



## CONSERVATION COMMISSION AGENDA

**Tuesday, February 17, 2026**

**4:30 PM**

**City Hall, Second Floor  
Conference Room**

### Commission Members

Gary Flaherty, Chair  
Barbara Richter, Vice Chair  
Katie Kinsella  
William White  
Michele Chalice  
Steven Bill

Kenneth Bergman  
Bob Milliken, Alternate  
Thomas P. Haynes, Alternate  
John Therriault, Alternate  
Alexander Von Plinsky, Alternate

- 1. Call to Order**
- 2. Approval of Meeting Minutes** – January 20, 2026
- 3. NHDES Standard Dredge & Fill Wetland Permit Application** – Martell Court Pump Station Permanent Bypass Project
- 4. Report-outs:**
  - a) Greater Goose Pond Forest Stewardship Subcommittee
  - b) Invasive Plant Species
  - c) Land Conservation / Easement Monitoring
  - d) Pollinator Updates
- 5. Discussion Items**
  - a) Member Bios for Website
  - b) Invasive Plant Removal Workdays / Map / City Volunteer Program
  - c) Red Pine Scale – Harvesting and Replanting plan
  - d) Grant Opportunities (T-Mobile and AARP)
- 6. Correspondence:**
  - a) Ashuelot River Local Advisory Committee – Bretwood Golf Course Pesticide Application
  - b) Society for the Protection of NH Forests – Response to Easement Monitoring Inquiry
- 7. New or Other Business**
  - a) Rules of Procedure Update

**Adjourn** – Next meeting: Monday, March 16, 2026

# City of Keene New Hampshire

## **CONSERVATION COMMISSION** **MEETING MINUTES**

Tuesday, January 20, 2026

4:30 PM

**Room 22,  
Recreation Center**

## Members Present:

Gary Flaherty, Chair  
Barbara Richter, Vice Chair  
William White  
Councilor Michele Chalice  
Steven Bill (Remote)  
Ken Bergman  
Bob Milliken, Alternate (Voting)  
Thomas Haynes, Alternate  
John Therriault, Alternate  
Alexander Von Plinsky, IV, Alternate

## Staff Present:

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Mari Brunner, Senior Planner / Acting Zoning Administrator

### **Members Not Present:**

Katie Kinsella

## 1) Call to Order

Ms. Brunner called the meeting to order at 4:30 PM and called roll. Mr. Bill participated remotely from NY due to travel and there was no one in the room with him.

## 2) Election of Chair and Vice Chair

A motion by Mr. Bergman to nominate Mr. Flaherty and Ms. Richter as the 2026 Conservation Commission Chair and Vice Chair, respectively, was duly seconded by Councilor Chalice. The motion carried unanimously on a roll call vote.

### 3) Approval of Meeting Minutes – December 15, 2025

Revisions: Line 144, change the word “she” to “he.” Lines 177–178, change the metrics to feet instead of meters. Lines 351–361, the scrivener’s formatting error and missing text will be corrected to the version shared with the Commission. Line 428, change “getting the word out to volunteers” to “getting the word out to potential attendees and volunteers.”

A motion by Mr. White to adopt the December 15, 2025 meeting minutes, as amended, was duly seconded by Mr. Bergman. The motion carried unanimously on a roll call vote.

31

32

33 **4) Introductions for New Members**

34

35 Commissioners introduced themselves:

- 36 • *Bill White* is a 2014 Keene State College (KSC) graduate. He moved back to Keene with  
37 his wife and son two years before joining the Commission, after living 10 years in  
38 Brooklyn, New York. Mr. White is a union Firefighter/EMT for both Amherst and  
39 Bedford, New Hampshire. He said he was excited to hit the ground running and help out  
40 where he could on the Commission.
- 41 • *Michelle Chalice* is a newly elected City Councilor. She is a former Keene City Planner  
42 (retired seven years ago). She was also formerly a licensed landscape architect in the  
43 Midwest with the Wisconsin Department of Natural Resources. Now, Councilor Chalice  
44 said she has a small consulting company, Healthy Home Habitats, where she aspires and  
45 designs wildlife habitats, edible landscapes, and the more efficient uses of home  
46 resources for residential settings.
- 47 • *Ken Bergman* is a retired KSC Biology Professor. He has been a member of this  
48 Commission for quite a few years. Now, he does a lot of wildlife photography.
- 49 • *Vice Chair Barbara Richter* was on the Conservation Commission many years ago and  
50 cycled off for a while. She is also Executive Director of the New Hampshire Association  
51 of Conservation Commissions (NHACC), which is a statewide organization that provides  
52 support and training to NH conservation commissions. Commissioners can reach out to  
53 her with any questions, and she shared the [NHACC's Member Resource Library](#), which  
54 is a good place for new Conservation Commissioners to learn about everything from  
55 conservation funding to conservation planning, and general operations of a Conservation  
56 Commission. Commissioners can also sign-up for the NHACC's monthly E-newsletters;  
57 Vice Chair Richter would send the sign-up link to Ms. Brunner, who would forward it to  
58 the Commission.
- 59 • *Sparky Von Plinsky IV* is former Commission Chair, now an Alternate Member. He  
60 recently became a stay-at-home dad, working remotely.
- 61 • *Bob Milliken* recently retired from his position as Director of Technology for SAU29.  
62 Now, he said he would be getting back to his roots. He formerly worked for Walden  
63 Department of Environmental Management in Massachusetts. At this time, he was also  
64 serving on the Conservation Commission for the Hogback Mountain Conservation Area  
65 in Marlboro, Vermont.
- 66 • *John Therriault* had been living in Keene for 15 years at this time and he is retired now.  
67 He asked the City to become a Bee City USA affiliate and became an Alternate Member  
68 of the Conservation Commission mainly to ensure the Bee City ethos would make its way  
69 into the fabric of this City. Mr. Therriault is also President of the Monadnock Beekeepers  
70 Association and Vice President of the New Hampshire Beekeepers Association. He had  
71 also been influential in ensuring that whenever a City applicant needs to reseed  
72 something, they do so with a recommended Northeast Pollinator Mix, which is about 18  
73 different seeds that are native wildflowers to New England.
- 74 • *Tom Haynes* is Chair of the Greater Goose Pond Forest Stewardship Subcommittee. He  
75 was formerly the Chair of the Conservation Commission and has been serving as a  
76 member for a long time.

