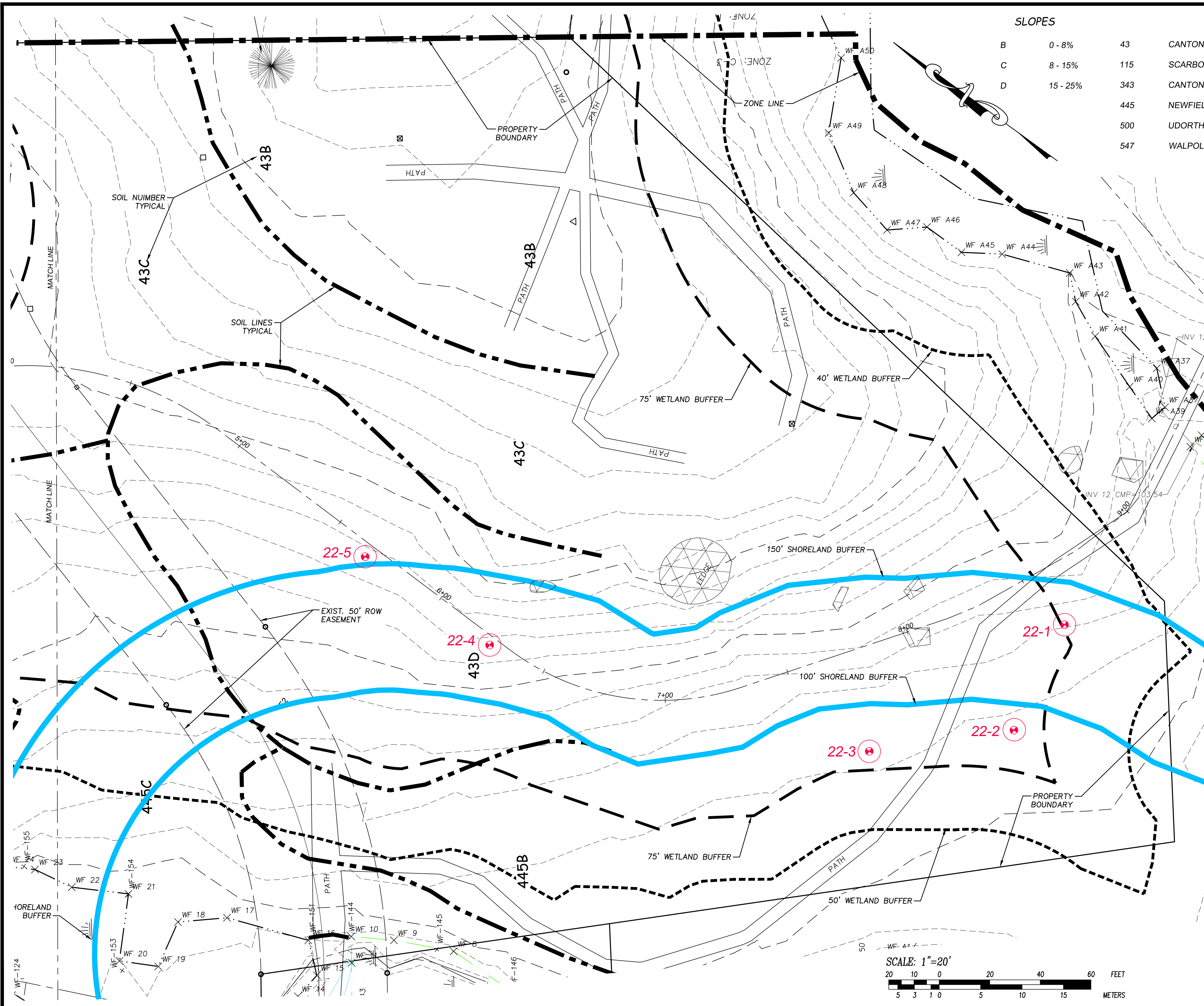
PROJ. MGR.: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D.EC.DWG  
 FBK:  
 JOB #: 16042 D

SOILS DATA		SLOPES	
43	CANTON, VERY STONY : HYDROLOGIC GROUP - B	B	0 - 8%
115	SCARBORO MUCK : HYDROLOGIC GROUP - D	C	8 - 15%
343	CANTON, EXTREMELY BOULDERY : HYDROLOGIC GROUP - B	D	15 - 25%
445	NEWFIELDS, VERY STONY : HYDROLOGIC GROUP - B		
500	UDORTHENTS, LOAMY : HYDROLOGIC GROUP - B		
547	WALPOLE, VERY STONY : HYDROLOGIC GROUP - C		

**WETLAND NOTES:**  
 The limits of jurisdictional wetlands as shown on this plan were delineated by Gove Environmental Services, Inc., between November 2014 to April 2015 AND November 2021 in accordance with:  
 1. US Army Corps of Engineers Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Technical Report ERDC/EL TR-12-1, January 2012, Version 2.0  
 2. Field Indicators of Hydric Soils in the United States, Version 7.0, 2010 AND (for disturbed site) Field Indicators for Identifying Hydric Soils in New England, Version 3. NEIWPCC Wetlands Work Group (April 2004)  
 3. North American Digital Flora: National Wetland Plant List, current version.

**SOIL NOTES:**  
 The soils mapping is within the technical standards of the National Cooperative Soil Survey. It is a special purpose product, intended for infiltration requirements by the NH DES Alteration of Terrain Bureau. It was produced by a professional soil scientist, and is not a product of the USDA Natural Resources Conservation Service. There is a report that accompanies this mapping.  
 The site specific soil survey was produced October 20, 2016, and was prepared by James P. Gove, CSS # 004, Gove Environmental Services, Inc..  
 Soils were identified with the New Hampshire State-wide Numerical Soils Legend, USDA NRCS, Durham, NH. Issue # 10, January 2011.

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**SLOPES**

B	0 - 8%	43
C	8 - 15%	115
D	15 - 25%	343

**SOILS DATA**

CANTON, VERY STONY	: HYDROLOGIC GROUP - B	43
SCARBORO MUCK	: HYDROLOGIC GROUP - D	115
CANTON, EXTREMELY BOULDERY	: HYDROLOGIC GROUP - B	343
NEWFIELDS, VERY STONY	: HYDROLOGIC GROUP - B	445
UDORTHENTS, LOAMY	: HYDROLOGIC GROUP - B	500
WALPOLE, VERY STONY	: HYDROLOGIC GROUP - C	547

**WETLAND NOTES:**

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Sheet Title:  
**EXISTING  
CONDITIONS**

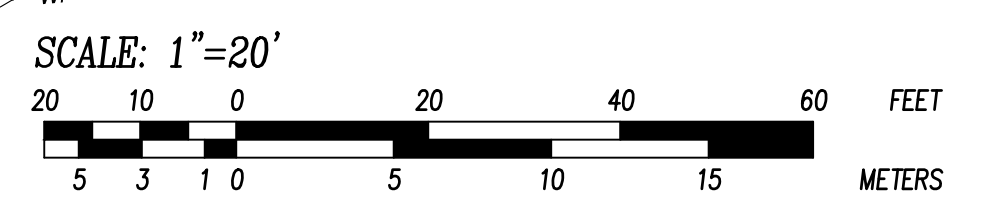
Project Title:  
**Ray Farm  
Condominium**  
Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
158 Shattuck Way  
Newington, NH 03801

**REVISION BLOCK**

NO.	DATE	DESC	BY

PROJ. MGR.: D. HAMEL  
FIELD: J. SALVAGGIO / R. SMITH  
DESIGN: D. HAMEL  
DRAWN: D. HAMEL  
CHECKED: D. GIANGRANDE  
DATE: 01-11-2022  
FILE: 16042 D.EC.DWG  
FBK:  
JOB #: 16042 D







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Sheet Title:

# OVERALL SITE PLAN

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:

Ray Farm, LLC  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK

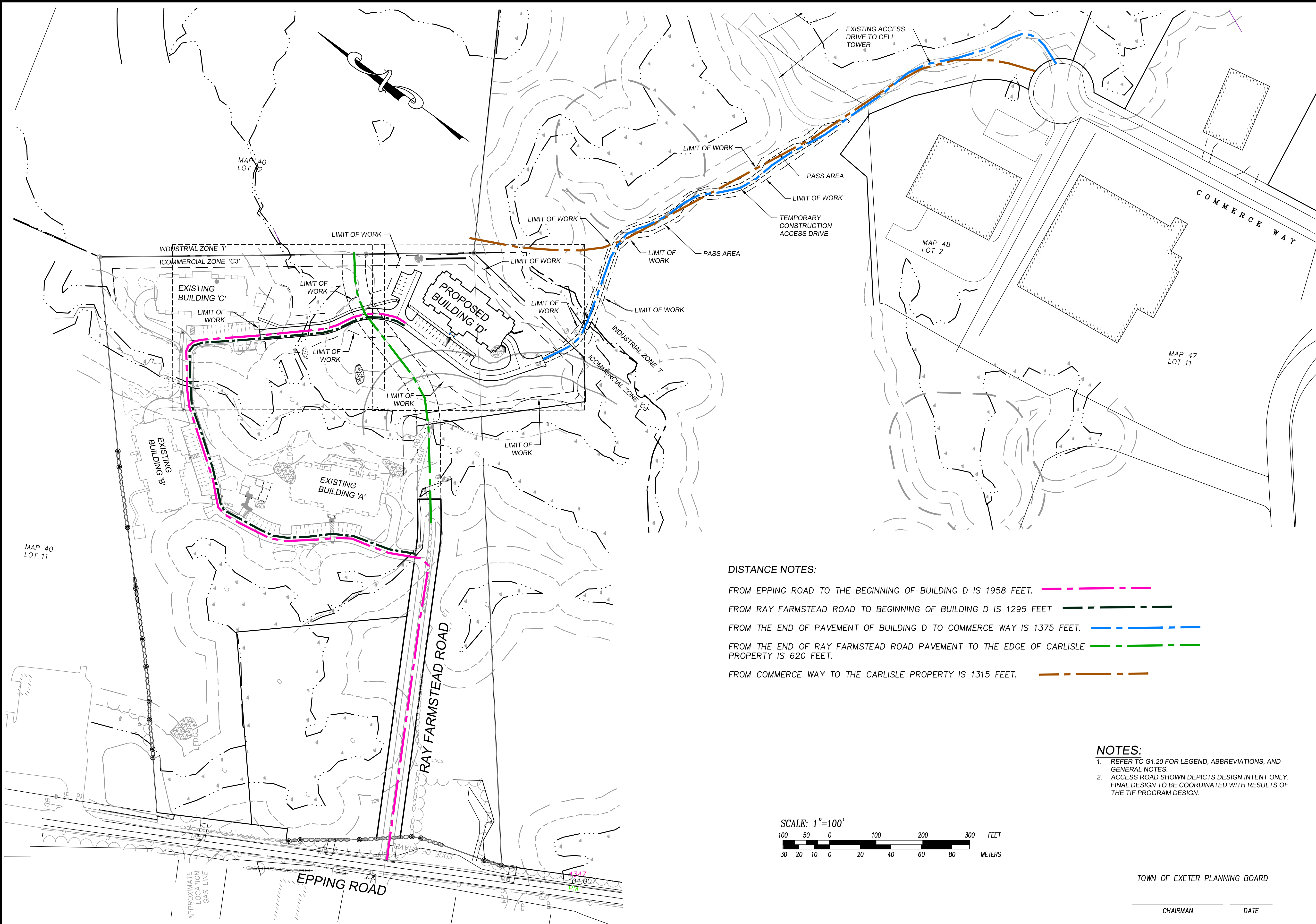
NO.	DATE	DESC	BY

PROJ. MGR: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D.SP.DWG  
 FBK:  
 JOB #: 16042 D

TOWN OF EXETER PLANNING BOARD

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

SHEET C1.10

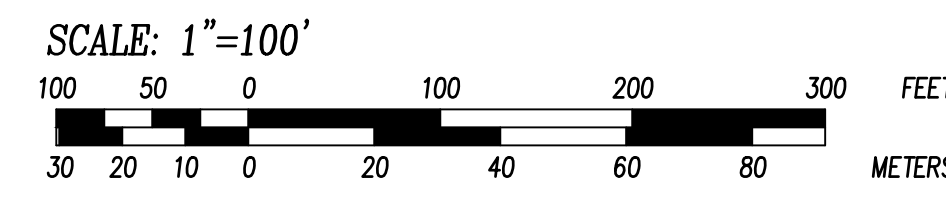


DISTANCE NOTES:

- FROM EPPING ROAD TO THE BEGINNING OF BUILDING D IS 1958 FEET. -----
- FROM RAY FARMSTEAD ROAD TO BEGINNING OF BUILDING D IS 1295 FEET -----
- FROM THE END OF PAVEMENT OF BUILDING D TO COMMERCE WAY IS 1375 FEET. -----
- FROM THE END OF RAY FARMSTEAD ROAD PAVEMENT TO THE EDGE OF CARLISLE PROPERTY IS 620 FEET. -----
- FROM COMMERCE WAY TO THE CARLISLE PROPERTY IS 1315 FEET. -----

NOTES:

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2. ACCESS ROAD SHOWN DEPICTS DESIGN INTENT ONLY. FINAL DESIGN TO BE COORDINATED WITH RESULTS OF THE TIF PROGRAM DESIGN.



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Sheet Title:

# SITE PLAN

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:

Ray Farm, LLC  
 158 Shattuck Way  
 Newington, NH 03801

### REVISION BLOCK

NO.	DATE	DESC	BY

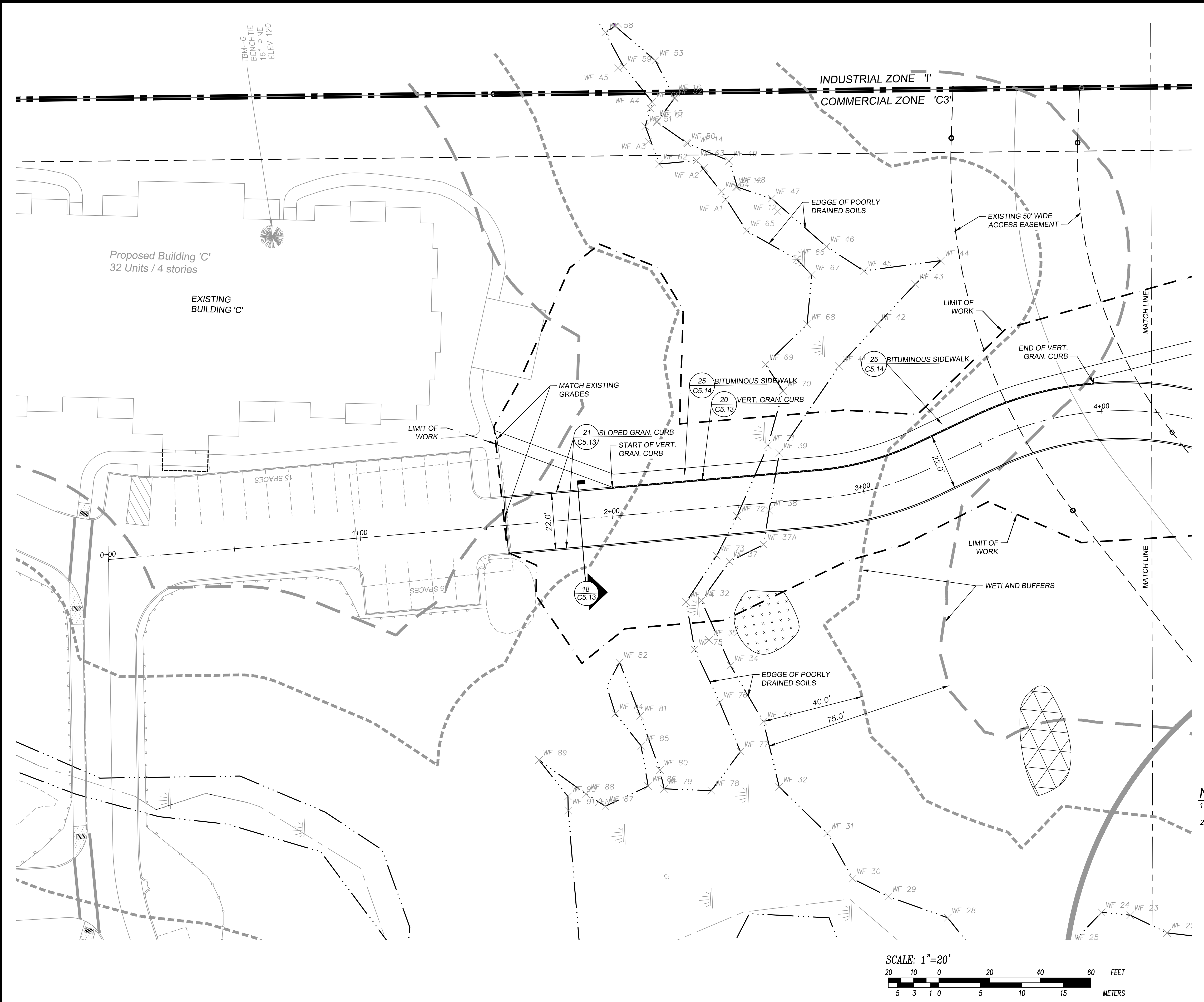
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TOWN OF EXETER PLANNING BOARD

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

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 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D 5P.DWG  
 FBK:  
 JOB #: 16042 D

SHEET C1.11



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Sheet Title:

# SITE PLAN

Project Title:

**Ray Farm  
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 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:

**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

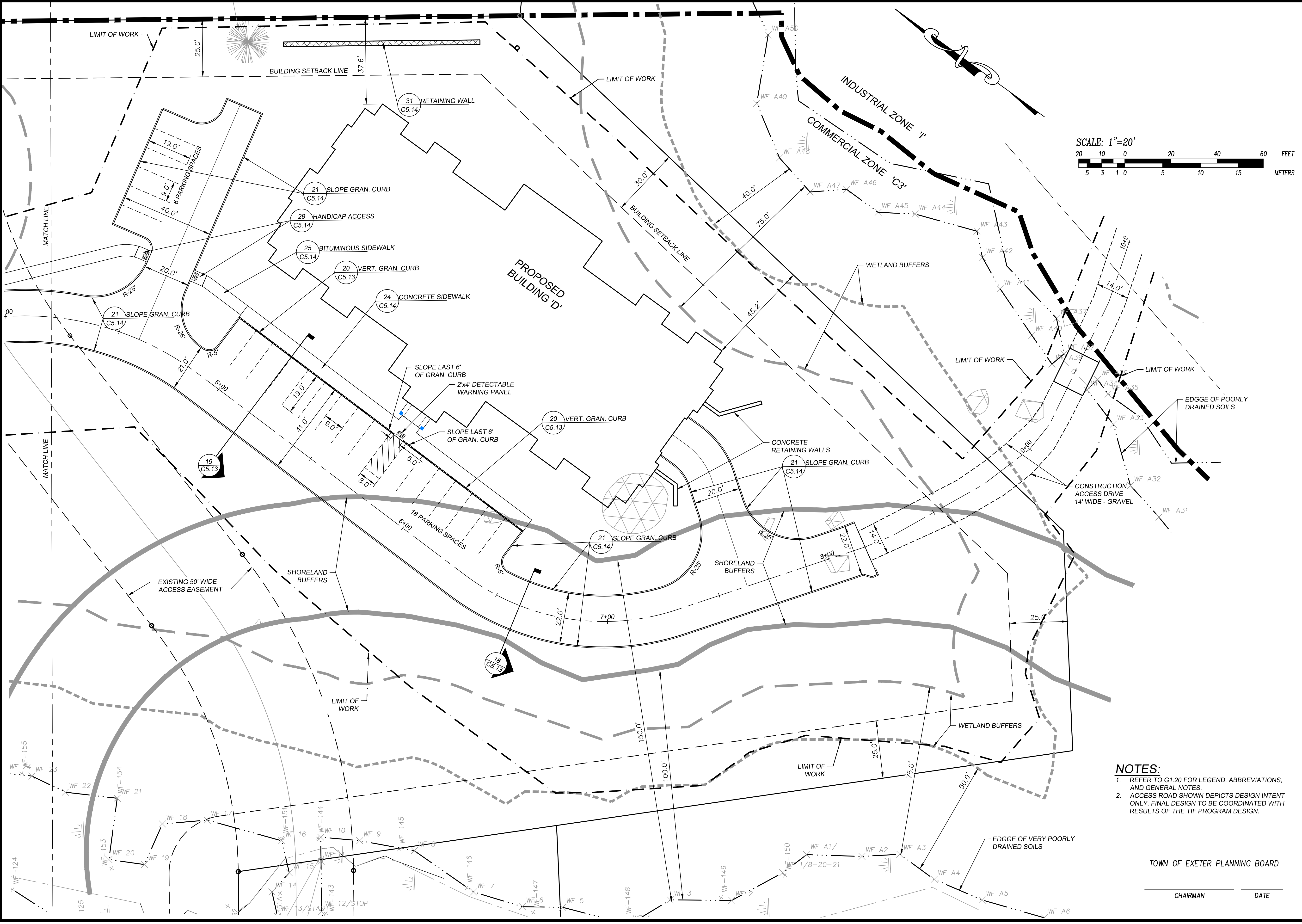
REVISION BLOCK

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TOWN OF EXETER PLANNING BOARD  
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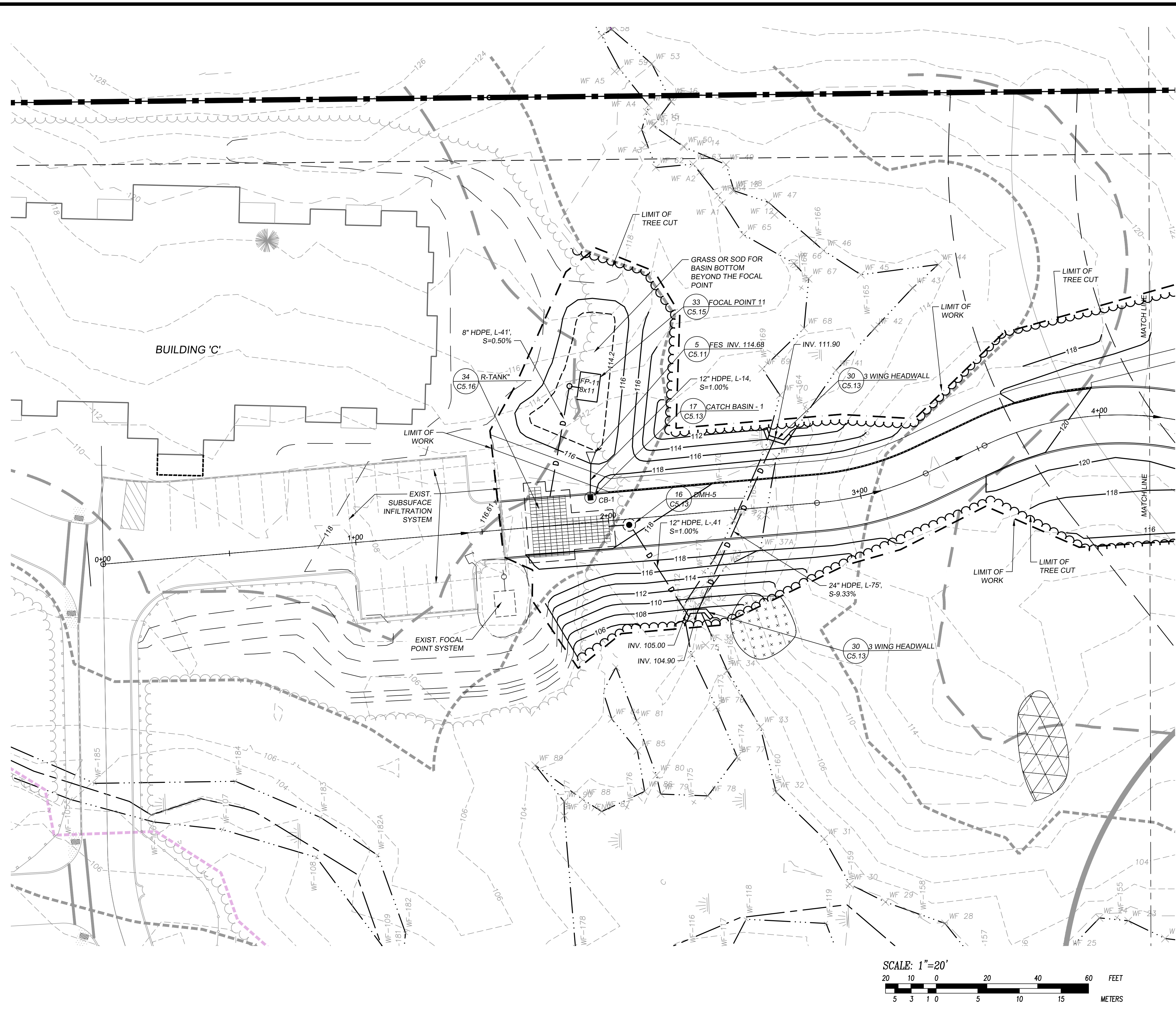
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**NOTES:**  
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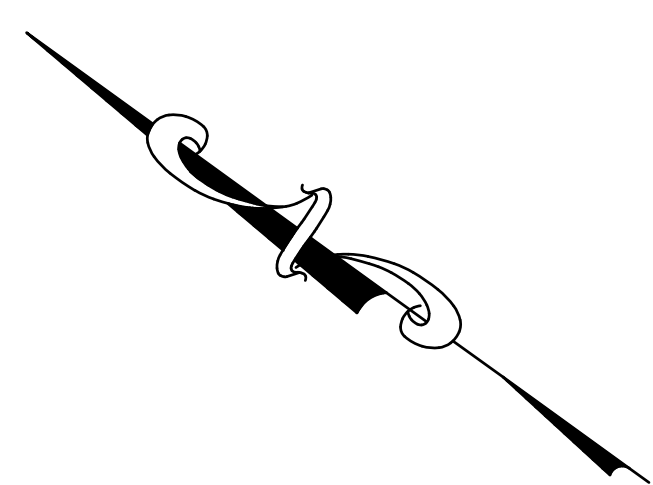
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**DRAINAGE STRUCTURES**

CB-1 R-117.15  
12" INV. OUT 114.82

DMH-5 R-117.90  
12" INV. IN - 110.44  
12" INV. OUT - 109.00



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Sheet Title:  
**GRADING  
AND DRAINAGE  
PLAN**

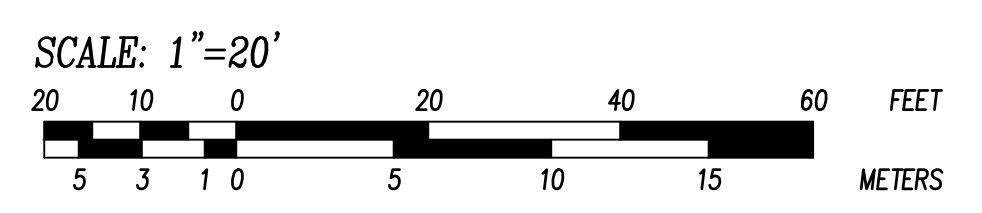
Project Title:  
**Ray Farm  
Condominium**  
Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
158 Shattuck Way  
Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY

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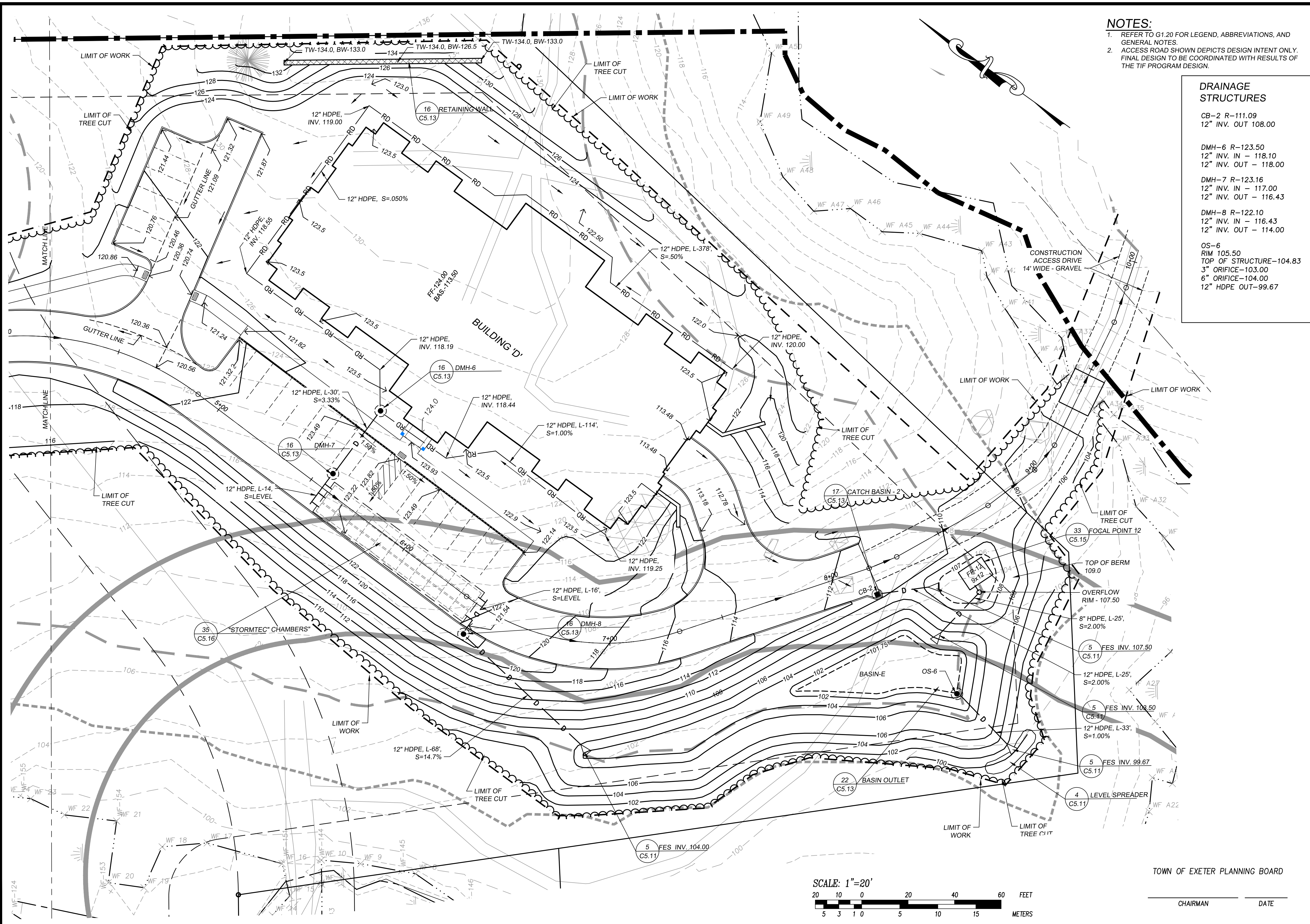


TOWN OF EXETER PLANNING BOARD

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

PROJ. MGR.: D. HAMEL  
FIELD: J. SALVAGGIO / R. SMITH  
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DRAWN: D. HAMEL  
CHECKED: D. GIANGRANDE  
DATE: 01-11-2022  
FILE: 16042 D GR.DWG  
FBK:  
JOB #: 16042 D

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**NOTES:**  
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**DRAINAGE STRUCTURES**

CB-2	R-111.09	12" INV. OUT - 108.00
DMH-6	R-123.50	12" INV. IN - 118.10 12" INV. OUT - 118.00
DMH-7	R-123.16	12" INV. IN - 117.00 12" INV. OUT - 116.43
DMH-8	R-122.10	12" INV. IN - 116.43 12" INV. OUT - 114.00
OS-6	RIM 105.50	TOP OF STRUCTURE-104.83 3" ORIFICE-103.00 6" ORIFICE-104.00 12" HDPE OUT-99.67



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Sheet Title:  
**GRADING AND DRAINAGE PLAN**

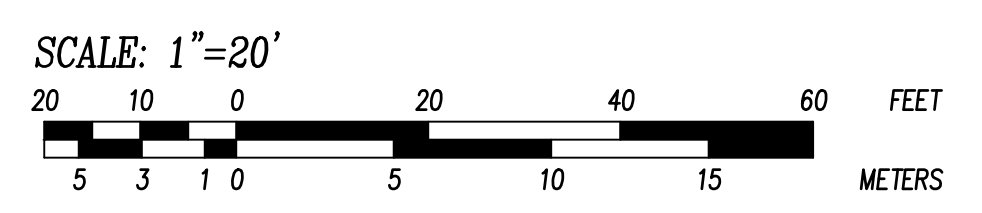
Project Title:  
**Ray Farm Condominium**  
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 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
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REVISION BLOCK

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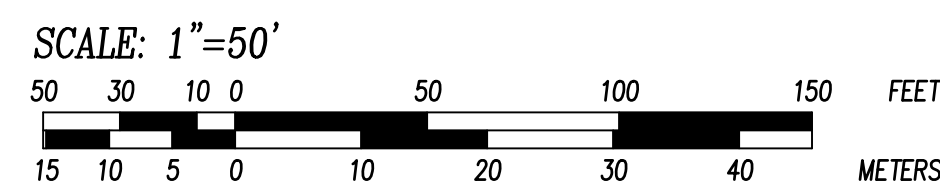
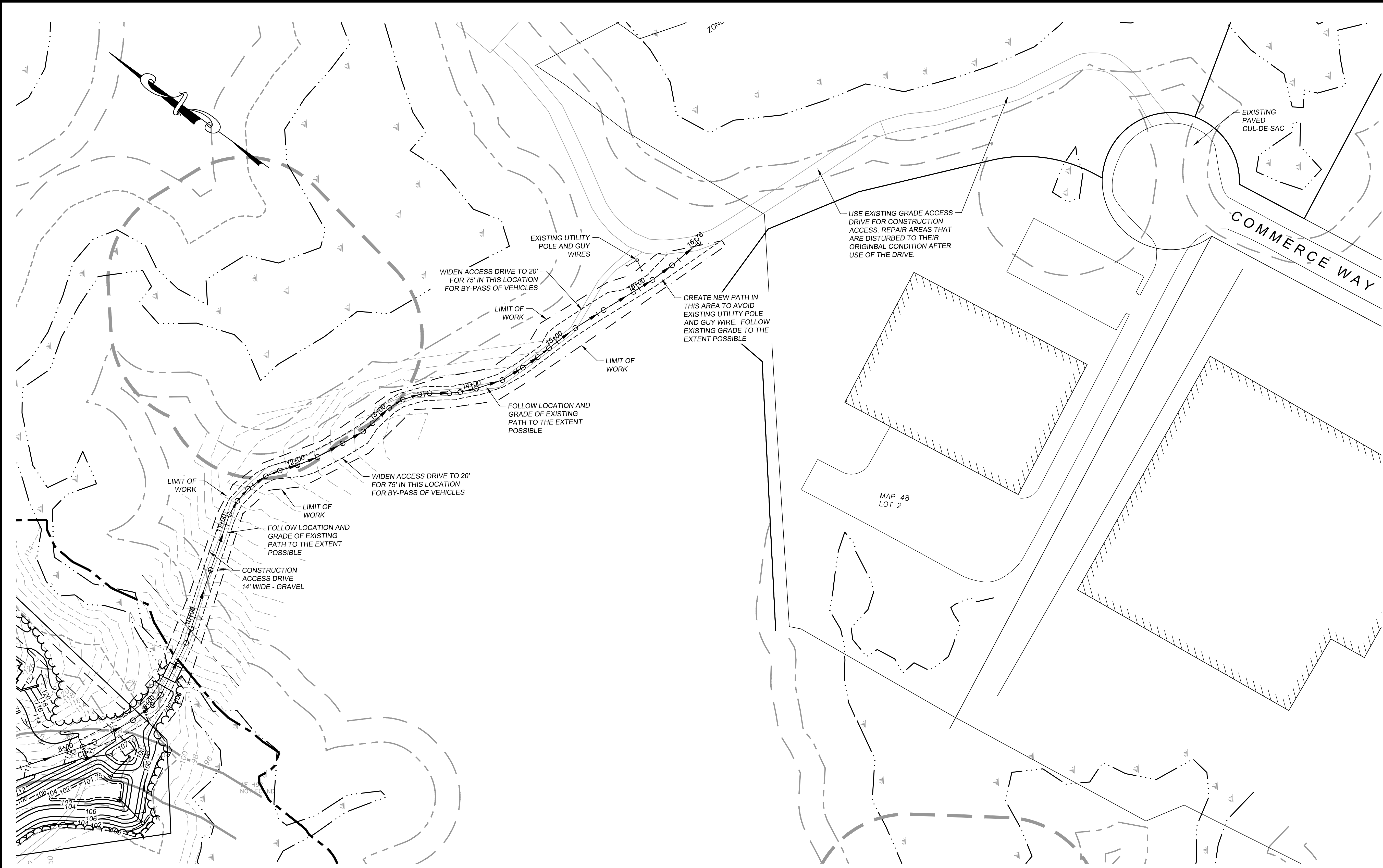
Sheet Title:  
**GRADING  
 AND DRAINAGE  
 PLAN**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK			
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TOWN OF EXETER PLANNING BOARD