77     • *Chair Gary Flaherty* is a part-time private consultant. He has 50 years' experience as a  
78       Certified Wetlands Soil Scientist, Wetlands Scientist, and working in hazardous waste on  
79       Superfund sites.  
80     • *Steve Bill* is a retired KSC Geology Professor. He had been a Commissioner for a while  
81       and said he was still learning.

82     **5) Report-Outs:**

83       **A) Greater Goose Pond Forest Stewardship Subcommittee**

86     Mr. Haynes said that the Subcommittee met on Friday, January 16, 2026. Normally, the winter  
87       meetings are for talking and planning, so the Subcommittee created a list of trails that could  
88       potentially use work during the upcoming summer season.

90     Mr. Haynes reported that unbeknown to the Subcommittee, The Harris Center for Conservation  
91       Education scheduled some programs in the Goose Pond Forest. He said the Subcommittee was  
92       trying to work with The Harris Center to determine a possible partnership and to try more  
93       outreach, something for which the Subcommittee does not have capacity. Mr. Haynes said they  
94       might ask someone from The Harris Center to attend the Subcommittee meetings for that  
95       outreach.

96     Next, Mr. Hayes shared updates on the spillway bridge, which was built, but the ramp on the  
97       north side was still incomplete. He said the Subcommittee talked about doing that as its bigger  
98       project next summer (2026), so there would be more accessibility and use for bikers.

100     Mr. Haynes said the Subcommittee was slowly thinking about blazing a few of the trails that  
101       pedestrians use and might be helpful. The Subcommittee also continued discussing an "All  
102       Persons Trail" at the South Trailhead but decided it would be a project for 2027. Mr. Haynes  
103       reported that the Subcommittee made some deeper connections with the New England Mountain  
104       Bike Association (NEMBA) and hoped to possibly partner with them on some of the trail work;  
105       NEMBA has a young crew that could be helpful to the Subcommittee.

106     Lastly, Mr. Haynes mentioned recruitment. The Subcommittee needed a new member because  
107       Art Walker's term on the Commission ended. So, there was an opening for one more  
108       Commissioner to serve on the Greater Goose Pond Forest Stewardship Subcommittee (without  
109       violating quorum; three members allowed). Mr. Haynes invited anyone interested to contact him.

110       **B) Invasive Plant Species**

111     Mr. Milliken spoke about an interesting meeting he attended at the Parks and Recreation Center  
112       (Invasive Species Lunch and Learn on January 15) organized by Parks and Recreation Director,  
113       Carrah Fisk-Hennessey. A diverse group of people from the City discussed the future of invasive  
114       species management in the City of Keene. Councilor Chalice also attended and agreed that it was  
115       a great meeting because it included City staff, City contractors, and Conservation  
116       Commissioners. Vice Chair Richter added that there were also City Councilors and volunteers in  
117       attendance, so she thought it was a great meeting to bring everybody together, get people started

122 on the same page, and help everybody to better understand Keene's approach to controlling  
123 invasive species.

124  
125 Vice Chair Richter thought the speaker (Andy Powers from Vegetative Control Services, a  
126 contractor and certified herbicide applicator) did really well outlining what they do for Keene,  
127 their focus on how they deal with different species, and how many times they have to come back  
128 (five treatments to really eradicate an invasive). They talked about the different control methods,  
129 both chemical and manual control methods, the latter of which are a lot of what Bobby Williams  
130 was doing with his volunteer group (i.e., literally pulling out the invasive plant). The Vice Chair  
131 said it was good to see both control measures used in Keene more holistically. Previously, she  
132 thought the City and volunteers were leading two separate efforts and did not know how they  
133 overlapped, so Vice Chair Richter appreciated the meeting. She planned on sending a note to  
134 Director Fisk-Hennessey about how well it went overall.

135  
136 Mr. Milliken said the outcome of the meeting was the fact that all stakeholders would come  
137 together and try to educate the public about what invasive species are, and to hopefully help  
138 people manage them on their own properties. He agreed that it was a good opportunity.

139  
140 Councilor Chalice was thrilled to see so many parties at the table, including the Public Works  
141 Department, because they are on the ground in the City. The Public Works staff were invited to  
142 send a list of invasive species sites they come across to the Parks and Recreation Department, so  
143 they could potentially be added to the contractor's contract, which Councilor Chalice never heard  
144 of before. She was thrilled by this meeting, which she and Vice Chair Richter each thought was  
145 the first of its kind. Councilor Chalice noted how many resource sheets were shared amongst the  
146 diverse stakeholders, calling it a great way to even-out knowledge between the various parties.  
147 She added materials from the meeting, listing the various control methods, to the Commission's  
148 shared Google Drive (public viewable link on the agenda; accessible to the Commission with a  
149 Gmail address). Councilor Chalice found it hopeful to move forward with a bit more clarity.

150  
151 Mr. Haynes recalled the Commission suggesting an invasive species contact person at the City of  
152 Keene. He wondered if that came up at the meeting. Mr. Milliken said he mentioned it.  
153 Councilor Chalice said at this time, the City of Keene contacts for invasive species were City  
154 Engineer Bryan Ruoff and Parks and Recreation Director, Carrah Fisk-Hennessey; it sounded  
155 like they were both handling the contract. However, there still was not a designated invasive  
156 species management person, such as the Commission had recommended. Councilor Chalice  
157 agreed that it would be fabulous.

158  
159 Councilor Chalice mentioned the new [Landing Page for Volunteer Opportunities](#), which Deputy  
160 City Manager Rebecca Landry soft launched on the City of Keene website. Invasive species  
161 volunteering could potentially be added to this as an option. Councilor Chalice mentioned that  
162 nobody was designated to take over Bobby Williams' role leading the Commission's Invasive  
163 Species Program, but she was talking with one of the volunteers and might be able to work it out.

164  
165 Mr. Bergman imagined the implicit focus of the City's invasive species management efforts  
166 would be closer to the core of the City, rather than dispersed out in the remote areas of the rail  
167 bed, etc. He thought about the practicality of deploying City resources and a limited budget.

168 Councilor Chalice said the Rail Trails were not mentioned, but she was not sure that it was all  
169 spelled out during the meeting. Ms. Brunner offered to follow up with Ms. Fisk-Hennessey and  
170 Mr. Ruoff. Ms. Brunner said the City's resources are limited. She thought that there would be a  
171 combination of efforts in the different areas Mr. Bergman mentioned by various volunteer groups  
172 (e.g., Friends of the Ashuelot River Park Arboretum). Mr. Milliken mentioned that the Hogback  
173 Mountain Conservation Area maps out where everything is, which is something the City could  
174 consider. Councilor Chalice agreed that it would be great.  
175

### 176 C) Land Conservation / Easement Monitoring

177 Vice Chair Richter said that with the winter weather, she would likely still not get out to the  
178 easements until spring.  
180

181 She had been working on a Conservation Priority Checklist and the Land Protection Criteria. The  
182 Vice Chair noticed the Commission had a few discussions about buying land and there was no  
183 real outline to guide the Commission's decision-making process. She observed that in most  
184 conversations, the higher priority was having land that abuts existing conservation land. Not  
185 wanting to reinvent the wheel, she looked through the 2018 City of Keene Conservation  
186 Commission Land Protection Criteria. She did not think it would be necessary to change a lot,  
187 but it would be helpful to add some more language about abutting conservation land. She also  
188 had questions for the other Commissioners about whether some of the other Criteria were still  
189 really being used or filling a priority. Vice Chair Richter also welcomed questions and ideas  
190 based on the packet of information she shared (available in [the Commissions 01/20/26 Agenda  
191 Packet](#)). She hoped to discuss whether the Commission wanted to move forward with Checklist  
192 and how to update the Land Protection Criteria. Discussion ensued.  
193

194 Mr. Therriault hoped to see some verbiage showing the Commission's interest in supporting  
195 pollinator habitat/corridors, noting that wildlife corridors and pollinator corridors are not  
196 necessarily the same things. He said more meadows and fewer trees, or vice versa, depending on  
197 wildlife or pollinators.  
198

199 Mr. Bergman asked about the intent of the last two pages of the Land Protection Criteria that  
200 Vice Chair Richter presented, which were from the 2018 document: were they intended to serve  
201 as background for the previous pages, to supplement/reinforce each other, or to be subsumed  
202 within a new document like this one. Vice Chair Richter said they complement each other: the  
203 checklist would be based on the Criteria (she would confirm that was reflected, with the  
204 Checklist headings matching the Criteria).  
205

206 Mr. Bergman mentioned the DRAFT 2026 *City of Keene Conservation Commission Guideline  
207 for Acquiring Legal Interest in Conservation Land*, which included a final line, "Any of the  
208 provisions listed in paragraph 6A may be waived by the City Council, at its discretion, based  
209 upon factors identified in the project package." Vice Chair Richter thought that template  
210 language carried over and could be discussed at a later date once the priorities were set. She said  
211 this document is a good way for all parties to understand how acquiring land works in the City  
212 and everyone's role: the Conservation Commission, City staff, and City Council. She thought  
213 there was an opportunity to outline these roles in the process more clearly. Vice Chair Richter

214 thought this document could be simplified more because it was probably written by an attorney  
215 from a template and it did not need that level of detail for the Commission's purposes. Mr.  
216 Bergman agreed that the reference to "paragraph 6A" did not refer to anything contained within  
217 the pages.  
218

219 Chair Flaherty referred to the *City of Keene Conservation Commission Land Protection Criteria*  
220 (Adopted April 2018; Updated December 2025), Criteria 2.c. Urban forests. It was incomplete  
221 with question marks. He wanted to clarify what Vice Chair Richter's question was. She said she  
222 wondered whether some of the places she highlighted and urban forests were still up for  
223 discussion. Councilor Chalice said yes. Vice Chair Richter cited land suitable for urban  
224 agriculture or community gardens and asked if the Commission was still interested. Chair  
225 Flaherty said urban forests are just trees along the street and in people's yards and Vice Chair  
226 Richter said at the moment, that is correct. Discussion continued briefly on the definition of  
227 urban forests, emphasizing urban.  
228

229 Mr. Bergman recalled Mr. Von Plinsky previously questioning whether Keene could acquire or  
230 create a City forest; the idea was for the land between Routes 9 and 10. Mr. Von Plinsky agreed.  
231 Mr. Bergman said it may not be quite the same as an urban forest. He was unsure whether that  
232 could inform this Land Protection language. Mr. Von Plinsky thought this was something for  
233 which it might be helpful to form a subcommittee to workshop ideas about the definition of an  
234 urban forest, which could mean something different to each person. Chair Flaherty disagreed,  
235 stating that the definition he shared was the general definition; he did not make it up. Councilor  
236 Chalice thought the Commission might want to expand upon it. Mr. Von Plinsky and Chair  
237 Flaherty agreed that a Subcommittee could be a great way to work this out and bring something  
238 back to the Commission that has been processed more.  
239

240 Mr. White noticed that he was hearing two versions of an urban forest in the Commission's  
241 discussion. He heard Chair Flaherty cite an accepted definition, which is more like trees lining  
242 Main Street or streets, and Mr. Von Plinsky's concept, which is more like a Central Park where  
243 an expansive forest surrounds and is within the compact City unit. Mr. Von Plinsky agreed.  
244 Discussion continued about why a Subcommittee could help clarify the Commission's consensus  
245 about what it means by and hopes for the City's urban forest. Mr. Bill noted that forests near  
246 Keene Dillant-Hopkins Airport do not fall into either of those categories. When thinking about  
247 definitions, he suggested they should probably be broad enough to include things like those.  
248

249 Discussion ensued about how the Commission would provide Vice Chair Richter with feedback  
250 on the 2026 Draft Land Protection Criteria and proposed Keene Conservation Priorities  
251 Checklist. Options included: sending written comments individually through City staff, forming  
252 a Subcommittee with no more than three Commissioners (due to quorum) and meetings that still  
253 require public notice, or a workshop with a quorum (at least 5 members) of the Commission  
254 before/after a regular Commission meeting or on alternating Mondays (also publicly noticed and  
255 staffed by a Minute Taker). The Commission agreed that direct and free communication would  
256 be more efficient and productive than via email.  
257

258 The Commission and City staff agreed that holding a special, public Conservation Commission  
259 Workshop one hour before its regular February 2026 meeting would be the best path forward.