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Sheet Title:

# UTILITY PLAN

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:

Ray Farm, LLC  
 158 Shattuck Way  
 Newington, NH 03801

### REVISION BLOCK

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PROJ. MGR: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D UT.DWG  
 FBK:  
 JOB #: 16042 D

SHEET C1.31

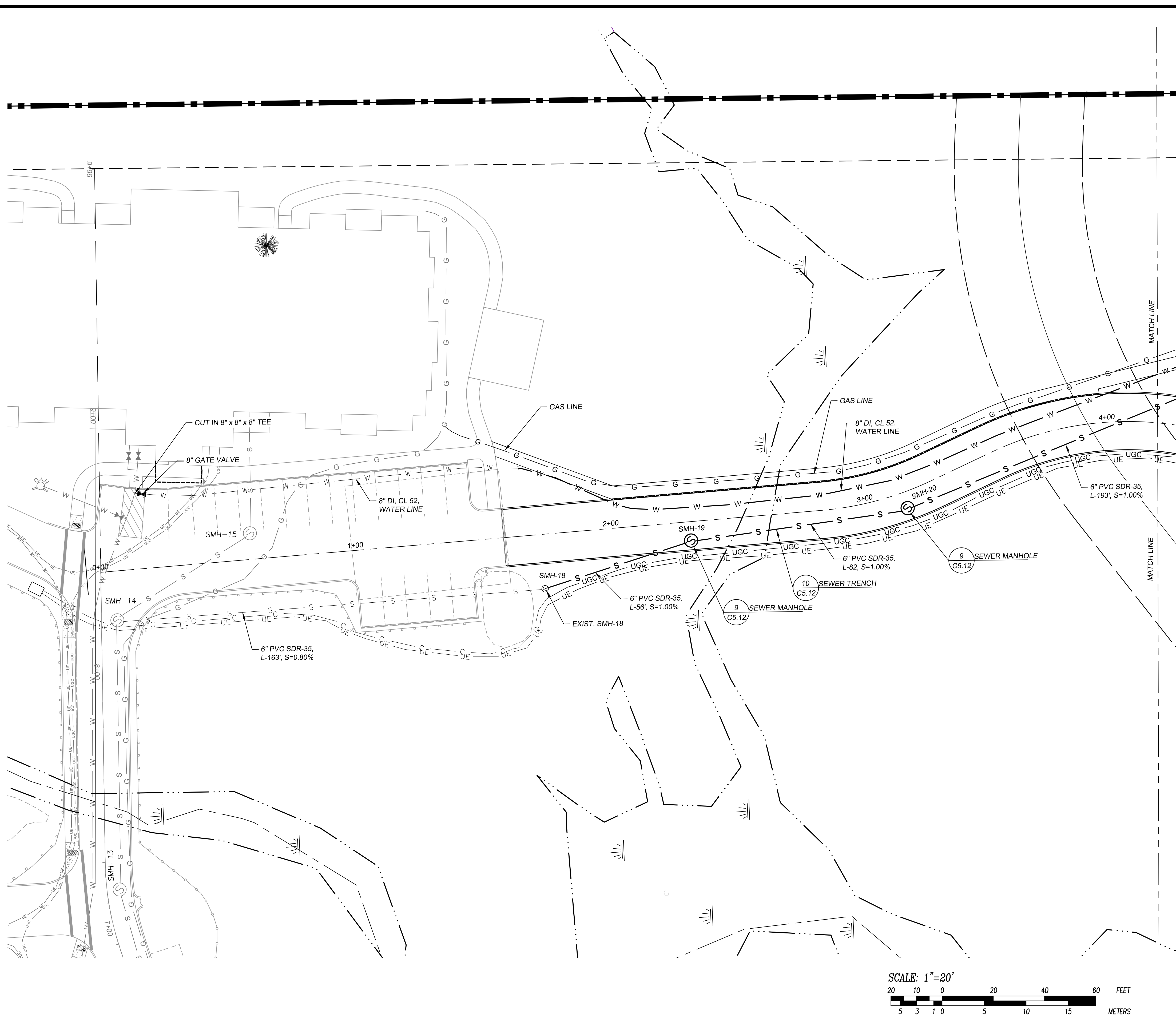
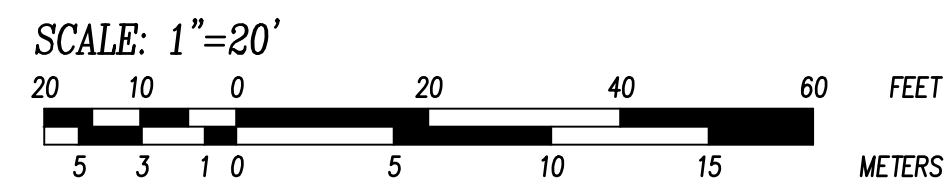
### SEWER STRUCTURES

SMH-14 EXISTING 6" INV. IN 110.60 (EX) 6" INV. OUT 110.50 (EX)	SMH-15 EXISTING 6" INV. IN 111.28 (EX) 6" INV. OUT 111.20 (EX)
SMH-18 EXISTING 6" INV. IN 111.97 (PROP) INV. OUT 111.87 (EX)	SMH-19 R-118.27 6" INV. IN 112.63 6" INV. OUT 112.53
SMH-20 R-119.10 6" INV. IN 113.55 6" INV. OUT 113.45	SMH-21 R-123.00 6" INV. IN 115.58 6" INV. OUT 115.48

- ### NOTES:
- REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
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TOWN OF EXETER PLANNING BOARD

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



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Sheet Title:

# UTILITY PLAN

Project Title:

## Ray Farm Condominium

Ray Farmstead Road  
Exeter, NH 03833  
Rockingham County

Applicant/Owner:

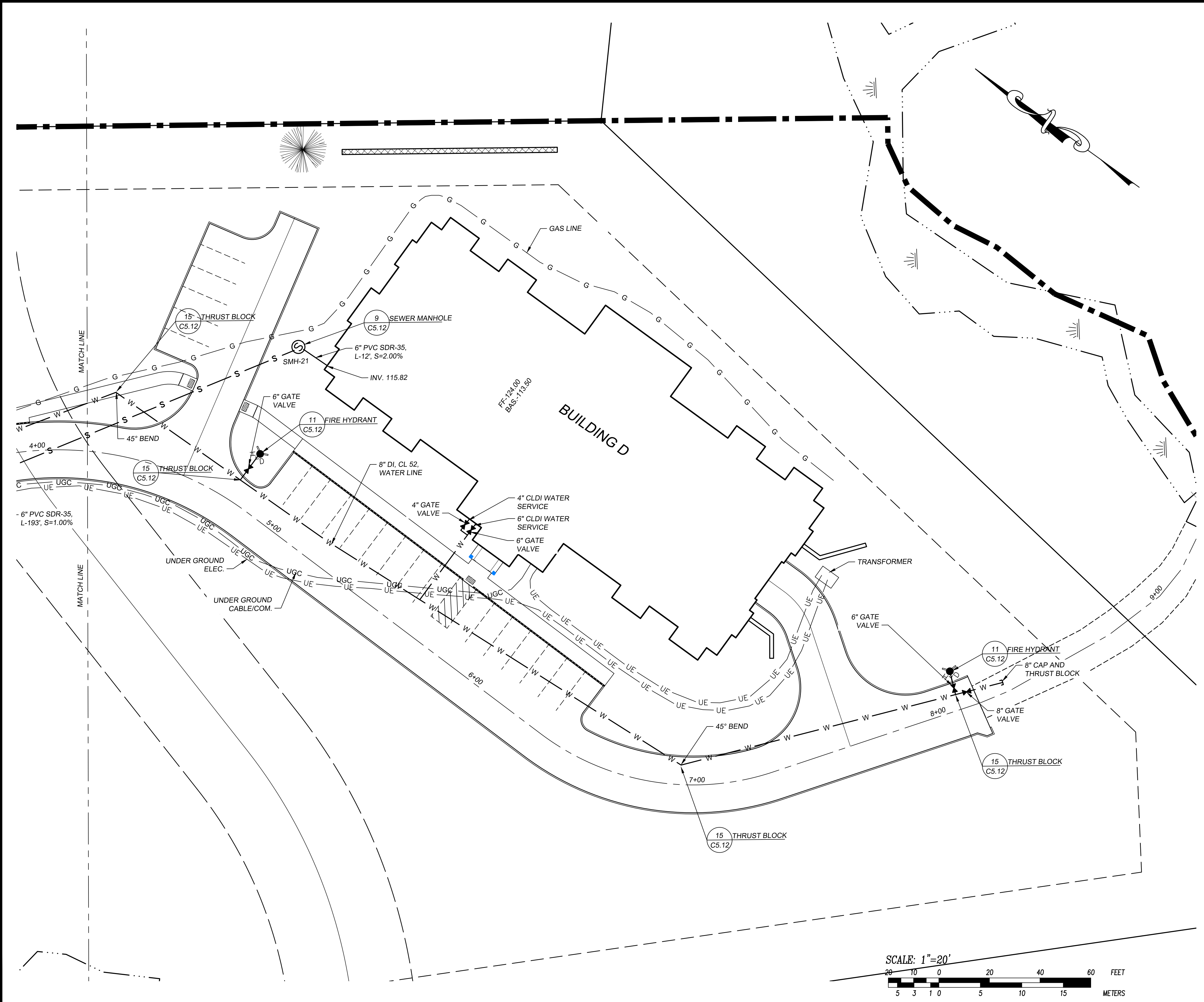
Ray Farm, LLC  
158 Shattuck Way  
Newington, NH 03801

### REVISION BLOCK

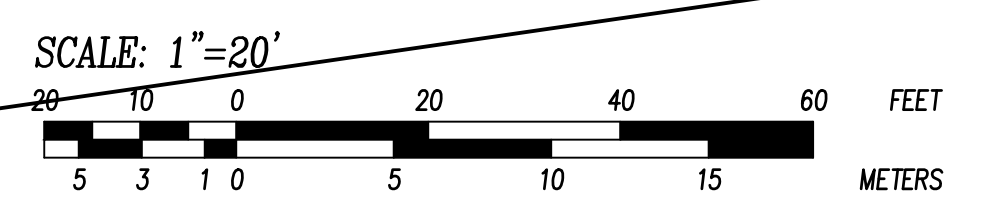
NO.	DATE	DESC	BY

**SEWER STRUCTURES**

SMH-20 R-119.10	SMH-21 R-123.00
6" INV. IN 113.55	6" INV. IN 115.58
6" INV. OUT 113.45	6" INV. OUT 115.48



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TOWN OF EXETER PLANNING BOARD

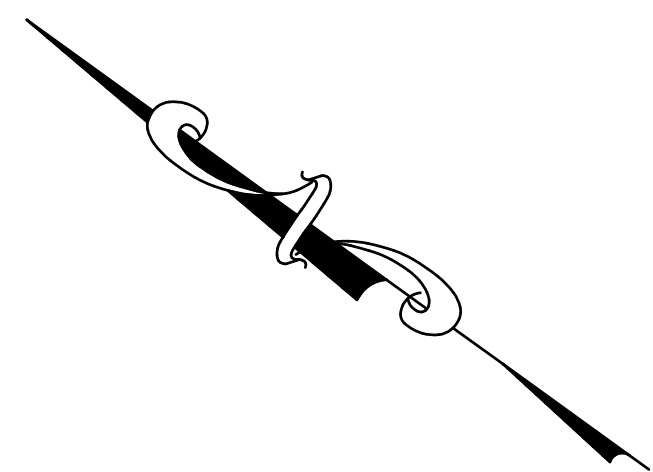
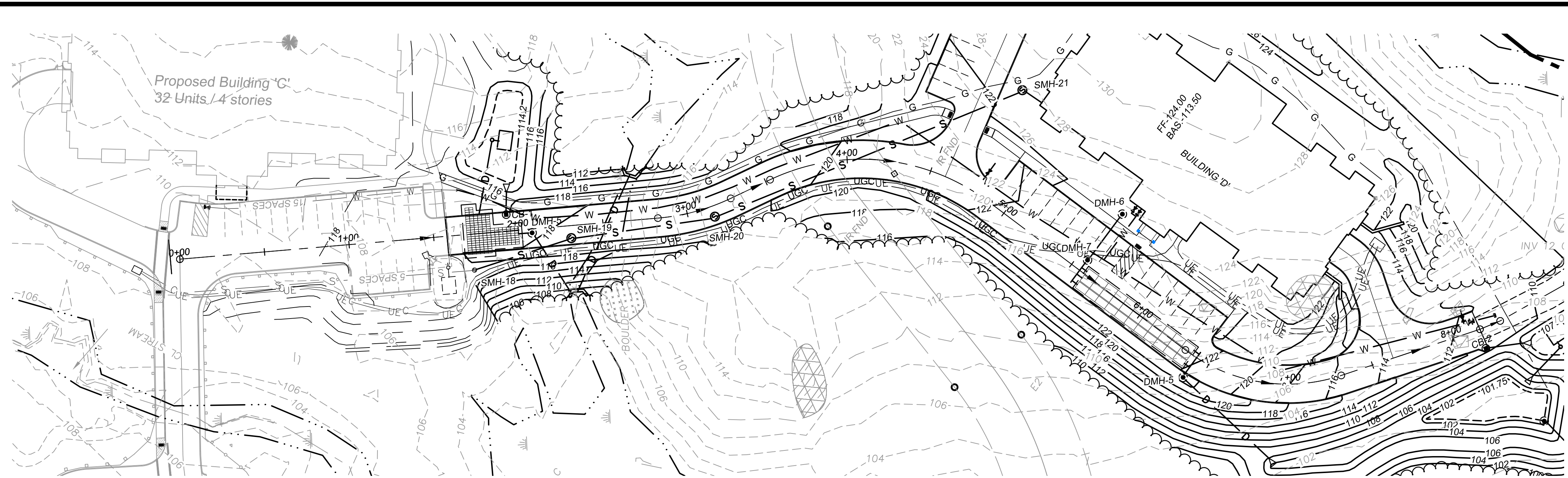
CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_

PROJ. MGR.: D. HAMEL  
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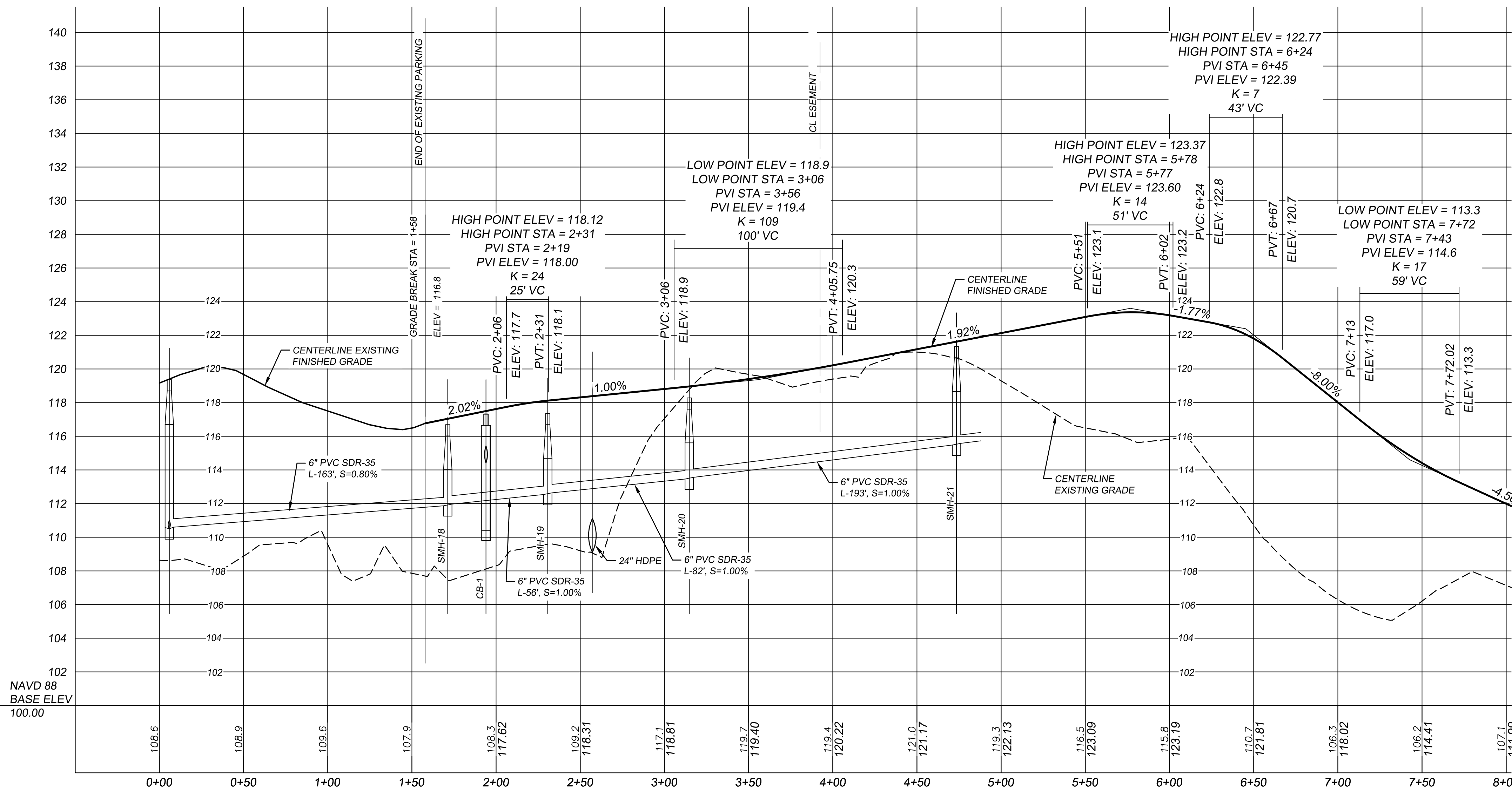
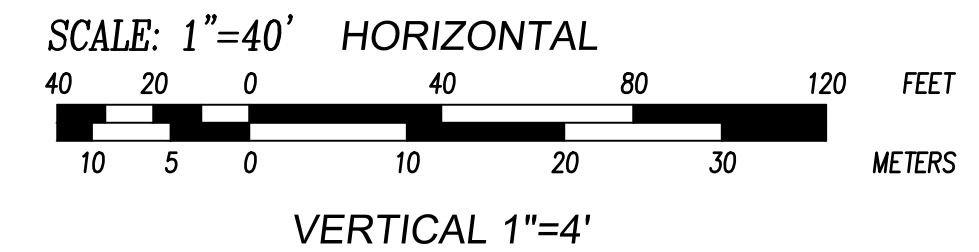


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Sheet Title:  
**PLAN  
 PROFILE**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801



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Sheet Title:

# PLAN PROFILE

Project Title:

**Ray Farm  
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 Ray Farmstead Road  
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 Rockingham County

Applicant/Owner:

**Ray Farm, LLC**  
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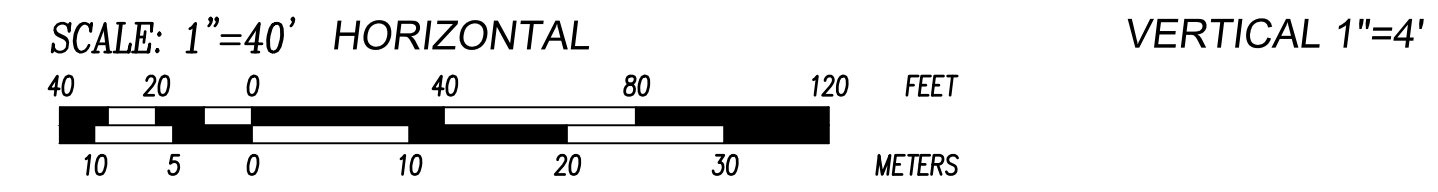
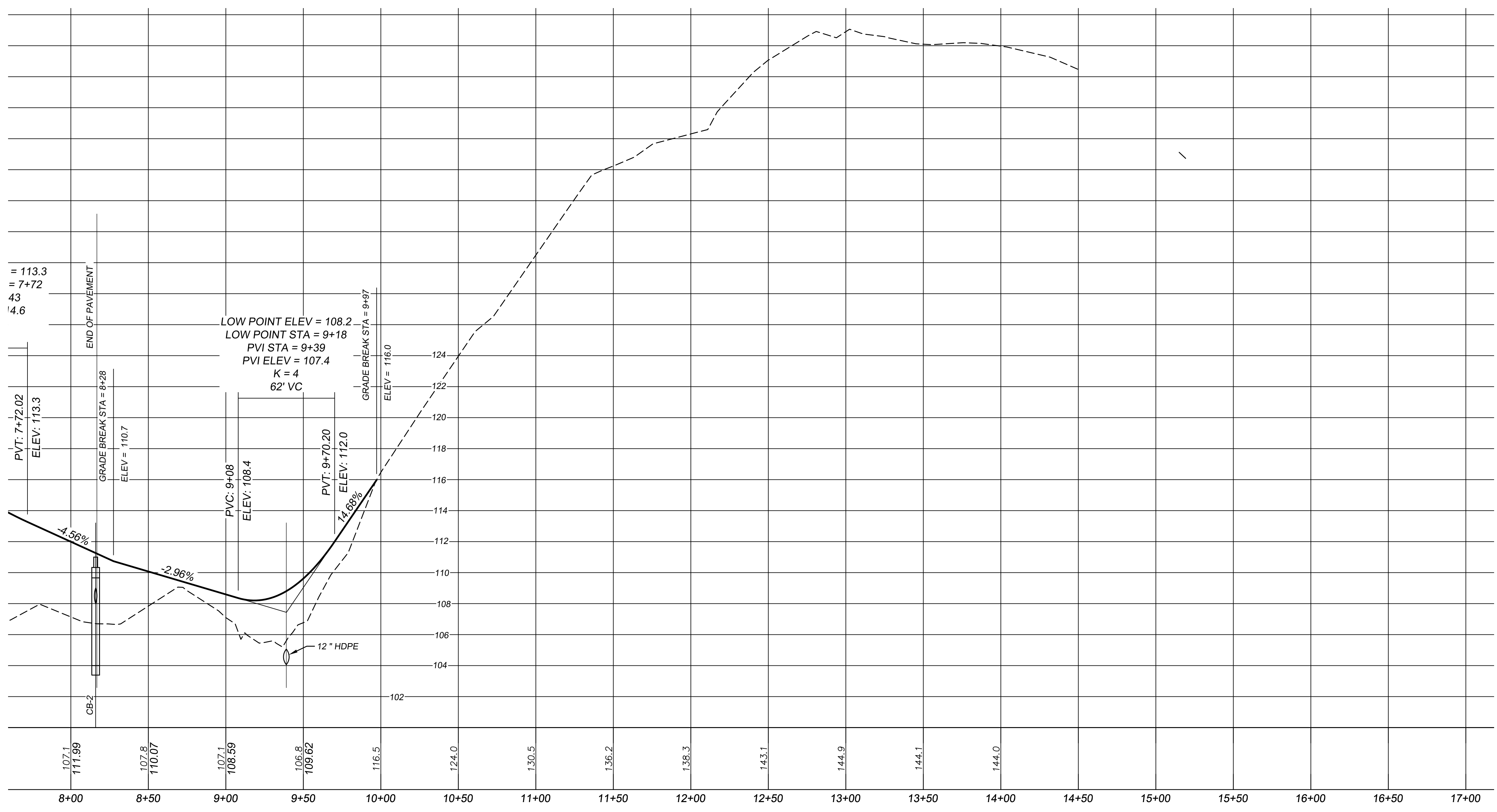
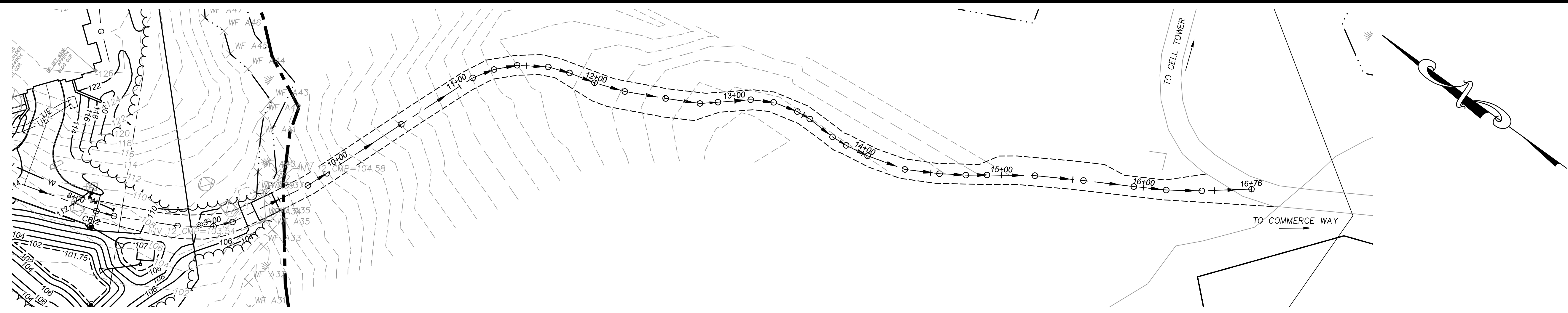
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Sheet Title:  
**EROSION  
 AND SEDIMENT  
 CONTROL PLAN**

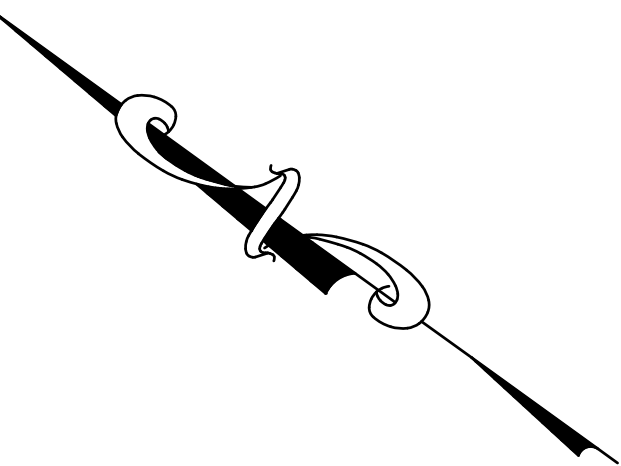
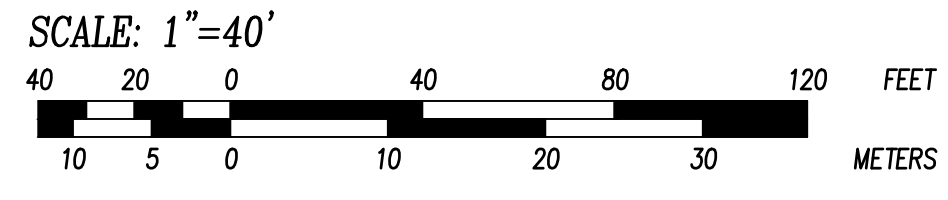
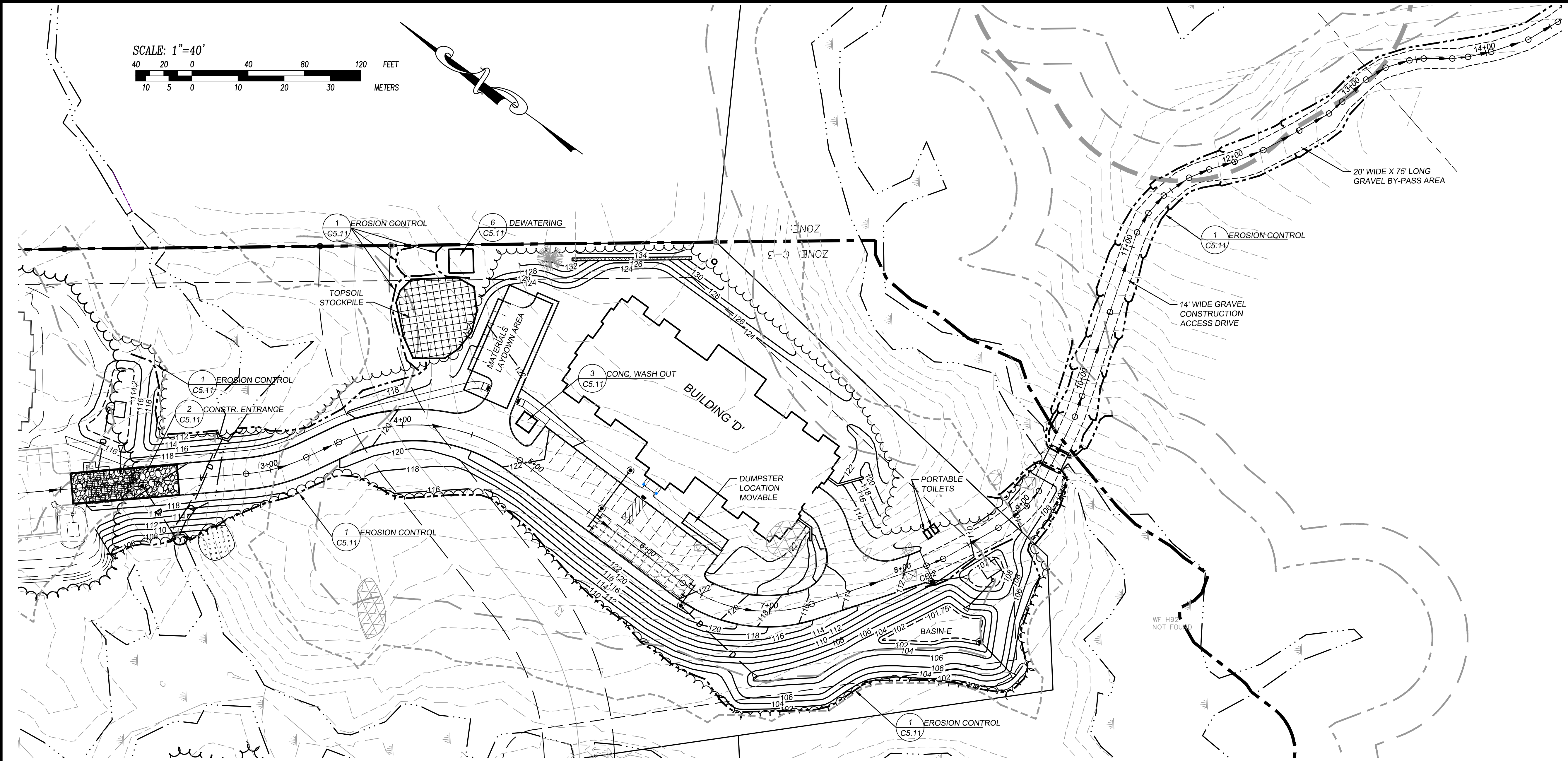
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 Rockingham County

Applicant/Owner:  
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SHEET C1.51



**Construction Sequence**

NOTE: SEE SHEET C1.52 FOR CONSTRUCTION NOTES

- PRIOR TO CLEARING, OR EARTH MOVING ACTIVITIES, INSTALL TEMPORARY EROSION CONTROLS AS SHOWN. SEE SHEET C5.11 FOR EROSION CONTROL DETAILS AND TECHNIQUES.
- INSTALL CONSTRUCTION ENTRANCE.
- STRIP TOPSOIL AND STOCKPILE IN DESIGNATED AREA. INSTALL TEMPORARY EROSION CONTROLS AROUND STOCKPILE. BOULDERS AND LARGE ROCKS GREATER THAN TWO FEET IN DIAMETER SHALL BE STOCKPILED SEPARATELY IN A DESIGNATED AREA.
- CONSTRUCT TEMPORARY SEDIMENT BASINS AND OUTLET SWALES IN SAME LOCATION AS THE FINAL BASINS AS SHOWN ON THE PLANS. ADDITIONAL TEMPORARY ROWS OF COMPOST SOCK MAY BE REQUIRED IN THE SWALES. INSTALL OUTLET PROTECTION RIP-RAP AS SHOWN PRIOR TO DIRECTING ANY STORMWATER TO THE BASINS. THE FORE-BAYS WILL SERVE AS CONSTRUCTION PERIOD SEDIMENT SETTLING AREAS BUT MUST BE CLEANED AFTER PARKING/LOADING AREAS ARE PAVED, BUILDINGS CONSTRUCTED, AND UTILITIES INSTALLED.
- CREATE SWALES TO DIRECT STORMWATER FROM THE DEVELOPED PORTION OF THE SITE TO THE TEMPORARY BASINS. IMMEDIATELY STABILIZE THE SLOPES OF THE BASINS BY SEEDING AND MULCHING WITHIN 72 HOURS OF ACHIEVING FINISHED GRADES. ALTERNATE METHODS OF SLOPE STABILIZATION MAY BE REQUIRED IF WORK IS PERFORMED OUTSIDE THE GROWING SEASON.
- PREPARE BUILDING SITE TO BE CONSTRUCTED. INSTALL THE BUILDING FOUNDATION AND IMMEDIATELY BRING THE FILL UP TO DESIGN GRADES. CONSTRUCT THE SLOPES IN THE AREAS SHOWN ON THE GRADING PLANS. STABILIZE THE SLOPE WITH SELECTED PLANT MATERIALS AND SEED IMMEDIATELY.
- ROUGH GRADE PARKING AREAS TO SUBBASE ELEVATIONS. FILL WILL BE REQUIRED TO BRING PARKING AREAS TO THE DESIGN GRADES. IMPORTED FILL SHALL BE COMPACTED TO A MINIMUM OF 95% DENSITY. WATER MAY BE REQUIRED TO BRING THE FILL TO THE APPROPRIATE MOISTURE CONTENT FOR PROPER COMPACTION. DO NOT OVER WATER AND CREATE RUNOFF. DO NOT CONTINUE THE FILLING OPERATION DURING INTENSE RAINFALL OR IF RAINFALL IS ANTICIPATED. INSTALL ADDITIONAL EROSION CONTROL AT THE BASE OF SLOPES WHEN RAIN IS ANTICIPATED, AND LEAVE IT IN PLACE UNTIL SLOPES ARE STABILIZED OR ADDITIONAL FILL IS INSTALLED.
- INSTALL PERMANENT STORMWATER TREATMENT DEVICES INCLUDING THE "FOCAL POINT" BIO-RETENTION SYSTEMS AS SHOWN ON THE PLANS. DO NOT ALLOW STORMWATER FLOW TO THE DEVICES FROM UNSTABILIZED AREAS. IF STORMWATER FLOWS ARE ANTICIPATED TO REACH THE TREATMENT DEVICES PRIOR TO FINAL STABILIZATION, ENCASE THE DEVICES WITH FILTER FABRIC.
- INSTALL UNDERGROUND UTILITIES. BACKFILL AND COMPACT TRENCHES. IF DEWATERING IS REQUIRED TO INSTALL UTILITIES OR STRUCTURES, CONSTRUCT THE DEWATERING AREA AS PER THE DETAIL ON SHEET C 5.11 AND PLACE IN THE DESIGNATED AREA. ADDITIONAL ROWS OF COMPOST SOCK MAY BE REQUIRED AT THE DISCHARGE POINT IF THE WATER IS NOT CLEAR.
- INSTALL AND COMPACT PARKING AREA GRAVEL. INSTALL THE BINDER COURSE IN PARKING AREAS WITHIN 72 HOURS OF PLACING GRAVEL.
- INSTALL UTILITY CONNECTIONS. SPREAD TOPSOIL IN GRASS AND LANDSCAPED AREAS AND IMMEDIATELY SEED AND MULCH IF NEEDED. ADDITIONAL EROSION CONTROL MAY BE NEEDED TO CONTROL EROSION AND SILTS FROM ENTERING THE TEMPORARY SETTLEMENT BASIN.