260 Remote participation would still be available. Any other comments on the draft documents  
261 should be sent directly to Ms. Brunner, who will send them to the appropriate parties;  
262 Commissioners cannot email the group directly because it triggers quorum. Vice Chair Richter  
263 would coordinate with Ms. Brunner to schedule the *Tuesday*, February 17, 2026 Workshop at  
264 3:30 PM.

265  
266 In the meantime, Vice Chair Richter said she would work to make the Draft Land Protection  
267 Criteria and proposed Keene Conservation Priorities Checklist reflect each other better. She  
268 asked Commissioners to send values that particularly interest them (e.g., pollinators, trees, and  
269 wildlife) to Ms. Brunner, so Vice Chair Richter could see what rises to the surface. She hoped for  
270 some brainstorming ahead of the Workshop.

271  
272 Mr. Milliken wondered if the Commission could feed information into a live Google Document.  
273 Ms. Brunner said no. Mr. Milliken asked about a Google Form that only sends information to  
274 Ms. Brunner. Ms. Brunner said that it could work; it would be like a survey, and she could put  
275 the results in the meeting packets, so they are public.

276  
277 **D) Pollinator Updates**

278  
279 Mr. Therriault reported spreading about two pounds of the Northeast Pollinator Mix at Ladies  
280 Wildwood Park in the two watersheds between Park Avenue and Arch Street, one of which flows  
281 toward Arch Street and the other away from it. He spread roughly one pound in each watershed.  
282 He said he uses the old, shriveled stalks of Japanese knotweed as his blueprint for where to  
283 spread the seeds. Mr. Therriault thought the Commission would be amazed at what wildflowers  
284 would grow in April, May, and June 2026. Councilor Chalice called it great news, noting that  
285 some of the distributed seeds may not come up this year but could have the ability to grow the  
286 next year, when the conditions are right. Mr. Therriault agreed, noting that he used this Northeast  
287 Pollinator Mix around his house about four/five years prior and the California poppies and red  
288 poppies grew a lot in one area during the first year but never reseeded; they never grew in  
289 another area. However, a few other species reseeded year after year. He said it really depends on  
290 the exposure, soil conditions (e.g., pH), and all the other things that help/hinder seeds' thriving.

291  
292 Next, Mr. Therriault recalled that Bee City USA is through the Xerces Society for Invertebrate  
293 Conservation, which had changed its reporting structure. He said the period to submit Annual  
294 Reports (for 2025) was supposed to open on the first Monday in February and close at the end of  
295 February. However, that message did not get out to everyone, so they extended the deadline until  
296 the end of March 2026, by which time Mr. Therriault would submit the City's 2025 Annual  
297 Report, as required. He noted that this would likely be his last year on the Commission and  
298 wanted someone to sit with him while writing the 2025 Report to ensure continuity next year.  
299 Councilor Chalice and Ms. Brunner volunteered.

300  
301 **6) Correspondence:**

302 **A) Society for the Protection of NH Forests – Annual Easement Monitoring  
303 Report**

305 Ms. Brunner shared correspondence from the Society for the Protection of NH Forests in the  
306 Meeting Packet that was also copied to the City Attorney, Amanda Palmeira. The letter  
307 highlighted that there was some tree clearing, and to Ms. Brunner's understanding, it was all  
308 related to the red pine scale. She reported that the City would be corresponding back to the  
309 Society for the Protection of NH Forests about the situation. She said there would be a lot more  
310 tree cutting, especially of the infected timber along the Dinsmoor Woods that was noticed on the  
311 aerial easement monitoring. Chair Flaherty asked Ms. Brunner to clarify the Tax Map Parcel  
312 (TMP) numbers.  
313

314 Mr. Bill said Goose Pond was not listed and asked if that was deliberate or an oversight; the  
315 Society for the Protection of NH Forests has signs at Goose Pond. Mr. Haynes wondered if this  
316 was a part of their overall survey. Vice Chair Richter thought that the TMPs would not say  
317 "Goose Pond," they would say "City of Keene." She thought what was listed as "City of Keene"  
318 was likely Goose Pond. Discussion also ensued briefly about the Horatio Colony Nature  
319 Preserve. Ms. Brunner wanted to get the TMPs, otherwise the Commission would continue  
320 speculating. She thought the Dinsmoor Woods are not actually a park but conservation land that  
321 borders Maple Avenue.  
322

323 Councilor Chalice requested a map as well, showing where all these places are. Mr. Bergman  
324 noted that in NH GRANIT, the public conservation lands layer was not giving the names and  
325 asked if there was a way to evoke the names for the tracts. Vice Chair Richter advised: right  
326 click, hold, and there will be a box that says "City of Keene" as the owner and whether it is a  
327 conservation easement or fee owned. Mr. Bergman said it does not identify the particular name  
328 of the tract or parcel number, such as the way the City's Tax Parcel Map does when hovering  
329 with a cursor. Vice Chair Richter said GRANIT is just an info box like a tax map, but it  
330 identifies the City of Keene for most things, so it is challenging to know whether the land is used  
331 for other purposes. She did note that if indicated in green, the parcels would be in conservation.  
332

### **B) Ashuelot River Local Advisory Committee – Annual Report**

333 Ms. Brunner recalled that the Commission had donated annually to the Ashuelot River Local  
334 Advisory Committee (ARLAC) for its annual water testing. So, each year, ARLAC sends the  
335 Commission its Annual Report. Two former Conservation Commission Chairs, Eloise Clark and  
336 Andrew Madison, were/are ARLAC members. So, Ms. Brunner thought the Commission had  
337 lost some of its connection with ARLAC, but they are active in the community.  
338

#### **7) New or Other Business**

341      **A) Member Bios**

342 Ms. Brunner noted the intention to potentially post Commission member bios on the City of  
343 Keene Conservation Commission webpage.  
344

345 Discussion ensued on other New Business. Mr. Bergman mentioned the Planning Board (PB)  
346 Referral from the December 15, 2025 Conservation Commission meeting for a Cottage Court  
347 Conditional Use Permit (CUP) at 454 Elm Street. Mr. Bergman discussed the Planning Board's  
348 subsequent decision to approve Application PB-2025-29 on December 22, 2025. He said the  
349  
350

351 contingencies listed in an Action Report about the approval did not include reference to the  
352 Commission's concerns, but he had not seen the Planning Board minutes yet. He asked Ms.  
353 Brunner to clarify whether or not the Planning Board (PB) heard the Commission's concerns.  
354 Ms. Brunner was not at the December 22, 2025 PB meeting but said [the video recording is on the](#)  
355 [City's YouTube to view](#). After five business days, you can request to view draft minutes from  
356 the City Clerk's office before they are adopted. Ms. Brunner stated her understanding that the PB  
357 did incorporate the recommendations from one of the Conservation Commission's motions but  
358 did not take the recommendation to reduce the number of units.  
359

360 Mr. Bergman recalled the Commission recommending that the applicant should do whatever  
361 they could to avoid impinging on the buffer and he did not see that mentioned in the action. Ms.  
362 Brunner agreed that the Commission made two motions at its December 15, 2025 meeting. One  
363 was to avoid the buffer entirely, which the PB did not accept. Recommendations from the  
364 Conservation Commission's second motion were actually already incorporated into the plans  
365 before the PB meeting: the applicant added the trees, plantings, and pollinator mix. So, the  
366 approved the plan incorporated those recommendations. Mr. Bergman did not see the  
367 Commissions explicit concern about the buffer itself in the Action/Contingencies and wondered  
368 if the PB did not take formal action on it at all, and if the PB's final minutes would show whether  
369 they gave some consideration to advice from the Conservation Commission. Ms. Brunner  
370 recalled that the full meeting recording is available. She also believed the full draft of the  
371 Conservation Commission minutes was made available to the PB at the time of its meeting and  
372 Ms. Brunner sent a memo that that was included in their agenda packet. They receive a lot of  
373 information in their meeting packets, so she advised that when there is a matter the Commission  
374 or a specific Commissioner is really concerned about the PB taking seriously, it is always much  
375 more impactful and effective to show up at the meeting and speak about it. She suggested that  
376 the Commission could always empower the Chair or Vice Chair speak on its behalf. Staff  
377 liaisons also give updates, but Ms. Brunner was not at that meeting, although she briefed the staff  
378 who attended on the Conservation Commission's recommendations, and she hoped the PB  
379 minutes would reflect that. Mr. Bergman said he would find it disheartening if the PB was not at  
380 least statutorily obliged to acknowledge and comment in response to the Conservation  
381 Commission's recommendations. He believes the PB must at least listen, statutorily, and it would  
382 be good to know that it is happening.  
383

384 With the consideration of Cottage Court CUPs being the PB's role, Councilor Chalice said that  
385 although not a PB member, she could be aware of their meetings and attend if it would be  
386 helpful. She thought that as a City Councilor, she could carry forward and add to the  
387 Conservation Commission's requests and messages. Ms. Brunner agreed it is always more  
388 impactful to deliver the message in-person and City staff will always try to deliver a message on  
389 the Commission's behalf. She said whether the PB explicitly addresses that in their deliberation  
390 or not depends on the Planning Board members and whether they think to discuss it. When  
391 attending PB meetings, Councilor Chalice would be a member of the public representing the  
392 Conservation Commission. Vice Chair Richter added that when voting on PB referrals, the  
393 Commission could go a step further and motion to send a specific Commissioner to speak about  
394 the recommendations. Councilor Chalice liked that suggestion because if she has a conflict on a  
395 specific date, they could vote to send someone in her place.  
396

397 Mr. Bergman recalled the Commission discussing the possibility of a joint meeting or consulting  
398 with the Planning Board to discuss whether there should be more explicit guidelines or  
399 thresholds for percent permeable surface area. He thought that it was still something advisable to  
400 follow through on.

401  
402 Councilor Chalice asked the best way for her to learn about the City's red pine scale removal  
403 strategy. Ms. Brunner noted that this Commission heard presentations in the past from Deputy  
404 City Manager Andy Bohannon and Parks and Recreation Director, Carrah Fisk-Hennessey.  
405 There were also two presentations before the Municipal Services, Facilities and Infrastructure  
406 Committee that should be recorded and available to view. Ms. Brunner suggested that the  
407 Councilor should contact Ms. Fisk-Hennessey for more information and access to presentations  
408 from the prior year. There had also been a community event on Zoom that was open to anyone  
409 interested in learning more, but Ms. Brunner did not know if that was recorded. Ms. Brunner said  
410 the Commission could also request an update from Ms. Fisk-Hennessey, if members were  
411 interested. Councilor Chalice said she was interested.

412  
413 **8) Adjournment - Next Meeting: TUESDAY, February 17, 2026**

414  
415 There being no further business, Chair Flaherty adjourned the meeting at 5:36 PM.