- NOTES:**
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TOWN OF EXETER PLANNING BOARD  
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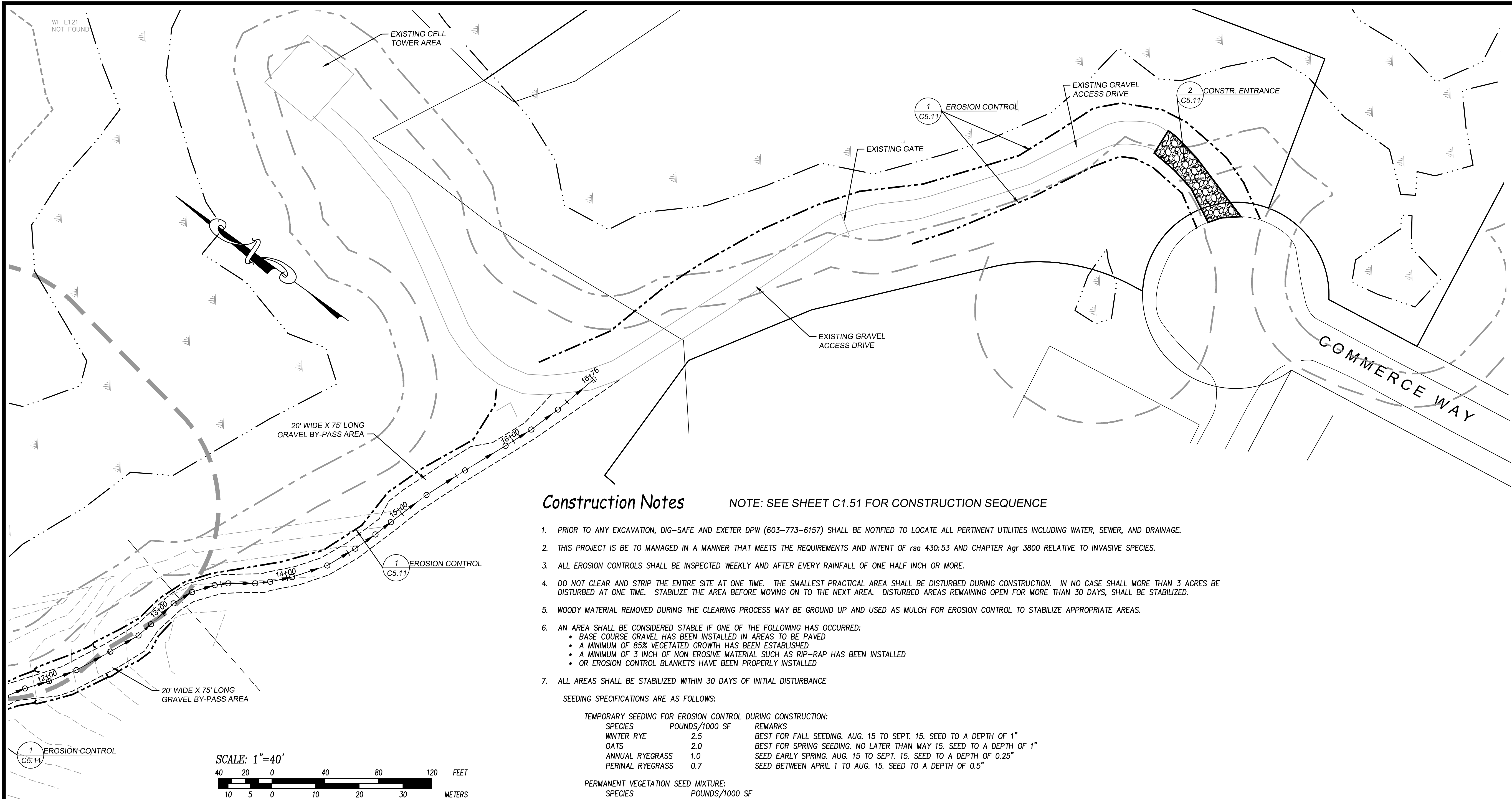
Sheet Title:  
**EROSION  
 AND SEDIMENT  
 CONTROL PLAN**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

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**Construction Notes** NOTE: SEE SHEET C1.51 FOR CONSTRUCTION SEQUENCE

- PRIOR TO ANY EXCAVATION, DIG-SAFE AND EXETER DPW (603-773-6157) SHALL BE NOTIFIED TO LOCATE ALL PERTINENT UTILITIES INCLUDING WATER, SEWER, AND DRAINAGE.
- THIS PROJECT IS BE TO MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER Agr 3800 RELATIVE TO INVASIVE SPECIES.
- ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY RAINFALL OF ONE HALF INCH OR MORE.
- DO NOT CLEAR AND STRIP THE ENTIRE SITE AT ONE TIME. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION. IN NO CASE SHALL MORE THAN 3 ACRES BE DISTURBED AT ONE TIME. STABILIZE THE AREA BEFORE MOVING ON TO THE NEXT AREA. DISTURBED AREAS REMAINING OPEN FOR MORE THAN 30 DAYS, SHALL BE STABILIZED.
- WOODY MATERIAL REMOVED DURING THE CLEARING PROCESS MAY BE GROUND UP AND USED AS MULCH FOR EROSION CONTROL TO STABILIZE APPROPRIATE AREAS.
- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
  - BASE COURSE GRAVEL HAS BEEN INSTALLED IN AREAS TO BE PAVED
  - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
  - A MINIMUM OF 3 INCH OF NON EROSION MATERIAL SUCH AS RIP-RAP HAS BEEN INSTALLED
  - OR EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED
- ALL AREAS SHALL BE STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE

SEEDING SPECIFICATIONS ARE AS FOLLOWS:

TEMPORARY SEEDING FOR EROSION CONTROL DURING CONSTRUCTION:

SPECIES	POUNDS/1000 SF	REMARKS
WINTER RYE	2.5	BEST FOR FALL SEEDING. AUG. 15 TO SEPT. 15. SEED TO A DEPTH OF 1"
OATS	2.0	BEST FOR SPRING SEEDING. NO LATER THAN MAY 15. SEED TO A DEPTH OF 1"
ANNUAL RYEGRASS	1.0	SEED EARLY SPRING. AUG. 15 TO SEPT. 15. SEED TO A DEPTH OF 0.25"
PERENNIAL RYEGRASS	0.7	SEED BETWEEN APRIL 1 TO AUG. 15. SEED TO A DEPTH OF 0.5"

PERMANENT VEGETATION SEED MIXTURE:

SPECIES	POUNDS/1000 SF
TALL FESCUE	0.45
CREeping RED FESCUE	0.45
BIRDSFOOT TREFOIL	0.20
TOTAL	1.10

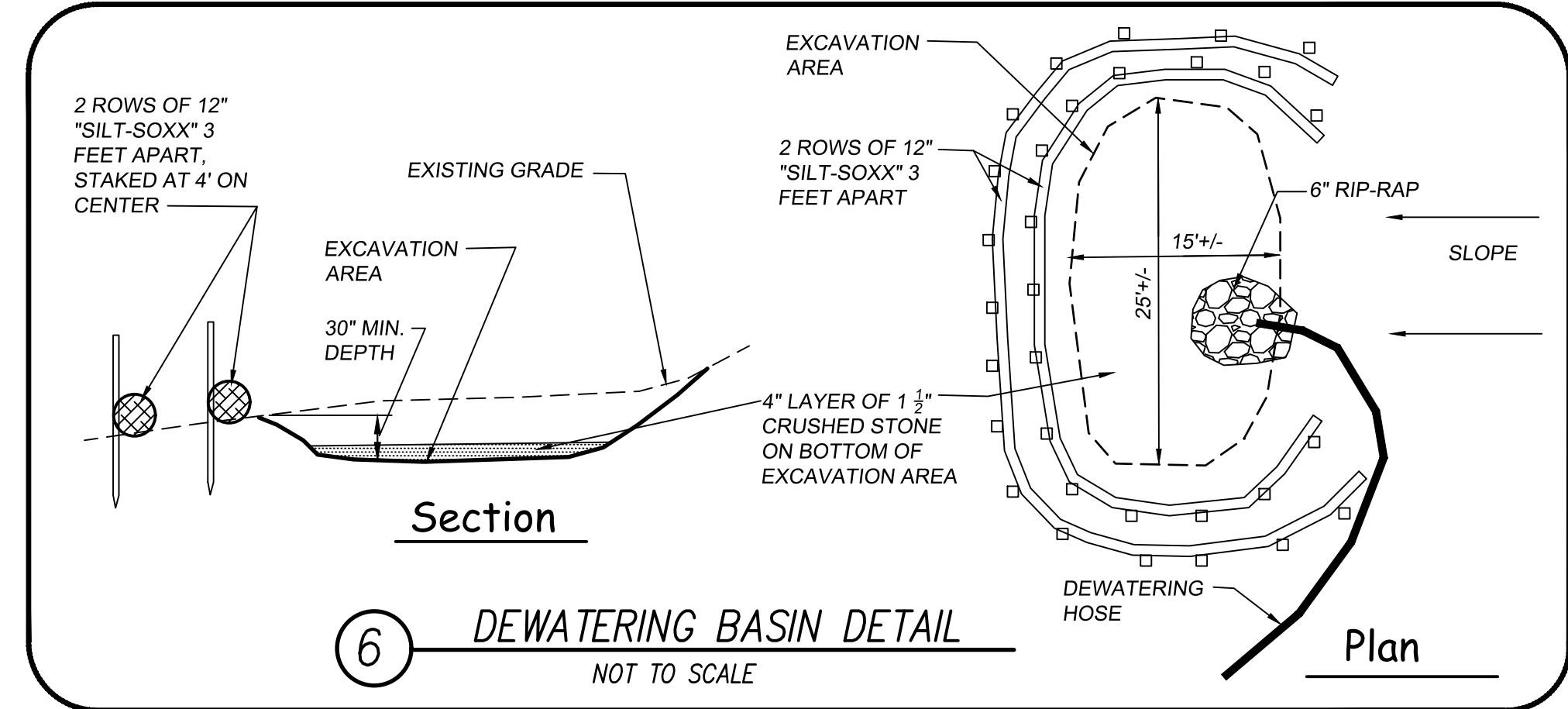
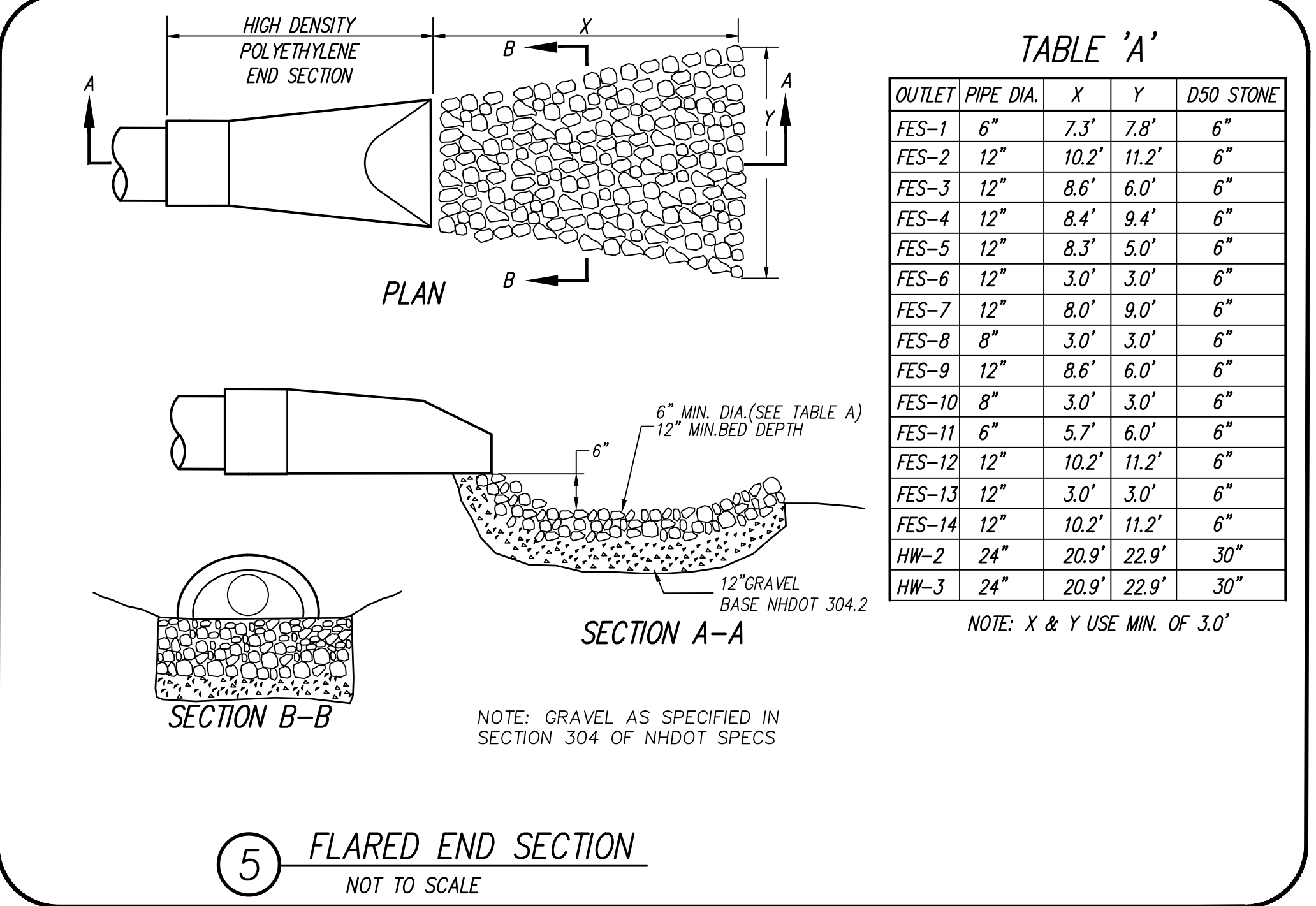
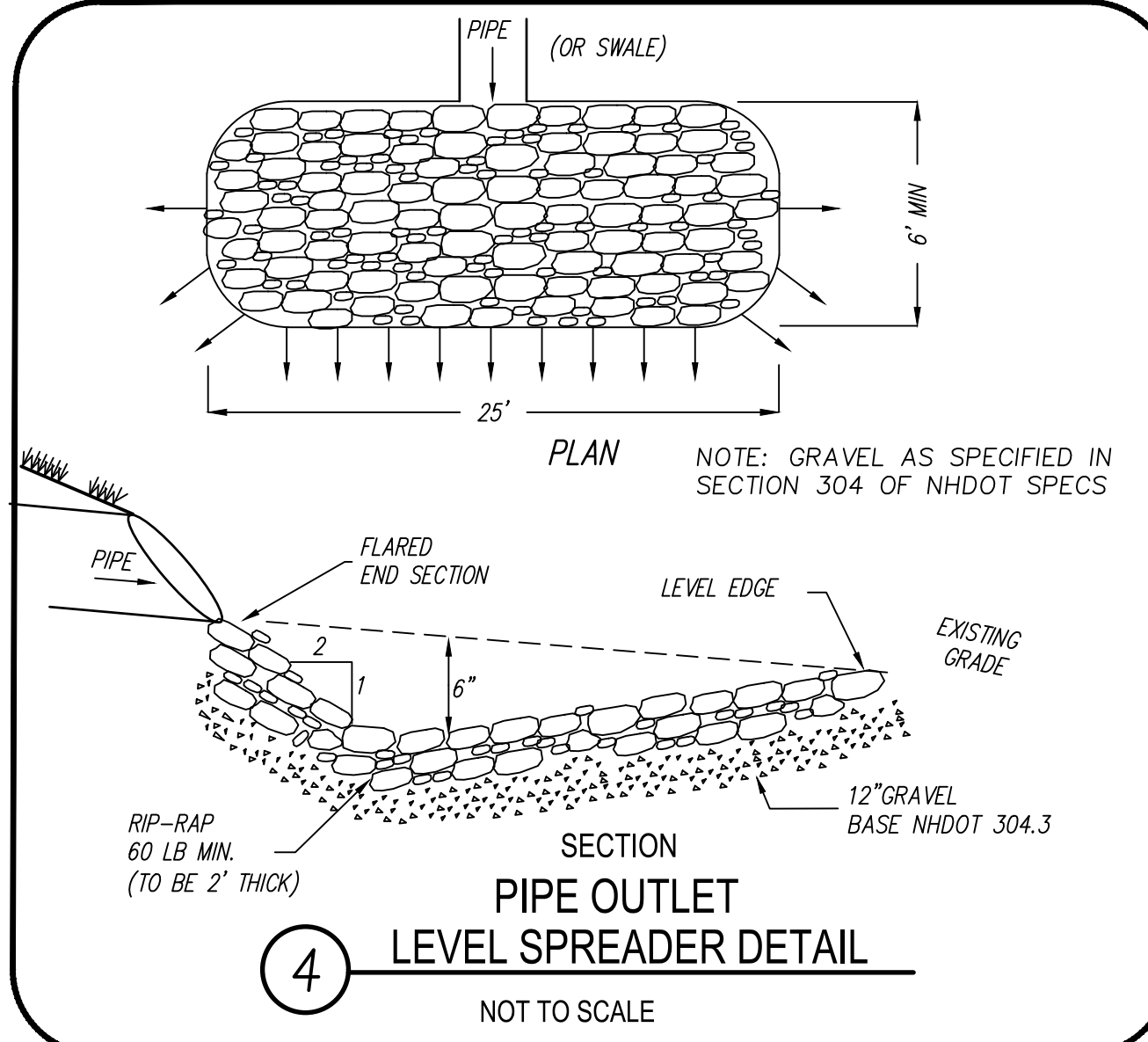
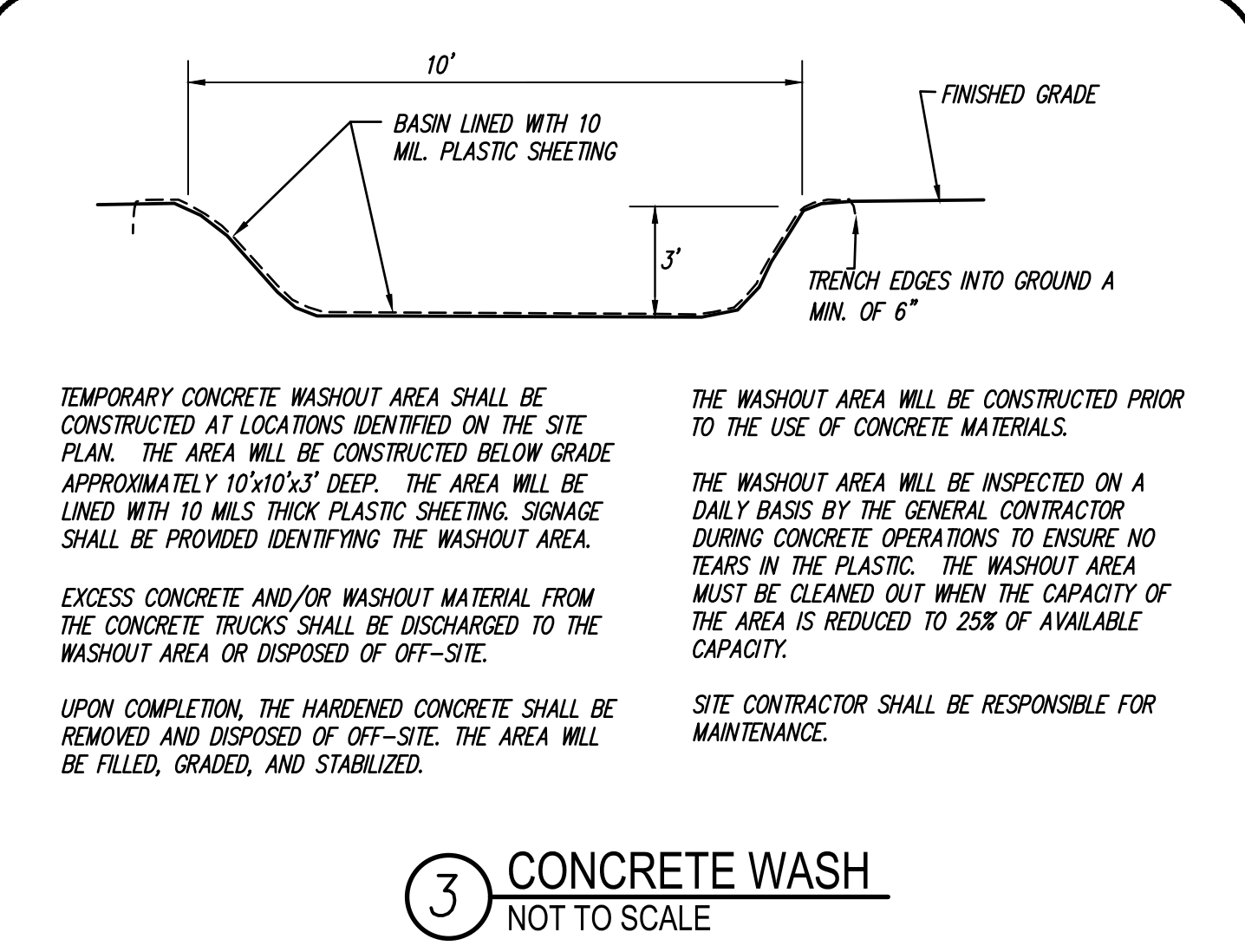
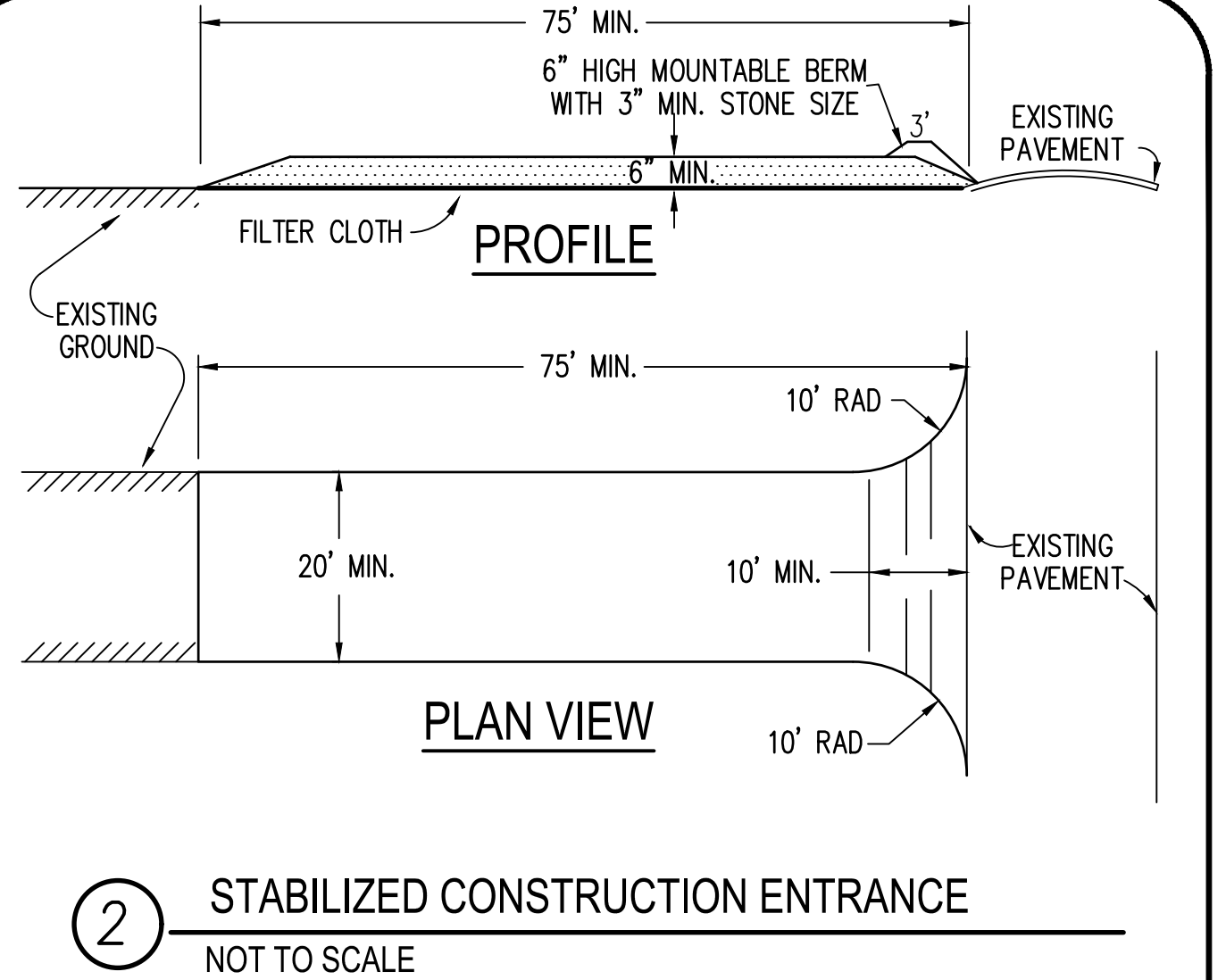
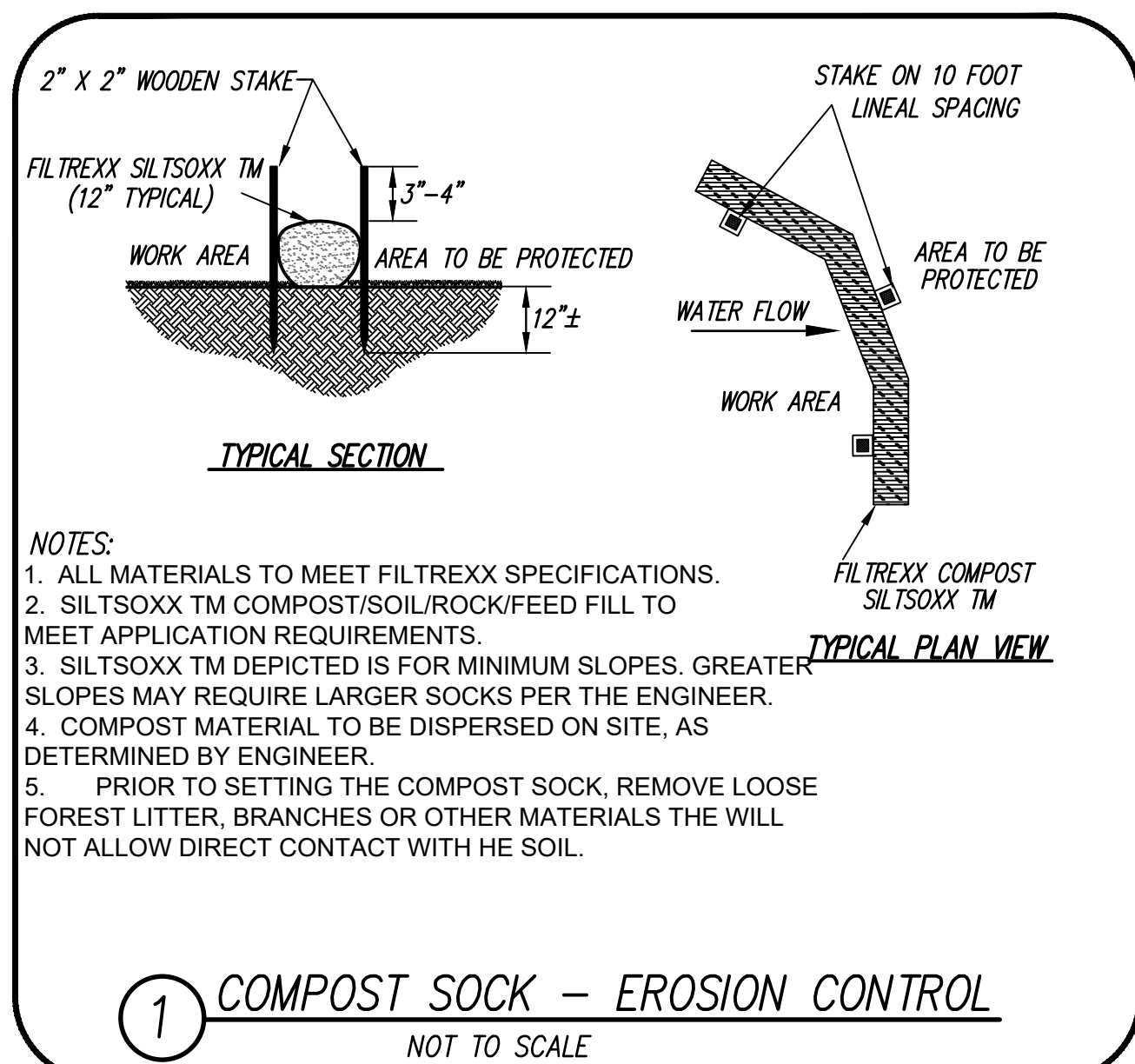
- ALL RE-VEGETATED AREAS THAT DO NOT EXHIBIT 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS (ON 3:1 SLOPES OR STEEPER), SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, OR SECURING WITH ANCHORED NETTING. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER SNOW OR FROZEN GROUND AND SHALL BE COMPLETED PRIOR TO AN ACCUMULATION OF SNOW AND/OR FROST.
- ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
- AFTER NOVEMBER 15, INCOMPLETE ROADS 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.
- CONCRETE WASH OUT SHALL BE CONDUCTED IN THE AREAS SHOWN ON SHEETS C1.51 AND C1.52. AND USE THE CONCRETE WASH OUT DETAIL SHOWN ON SHEET C5.11.
- NO STUMPS OR DEBRIS SHALL BE BURIED ONSITE. ALL STUMPS AND CONSTRUCTION DEBRIS SHALL BE STORED ONSITE UNTIL THEY CAN BE DISPOSED OFF OFFSITE IN A FACILITY CAPABLE OF HANDLING SUCH MATERIALS.
- TEMPORARY PORTABLE TOILETS SHALL BE PROVIDED AND PROPERLY MAINTAINED ONSITE FOR THE DURATION OF THE PROJECT.
- VEHICLE MAINTENANCE SHALL BE PERFORMED OFF SITE. ANY VEHICLE LEAKING OIL OR GREASE SHALL BE IMMEDIATELY REPAIRED OR REMOVED FROM THE SITE. FUEL AND OILS SHALL BE STORED IN AN APPROVED LOCATION AND COMPLY WITH LOCAL, STATE, AND FEDERAL REGULATIONS. IN NO CASE SHALL THEY BE STORED WITHIN 100' OF WETLAND AREAS.

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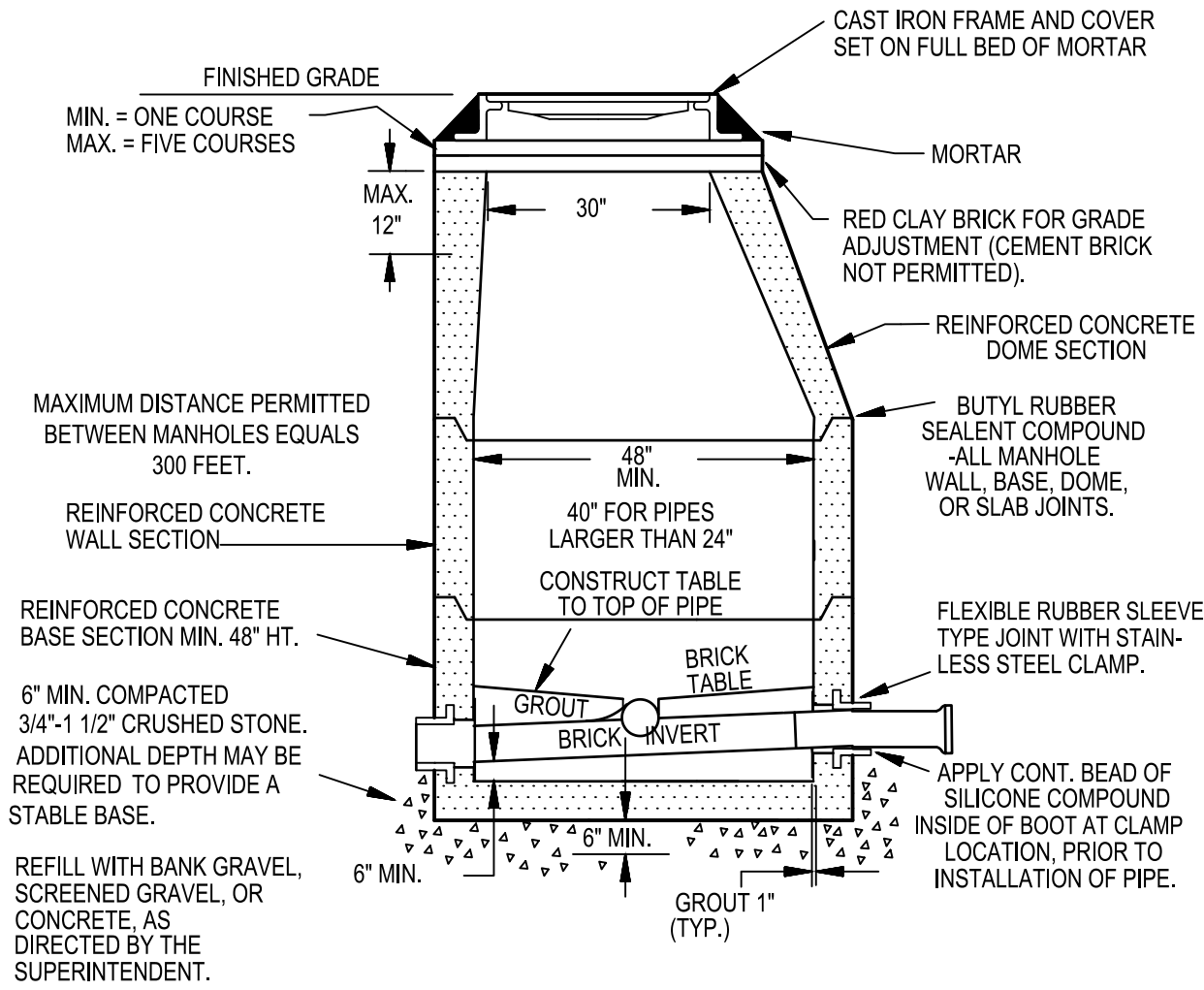
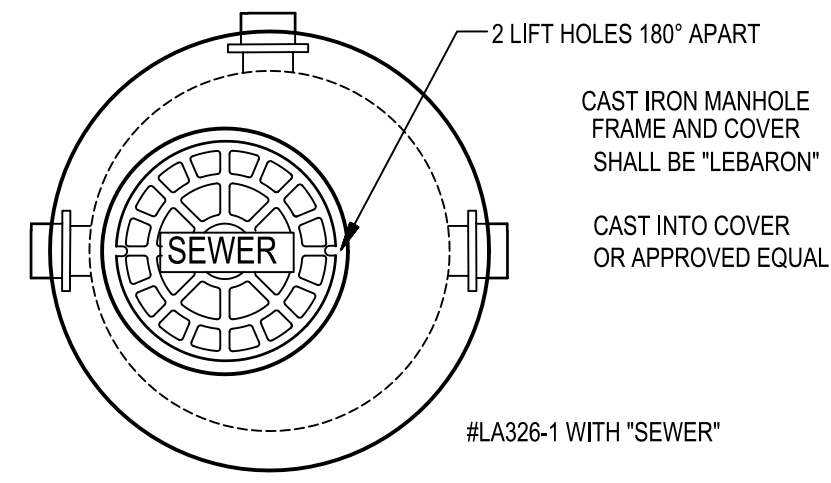
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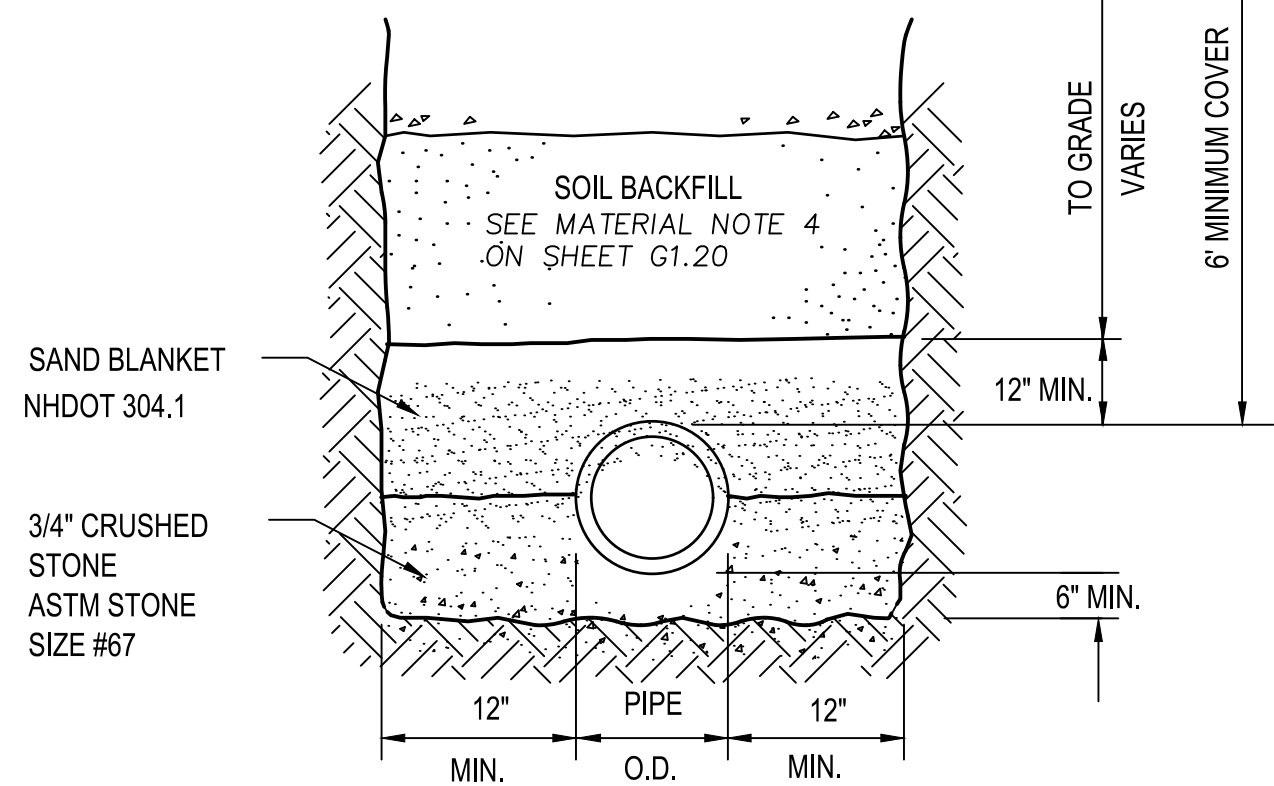
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MANHOLE TESTING: VACUUM TEST MANHOLE FOR LEAKAGE  
THE INITIAL VACUUM GAUGE TEST PRESSURE SHALL BE 10 INCHES Hg. THE MINIMUM TEST HOLD FOR A 1 INCH DROP TO 9 INCHES Hg SHALL BE NOT LESS THAN 2 MINUTES FOR MANHOLES LESS THAN 10 FEET DEEP, 2.5 MINUTES FOR MANHOLES 10 TO 15 FEET DEEP, AND NOT LESS THAN 3 MINUTES FOR MANHOLES MORE THAN 15 FEET DEEP.

- NOTES:  
1. GRAVEL AS SPECIFIED IN SECTION 304 OF NHDOT SPECS  
2. SEWER MANHOLE SHALL BE RATED FOR H-20 LOADING  
3. BRICK INVERTS TO BE INSTALLED AFTER TESTING  
4. NO STEPS IN MANHOLE  
5. BRICKS FOR GRADE ADJUSTMENTS ARE A MAXIMUM OF 5 COURSES

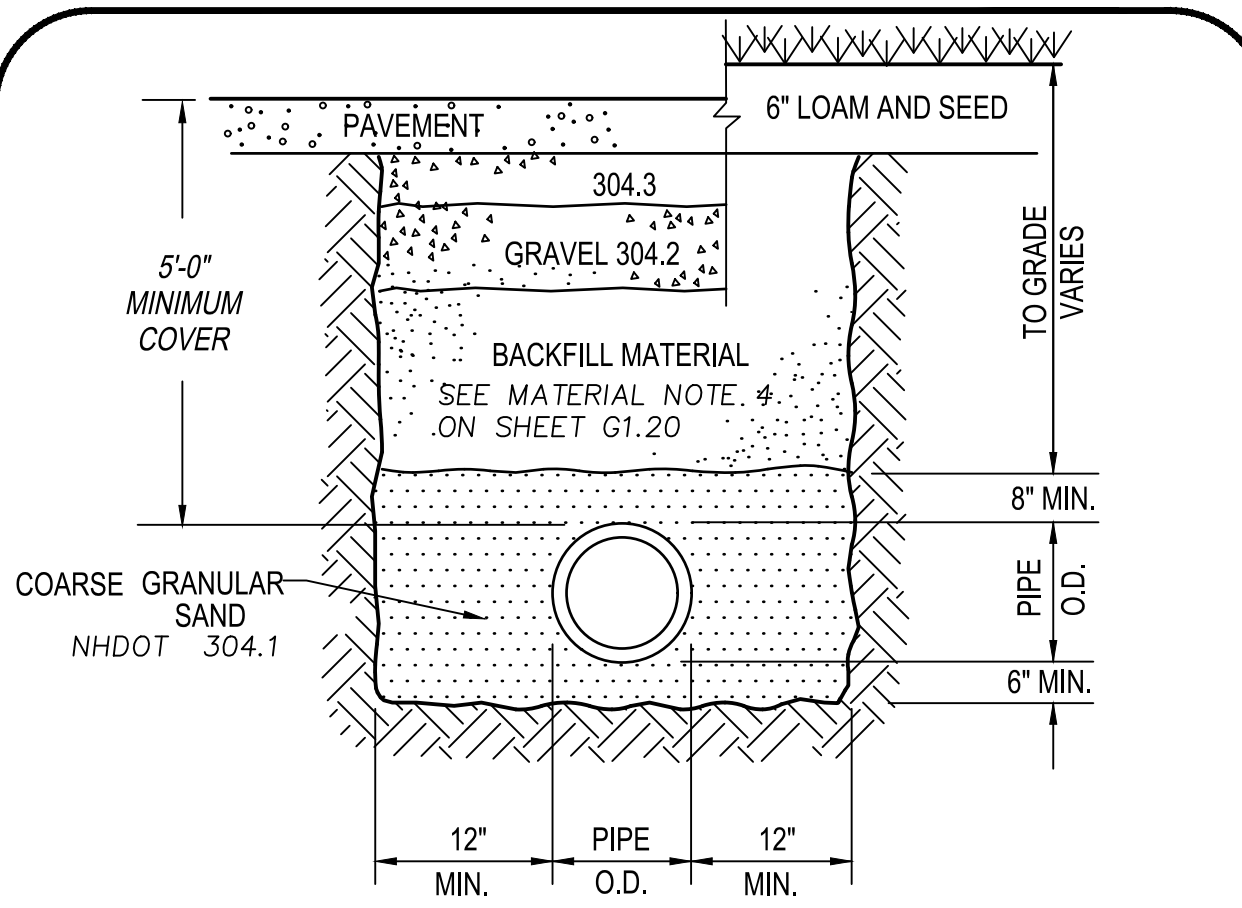
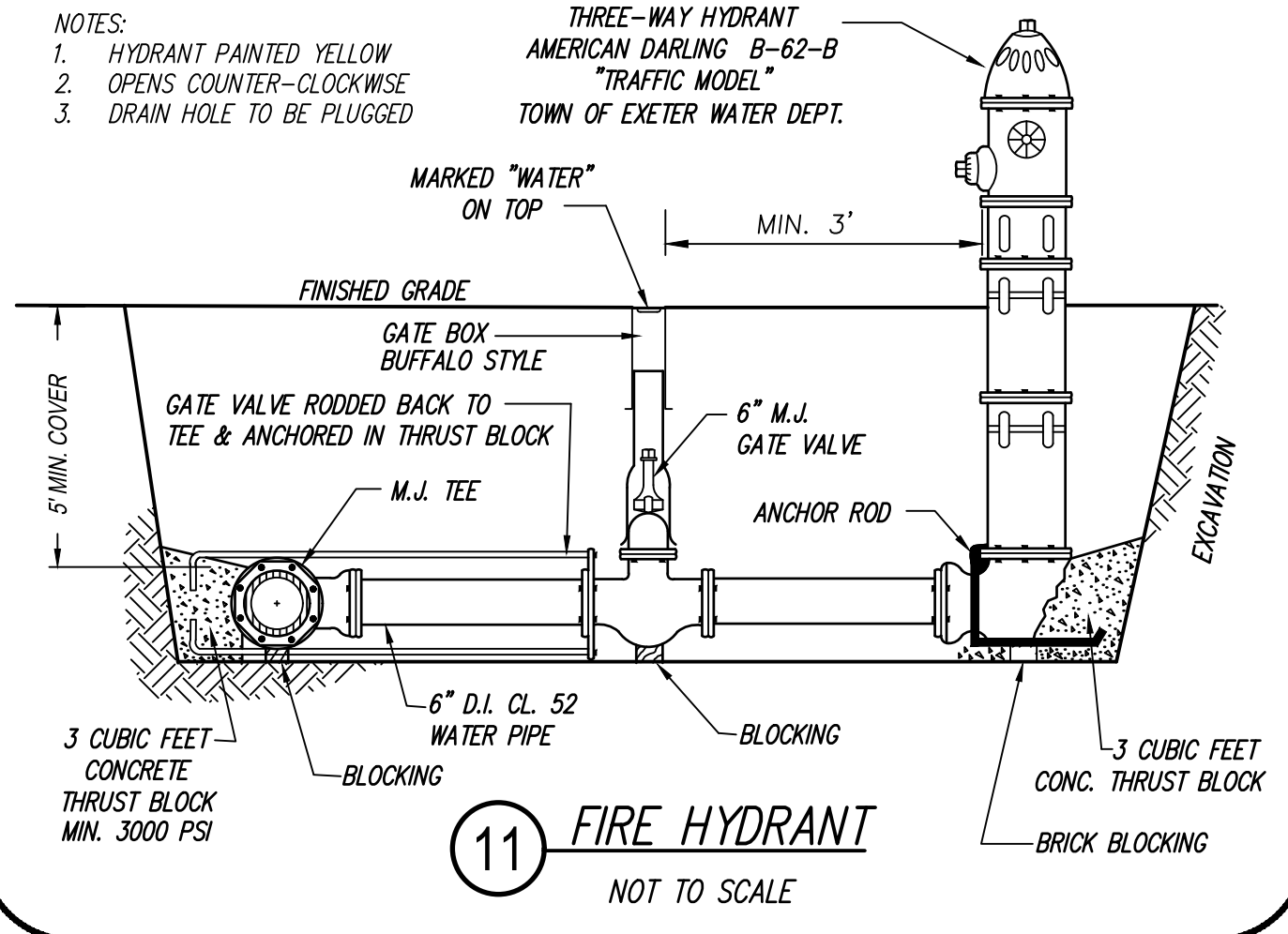
9 SEWER MANHOLE NOT TO SCALE



- NOTES:  
1. GRAVITY SEWER TO BE PVC SDR 35 CONFORMING TO ASTM D3034-04a  
2. PLASTIC SEWER PIPE SHALL HAVE A PIPE STIFFNESS RATING OF AT LEAST 46 POUNDS PER SQUARE INCH AT 5% PIPE DIAMETER AS MEASURED WITH ASTM D2412-02 DURING MANUFACTURE.  
3. JOINT SEALS OF PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D3212-96(a) AND BE PUSH-ON, BELL-AND-SPIGOT TYPE.  
4. SAND BLANKET SHALL BE FREE OF ORGANIC MATERIALS, 100% PASSING 1/2" SIEVE, AND MAXIMUM 15% PASSING #200 SIEVE.  
5. COMPACT BEDDING AND SAND BLANKET IN MAXIMUM OF 12" LIFTS.  
6. COMPACT BACKFILL MATERIAL IN MAXIMUM OF 12" LIFTS.

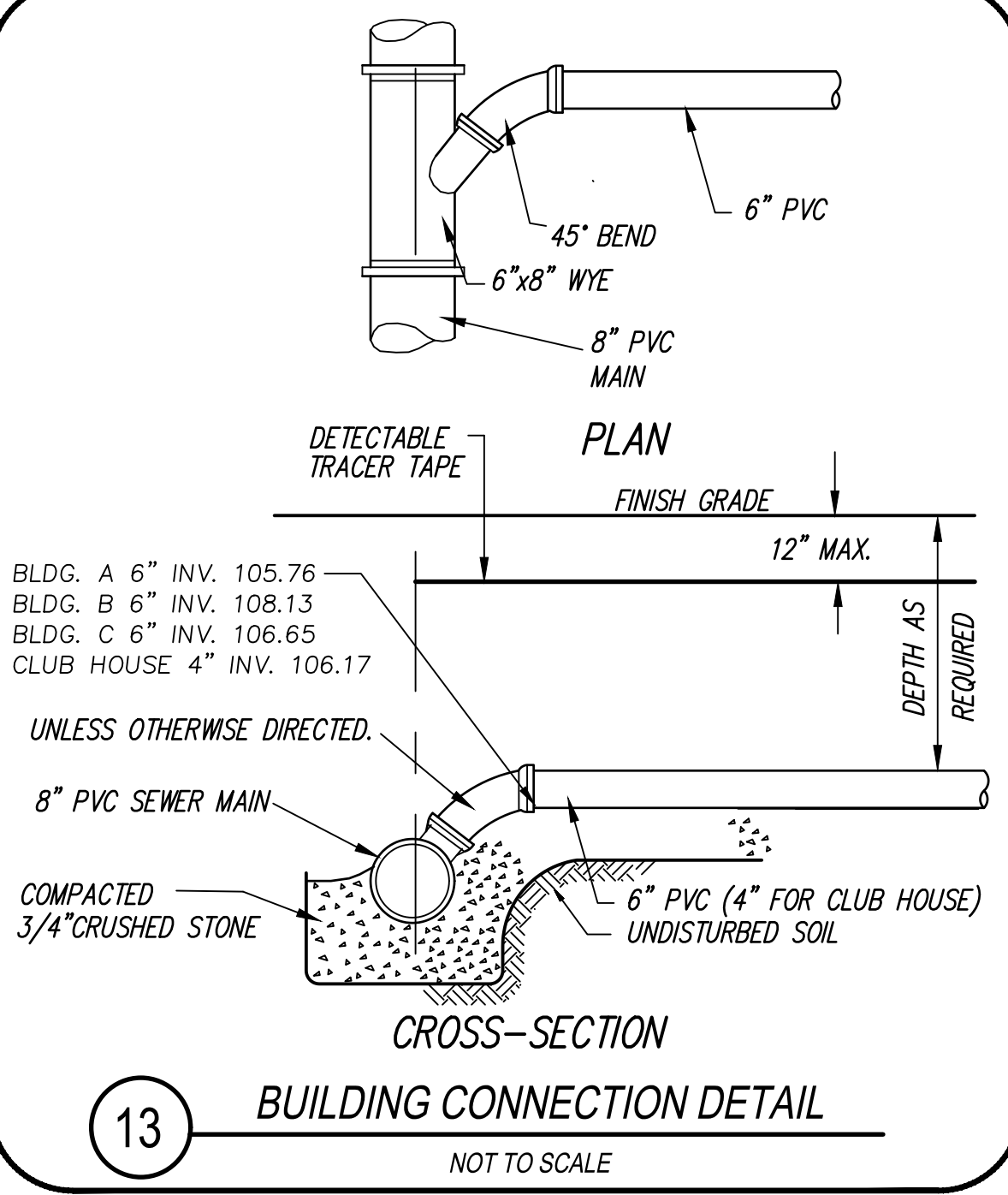
GRAVITY SEWER PIPE TESTING  
LOW PRESSURE AIR TESTS SHALL BE USED FOR ALL NEW GRAVITY SEWERS CONFORMING TO ASTM F1417 "STANDARD TEST METHOD OF INSTALLATION ACCEPTANCE OF PLASTIC GRAVITY SEWER LINES USING LOW-PRESSURE AIR" OR UNI-BELL PVC PIPE ASSOCIATION UNI-B-6, "LOW PRESSURE AIR TESTING OF INSTALLED SEWER PIPE (1998).  
DEFLECTION TEST ALL PLASTIC SEWER PIPE NOT LESS THAN 30 DAYS NOR MORE THAN 90 DAYS FOLLOWING INSTALLATION. MAXIMUM ALLOWABLE DEFLECTION OF FLEXIBLE SEWER PIPE SHALL BE 5 1/2% OF AVERAGE INSIDE DIAMETER.

10 SEWER TRENCH NOT TO SCALE

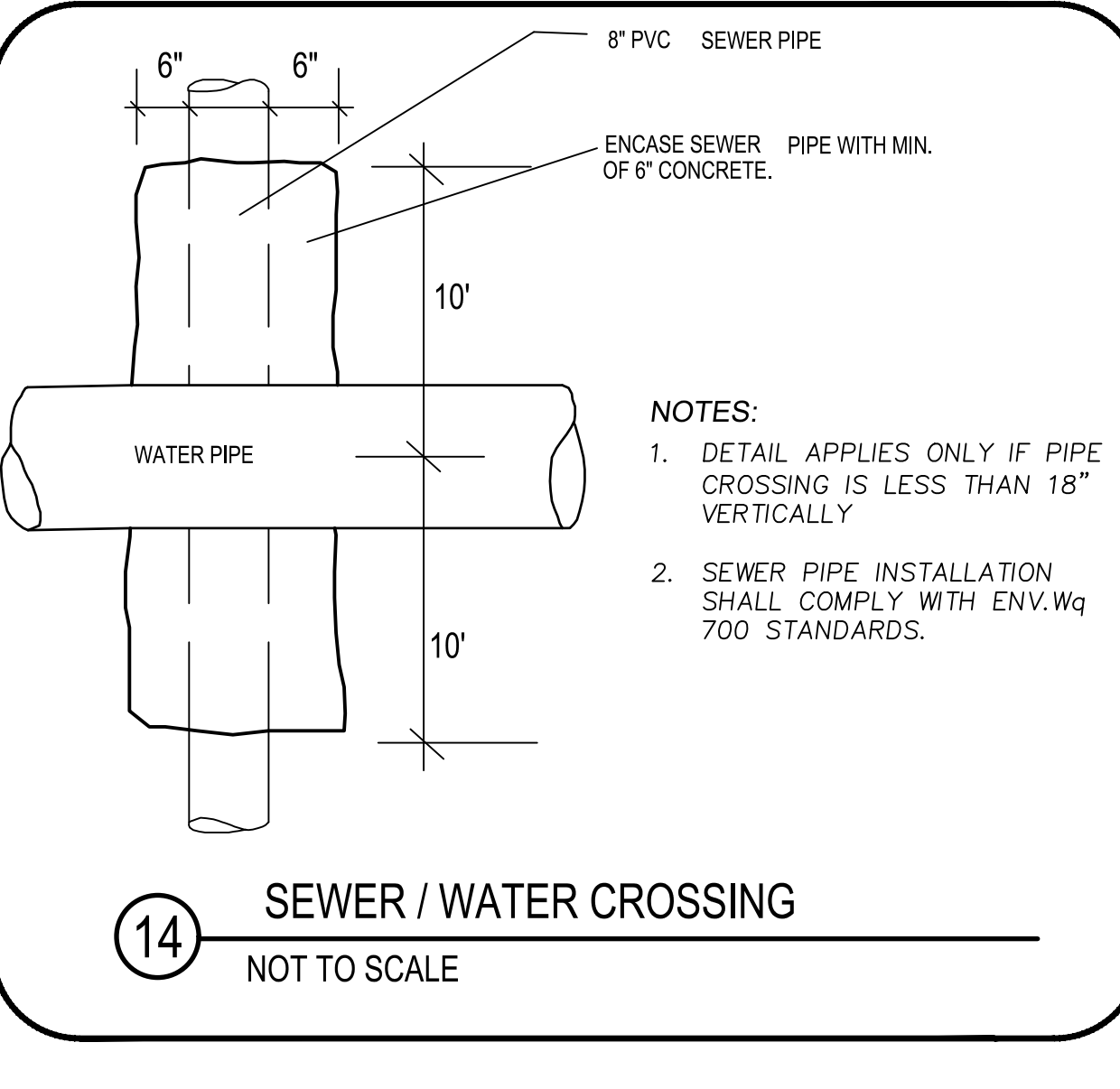


- NOTE:  
1. SEE SITE PLAN FOR PIPE SIZES AND SERVICE.  
2. WATER PIPE TO BE DUCTILE IRON (D.I.) CLASS 52  
3. GRAVEL AS SPECIFIED IN SECTION 304 OF NHDOT SPECS

12 WATER TRENCH NOT TO SCALE

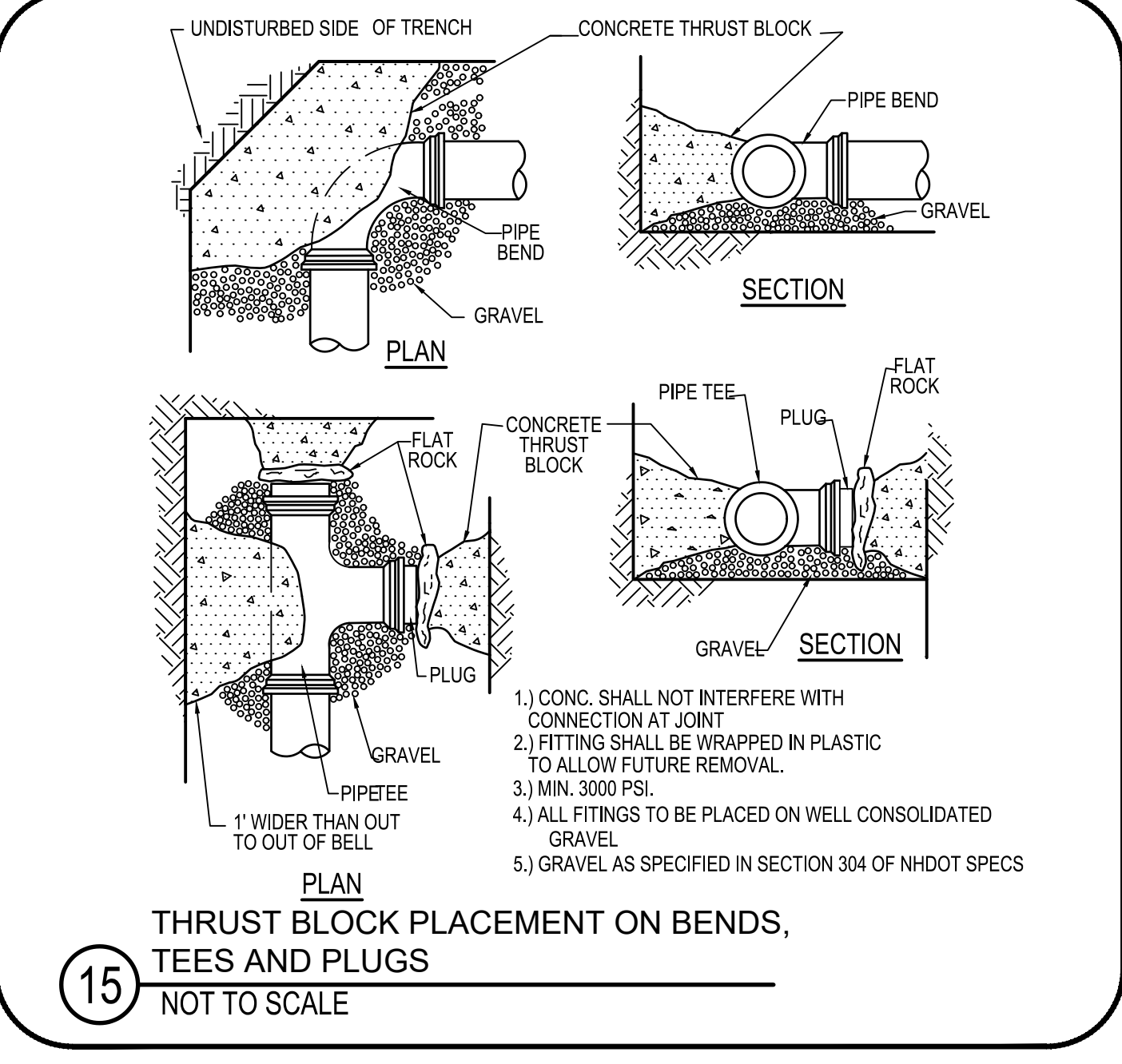


13 BUILDING CONNECTION DETAIL NOT TO SCALE



14 SEWER / WATER CROSSING NOT TO SCALE

- NOTES:  
1. DETAIL APPLIES ONLY IF PIPE CROSSING IS LESS THAN 18" VERTICALLY  
2. SEWER PIPE INSTALLATION SHALL COMPLY WITH ENV.Wq 700 STANDARDS.



15 THRUST BLOCK PLACEMENT ON BENDS, TEES AND PLUGS NOT TO SCALE

- 1.) CONC. SHALL NOT INTERFERE WITH CONNECTION AT JOINT  
2.) FITTING SHALL BE WRAPPED IN PLASTIC TO ALLOW FUTURE REMOVAL.  
3.) MIN. 3000 PSI.  
4.) ALL FITTINGS TO BE PLACED ON WELL CONSOLIDATED GRAVEL.  
5.) GRAVEL AS SPECIFIED IN SECTION 304 OF NHDOT SPECS