416  
417 Respectfully submitted by,  
418 Katrina Kibler, Minute Taker

419  
420 Reviewed and edited by,  
421 Mari Brunner, Senior Planner



## CITY OF KEENE, NEW HAMPSHIRE

New Hampshire Department of Environmental Services  
Wetland Permit Application

JANUARY 2026

## Martell Court Pump Station Permanent Bypass

**New Hampshire Department of Environmental Services  
Wetland Permit Application**

**Martell Court Pump Station Permanent Bypass  
Keene, New Hampshire**

**January 2026**

**Prepared By:**

**Wright-Pierce**  
230 Commerce Way, Suite 302  
Portsmouth, NH 03801  
603.430.3728 | [wright-pierce.com](http://wright-pierce.com)

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## Application and Fee



**STANDARD DREDGE AND FILL  
WETLANDS PERMIT APPLICATION**  
Water Division / Land Resources Management Program /  
Wetlands Bureau  
[Check the status of your application](#)



**RSA/Rule:** RSA 482-A/Env-Wt 100-900

<b>Applicant name:</b>	<b>Town name:</b>	
<i>Administrative Use Only</i>	<i>File number:</i>	<i>Initials:</i>
	<i>Check number:</i>	<i>Amount:</i>

A person may request a waiver of the requirements in Rules Env-Wt 100-900 to accommodate situations where strict adherence to the requirements would not be in the best interest of the public or the environment but is still in compliance with RSA 482-A. A person may also request a waiver of the standards for existing dwellings over water pursuant to RSA 482-A:26, III(b). For more information, please consult the [Waiver Request Form](#).

**SECTION 1 - REQUIRED PLANNING FOR ALL PROJECTS (Env-Wt 306.05; RSA 482-A:3, I(d)(2))**

*Please use the [Land Resources Management Permit Planning Tool \(LRMPPT\)](#), the [DataCheck Tool](#), the [Stream Crossing Initiative Data Viewer](#) or other sources to assist in identifying key features such as [Priority Resource Areas \(PRAs\)](#), [protected species or habitats](#), coastal areas, designated rivers or designated prime wetlands.*

Has the required planning been completed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Does the property contain a PRA? If yes, provide the following information:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Does the project qualify for an Impact Classification Adjustment (such as an agreement from the NHDES Ecological Review Section for a classification downgrade) or a Project-Type Exception (such as a Maintenance or Statutory Permit-by-Notification (SPN) project)? See Env-Wt 407.02 and Env-Wt 407.04.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Protected species or habitat?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none"> <li>• If yes, species or habitat name(s):</li> </ul>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• DataCheck project ID number:</li> </ul>	<input type="checkbox"/>
Bog?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Floodplain wetland contiguous to a tier 3 or higher watercourse?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Designated prime wetland or duly-established 100-foot buffer?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Sand dune, tidal wetland, tidal water, or undeveloped tidal buffer zone?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the property within a Designated River corridor? If yes, provide the following information:	<input type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none"> <li>• Name of Local River Management Advisory Committee (LAC):</li> </ul>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• A copy of the application was sent to the LAC on (mm/dd/yyyy):</li> </ul>	<input type="checkbox"/>
For dredging projects, is the subject property contaminated?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none"> <li>• If yes, list contaminant:</li> </ul>	<input type="checkbox"/>
Is there potential to impact impaired waters, Class A waters or Outstanding Resource Waters?	<input type="checkbox"/> Yes <input type="checkbox"/> No
For stream crossing projects, provide watershed size (see <a href="#">LRMPPT</a> or Stream Stats):	



**SECTION 6 - PROPERTY OWNER INFORMATION (IF DIFFERENT THAN APPLICANT) (Env-Wt 311.04(b))**

If the owner is a trust or a company, then complete with the trust or company information.  Same as applicant

Name:

Mailing address:

Town or city:

State:

ZIP:

Email address:

Phone:

**Electronic communication:** By initialing here, I hereby authorize NHDES to communicate all matters relative to this application electronically:

**SECTION 7 - RESOURCE-SPECIFIC CRITERIA ESTABLISHED IN Env-Wt 400, Env-Wt 500, Env-Wt 600, Env-Wt 700, OR Env-Wt 900 HAVE BEEN MET (Env-Wt 313.01(a)(3))**

Describe how the resource-specific criteria have been met for each chapter listed above (please attach information about stream crossings, coastal resources, prime wetlands, or non-tidal wetlands and surface waters):

**SECTION 8 - AVOIDANCE AND MINIMIZATION**

Impacts within wetland jurisdiction must be avoided to the maximum extent practicable (Env-Wt 313.03(a)).\* Any project with unavoidable jurisdictional impacts must then be minimized as described in the [Wetlands Best Management Practice Techniques For Avoidance and Minimization](#) and the [Wetlands Permitting: Avoidance, Minimization and Mitigation](#) fact sheet. For minor or major projects, a functional assessment of all wetlands on the project site is required (Env-Wt 311.03(b)(10)).\*

Please refer to the application checklist to ensure you have attached all documents related to avoidance and minimization, as well as functional assessment (where applicable). Use the [Avoidance and Minimization Checklist](#), the [Avoidance and Minimization Narrative](#), or your own avoidance and minimization narrative.

\*See Env-Wt 311.03(b)(6) and Env-Wt 311.03(b)(10) for shoreline structure exemptions.

**SECTION 9 - MITIGATION REQUIREMENT (Env-Wt 311.02)**

If unavoidable jurisdictional impacts require mitigation, a mitigation [pre-application meeting](#) must occur at least 30 days but not more than 90 days prior to submitting this Standard Dredge and Fill Permit Application.

Mitigation pre-application meeting date (mm-dd-yyyy):



N/A - Mitigation is not required.

**SECTION 10 - THE PROJECT MEETS COMPENSATORY MITIGATION REQUIREMENTS (ENV-WT 313.01(A)(1)C)**

Confirm that you have submitted a compensatory mitigation proposal that meets the requirements of Env-Wt 800 for all permanent unavoidable impacts that will remain after avoidance and minimization techniques have been exercised to the maximum extent practicable

 I confirm submittal. N/A – Compensatory mitigation is not required

## SECTION 11 - IMPACT AREA (Env-Wt 311.04(g))

For each jurisdictional area that will be or has been impacted, provide square feet (SF) and, if applicable, linear feet (LF) of impact, and note whether the impact is After-The-Fact (ATF; meaning work was started or completed without a permit).

For intermittent and ephemeral streams, linear feet of impact are measured along the thread of the channel. Please note, installation of a stream crossing in an ephemeral stream may be undertaken without a permit per Rule Env-Wt 309.02(d), however other dredge or fill impacts should be included below.

For perennial streams/rivers, linear feet of impact are calculated by summing the lengths of disturbances to the channel and banks.

Permanent (PERM) impacts are impacts that will remain after the project is complete (e.g., changes in grade or surface materials). Temporary (TEMP) impacts are impacts not intended to remain (and will be restored to pre-construction conditions) after the project is completed.

JURISDICTIONAL AREA	PERM. SF	PERM. LF	PERM. ATF	TEMP. SF	TEMP. LF	TEMP. ATF
Wetlands	Forested Wetland			<input type="checkbox"/>		<input type="checkbox"/>
	Scrub-shrub Wetland			<input type="checkbox"/>		<input type="checkbox"/>
	Emergent Wetland			<input type="checkbox"/>		<input type="checkbox"/>
	Wet Meadow			<input type="checkbox"/>		<input type="checkbox"/>
	Vernal Pool			<input type="checkbox"/>		<input type="checkbox"/>
	Designated Prime Wetland			<input type="checkbox"/>		<input type="checkbox"/>
	Duly-established 100-foot Prime Wetland Buffer			<input type="checkbox"/>		<input type="checkbox"/>
Surface Water	Intermittent / Ephemeral Stream			<input type="checkbox"/>		<input type="checkbox"/>
	Perennial Stream or River			<input type="checkbox"/>		<input type="checkbox"/>
	Lake / Pond			<input type="checkbox"/>		<input type="checkbox"/>
	Docking - Lake / Pond			<input type="checkbox"/>		<input type="checkbox"/>
	Docking - River			<input type="checkbox"/>		<input type="checkbox"/>
Banks	Bank - Intermittent Stream			<input type="checkbox"/>		<input type="checkbox"/>
	Bank - Perennial Stream / River			<input type="checkbox"/>		<input type="checkbox"/>
	Bank / Shoreline - Lake / Pond			<input type="checkbox"/>		<input type="checkbox"/>
Tidal	Tidal Waters			<input type="checkbox"/>		<input type="checkbox"/>
	Tidal Marsh			<input type="checkbox"/>		<input type="checkbox"/>
	Sand Dune			<input type="checkbox"/>		<input type="checkbox"/>
	Undeveloped Tidal Buffer Zone (TBZ)			<input type="checkbox"/>		<input type="checkbox"/>
	Previously-developed TBZ			<input type="checkbox"/>		<input type="checkbox"/>
	Docking - Tidal Water			<input type="checkbox"/>		<input type="checkbox"/>
<b>TOTAL</b>						

**SECTION 12 - APPLICATION FEE (RSA 482-A:3, I)**

Minimum impact: flat fee of \$600.

Non-enforcement related, publicly funded and supervised restoration projects, regardless of impact classification: flat fee of \$600 (refer to R2-A:3, 1(c) for restrictions).

Minor or major impact fee: calculate using the table below.

Permanent and temporary (non-docking):	SF	$\times \$0.60 =$	\$
Seasonal docking structure:	SF	$\times \$3.00 =$	\$
Permanent docking structure:	SF	$\times \$6.00 =$	\$
Projects proposing shoreline structures (including docks): add \$600.			\$
Total			\$
The application fee for minor or major impact is the above calculated total or \$600, whichever is greater.			\$

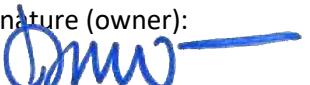
**SECTION 13 - PROJECT CLASSIFICATION (Env-Wt 306.05) *Indicate the project classification.***

Minimum impact project       Minor project       Major project

**SECTION 14 - REQUIRED CERTIFICATIONS (Env-Wt 311.11) *Initial each box below to certify.***

Initials:	To the best of the signer's knowledge and belief, all required notifications have been provided.
Initials:	The information submitted on or with the application is true, complete, and not misleading to the best of the signer's knowledge and belief.
Initials:	The signer understands that submission of false, incomplete, or misleading information constitutes grounds for NHDES to: <ol style="list-style-type: none"> <li>Deny the application.</li> <li>Revoke any approval that is granted based on the information.</li> <li>If the signer is a certified wetland scientist, licensed surveyor, or professional engineer licensed to practice in New Hampshire, refer the matter to the office of professional licensure and certification established by RSA 310.</li> </ol>
Initials:	If the applicant is not the owner, each property owner's signature shall constitute certification by the signer that he or she is aware of the application being filed and does not object to the filing.

**SECTION 15 - REQUIRED SIGNATURES (Env-Wt 311.04(d); Env-Wt 311.11)**

Signature (owner): 	Print name legibly:	Date:
Signature (applicant, if different from owner):	Print name legibly:	Date:
Signature (agent, if applicable):	Print name legibly:	Date:

<b>SECTION 16 - TOWN / CITY CLERK SIGNATURE (Env-Wt 311.04(f))</b>	
As required by RSA 482-A:3, I(a)(1), I hereby certify that the applicant has provided a hard copy and a digital copy of a completed application form, with required attachments, to the town or city indicated below.	
Town or city clerk signature:	Print name legibly:
Town or city:	Date:

#### **DIRECTIONS FOR TOWN OR CITY CLERK**

1. Upon confirming receipt of one paper copy and one digital copy of this application, with its attachments, Immediately sign a copy of the application and return it to the applicant for submittal to the department.
2. Retain the hard copy for review by the public and immediately distribute a digital copy of the application package to each of the following bodies:
  - a. Local conservation commission.
  - b. Local governing body such as select board or town or city council.
  - c. Local planning board.

#### **DIRECTIONS FOR APPLICANT**

1. Bring one hard copy of the application and its attachments, and one digital copy of the same, to the municipal clerk(s) of the town(s) in which proposed jurisdictional impacts are located. Digital copies shall be in PDF format or other formats approved by NHDES.
2. Submit the copy of the complete application package signed by the municipal clerk(s) to NHDES.
3. State agency applicants may file simultaneously with NHDES and the municipal clerk.