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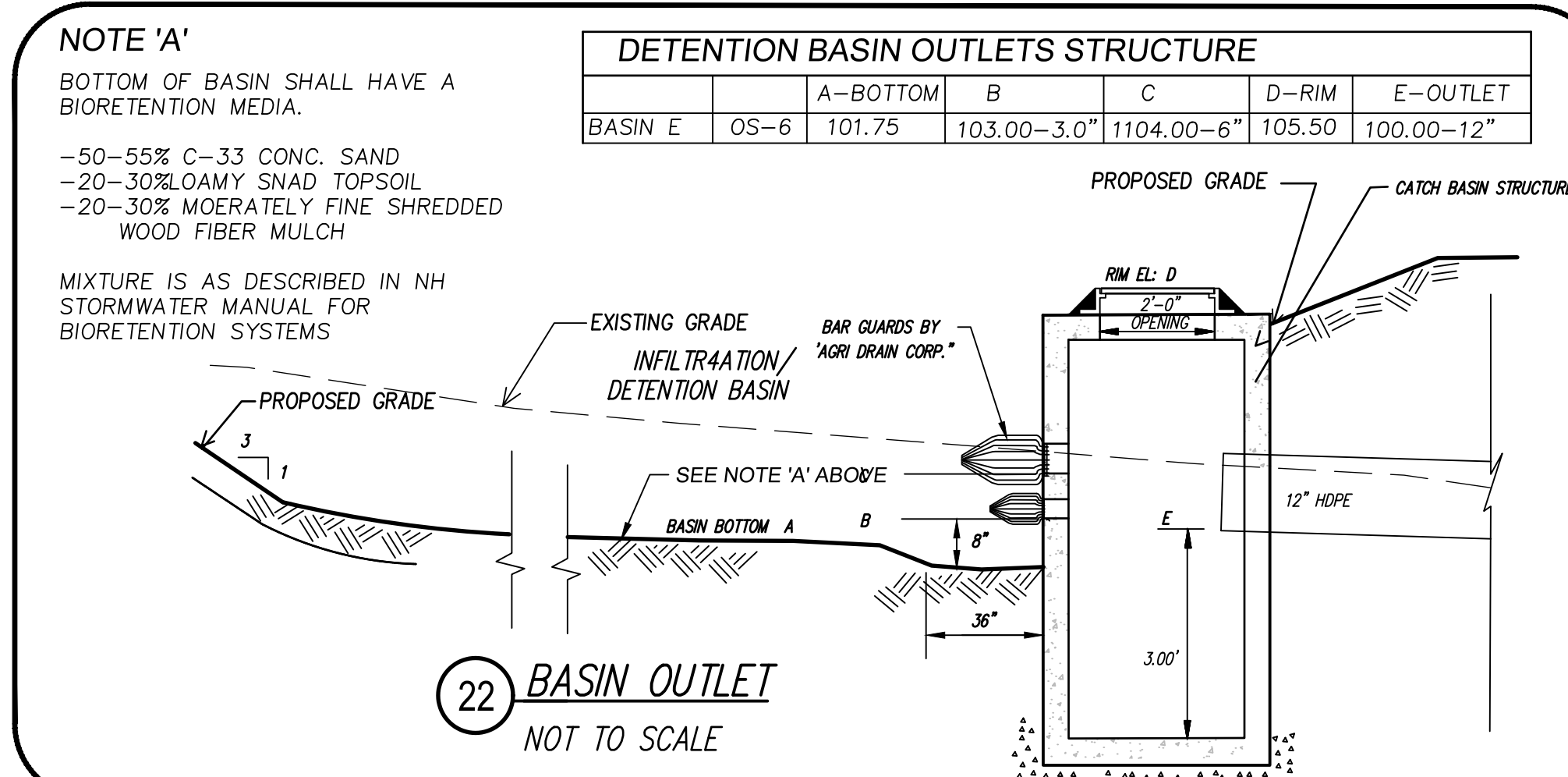
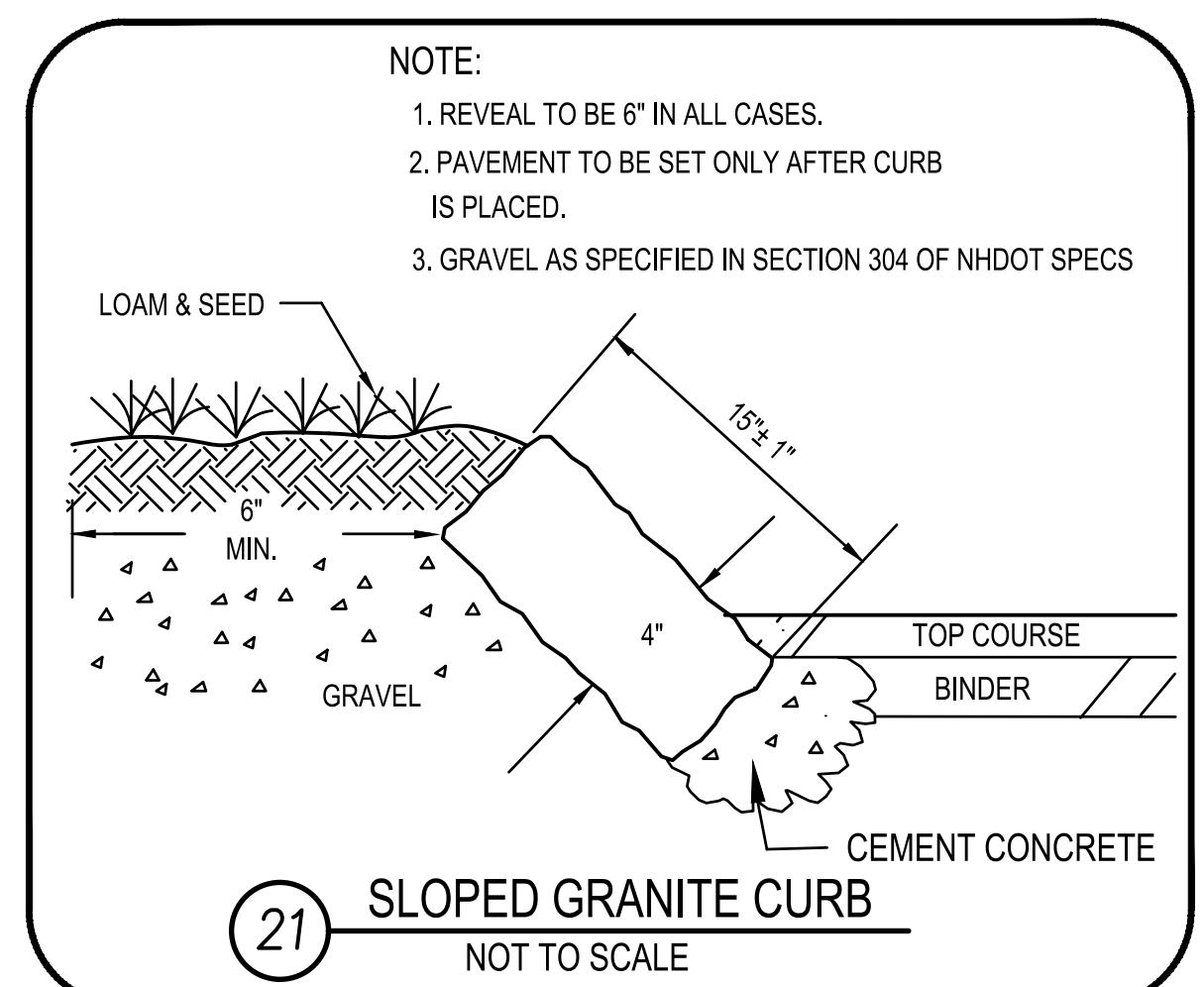
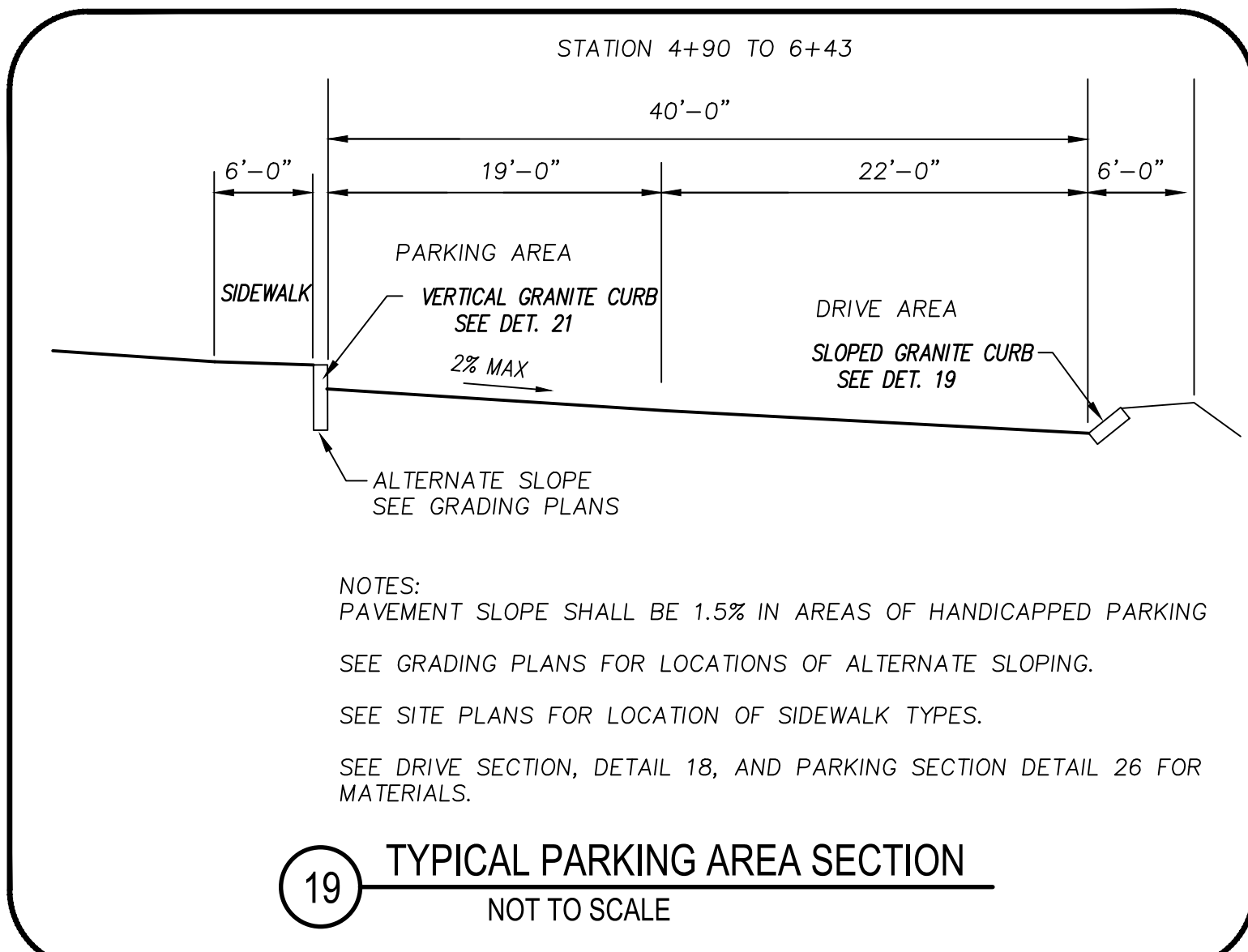
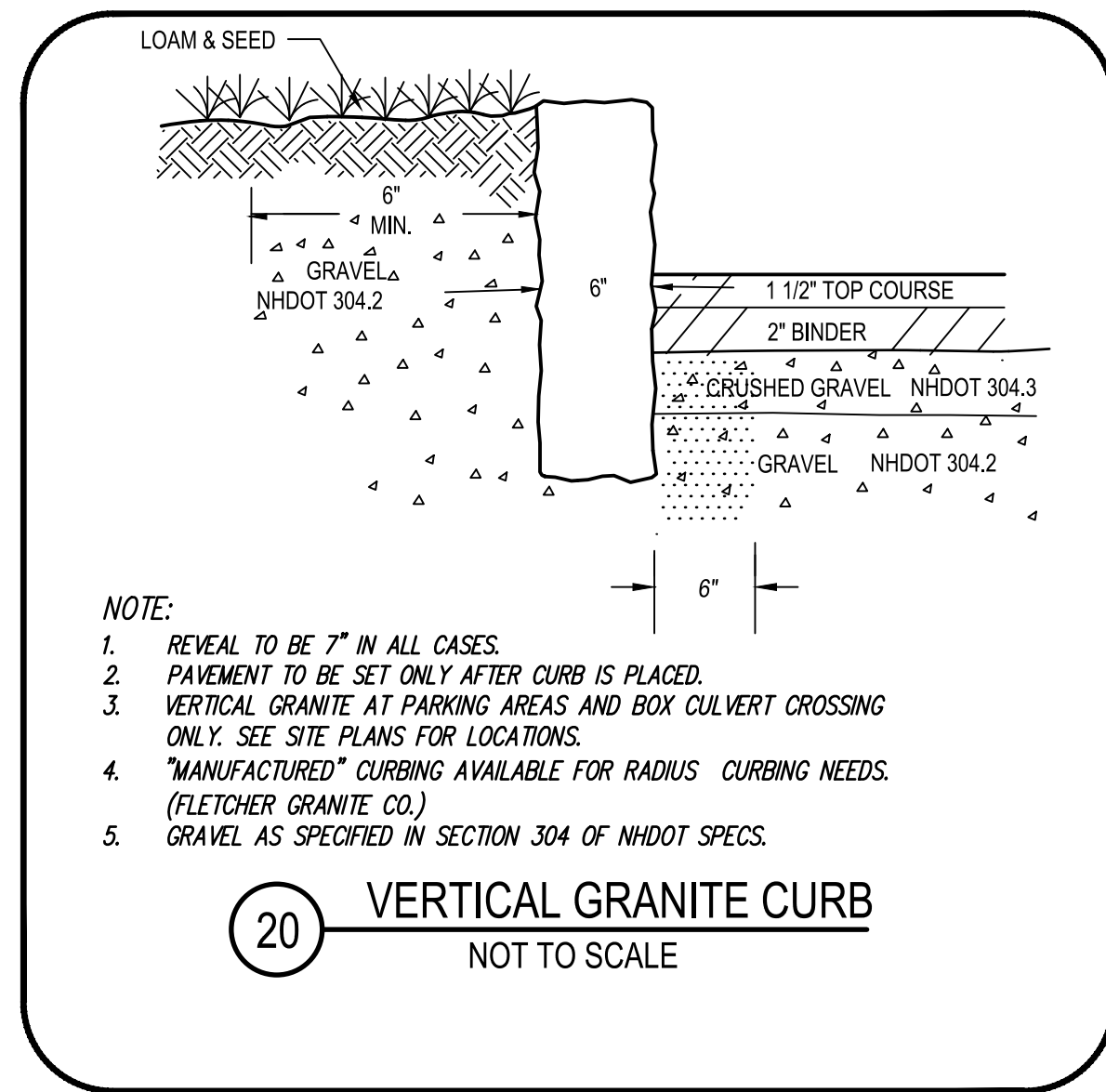
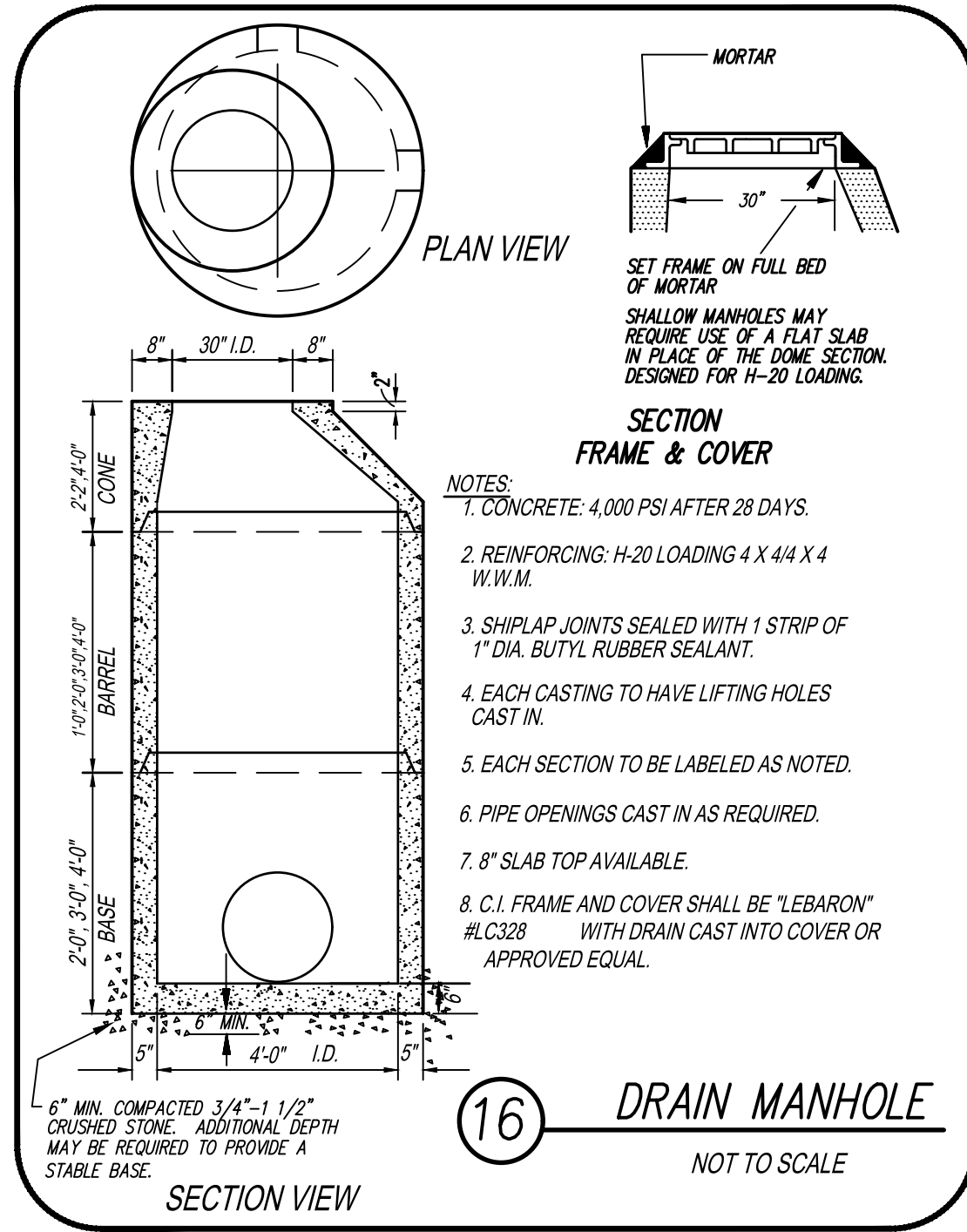
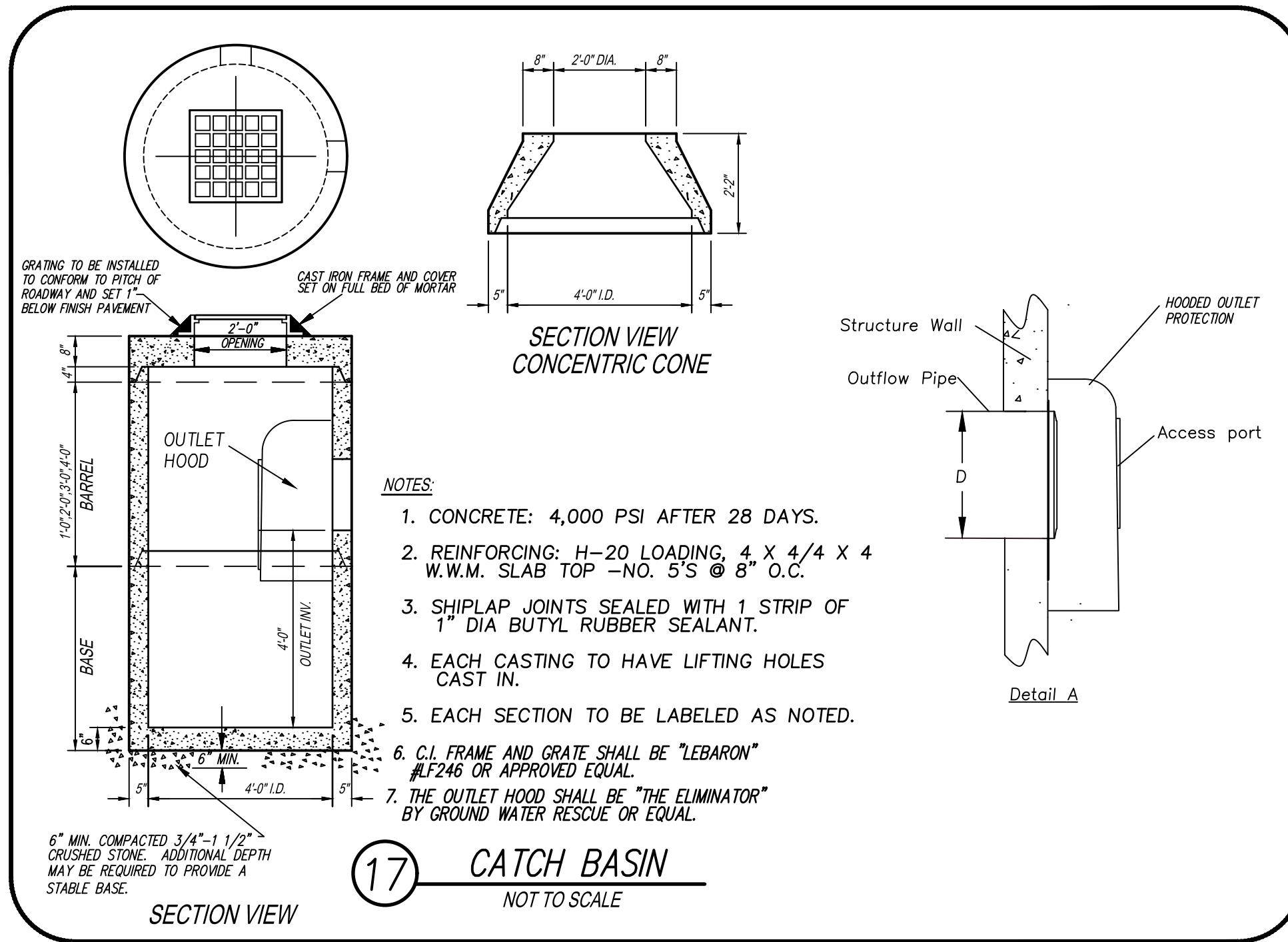
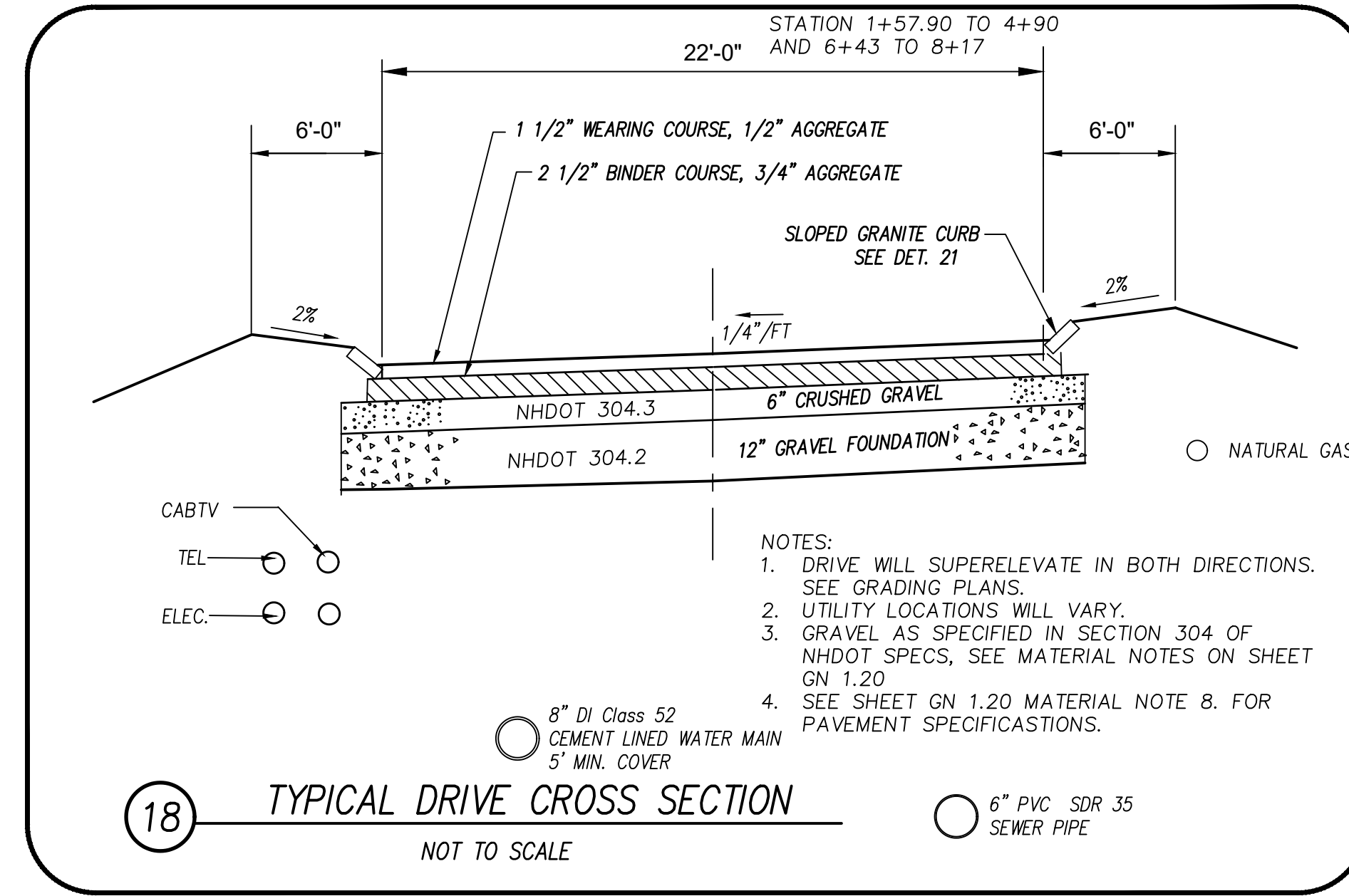
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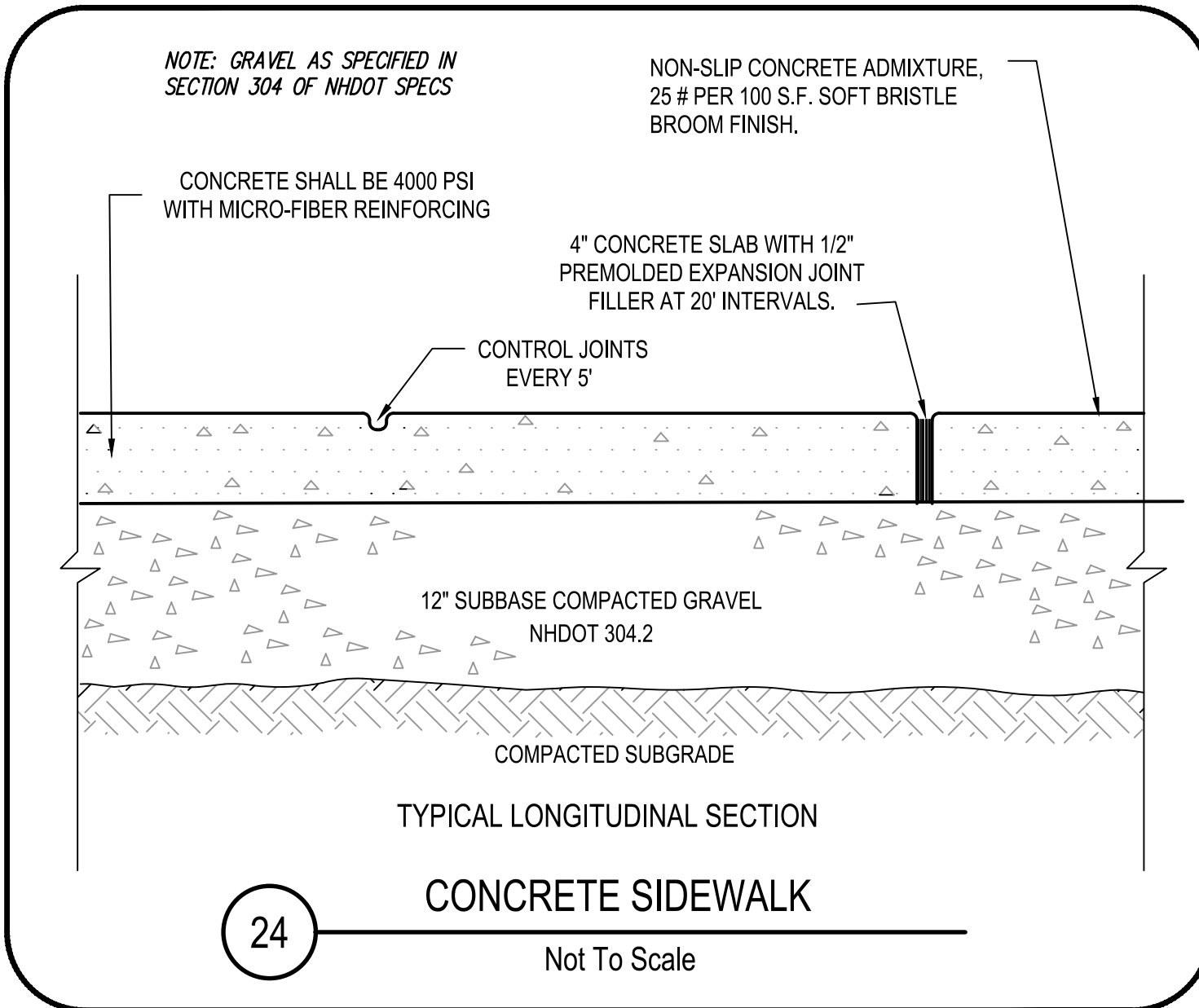
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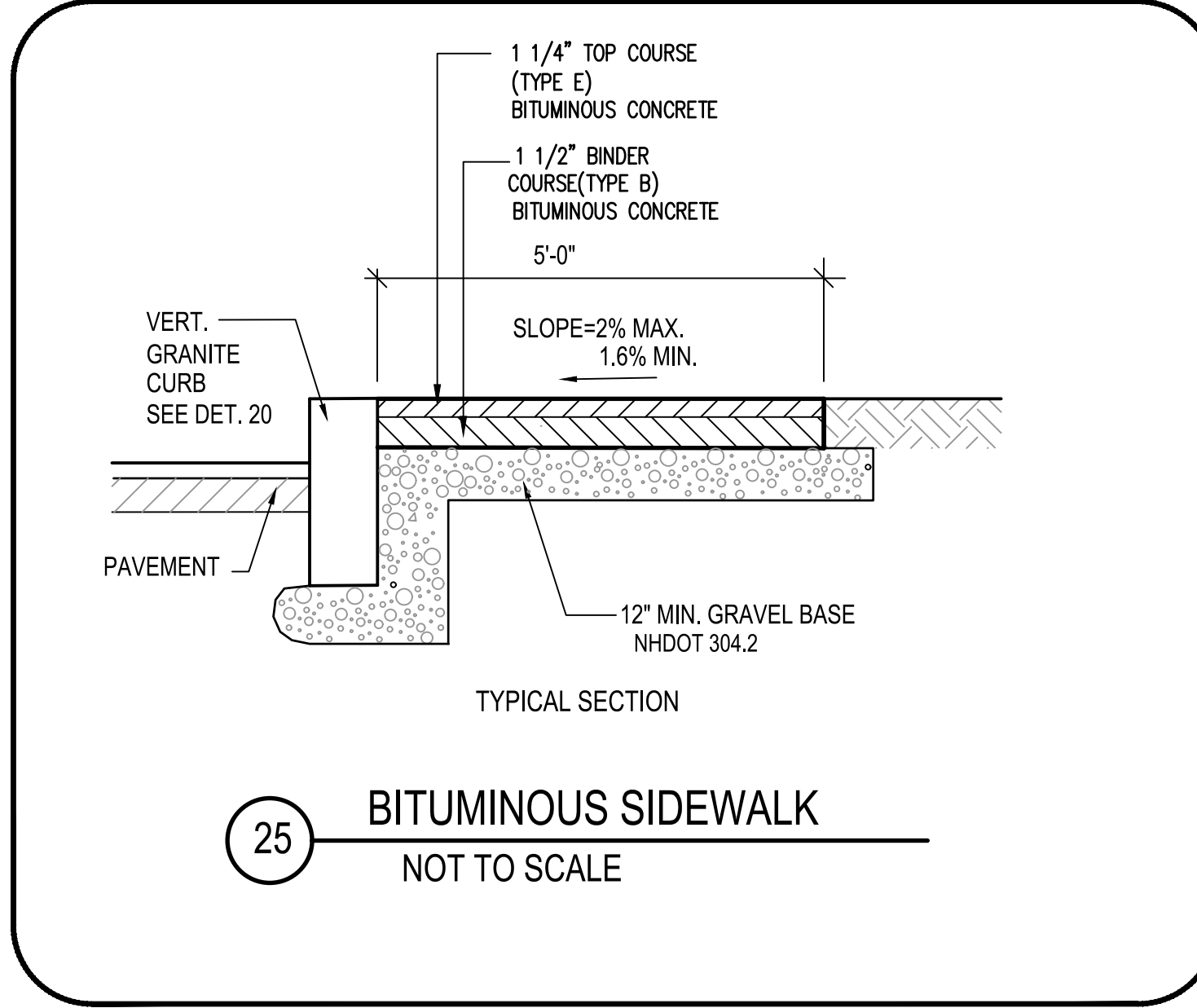
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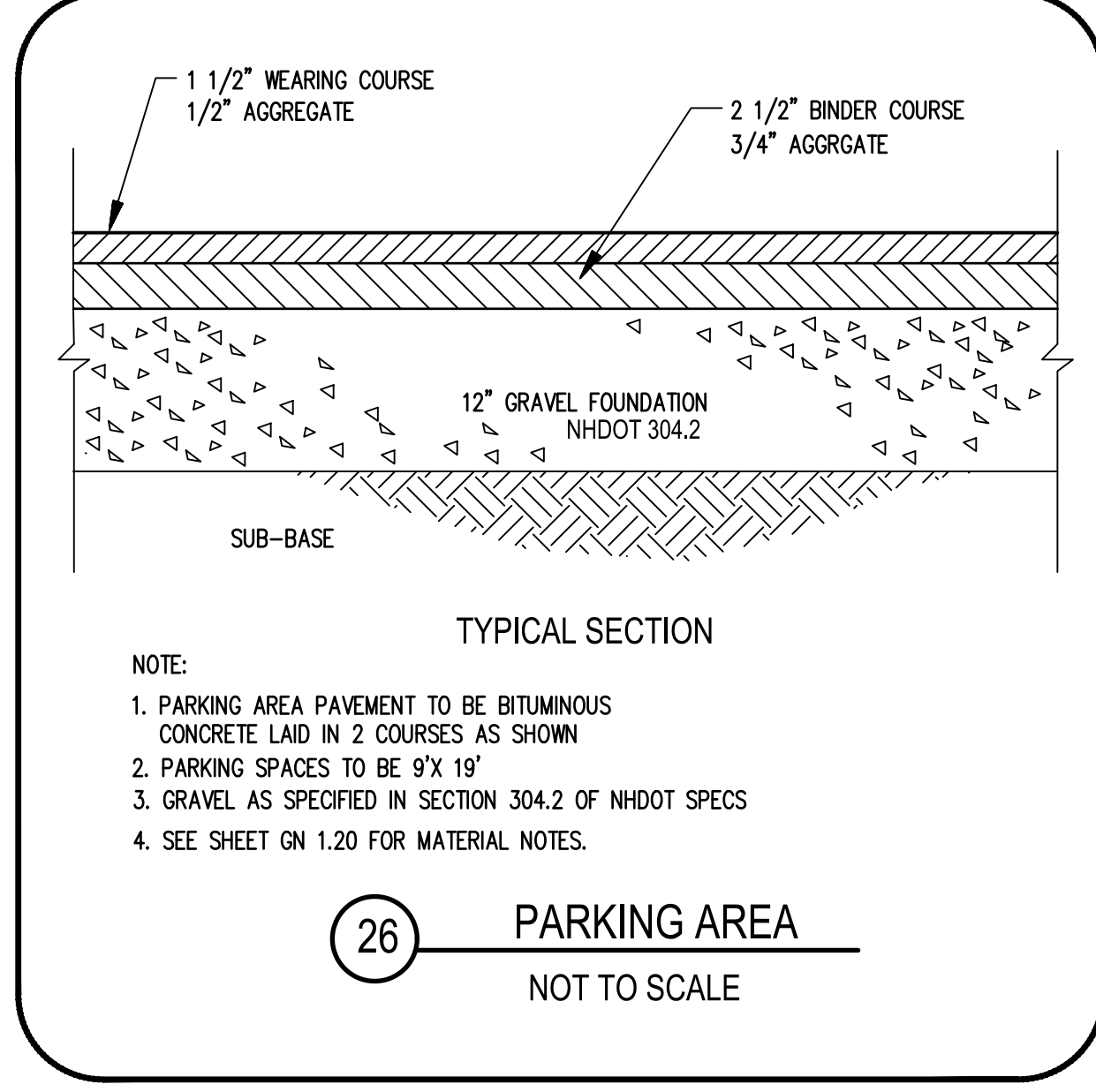
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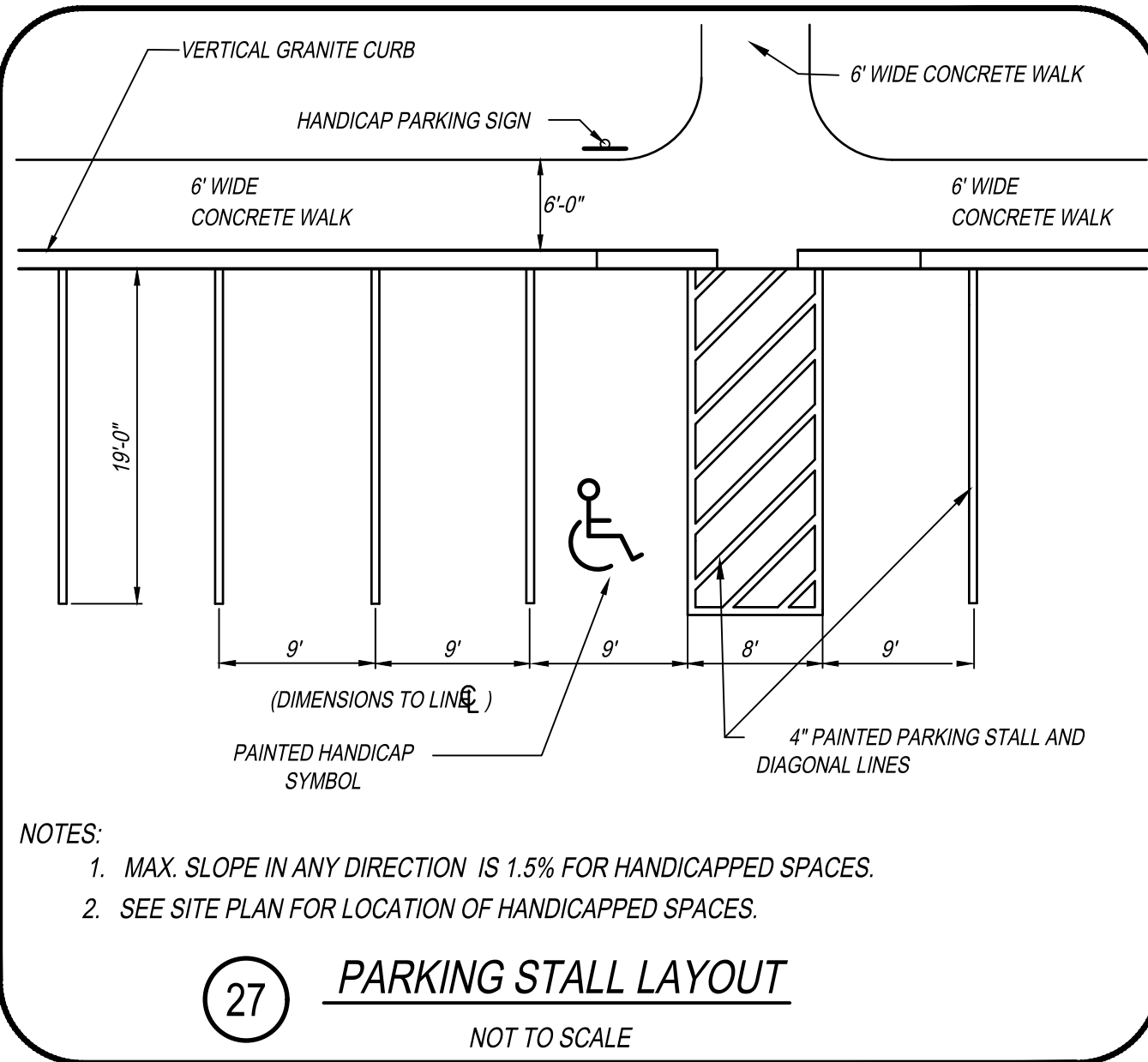
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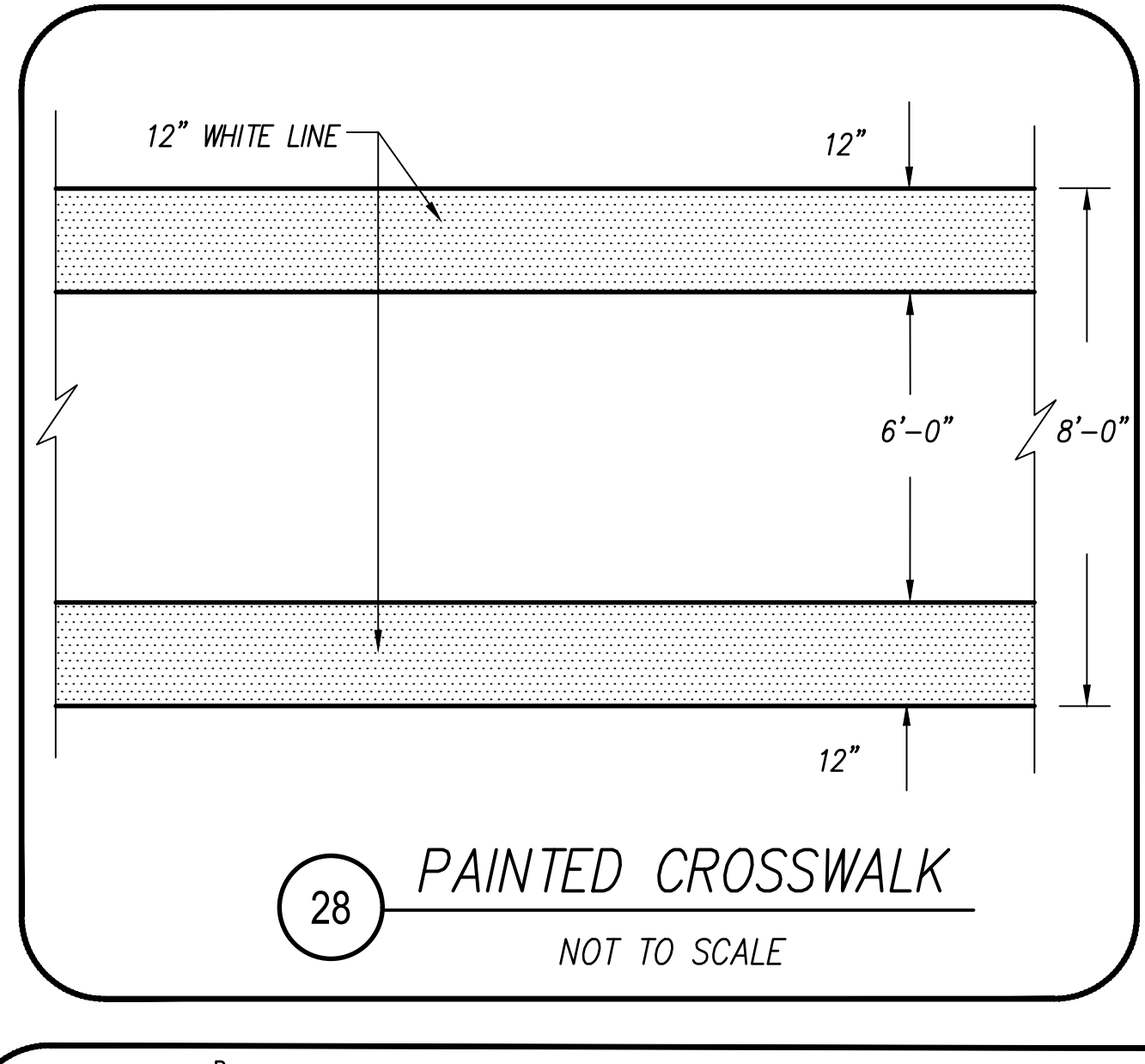
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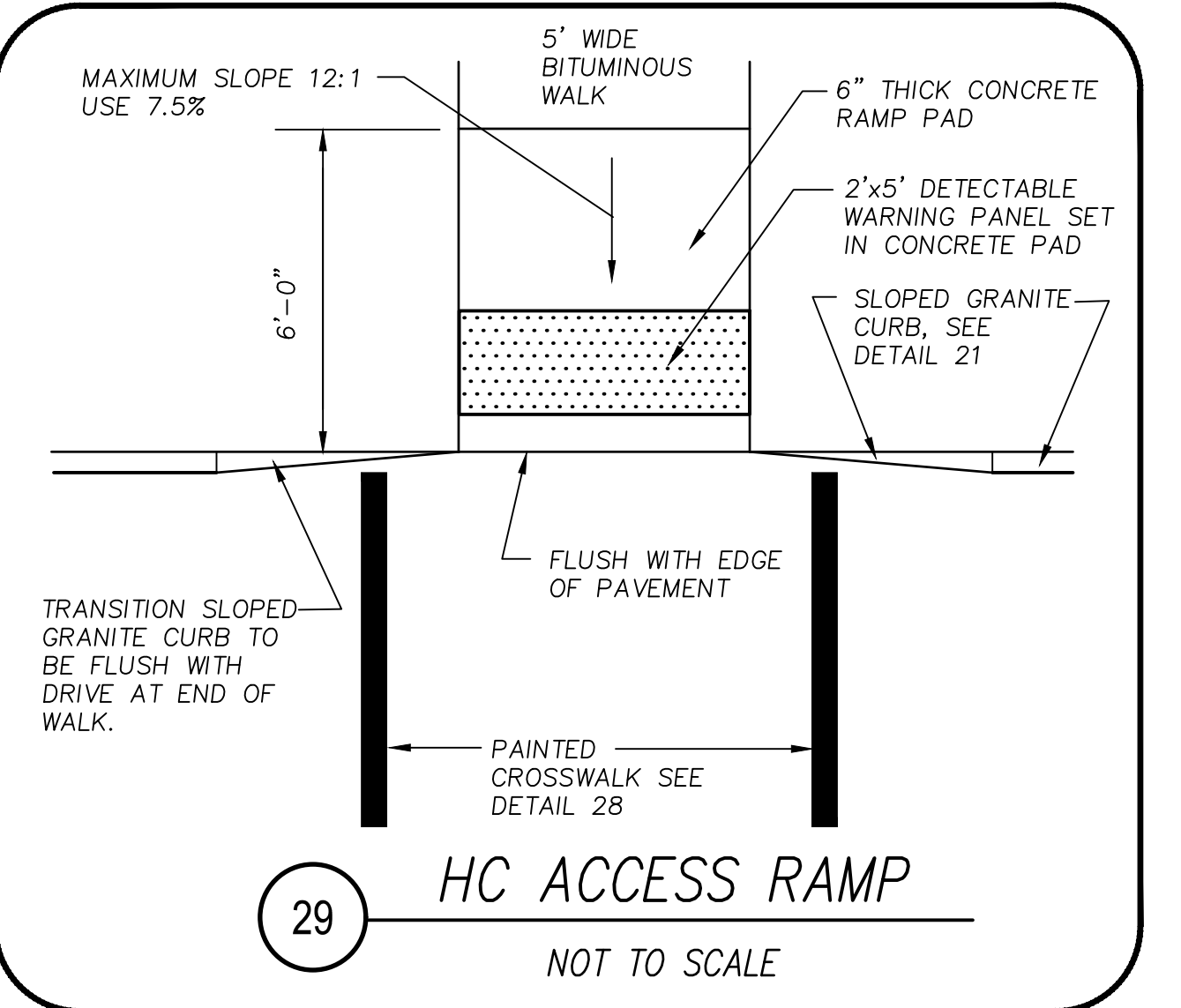
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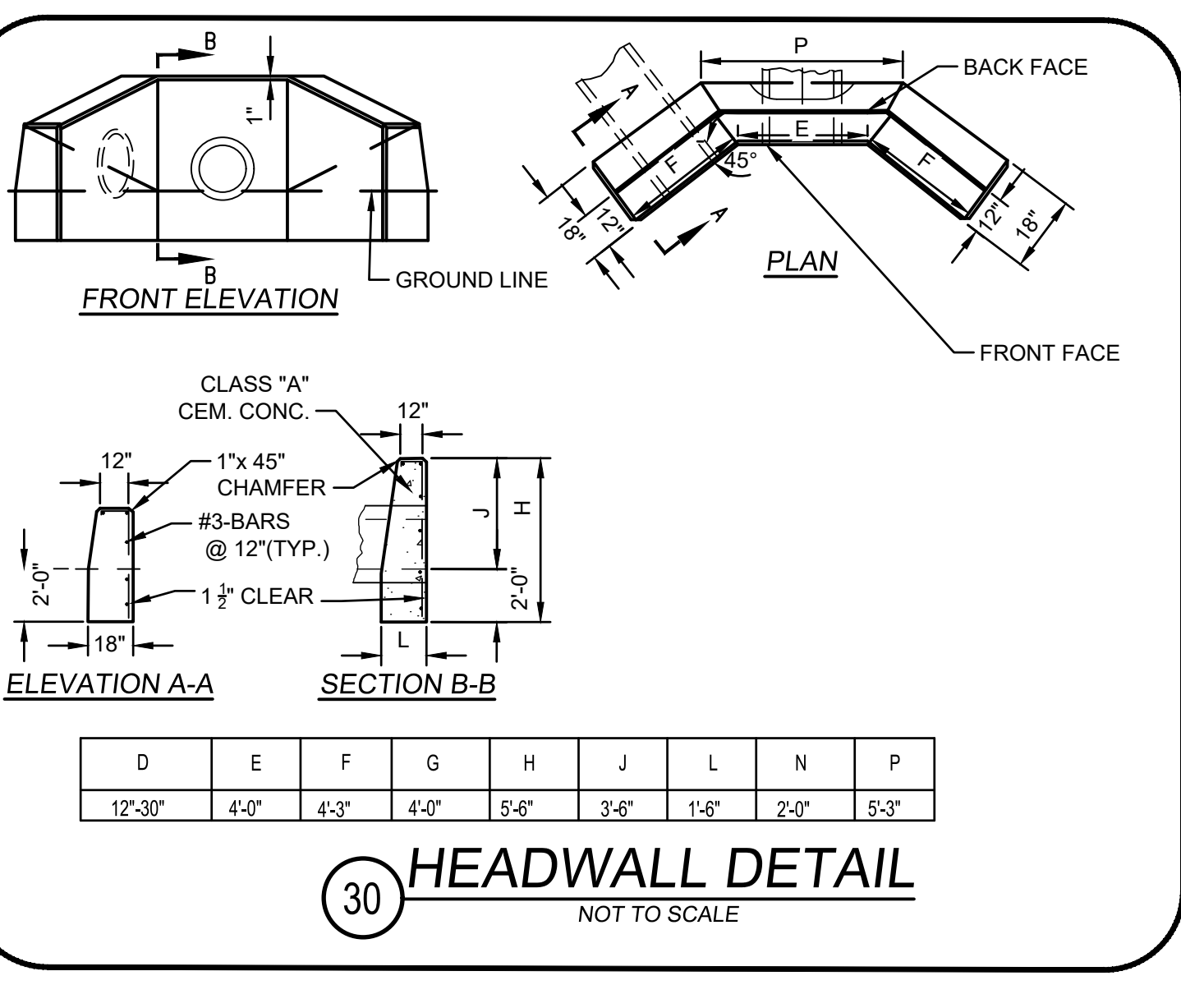
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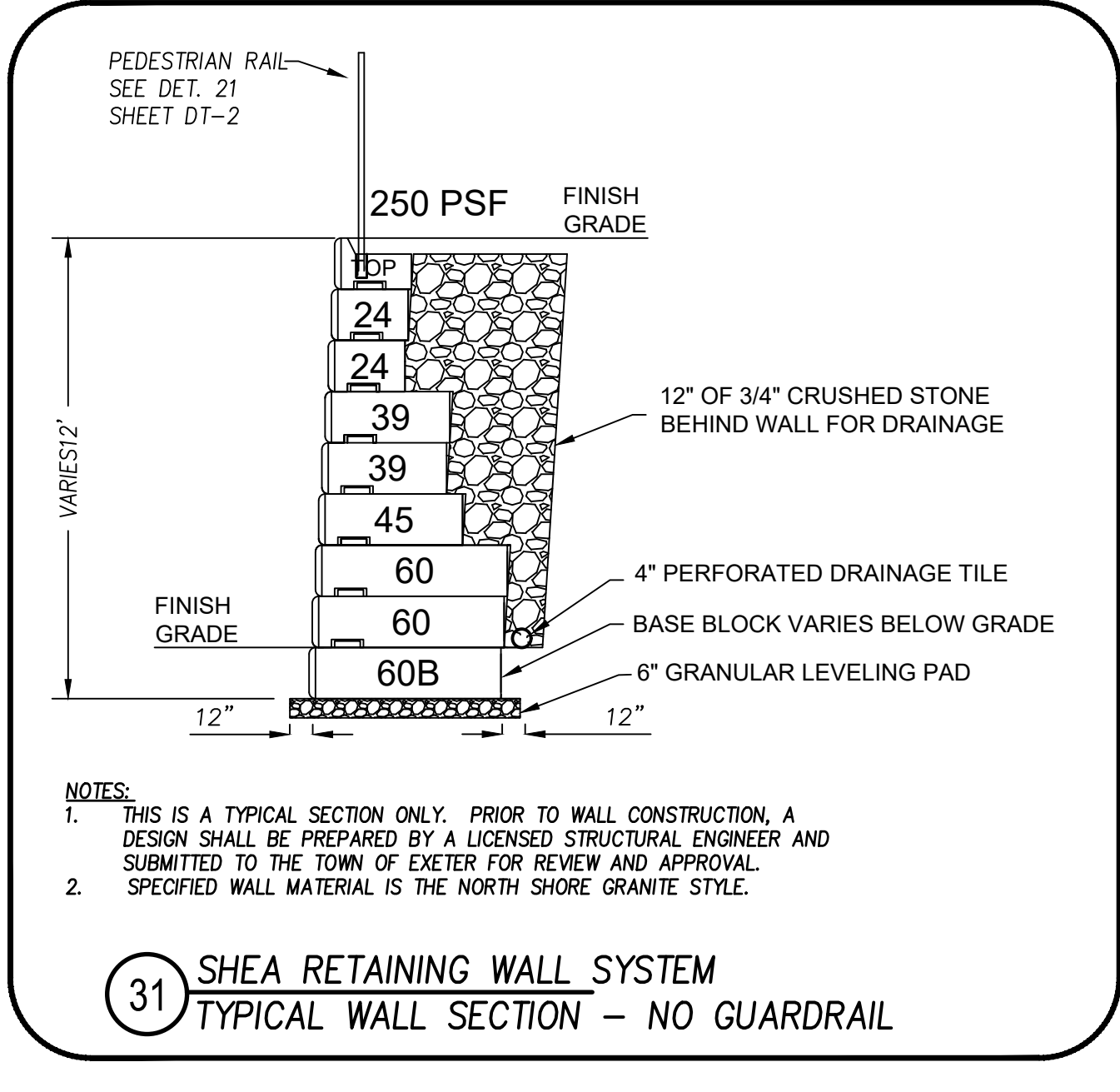
28 PAINTED CROSSWALK  
 NOT TO SCALE



29 HC ACCESS RAMP  
 NOT TO SCALE



30 HEADWALL DETAIL  
 NOT TO SCALE



31 SHEAR RETAINING WALL SYSTEM  
 TYPICAL WALL SECTION - NO GUARDRAIL

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 JOB #: 16042 D

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① EXAMPLE OF EXTERIOR VIEW

PHOTO BY: CLEAR EYE PHOTO

REVISIONS:

RAY FARM ACTIVE ADULT COMMUNITY  
 EPPING ROAD  
 EXETER, NEW HAMPSHIRE 03833, ROCKINGHAM COUNTY

**CJ ARCHITECTS**  
 233 VAUGHAN STREET  
 SUITE 101 SUITE 101  
 PORTSMOUTH, NH 03801  
 (603) 431-2808  
 www.cjarchitects.net

BUILDING D  
 EXAMPLE OF  
 EXTERIOR VIEW

DATE:	3/14/2022
DRAWN BY:	WWB
APPROVED BY:	CJG
SCALE:	N/A
JOB NUMBER:	21611

A1.0

NOT FOR CONSTRUCTION

REVISIONS:

RAY FARM ACTIVE ADULT COMMUNITY  
 EPPING ROAD  
 EXETER, NEW HAMPSHIRE 03833, ROCKINGHAM COUNTY

**ARCHITECTS**  
 233 VAUGHAN STREET  
 SUITE 101  
 PORTSMOUTH, NH 03801  
 (603) 431-2808  
 www.cjarchitects.net

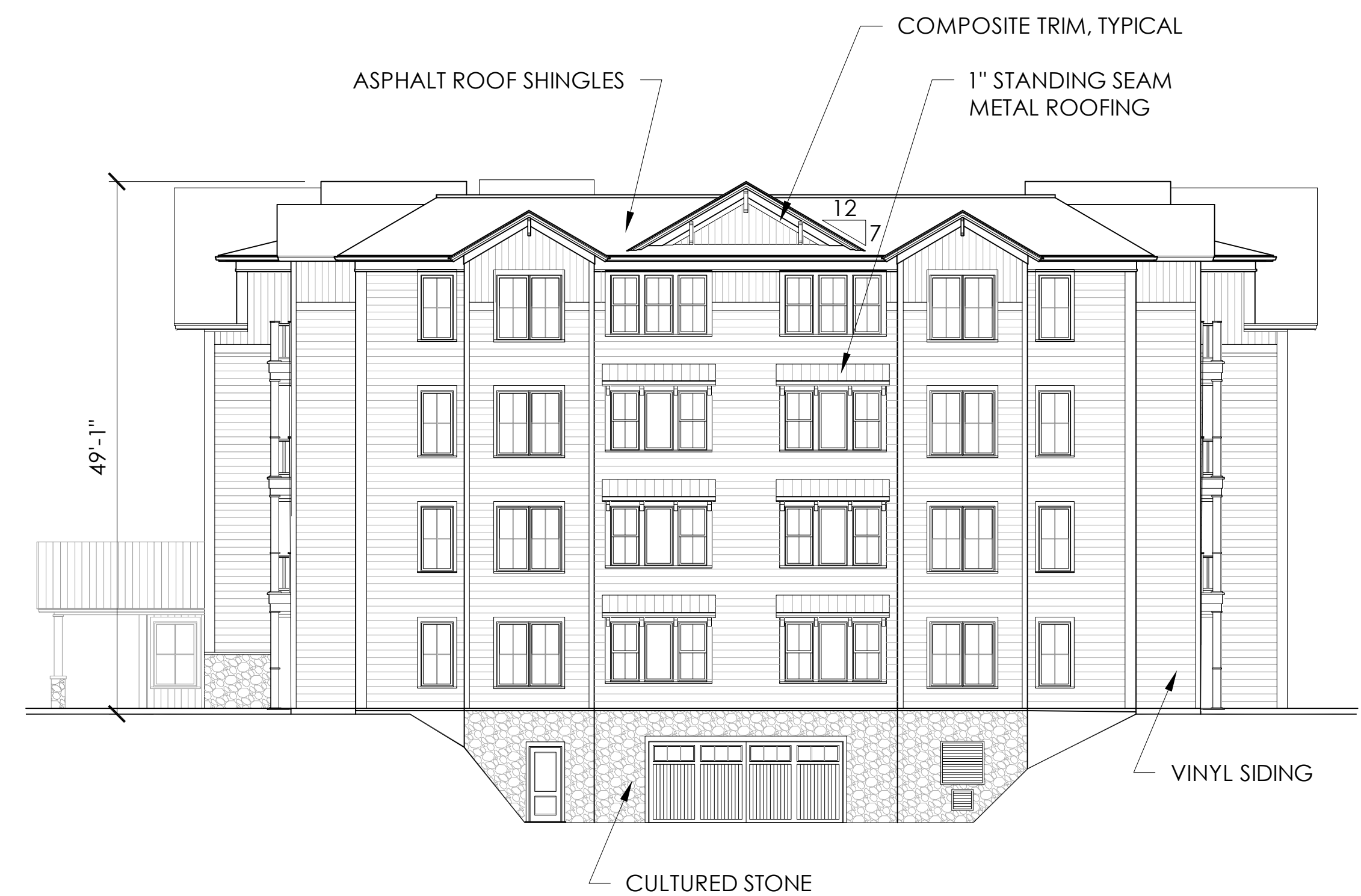
BUILDING D  
 ELEVATIONS

DATE: 3/14/2022  
 DRAWN BY: WWB  
 APPROVED BY: CJG  
 SCALE: 3/32" = 1'-0"  
 JOB NUMBER: 21611

A2.0



1 FRONT ELEVATION  
 3/32" = 1'-0"



2 RIGHT SIDE ELEVATION  
 3/32" = 1'-0"

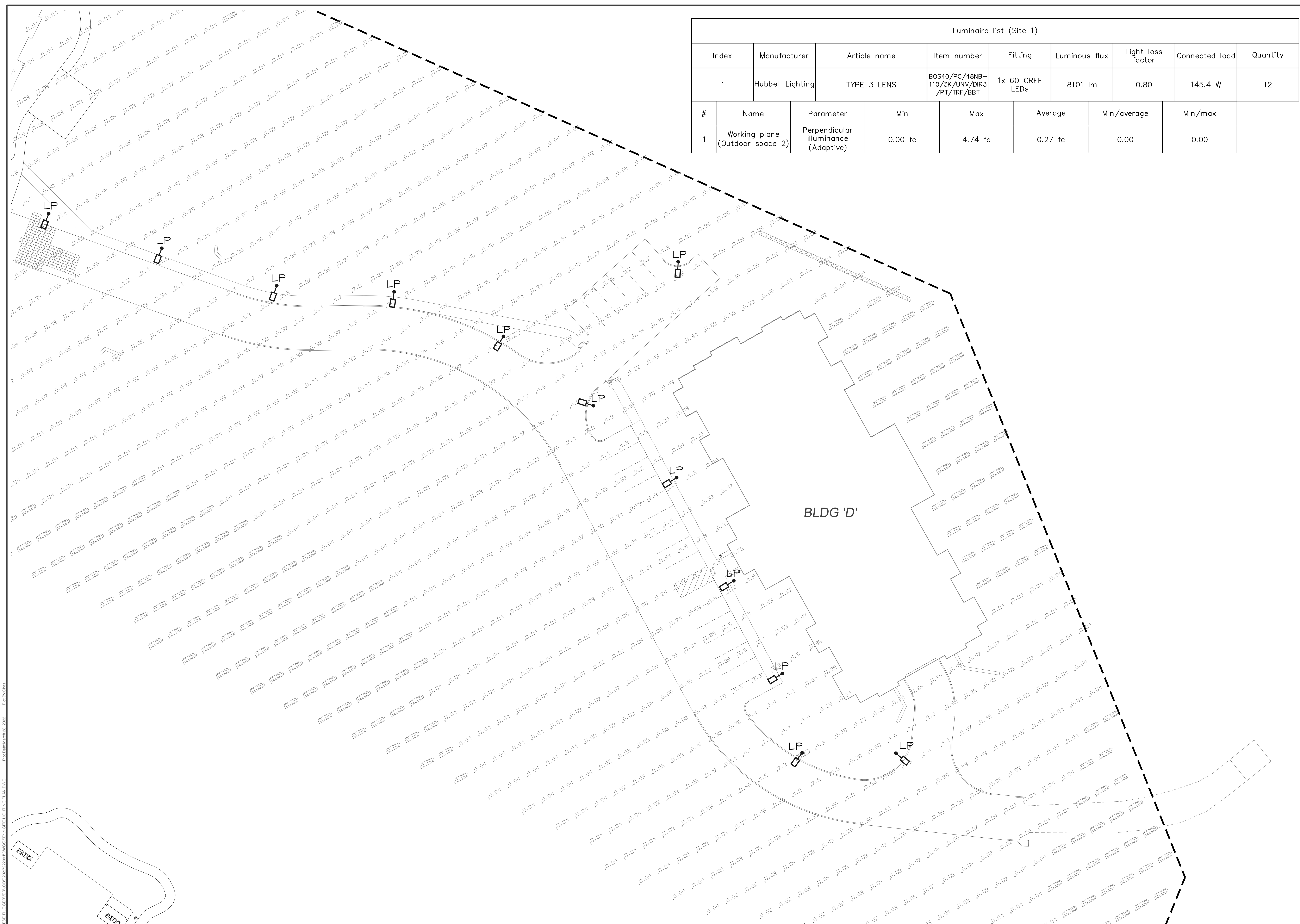


3 BACK ELEVATION  
 3/32" = 1'-0"



4 LEFT SIDE ELEVATION  
 3/32" = 1'-0"

NOT FOR CONSTRUCTION



Luminaire list (Site 1)								
Index	Manufacturer	Article name	Item number	Fitting	Luminous flux	Light loss factor	Connected load	Quantity
1	Hubbell Lighting	TYPE 3 LENS	BOS40/PC/48NB-110/3K/UNV/DIR3/PT/TRF/BBT	1x 60 CREE LEDs	8101 lm	0.80	145.4 W	12
#	Name	Parameter	Min	Max	Average	Min/average	Min/max	
1	Working plane (Outdoor space 2)	Perpendicular illuminance (Adaptive)	0.00 fc	4.74 fc	0.27 fc	0.00	0.00	

Stamp:

Engineer:

Contractor:

REVISIONS		Approved
Date	Description	

Project Name:

**RAY FARM - SITE**  
 EPPING ROAD  
 EXETER, NH 03833

Title

**SITE LIGHTING PLAN**

Drawn: CMM  
 Checked: SF/SH/RFG  
 Date: 03-28-22  
 Scale: 1"=20'-0"  
 Project No.: 222091  
 File No.:  
 Drawing No.: **SE1.1**

J:\SEI FILE SERVER\2022\222091\DWG\SEI.1 SITE LIGHTING PLAN.DWG Plot Date: March 28, 2022 Plot By: chris



6 CHESTNUT STREET, AMESBURY, MA.  
 Phone: (978) 388-2157  
 CONSULTING ENGINEERS &  
 LAND SURVEYORS SINCE 1988  
 www.gm2inc.com

Sheet Title:  
**WETLAND  
 IMPACT  
 PLAN**

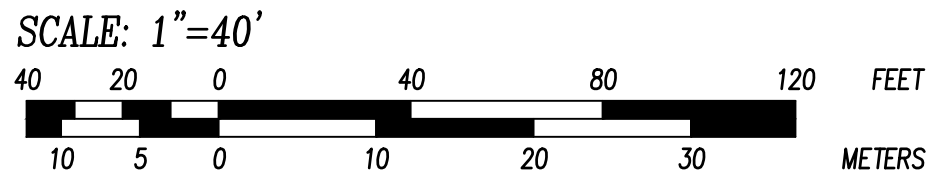
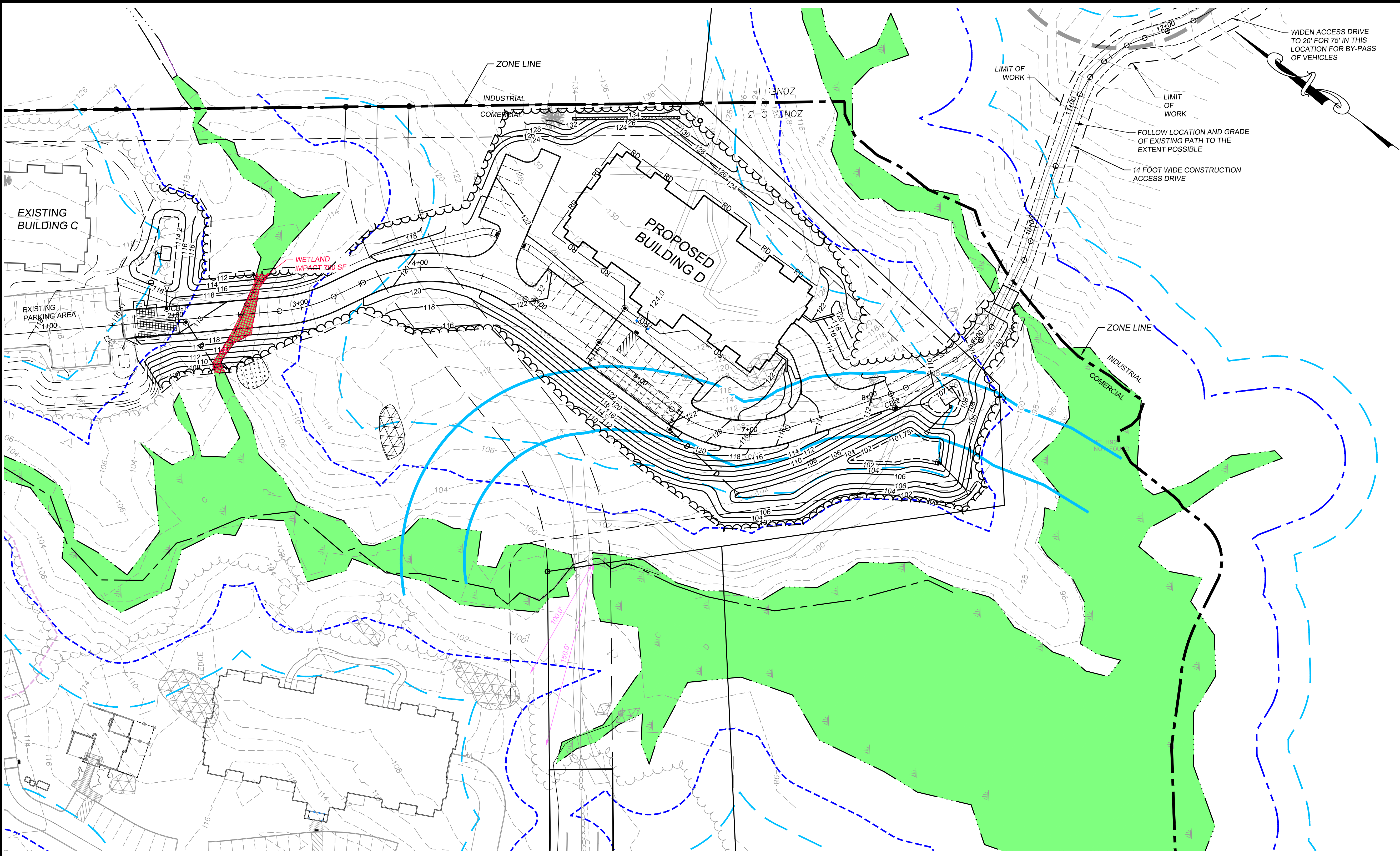
Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY

PROJ. MGR.: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D GR.DWG  
 FBK:  
 JOB #: 16042 D

SHEET **C1.24**



**DIRECT WETLAND IMPACTS**

WETLAND IMPACT - AREA 1 700 SF

**TOTAL WETLAND IMPACT 700 SF**

**NOTES:**

- REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
- ACCESS ROAD SHOWN DEPICTS DESIGN INTENT ONLY. FINAL DESIGN TO BE COORDINATED WITH RESULTS OF THE TIF PROGRAM DESIGN.

TOWN OF EXETER PLANNING BOARD

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

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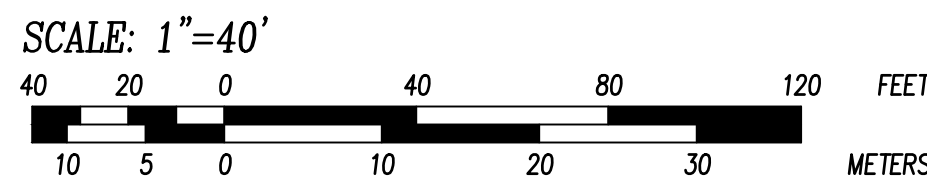
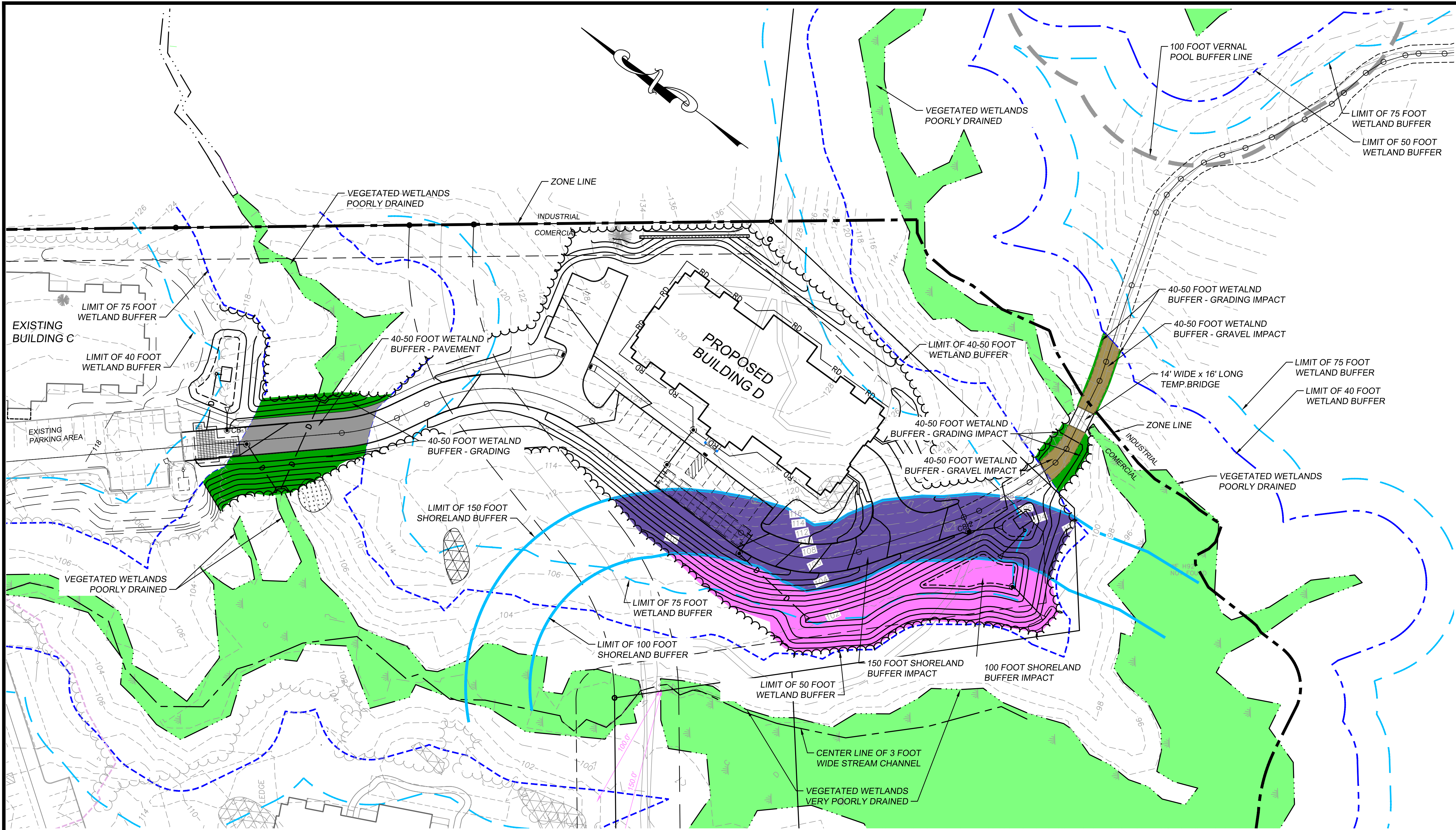
Sheet Title:  
**WETLAND AND  
 SHORELAND  
 BUFFER IMPACT  
 PLAN**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY

PROJ. MGR.: D. HAMEL  
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 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D GR.DWG  
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 JOB #: 16042 D



**WETLAND BUFFER IMPACTS**

	40-50 FOOT WETLAND BUFFER IMPACT - PAVEMENT	2858 SF
	40-50 FOOT WETLAND BUFFER IMPACT - GRAVEL	1436 SF
	40-50 FOOT WETLAND BUFFER IMPACT - GRADING	5179 SF
	75 FOOT WETLAND BUFFER IMPACT	0 SF

TOTAL WETLAND BUFFER IMPACTS 9,473 SF

**SHORELAND BUFFER IMPACTS**

	100 FOOT SHORELAND BUFFER IMPACT	9128 SF
	150 FOOT SHORELAND BUFFER IMPACT	16,560 SF

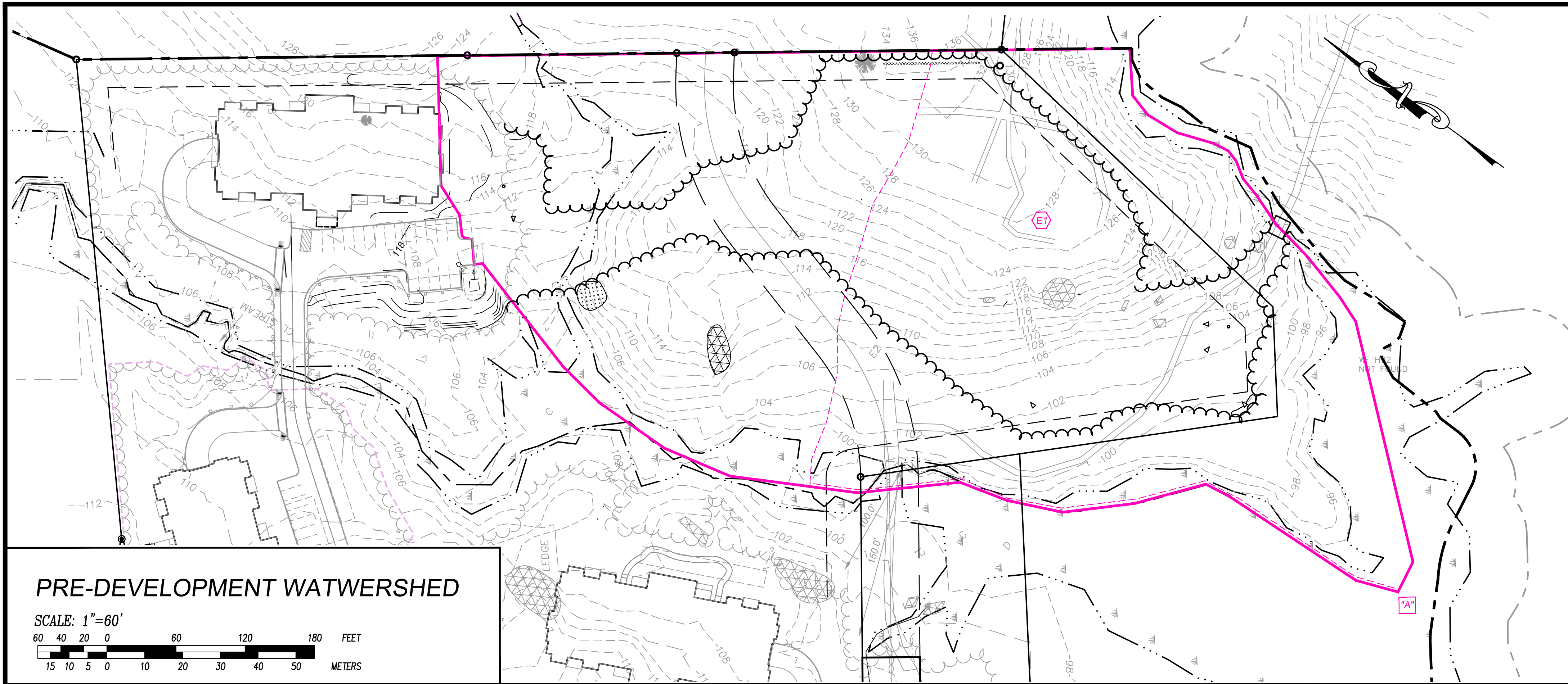
TOTAL SHORELAND BUFFER IMPACT 25,688 SF SF

**NOTES:**

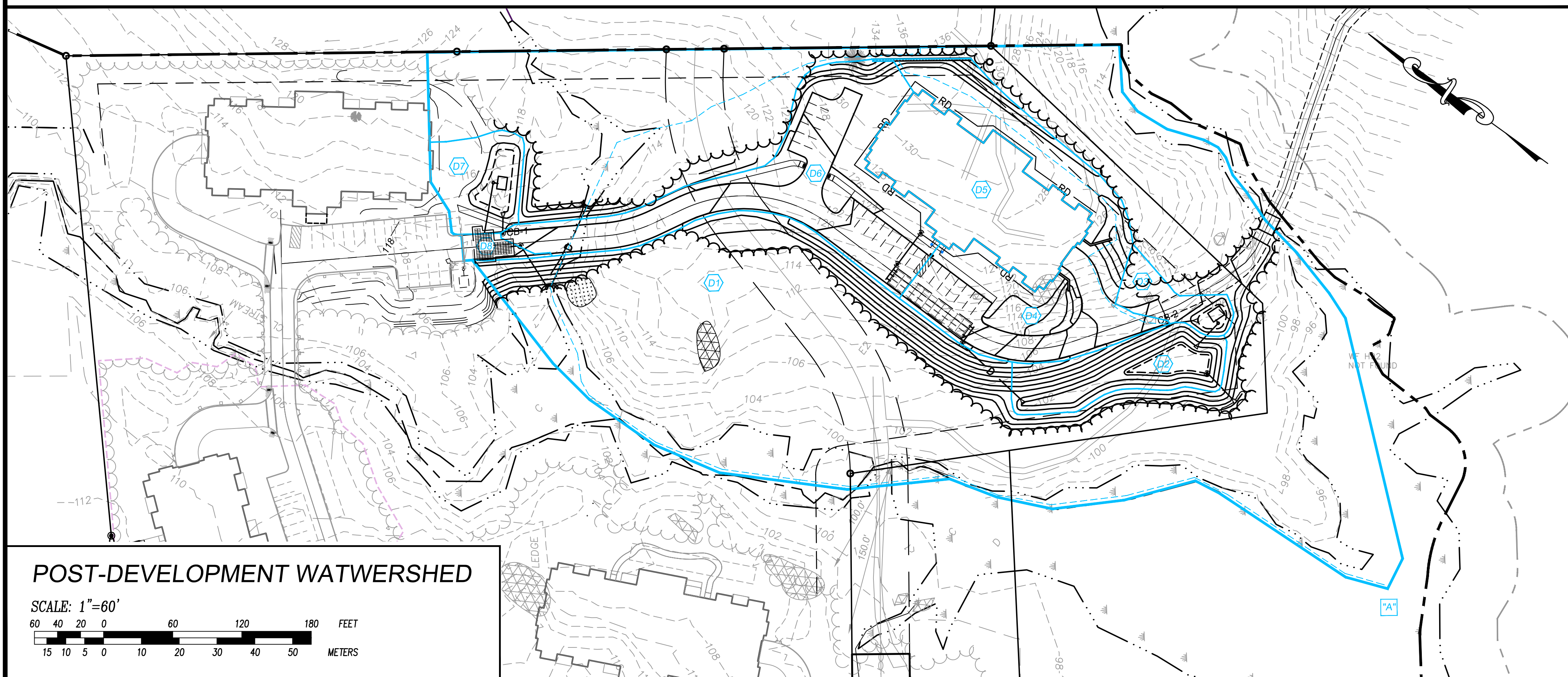
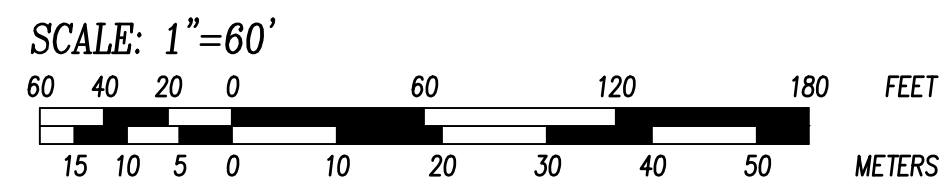
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TOWN OF EXETER PLANNING BOARD

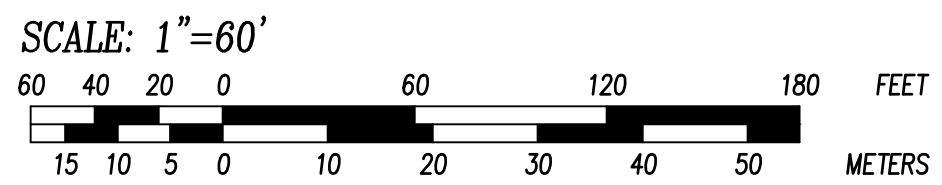
CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_



**PRE-DEVELOPMENT WATWERSHED**



**POST-DEVELOPMENT WATWERSHED**



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 LAND SURVEYORS SINCE 1988  
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Sheet Title:  
**WATERSHED  
 PLANS**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY

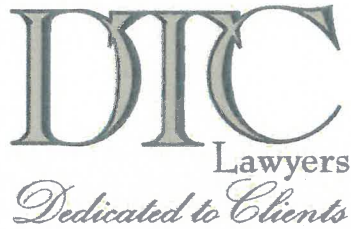
- NOTES:**
- REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
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TOWN OF EXETER PLANNING BOARD

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

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 JOB #: 16042 D





CELEBRATING OVER 35 YEARS OF SERVICE TO OUR CLIENTS

LIZABETH M. MACDONALD  
JOHN J. RATIGAN  
DENISE A. POULOS  
ROBERT M. DEROSIER  
CHRISTOPHER L. BOLDT  
SHARON CUDDY SOMERS  
DOUGLAS M. MANSFIELD  
KATHERINE B. MILLER  
CHRISTOPHER T. HILSON  
HEIDI J. BARRETT-KITCHEN  
JUSTIN L. PASAY  
ERIC A. MAHER  
CHRISTOPHER D. HAWKINS  
BRENDAN A. O'DONNELL  
ELAINA L. HOEPPNER  
WILLIAM K. WARREN

RETIRED  
MICHAEL J. DONAHUE  
CHARLES F. TUCKER  
ROBERT D. CIANDELLA  
NICHOLAS R. AESCHLIMAN

April 1, 2022

Langdon Plumer, Chair  
Exeter Planning Board  
10 Front Street  
Exeter, NH 03833

Re: Conditional Use Permit Applications - Ray Farm – Building D Relocation  
Map 47, Lot 8.1

Dear Chair Plumber and Board Members:

This Firm represents Ray Farm, LLC which is the declarant of the Ray Farm Condominium, a 55+ senior living development in Exeter located on property off of Ray Farmstead Road which is further identified as Town Tax Map 47, Lot 8 (the “Ray Farm Property” or the “Project”), as well as CKT Associates, which is the owner of adjacent land identified as Town Tax Map 47, Lot 8.1 (the “CKT Property”). Enclosed please find two (2) Applications for Conditional Use Permits related to proposed impacts to the Town’s Shoreland Protection District and the Wetlands Conservation District on the Ray Farm Property and CKT Property caused by the proposed relocation of the previously approved fourth building of the Project, together with supporting materials. These applications supplement the Site Plan Review application which was filed on March 29, 2022. Also enclosed is check in the amount of \$100.00 for application filing fees. If you have any questions do not hesitate to contact me.

Very truly yours,  
DONAHUE, TUCKER & CIANDELLA, PLLC

Justin L. Pasay  
JLP/sac  
Enclosures

cc: Jonathan Shafmaster  
Denis Hamel, GM2  
Brendan Quigley, Gove Environmental  
Exeter Conservation Commission w/ 2 copies

DONAHUE, TUCKER & CIANDELLA, PLLC  
16 Acadia Lane, P.O. Box 630, Exeter, NH 03833  
111 Maplewood Avenue, Suite D, Portsmouth, NH 03801  
Towle House, Unit 2, 164 NH Route 25, Meredith, NH 03253  
83 Clinton Street, Concord, NH 03301

# Town of Exeter



## **Planning Board Application for Conditional Use Permit: Shoreland Protection District**

***February 2017***



# Town of Exeter Planning Board Application

## Conditional Use Permit: Shoreland Protection District In accordance with Zoning Ordinance Article: 9.3

**SUBMITTAL REQUIREMENTS:**

**(see Conservation Commission and Planning Board meeting dates and submission deadlines)**

1. One (1) electronic copy of full application, including plans (color copy if available)
2. Fifteen (15) copies of the Application
3. Fifteen (15) 11"x17" and three (3) full sized copies of the plan which must include:
  - Existing Conditions
    - a. Property Boundaries
    - b. Edge of Shoreland and associated Buffer (Shoreland Protection District – SPD)
    - c. Structures, roads/access ways, parking, drainage systems, utilities, wells and wastewater disposal systems and other site improvements
  - Proposed Conditions
    - a. Edge of Shoreland and Shoreland Buffers and distances to the following:
      - i. Edge of Disturbance
      - ii. Structures, roads/access ways, parking, drainage systems, utilities, wells and wastewater disposal systems and other site improvements
    - b. Name and phone number of all individuals whose professional seal appears on the plan
4. If applicant and/or agent is not the owner, a letter of authorization must accompany this application
5. Supporting documents i.e. Letters from the Department of Environmental Services, Standard Dredge and Fill Application and Photos of the property
6. A Town of Exeter Assessors list of names and mailing addresses of all abutters

<b>Required Fees:</b>
Planning Board Fee: <b>\$50.00</b> Abutter Fee: <b>\$10.00</b> Recording Fee (if applicable): <b>\$25.00</b>

The Planning Office must receive the completed application, plans and fees on the day indicated on the Planning Board Schedule of Deadlines and Public Hearings.

APPLICANT	Name: CKT Associates
	Address: 158 Shattuck Way, Newington, NH 03801
	Email Address:
	Phone: 603-431-3170
PROPOSAL	Address: Ray Farmstead Road
	Tax Map # <u>47</u> Lot# <u>8.1</u> Zoning District: <u>C-3</u>
	Owner of Record: CKT Associates
Person/Business performing work outlined in proposal	Name: TBD
	Address:
	Phone:
Professional that delineated wetlands	Name: Brendan Quigley, Gove Environmental
	Address: 8 Continental Drive, Unit H, Exeter, NH 03833
	Phone: 603-778-0654

**Town of Exeter**  
**Planning Board Application**  
**Conditional Use Permit: Shoreland Protection District**

Detailed Proposal including intent, project description, and use of property: (Use additional sheet as needed)  
 see attached

Shoreland Protection District Impact (in square footage):	
Water Body	Watson Brook
Temporary Impact	<input type="checkbox"/> 300 Foot SPD _____ <input type="checkbox"/> 150 foot SPD _____ <input type="checkbox"/> SPD Building Setback _____ <input type="checkbox"/> 75 Vegetative Buffer _____
Permanent Impact	<input type="checkbox"/> 300 Foot SPD _____ <input checked="" type="checkbox"/> 150 foot SPD <u>16,560 sf</u> <input checked="" type="checkbox"/> SPD Building Setback <u>9,128 sf grading for stormwater management</u> <input type="checkbox"/> 75 Vegetative Buffer _____
Impervious Lot Coverage	SF of Lot within District <u>71,422</u> SF of Impervious within District <u>6,715</u> % of Impervious within District <u>9.4%</u>

List any variances/special exceptions granted by Zoning Board of Adjustment including dates:  
 Variance to allow age restricted residential use granted on November 17, 2021.

Describe how your proposal meets the conditions of Article 9.3.4.G.2 of the Zoning Ordinance (attached for reference):  
 see attached

**ABUTTERS: PLEASE LIST ALL PERSONS WHOSE PROPERTY IS LOCATED IN NEW HAMPSHIRE AND ADJOINS OR IS DIRECTLY ACROSS THE STREET OR STREAM FROM THE LAND UNDER CONSIDERATION BY THE BOARD. THIS LIST SHALL BE COMPILED FROM THE EXETER TAX ASSESSOR'S RECORDS.**

TAX MAP see attached  
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**Please attach additional sheets if needed**

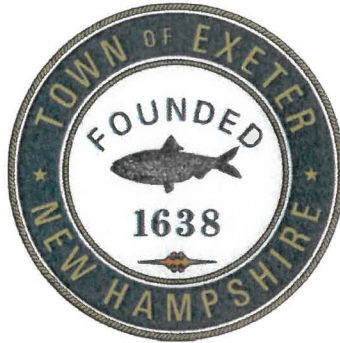
**Conditional Use Permit Criteria**  
**Shoreland Protection District**

9.3.4 G Conditional Uses:

2. The Planning Board may grant a Conditional Use Permit for those uses listed above only after written findings of fact are made which have been reviewed by technical experts from the Rockingham Conservation District, if required by the Planning Board, at the cost of the developer, provided that all of the following are true:

- a. The proposed use will not detrimentally affect the surface water quality of the adjacent river or tributary, or otherwise result in unhealthful conditions.
- b. The proposed use will discharge no waste water on site other than that normally discharged by domestic waste water disposal systems and will not involve on-site storage or disposal of hazardous or toxic wastes as herein defined.
- c. The proposed use will not result in undue damage to spawning grounds and other wildlife habitat.
- d. The proposed use complies with the use regulations identified in Article 9.3.4 Exeter Shoreland Protection District Ordinance – Use Regulations and all other applicable sections of this article.
- e. The design and construction of the proposed use will be consistent with the intent of the purposes set forth in Article 9.3.1 Exeter Shoreland Protection District Ordinance – Authority and Purpose.

# Town of Exeter



**Planning Board Application  
for  
Conditional Use Permit:  
Wetlands Conservation Overlay  
District**

***March 2020***





**Town of Exeter  
 Planning Board Application  
 Conditional Use Permit: Wetland Conservation Overlay District**

Detailed Proposal including intent, project description, and use of property: (Use additional sheet as needed)  
 see attached

Wetland Conservation Overlay District Impact (in square footage):				
Temporary Impact	<b>Wetland:</b>	(SQ FT.)	<b>Buffer:</b>	(SQ FT.)
	<input type="checkbox"/> Prime Wetlands	_____	<input type="checkbox"/> Prime Wetlands	_____
	<input type="checkbox"/> Exemplary Wetlands	_____	<input type="checkbox"/> Exemplary Wetlands	_____
	<input type="checkbox"/> Vernal Pools (>200SF)	_____	<input type="checkbox"/> Vernal Pools (>200SF)	_____
	<input type="checkbox"/> VPD	_____	<input type="checkbox"/> VPD	_____
	<input type="checkbox"/> PD	_____	<input type="checkbox"/> PD	_____
	<input type="checkbox"/> Inland Stream	_____	<input type="checkbox"/> Inland Stream	_____
Permanent Impact	<b>Wetland:</b>		<b>Buffer:</b>	
	<input type="checkbox"/> Prime Wetlands	_____	<input type="checkbox"/> Prime Wetlands	_____
	<input type="checkbox"/> Exemplary Wetlands	_____	<input type="checkbox"/> Exemplary Wetlands	_____
	<input type="checkbox"/> Vernal Pools (>200SF)	_____	<input type="checkbox"/> Vernal Pools (>200SF)	_____
	<input type="checkbox"/> VPD	_____	<input type="checkbox"/> VPD	_____
	<input checked="" type="checkbox"/> PD	<u>700 sf</u>	<input checked="" type="checkbox"/> PD	<u>9,473 sf</u>
	<input checked="" type="checkbox"/> Inland Stream	<u>inc. above</u>	<input type="checkbox"/> Inland Stream	<u>inc. above</u>

List any variances/special exceptions granted by Zoning Board of Adjustment including dates:

Variance to permit age-restricted residential use granted on November 17, 2021.

Describe how the proposal meets conditions in **Article 9.1.6.B** of the Zoning Ordinance (attached for reference):  
 see attached

**ABUTTERS: PLEASE LIST ALL PERSONS WHOSE PROPERTY IS LOCATED IN NEW HAMPSHIRE AND ADJOINS OR IS DIRECTLY ACROSS THE STREET OR STREAM FROM THE LAND UNDER CONSIDERATION BY THE BOARD. THIS LIST SHALL BE COMPILED FROM THE EXETER TAX ASSESSOR'S RECORDS.**

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9.1.6. B: Conditions: Prior to issuance of a conditional use permit, the Planning Board shall conclude and make a part of the record, compliance with the following criteria:

1. That the proposed use is permitted in the underlying zoning district;
2. No alternative design which does not impact a wetland or wetland buffer or which has less detrimental impact on the wetland or wetland buffer is feasible;
3. A wetland scientist has provided an impact evaluation that includes the “functions and values” of the wetland(s), an assessment of the potential project-related impacts and concluded to the extent feasible, the proposed impact is not detrimental to the value and function of the wetland(s) or the greater hydrologic system.
4. That the design, construction and maintenance of the proposed use will, to the extent feasible, minimize detrimental impact on the wetland or wetland buffer;
5. That the proposed use will not create a hazard to individual or public health, safety and welfare due to the loss of wetland, the contamination of groundwater, or other reasons;
6. The applicant may propose an increase in wetland buffers elsewhere on the site that surround a wetland of equal or greater size, and of equal or greater functional value than the impacted wetland
7. In cases where the proposed use is temporary or where construction activity disturbs areas adjacent to the immediate use, the applicant has included a restoration proposal revegetating any disturbed area within the buffer with the goal to restore the site as nearly as possible to its original grade and condition following construction.
8. That all required permits shall be obtained from the New Hampshire Department of Environmental Services Water Supply and Pollution Control Division under NH RSA §485-A: 17, the New Hampshire Wetlands Board under NH RSA §483-A, and the United States Army Corps of Engineers under Section 404 of the Clean Water Act.;

## Conditional Use Permit Analysis

This Firm represents Ray Farm, LLC which is the declarant of the Ray Farm Condominium, a 55+ senior living development in Exeter located on property off of Ray Farmstead Road which is further identified as Town Tax Map 47, Lot 8 (the “Ray Farm Property” or the “Project”), as well as CKT Associates, which is the owner of adjacent land identified as Town Tax Map 47, Lot 8.1 (the “CKT Property”). This Conditional Use Permit Analysis provides relevant background regarding the Project and the requested Conditional Use Permits, and supplements and incorporates the Wetland Delineation & Function-Value Report conducted by Brendan Quigley, NHCWS, of Gove Environmental Services, Inc. dated 31 March 2022 (the “Wetland Report”) which Wetland Report is incorporated herein by reference and is enclosed herewith as **Enclosure 1**. Also enclosed herewith are the Project’s Wetland Impact Plans produced by GM2, which plans incorporate three (3) sheets. See Enclosure 2.

Below please find a Project Narrative, description of proposed wetland impacts, and supplemented Conditional Use Permit Analysis analyzing both the Wetland Conservation District Conditional Use Permit criteria and the Shoreland Protection District Conditional Use Permit criteria, which analysis supplements and incorporates that which is found in the Wetland Report. See Enclosure 1.

### Project Narrative

By way of brief background, the Project, as approved by the Planning Board on 27 July 2017, consists of four distinct residential buildings (Buildings A – D) containing 116 units, a 2,000 sf clubhouse, and corresponding site improvements, all serviced by a private driveway accessed via Ray Farmstead Road. See Enclosure 3.<sup>1</sup> As approved, Buildings A, B and C are identical in design, size and footprint, and each contains 32 dwelling units. Building D, as depicted on **Enclosure 1**, was approved to be located in close proximity to Epping Road and the Mobil Gas Station and has a different design than Buildings A, B and C, containing only 20 dwelling units.

Since the Project’s approval, Ray Farmstead Road was built and accepted by the Town as Town Road, and Buildings A and B, as well as the clubhouse, are finished and completely occupied. Building C is being constructed and will be completed shortly in the spring of 2022. More than 40% of the units in Building C are pre-sold.

As the Applicant considered the completion of the Project via construction of Building D as originally approved, a more attractive alternative emerged. Specifically, the Applicant now proposes the relocation of Building D to the CKT Property. The Applicant proposes to construct the relocated Building D in the identical manner as Buildings A, B and C, inclusive of 32 units instead of the 20 units Building D was approved for in 2017. The proposed relocation of Building D is depicted on the plans provided by GM2 Engineering. See also Enclosure 2. As depicted, the relocated Building D is proposed to be accessed via an extended internal roadway from Building C, which would require minor wetland crossing.

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<sup>1</sup> Approved Site Plan

To accomplish its redesign, the Applicant proposes to consolidate approximately 4.29-acres of the upland area of the CKT Property and combine the same with the Ray Farm Property (Town Tax Map 47, Lot 8). The additional 4.29 acres added to the Ray Farm Property would be the site of the relocated Building D.

The net result of the Applicant's proposal would be a Ray Farm Property that is approximately 15.76 acres in size rather than the existing 11.46 acres. Reconfigured as proposed, the Ray Farm Property would continue to comply in all respects with all local Zoning regulations and would have less density than what was approved by the Planning Board in 2017. The area of the Ray Farm Property which was originally approved to accommodate Building D, will remain an open space area of the Ray Farm Project.

In support of its proposal, the Applicant received approval from the Zoning Board of Adjustment on November 17, 2021 to permit an age-restricted use for the proposed relocation of Building D on the Applicant's Abutting Property, which is Zoned in the C-3 Zoning District, and to increase the total number of residential units in the Project from 116 to 128.

The remnant area of the CKT Property post-subdivision and consultation will be approximately 3.16 acres in size, will have ample frontage along Epping Road and Ray Farmstead Road, will remain in the C-3 Zoning District, will comply in all respects with applicable Zoning regulations and could accommodate viable C-3 commercial development in the future.

### **Proposed Impacts**

- **Wetlands Conservation District**

The Project contemplates 700 sf of direct wetland impact and 9,473 sf of buffer impact within the Town's 40-50 ft Limited Use Buffer caused by grading, pavement and gravel relating to two wetland area crossings. **Enclosure 2.** The first, located approximate to existing Building C, will provide internal access to proposed Building D over poorly drained soils and an intermittent stream area. See Enclosure 1. The second is a temporary crossing over poorly drained soils to the south and east of proposed Building D on the CKT Property. Id.

- **Shoreland Protection District**

The Project also contemplates 9,128 sf of proposed impact to the 100 ft Shoreland Protection District caused by grading and stormwater management infrastructure which will be utilized by Building D, as well as 16,560 sf of impact within the 150 ft Shoreland Protection District caused by grading, drainage infrastructure, and portions of pavement which will serve Building D. **Enclosure 2.**

## Wetlands Conservation District Conditional Use Permit Criteria Analysis

The Project satisfies the applicable Wetlands Conservation District Conditional Use Permit criteria found in Section 9.1.6(B) of the Town's Zoning Ordinance for the reasons stated in **Enclosure 1**, as supplemented below.

- **That the proposed use is permitted in the underlying zoning district. Zoning Ordinance, Section 9.6.1(B)(1).**

The underlying use is an age-restricted 55+ multifamily residential use which is permitted in the C-3 district and on the underlying properties pursuant to the Variance relief obtained by the Applicant on 17 November 2021. Further, the actual use within the Limited Use Buffer includes paving, grading and gravel, all to facilitate permanent and temporary access to the Project, which use is expressly permitted by Section 9.6.1(1) of the Zoning Ordinance. As such, this criteria is satisfied.

- **No alternative design which does not impact a wetland or wetland buffer or which has less detrimental impact on the wetland or wetland buffer is feasible. Zoning Ordinance, Section 9.6.1(B)(2).**

See Enclosure 1, pg. 4. Further, the proposed upland area for relocated Building D is best accessed for development via an extension of the existing driveway serving the rest of the Project, and not via extension of the existing Ray Farmstead Road, which would cause significantly more impact to more valuable wetland resource areas. The Project goal of avoiding and minimizing impact, is evidenced by the approach the Applicant has taken with this development proposal to particularly include the use of viable uplands on the CKT Property, the corresponding proposed lot line adjustment, and the Variance the Applicant had to obtain. On these bases, this criteria is satisfied.

- **A wetland scientist has provided an impact evaluation that includes the “functions and values” of the wetland(s), an assessment of the potential project-related impacts and concluded to the extent feasible, the proposed impact is not detrimental to the value and function of the wetland(s) or the greater hydrologic system. Zoning Ordinance, Section 9.6.1(B)(3).**

See Enclosure 1, pgs. 4-5. Further, as evidenced in **Enclosure 1**, due to the Project's design, impacts will be reasonably mitigated and the “overall wetland function and the greater hydrologic system will not be negatively affected.” **Enclosure 1**, pg. 5. On these bases, this criteria is satisfied.

- **That the design, construction and maintenance of the proposed use will, to the extent feasible, minimize detrimental impact on the wetland or wetland buffer. Zoning Ordinance, Section 9.6.1(B)(4).**

See Enclosure 1, pg. 5. Further, the entirety of the relocated Building D is located out of the wetland and all associated buffers and impacts are limited to one permanent wetland crossing

and one temporary crossing to facilitate construction access. The Project also avoids a much larger and more detrimental impact crossing of Watson Brook if Ray Farmstead Road were to be extended. On these bases, this criteria is satisfied.

- **That the proposed use will not create a hazard to individual or public health, safety and welfare due to the loss of wetland, the contamination of groundwater, or other reasons. Zoning Ordinance, Section 9.6.1(B)(5).**

See Enclosure 1, pg. 5. To summarize, the Project causes no hazard to individual or public health, safety or welfare to the loss of wetland, the contamination of groundwater, or any other reasons. On these bases, this criteria is satisfied.

- **The applicant may propose an increase in wetland buffers elsewhere on the site that surround a wetland of equal or greater size, and of equal or greater functional value than the impacted wetland. Zoning Ordinance, Section 9.6.1(B)(6).**

See Enclosure 1, pg. 5. The proposed relocation of Building D avoids approximately 5,000 sf of Limited Use Buffer impact that was approved to occur pursuant to the original location of Building D. The relocation also avoids approximately 1,300 sf of impact within the 75-foot building setback caused by Building D as originally approved. Finally, the proposal avoids larger and more detrimental impact to the Watson Brook area that would be caused by an extension of Ray Farmstead Road. On these bases, this criteria is satisfied.

- **In cases where the proposed use is temporary or where construction activity disturbs areas adjacent to the immediate use, the applicant has included restoration proposal revegetating any disturbed area within the buffer with the goal to restore the site as nearly as possible to its original grade and condition following construction. Zoning Ordinance, Section 9.6.1(B)(7).**

See Enclosure 1, pg. 5. On these bases, this criteria is satisfied.

- **That all required permits shall be obtained from the New Hampshire Department of Environmental Services Water Supply and Pollution Control Division under NH RSA 485-A:17, the New Hampshire Wetlands Board under NH RSA 483-A, and the United States Army Corps of Engineers under Section 404 of the Clean Water Act. Zoning Ordinance, Section 9.6.1(B)(8).**

The Applicant will obtain all necessary local, State and Federal permits for the Project and welcomes a condition of approval requiring same.

### **Shoreland Protection District Conditional Use Permit Criteria Analysis**

The Project satisfies the applicable Shoreland Protection District Conditional Use Permit criteria found in Section 9.3.4(G)(2) of the Town's Zoning Ordinance for the reasons stated in **Enclosure 1**, as supplemented below.

- **That the proposed use will not detrimentally affect the surface water quality of the adjacent river or tributary, or otherwise result in unhealthful conditions. Zoning Ordinance, Section 9.3.4(G)(2)(a).**

See Enclosure 1, pg. 6. On these bases, this criteria is satisfied.

- **The proposed use will discharge no waste water on site other than that normally discharged by domestic waste water disposal systems and will not involve on-site storage or disposal of hazardous or toxic wastes as herein defined. Zoning Ordinance, Section 9.3.4(G)(2)(b).**

See Enclosure 1, pg. 6. There will be no wastewater discharge on site and no disposal or storage of hazardous or toxic wastes. On these bases, this criteria is satisfied.

- **The proposed use will not result in undue damage to spawning grounds and other wildlife habitat. Zoning Ordinance, Section 9.3.4(G)(2)(c).**

See Enclosure 1, pg. 6. On these bases, this criteria is satisfied.

- **The proposed use complies with the use regulations identified in Article 9.3.4 Exeter Shoreland Protection District Ordinance – Use Regulations and all other applicable sections of this article. Zoning Ordinance, Section 9.3.4(G)(2)(d).**

The Project is compliant with the use regulations contained within Article 9.3.4 of the Exeter Zoning Ordinance and all other applicable sections of the Town’s Shoreland Protection Zoning District Ordinance.

- **The design and construction of the proposed use will be consistent with the intent of the purposes set forth in Article 9.3.1 Exeter Shoreland Protection District Ordinance – Authority and Purpose. Zoning Ordinance, Section 9.3.4(G)(2)(e).**

In relevant part, the purpose of the Exeter Shoreland Protection District Ordinance is to protect, maintain and enhance the water quality of the Squamscott River and its tributaries in Exeter, to conserve and protect aquatic and terrestrial habitat associated with river areas as well as intertidal and riparian areas, to preserve and enhance those recreational and aesthetic values associated with the natural shoreline and river environment, both fresh and salt, and to encourage those uses that can be appropriately located adjacent to shorelines. Zoning Ordinance, Section 9.3.1.

In this case, and as evidenced by **Enclosure 1**, the Project does not threaten the water quality of the Squamscott River or Watson Brook, does not compromise aquatic or terrestrial habitat associated with river areas, and does not affect the recreational or aesthetic values associated with natural shorelines. As a result, the Project is precisely the type of development which is appropriately sited in proximity to the Shoreland Protection District and which should be encouraged.





GOVE ENVIRONMENTAL SERVICES, INC

March 31, 2022

Jonathan Shaftmaster  
Ray Farm, LLC  
158 Shattuck Way  
Newington, NH 03801

Subject: Wetland Delineation & Function-Value Report  
Ray Farm Condominiums  
Exeter, NH

Dear Mr. Shaftmaster:

This wetland report is being submitted in connection with proposed relocation of Building "D" within the Ray Farm Condominium development on Ray Farmstead Drive. This report documents the delineation and functional assessment of wetland resources in the vicinity of the proposed work as well as an evaluation of the proposed work within the context Section 9.1 and 9.3 of the Zoning Ordinance (Wetland Conservation and Shoreland Protection Districts).

## WETLAND DELINEATION

Resource areas on this property were initially delineated in 2014 and 2015 during the early planning stages of the original project. In accordance with state standards which limit the effective lifespan of delineations to five (5) years, the resource areas in proximity to the proposed relocated Building D were re-delineated in the fall of 2021 by Brendan Quigley, NHCWS #249. Wetland boundaries were evaluated utilizing the following standards:

1. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, (Version 2.0) January 2012, U.S. Army Corps of Engineers.
2. *Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils*, Version 8.2. United States Department of Agriculture (2018).
3. *New England Hydric Soils Technical Committee. 2019 Version 4, Field Indicators for Identifying Hydric Soils in New England*. New England Interstate Water Pollution Control Commission, Lowell, MA.
4. *National Wetland Plant List*, Version 3.2 (2016).
5. *Classification of Wetlands and Deepwater Habitats of the United States*. USFW Manual FWS/OBS-79/31 (1979).

The updated wetland boundaries were surveyed by GM2, Inc. and are depicted on the plans submitted for Site Plan Approval and Conditional Use Permits. Boundaries did not exhibit appreciable changes from the previous delineation but do encompass additional areas not detailed in the initial project. The vegetated wetland in the vicinity of the proposed new location of Building D is very similar to the forested wetland within the rest of the project site and the surrounding area in general. The dominant wetland type is saturated and seasonally flooded forested wetland dominated by red maple and highbush blueberry (PFO1E). The main portion of wetland in this area of the property lies southwest of the proposed Building D and is directly associated with Watson Brook. This area was largely flooded in 2015 due to downstream beaver activity but is currently free of standing water except within the Watson Brook stream channel which is clearly visible. The soils in this wetland are very poorly drained. Two narrow fingers of forested wetland located north and east of

the proposed building extend from wetland areas located outside the project area and connect to Watson Brook. The soil in these connecting wetlands is poorly drained and both areas contain intermittent streams. There is also a single vernal pool located within the large wetland northwest of Commerce Way. This area is well outside the project except for a small portion of the existing woods road proposed to be utilized for a temporary construction access, which passes through the outer portion of the associated 100-foot Vernal Pool Buffer.

All the wetland in the project area drain to Watson Brook which flows south to Norris Brook and eventually to the Squamscott River. The section of Watson Brook downstream of the existing trail crossing and easement extending from Ray Farmstead Road is perennial, as depicted on the most recent USGS map. Upstream from this location the stream is depicted as intermittent. Subsequently, the downstream section of the stream falls within the Exeter Shoreland Protection District.

The appropriate buffers for wetlands, vernal pools, and Watson Brook specified in the Wetland Conservation District and Shoreland Protection District ordinances are depicted on the project plans.

## FUNCTION & VALUE ASSESSMENT

A wetland function and value assessment was conducted using the US Army Corps Highway Methodology guidelines. Functions are self-sustaining properties of wetlands, which exist in the absence of human involvement. Values refers to the benefits gained by human society from a given wetland or ecosystem and their inherit functions. Functions and values identified as “primary” have been determined to be significant features of the wetland being evaluated. An important distinction is that the primary functions and values of a particular wetland does not necessarily indicating the wetland supports them at a significant *level* in comparison to other wetlands in the region or even near the site.

The Highway Methodology considers 13 functions and values:

1. **Groundwater recharge/discharge:** This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. Recharge should relate to the potential for the wetland to contribute water to an aquifer. Discharge should relate to the potential for the wetland to serve as an area where ground water can be discharged to the surface.
2. **Floodflow Alteration:** This function considers the effectiveness of the wetland in reducing flood damage by attenuation of floodwaters for prolonged periods following precipitation events.
3. **Fish and Shellfish Habitat:** This function considers the effectiveness of seasonal or permanent water bodies associated with the wetland in question for fish and shellfish habitat.
4. **Sediment/Toxicant/Pathogen Retention:** This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants or pathogens.
5. **Nutrient Removal/Retention/Transformation:** This function relates to the effectiveness of the wetland to prevent adverse effects of excess nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers or estuaries.
6. **Production Export:** This function relates to the effectiveness of the wetland to produce food or usable products for human, or other living organisms.
7. **Sediment/Shoreline Stabilization:** This function relates to the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.
8. **Wildlife Habitat:** This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and or migrating species must be considered.



9. **Recreation:** This value considers the effectiveness of the wetland and associated watercourses to provide recreational opportunities such as canoeing, boating, fishing, hunting and other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland, whereas non-consumptive opportunities do not.
10. **Educational/Scientific Value:** This value considers the effectiveness of the wetland as a site for an “outdoor classroom” or as a location for scientific study or research.
11. **Uniqueness/Heritage:** This value relates to the effectiveness of the wetland or its associated water bodies to produce certain special values. Special values may include such things as archeological sites, unusual aesthetic quality, historical events, or unique plants, animals, or geological features.
12. **Visual Quality/Aesthetics:** This value relates to the visual and aesthetic qualities of the wetland.
13. **Threatened or Endangered Species Habitat:** This value relates to the effectiveness of the wetland or associated water bodies to support threatened or endangered species.

Watson Brook and its associated wetland is the predominant resource area associated with the site. The combination of perennial stream flowing through a large wetland area creates conditions which support a number of functions and values, at least at some level. Groundwater discharge and production export for wildlife food sources are functions that are likely supported but not at a level at which they can be considered the wetlands primary functions. Similarly, recreation and aesthetic value can be assigned to these wetlands by virtue of their setting and presence of recreational trails in the vicinity. Support for these values is more general however, and mainly related to the value of open space, in this case mostly upland forest. In the context of wetland values, these are traditionally expressed by wetland specific characteristics such as suitability for boating or fishing, and aesthetically, as more diverse, and observable open wetland area such as a marsh, lake, or river. Although Watson Brook is perennial and may have the potential to support fish habitat, this function is severely limited by downstream crossings that very likely provide a barrier to fish passage.

The most significant functions of the Watson Brook resources are related to water quality, flood attenuation, and wildlife habitat. The wetland and upland buffer adjacent to the stream play an important water quality role for Watson Brook itself and downstream within Norris Brook and the Squamscott River. Though this stream can be characterized as a low energy system, the densely vegetated wetland provides stability to the channel, especially during higher flow events and flooding. The broad wetland area directly adjacent to the stream (the “Contiguous Wetlands”) is able to store water during these events, therefore providing flood attenuation function within the watershed. The stream and wetland also provide wildlife habitat and serve as wildlife corridor within the block of forest generally between Industrial Drive and Route 101. Broader wildlife connectivity is, however, hampered by these roadways, particularly the highway.

The two narrow wetlands and intermittent streams north and east of the proposed building are part of the same interconnected wetland system and therefore support the same set of functions to some degree. Specifically, however, their role is narrower, primarily supporting wetland functions by providing connectivity between the larger wetlands outside the project area and Watson Brook. In this regard connectivity for wildlife is likely the most significant function of these two areas.

## **RELATION TO THE PROPOSED DEVELOPMENT**

Conditional Use Permits (CUP) are being sought for proposed impacts within the Wetlands Conservation and Shoreland Protection Overlay Districts. The proposed wetland and wetland buffer impacts are

associated with construction of a permanent access driveway to access the new location Building D from the existing Building C, and a portion of a temporary construction access. Proposed work within the Vernal Pool Buffer is limited to resurfacing the existing woods road for temporary construction use. Since this does not change the character of the buffer or movement of vernal pool species, it has not been considered as impact. Impacts within the Shoreland Protection District are associated with grading to construct a stormwater management feature and portions of pavement related to parking and circulation around the building. The following sections provide an analysis of these impacts in the context of the CUP criteria contained within Article 9.1.6.B (Wetlands) and Article 9.3.4.G.2 (Shoreland) of Town of Exeter Zoning Ordinance.

#### Wetland Conservation District CUP Criteria--Article 9.1.6.B

*No alternative design which does not impact a wetland or wetland buffer or which has less detrimental impact on the wetland or wetland buffer is feasible;*

Building D is situated on a large area of upland surrounded by wetland or the property line on all sides. A single permanent wetland crossing is proposed at the narrowest possible crossing location which is also able to provide access from the existing development in a consistent manner. A temporary construction access is also proposed to allow construction traffic to access the site from Commerce Way rather than through the existing residential development. This road will utilize an existing woods road with minor improvements and utilize a temporary bridge, at an existing wetland crossing, to provide suitable width. Aside from these impacts, the building and all other areas of disturbance are located outside the 40 or 50-foot wetland buffer. In light of these considerations, no alternative design which does not impact a wetland or wetland buffer, or which has less detrimental impact on the wetland or wetland buffer is feasible.

*A wetland scientist has provided an impact evaluation that includes the “functions and values” of the wetland(s), an assessment of the potential project-related impacts and concluded to the extent feasible, the proposed impact is not detrimental to the value and function of the wetland(s) or the greater hydrologic system.*

A functional evaluation of the wetlands is provided in the previous sections of this letter. The primary functions of the resource areas were determined to be related to water quality, flood attenuation, and wildlife habitat. By limiting wetland impact to a single location for access and locating the remainder of project outside the buffer, the majority of the potential impact to these functions have been avoided. An intact vegetated buffer will continue to provide water quality benefits adjacent to wetland areas while the proposed stormwater management system will ensure that no greater pressure is placed on the wetlands to perform this function. Flood attenuation function should be unaffected as this function is largely associated with Watson Brook and its contiguous wetlands which will not be impacted. Some modest impact to wildlife habitat can be expected as a result of the proposed access driveway which will present an obstacle for wildlife moving along the wetland in that location. The potential impacts of this will be offset, however, by respecting wetland buffers in all other areas of the project and utilizing a pipe that is larger than what is strictly required to allow passage of some species. The proposed project should therefore only result in minor impacts to wetland function by way of restricting wildlife movement at this



particular location but overall wetland function and the greater hydrologic system will not be negatively affected.

*That the design, construction and maintenance of the proposed use will, to the extent feasible, minimize detrimental impact on the wetland or wetland buffer;*

The design of the project minimizes impacts in several ways. Permanent elements of the proposed work have been limited to a single wetland crossing with wetland buffer impacts at either end. The remainder of the project has been located outside wetland buffers. Crossing this narrow wetland and intermittent stream channel to access the proposed building location also avoids a much larger and more impactful crossing of Watson Brook if access followed the easement extending from the end of Ray Farmstead Road. The proposed temporary construction entrance will make use of an existing woods road and utilize a temporary bridge structure to be laid over an existing wetland and stream crossing. Use of the temporary bridge at this location avoids additional impacts that would be otherwise necessary to improve the crossing for construction equipment. The

*That the proposed use will not create a hazard to individual or public health, safety and welfare due to the loss of wetland, the contamination of groundwater, or other reasons;*

At this location the most relevant example of a use that could negatively impact public health, safety or welfare would likely involve direct or extensive impacts to Watson Brook. Such impacts could increase flooding or impact water quality downstream. The project avoids any impact to Watson Brook and will manage and treat runoff with comprehensive stormwater management. The project does not involve wetland impacts or any other uses that would be expected to negatively affect these public interests.

*In cases where the proposed use is temporary or where construction activity disturbs areas adjacent to the immediate use, the applicant has included a restoration proposal revegetating any disturbed area within the buffer with the goal to restore the site as nearly as possible to its original grade and condition following construction.*

Following construction, the bridge used on the temporary construction access will be removed and disturbed buffer areas, exclusive of the existing woods road, be stabilized and restored using a conservation seed mix appropriate for wooded locations. The side slope grading at the permanent access crossing will be treated similarly to achieve a naturally vegetated buffer to each side the access driveway

*The applicant may propose an increase in wetland buffers elsewhere on the site that surround a wetland of equal or greater size, and of equal or greater functional value than the impacted wetland.*

The project only involves buffer impacts in the immediate vicinity of the wetland crossing and maintains intact wetland buffers in all other areas. The proposed new location of Building D will, however, avoid approximately 5,000 SF of wetland buffer impact originally approved for the construction of the building in its previous location. This includes approximately 1,300 SF of the building within the 75-foot building

setback. The wetland in that location contains a unique semi-permanent pond which supports wetland specific wildlife habitat. The habitat supported in this wetland will benefit from an intact buffer.

Shoreland Protection District CUP Criteria--Article 9.3.4.G.2

*The proposed use will not detrimentally affect the surface water quality of the adjacent river or tributary, or otherwise result in unhealthful conditions.*

The proposed impacts within 150 feet of Watson Brook are necessary for the construction of a stormwater management system and a portion of pavement. The water quality in Watson Brook will be protected by adherence to the 100 foot building setback, the comprehensive treatment of all stormwater runoff in a state of the art stormwater management system, and the restoration of graded slopes with native seed mix where feasible. Construction term impacts will be mitigated through best management practices and erosion control as specified on the plans.

*The proposed use will discharge no waste water on site other than that normally discharged by domestic waste water disposal systems and will not involve on-site storage or disposal of hazardous or toxic wastes as herein defined.*

The proposed project will be serviced by sanitary sewer and will not discharge wastewater on site. The proposed residential condominium use will not involve the storage or onsite disposal of hazardous or toxic waste as defined in the Ordinance.

*The proposed use will not result in undue damage to spawning grounds and other wildlife habitat.*

The wildlife habitat associated with Watson Brook concentrated in the stream and the associated wetland areas. This habitat will be preserved intact by avoiding any impacts to the stream, associated wetlands, or 50-foot wetland buffer, therefore maintaining an intact corridor along the stream. Spawning habitat, to the extent it exists, will not be affected. The proposed impacts within the SPD for grading will be vegetated by using a native seed mix. This will create a largely natural condition while also allowing for future access to the basin for maintenance. For these reasons, and considering the minimal nature of the proposed disturbance, the proposed use will not result in undue damage to spawning grounds and other wildlife habitat

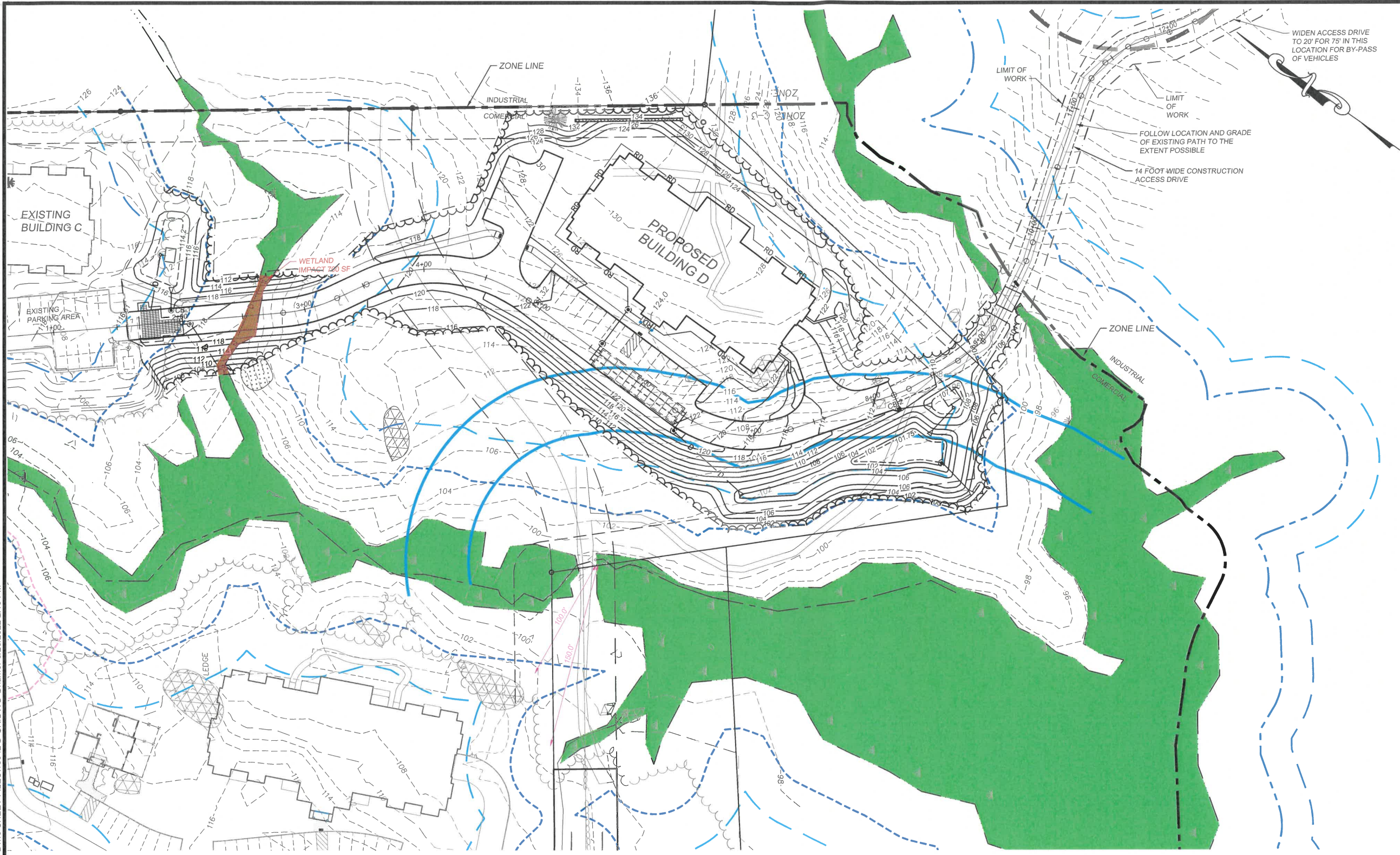
This concludes the wetland delineation and wetland functional assessment report. If I can be of further assistance, please feel free to contact me at (603) 778-0644.

Sincerely,



Brendan Quigley, NHCWS  
Gove Environmental Services, Inc.





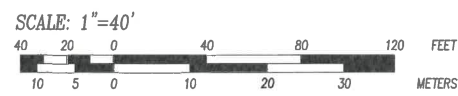
6 CHESTNUT STREET, AMESBURY, MA.  
 Phone: (978) 388-2157  
 CONSULTING ENGINEERS &  
 LAND SURVEYORS SINCE 1988  
 www.gm2inc.com

Sheet Title:  
**WETLAND  
 IMPACT  
 PLAN**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY



**DIRECT WETLAND IMPACTS**

	WETLAND IMPACT - AREA 1	700 SF
TOTAL WETLAND IMPACT		700 SF

- NOTES:**
- REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
  - ACCESS ROAD SHOWN DEPICTS DESIGN INTENT ONLY. FINAL DESIGN TO BE COORDINATED WITH RESULTS OF THE TIF PROGRAM DESIGN.

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

PROJ. MGR.: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D GR.DWG  
 FBK:  
 JOB #: 16042 D

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6 CHESTNUT STREET, AMESBURY, MA.  
 Phone: (978) 388-2157  
 CONSULTING ENGINEERS &  
 LAND SURVEYORS SINCE 1988  
 www.gm2inc.com

Sheet Title:  
**WETLAND AND SHORELAND BUFFER IMPACT PLAN**

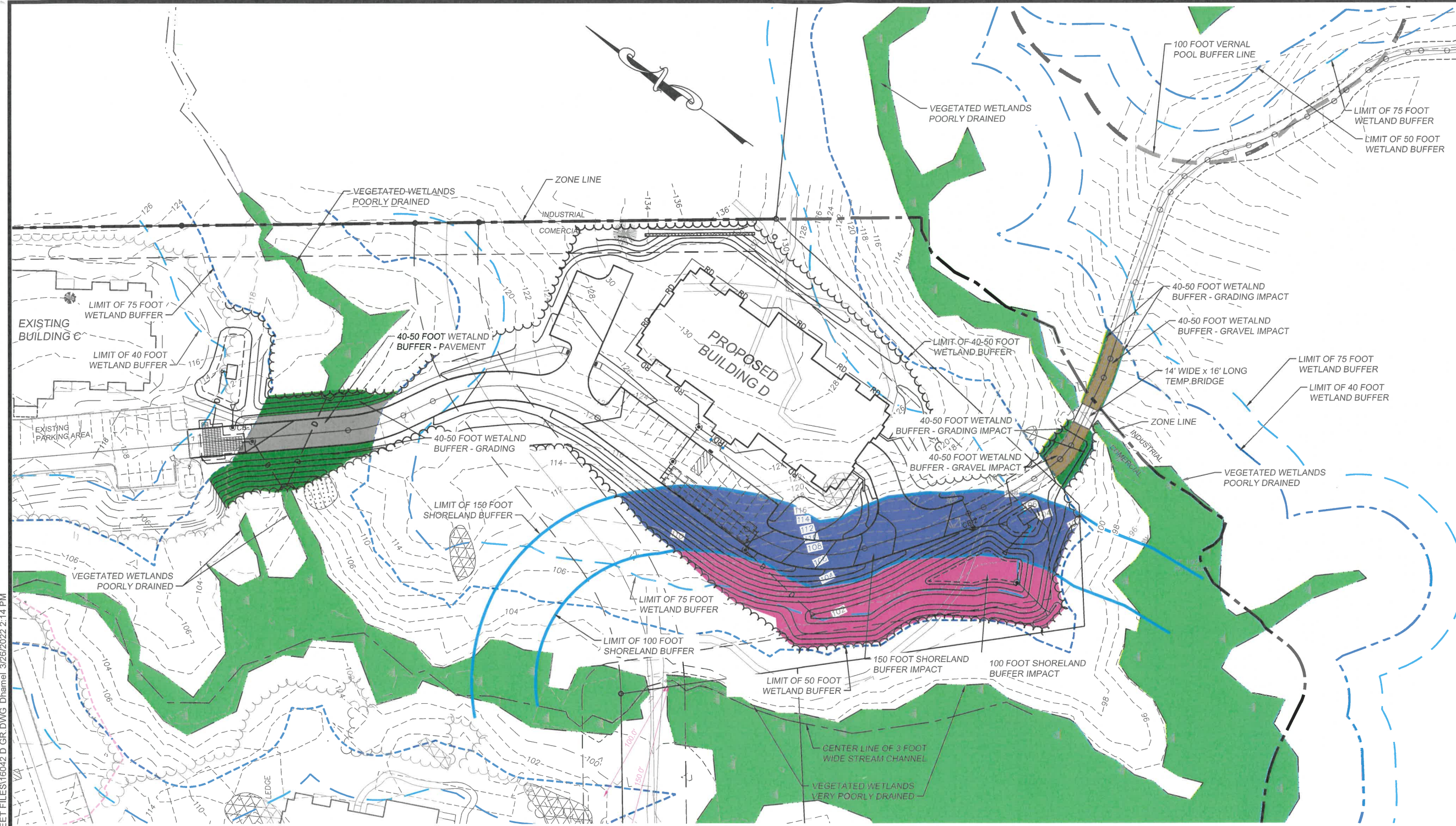
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 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY

PROJ. MGR.: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D GR.DWG  
 FBK:  
 JOB #: 16042 D

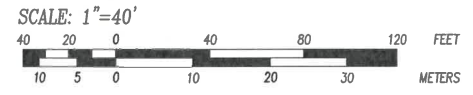
SHEET C1.25



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**WETLAND BUFFER IMPACTS**

	40-50 FOOT WETLAND BUFFER IMPACT - PAVEMENT	2858 SF
	40-50 FOOT WETLAND BUFFER IMPACT - GRAVEL	1436 SF
	40-50 FOOT WETLAND BUFFER IMPACT - GRADING	5179 SF
	75 FOOT WETLAND BUFFER IMPACT	0 SF
<b>TOTAL WETLAND BUFFER IMPACTS</b>		<b>9,473 SF</b>



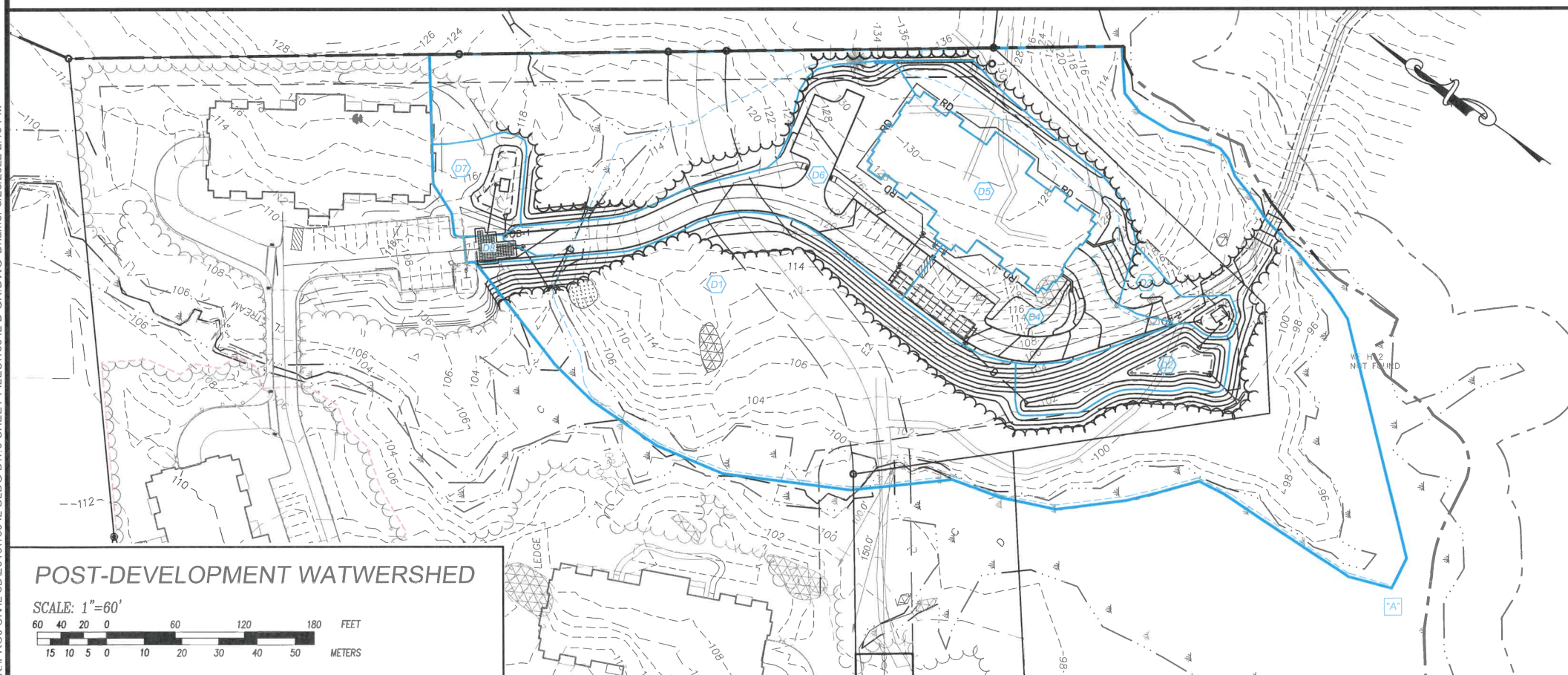
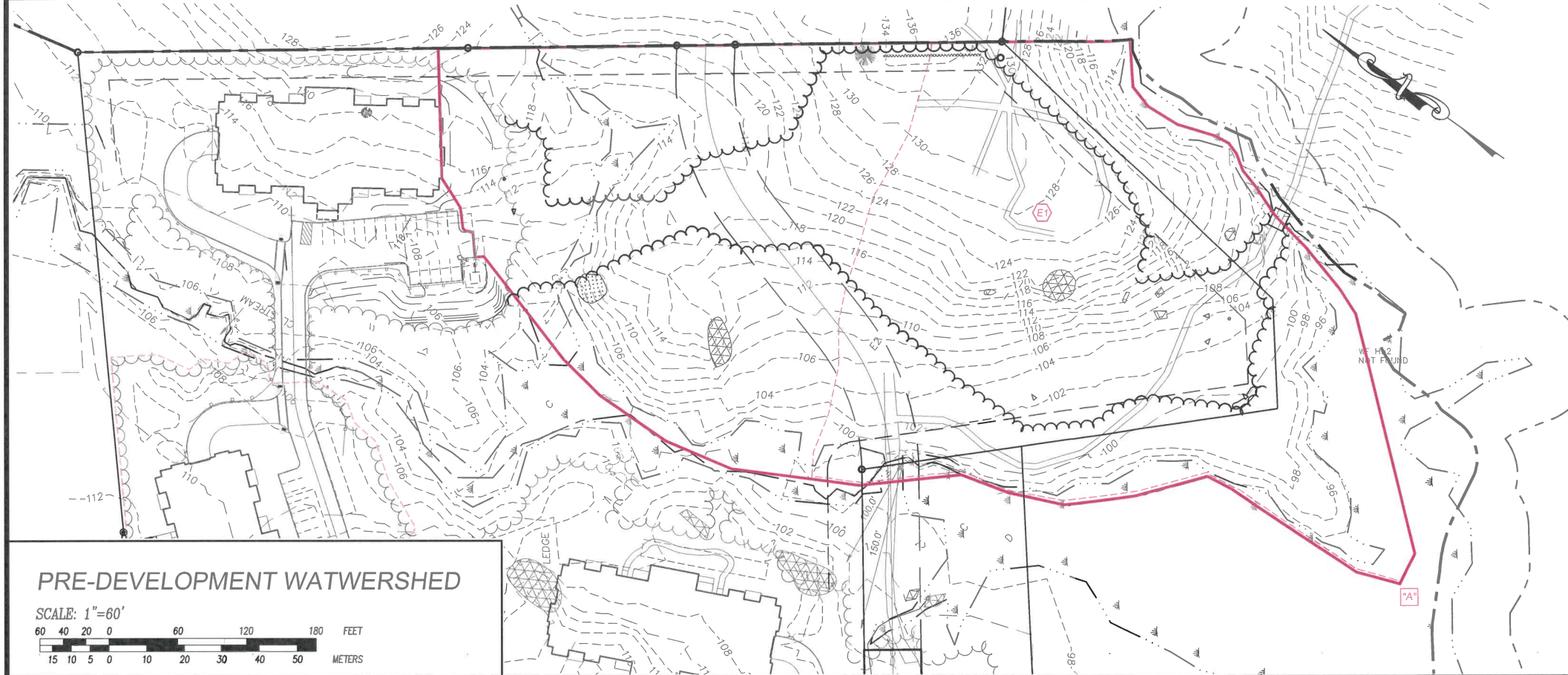
**SHORELAND BUFFER IMPACTS**

	100 FOOT SHORELAND BUFFER IMPACT	9128 SF
	150 FOOT SHORELAND BUFFER IMPACT	16,560 SF
<b>TOTAL SHORELAND BUFFER IMPACT</b>		<b>25,688 SF</b>

**NOTES:**  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.  
 2. ACCESS ROAD SHOWN DEPICTS DESIGN INTENT ONLY. FINAL DESIGN TO BE COORDINATED WITH RESULTS OF THE TIF PROGRAM DESIGN.

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





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**GMP2**  
 6 CHESTNUT STREET, AMESBURY, MA.  
 Phone: (978) 388-2157  
 CONSULTING ENGINEERS &  
 LAND SURVEYORS SINCE 1988  
 www.gm2inc.com

Sheet Title:  
**WATERSHED  
 PLANS**

Project Title:  
**Ray Farm  
 Condominium**  
 Ray Farmstead Road  
 Exeter, NH 03833  
 Rockingham County

Applicant/Owner:  
**Ray Farm, LLC**  
 158 Shattuck Way  
 Newington, NH 03801

REVISION BLOCK			
NO.	DATE	DESC	BY

**NOTES:**  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.  
 2. ACCESS ROAD SHOWN DEPICTS DESIGN INTENT ONLY. FINAL DESIGN TO BE COORDINATED WITH RESULTS OF THE TIF PROGRAM DESIGN.

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

PROJ. MGR.: D. HAMEL  
 FIELD: J. SALVAGGIO / R. SMITH  
 DESIGN: D. HAMEL  
 DRAWN: D. HAMEL  
 CHECKED: D. GIANGRANDE  
 DATE: 01-11-2022  
 FILE: 16042 D GR.DWG  
 FBK:  
 JOB #: 16042 D

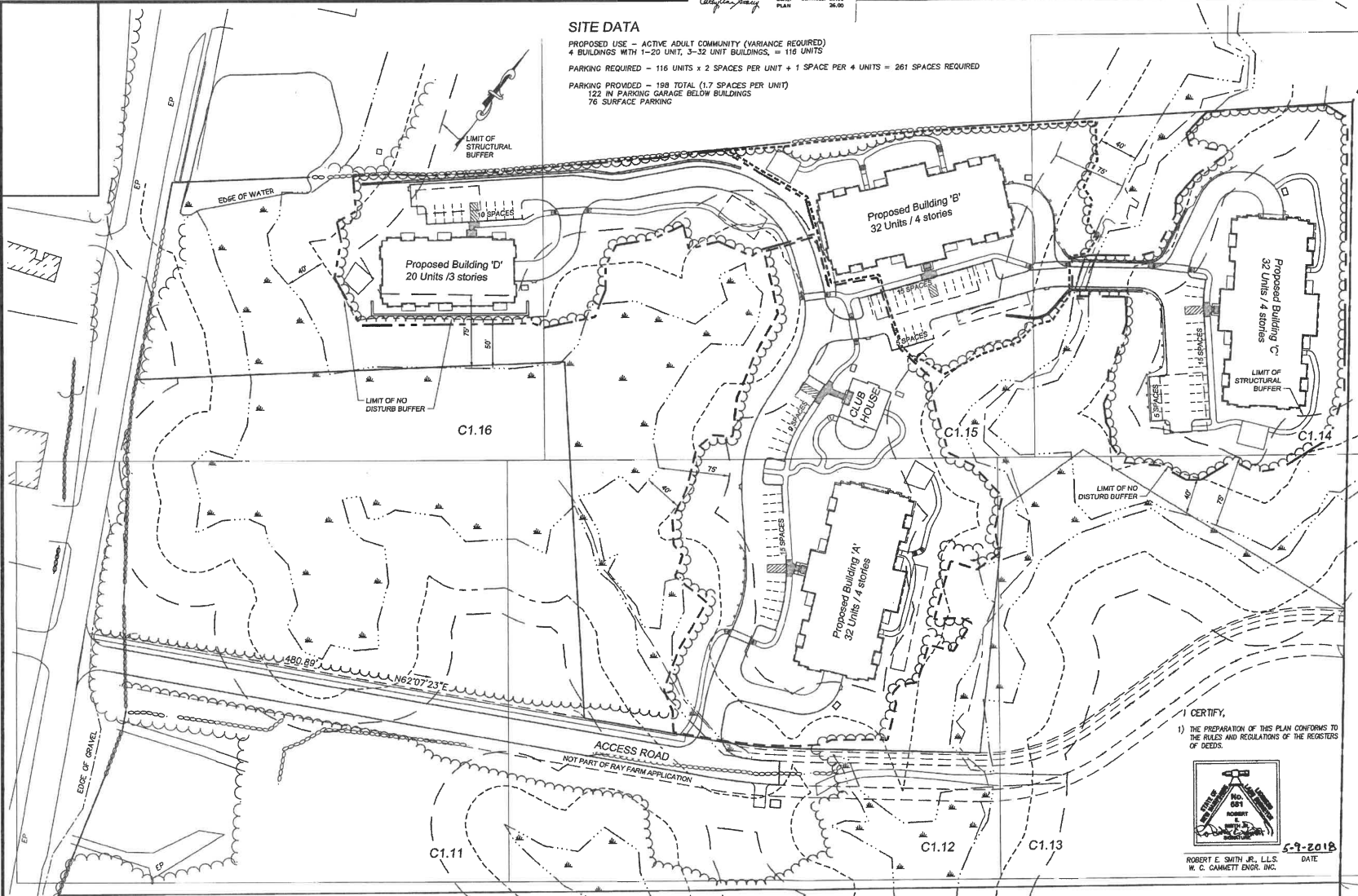
SHEET **C1.26**

# Enclosure 3

D-40822  
 02/04/2018 03:31:07 PM  
 Register of Deeds, Rockingham County  
 LSEP PLAN 23.00 26.00

**SITE DATA**

PROPOSED USE - ACTIVE ADULT COMMUNITY (VARIANCE REQUIRED)  
 4 BUILDINGS WITH 1-20 UNIT, 3-32 UNIT BUILDINGS, = 116 UNITS  
 PARKING REQUIRED - 116 UNITS x 2 SPACES PER UNIT + 1 SPACE PER 4 UNITS = 261 SPACES REQUIRED  
 PARKING PROVIDED - 198 TOTAL (1.7 SPACES PER UNIT)  
 123 IN PARKING GARAGE BELOW BUILDINGS  
 75 SURFACE PARKING



**CAMMETT ENGINEERING**  
 297 ELM STREET, AMESBURY, MA.  
 Phone: (978) 388-2157 Fax: (978) 388-0428  
 CONSULTING ENGINEERS &  
 LAND SURVEYORS SINCE 1975  
 Visit us on the WEB at www.cammett.com

Project Title:  
**Overall Site Plan**  
 "Ray Farm" Active Adult Community  
 Epping Road  
 Exeter, NH 03833  
 Rockingham County

Applicant:  
 Willey Creek Company  
 158 Shattuck Way  
 Newington, NH 03801  
 Owner:  
 CKT & Associates  
 158 Shattuck Way  
 Newington, NH 03801

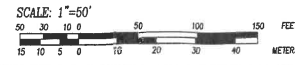
NO.	DATE	DESCRIPTION	BY
A	5.8.2017	TO PLANNING BOARD	DH
B	6.27.2017	PEER REVIEW	DH
C	11.27.17	2nd PEER REVIEW	DH
D	02.07.18	3rd PEER REVIEW	DH

CERTIFY,  
 1) THE PREPARATION OF THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.



ROBERT E. SMITH, JR., L.L.S. DATE: 5-9-2018  
 W. C. CAMMETT ENGR. INC.

**NOTES:**  
 1. REFER TO G1.20 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.  
 2. ACCESS ROAD SHOWN DEPICTS DESIGN INTENT ONLY. FINAL DESIGN TO BE COORDINATED WITH RESULTS OF THE TIF PROGRAM DESIGN.



TOWN OF EXETER PLANNING BOARD  
 Chairman: Robert E. Smith, Jr. DATE: 2/14/18

PROJ MGR: D. HAMEL  
 FIELD: M. MICHAUD / J. SALVAGRO  
 DESIGN: D. TRAUKE  
 DRAWING: D. HAMEL  
 CHECKED: W. CAMMETT / R. BLANCHETTE  
 DATE: 3/23/2017  
 FILE: 16042 3P-OVERALL 22X34.DWG  
 JOB #: 16042  
 SHEET

D-40822