2  
US Army Corps of Engineers



**New Hampshire General Permits (GPs)  
Required Information and Corps Secondary Impacts Checklist**

In order for the Corps of Engineers to properly evaluate your application, applicants must submit the following information along with the New Hampshire DES Wetlands Bureau application or permit notification forms. Some projects may require more information. For a more comprehensive checklist, go to <https://www.nae.usace.army.mil/Missions/Regulatory/> “Useful Documents, Forms and Publications” and then “Corps Application Form and Guidance.” Check with the Corps at (978) 318-8832 for project-specific requirements. For your convenience, this Appendix B is also attached to the State of New Hampshire DES Wetlands Bureau application and Permit by Notification forms.

**All Projects:**

- New Hampshire Department of Environmental Services (DES) Wetlands Permit Application.
- Request for Project Review Form by the New Hampshire Division of Historical Resources (DHR) <https://www.nh.gov/nhdhr/review/rpr.htm>.
- Photographs of wetland/waterway to be impacted.
- Purpose of the project.
- Legible, reproducible plans no larger than 11”x17” with bar scale. Provide locus map and plan views of the entire property.
- Typical cross-section views of all wetland and waterway fill areas and wetland replication areas.
- In navigable waters, show mean low water (MLW) and mean high water (MHW) elevations. Show the high tide line (HTL) elevations when fill is involved. In other waters, show ordinary high water (OHW) elevation.
- On each plan, show the following for the project:
  - Vertical datum and the NAVD 1988 equivalent with the vertical units as U.S. feet. In coastal waters this may be mean higher high water (MHHW), mean high water (MHW), mean low water (MLW), mean lower low water (MLLW) or other tidal datum with the vertical units as U.S. feet. MLLW and MHHW are preferred. Provide the correction factor detailing how the vertical datum (e.g., MLLW) was derived using the latest National Tidal Datum Epoch for that area, typically 1983-2001.
  - Horizontal state plane coordinates in U.S. survey feet based on the Traverse Mercator Grid system for the State of New Hampshire (Zone 2800) NAD 83.
  - Project limits with existing and proposed conditions.
  - Limits of any Federal Navigation Project in the vicinity of the project area and horizontal State Plane Coordinates in U.S. survey feet for the limits of the proposed work closest to the Federal Navigation Project;
  - Volume, type, and source of fill material to be discharged into waters and wetlands, including the area(s) (in square feet or acres) of fill in wetlands, below the OHW in inland waters and below the HTL in coastal waters.
  - Delineation of all waterways and wetlands on the project site.:
- Use Federal delineation methods and include Corps wetland delineation data sheets (GC 2).
- For activities involving discharges of dredged or fill material into waters of the U.S., include a statement describing how impacts to waters of the U.S. are to be avoided and minimized, and either a statement describing how impacts to waters of the U.S. are to be compensated for (or a conceptual or detailed mitigation plan) or a statement explaining why compensatory mitigation should not be required for the proposed impacts. Please contact the Corps for guidance.



**US Army Corps  
of Engineers®**  
New England District

**New Hampshire General Permits (GPs)**  
**Appendix B - Corps Secondary Impacts Checklist**  
**(for inland wetland/waterway fill projects in New Hampshire)**

1. Attach any explanations to this checklist. Lack of information could delay a Corps permit determination.
2. All references to "work" include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See GC 5, regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

	Yes	No
<b>1. Impaired Waters</b> 1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See <a href="http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm">http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm</a> to determine if there is an impaired water in the vicinity of your work area.*		X
<b>2. Wetlands</b> 2.1 Are there streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	X	
2.2 Are there proposed impacts to SAS, special wetlands. Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) DataCheck Tool for information about resources located on the property at <a href="https://www2.des.state.nh.us/nhb_datacheck/">https://www2.des.state.nh.us/nhb_datacheck/</a> . The book <a href="#">Natural Community Systems of New Hampshire</a> also contains specific information about the natural communities found in NH.		X
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?		N/A
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)		X
2.5 The overall project site is more than 40 acres?		X
2.6 What is the area of the previously filled wetlands?		N/A
2.7 What is the area of the proposed fill in wetlands?		N/A
2.8 What is the % of previously and proposed fill in wetlands to the overall project site?		N/A
<b>3. Wildlife</b> 3.1 Has the NHB & USFWS determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require an NHB ID number & a USFWS IPAC determination.) NHB DataCheck Tool: <a href="https://www2.des.state.nh.us/nhb_datacheck/">https://www2.des.state.nh.us/nhb_datacheck/</a> USFWS IPAC website: <a href="https://ecos.fws.gov/ipac/location/index">https://ecos.fws.gov/ipac/location/index</a>	X	

3.2 Would work occur in any area identified as either “Highest Ranked Habitat in N.H.” or “Highest Ranked Habitat in Ecological Region”? (These areas are colored magenta and green, respectively, on NH Fish and Game’s map, “2010 Highest Ranked Wildlife Habitat by Ecological Condition.”) Map information can be found at:	X	
• PDF: <a href="https://wildlife.state.nh.us/wildlife/wap-high-rank.html">https://wildlife.state.nh.us/wildlife/wap-high-rank.html</a> .		
• Data Mapper: <a href="http://www.granit.unh.edu">www.granit.unh.edu</a> .		
• GIS: <a href="http://www.granit.unh.edu/data/downloadfreedata/category/databycategory.html">www.granit.unh.edu/data/downloadfreedata/category/databycategory.html</a> .		
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		X
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		X
3.5 Are stream crossings designed in accordance with the GC 21?	N/A	
<b>4. Flooding/Floodplain Values</b>	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?	X	
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?	N/A	
<b>5. Historic/Archaeological Resources</b>		
For a minimum, minor or major impact project - a copy of the Request for Project Review (RPR) Form ( <a href="http://www.nh.gov/nhdhr/review">www.nh.gov/nhdhr/review</a> ) with your DES file number shall be sent to the NH Division of Historical Resources as required on Page 11 GC 8(d) of the GP document**	X	

\*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.

\*\* If your project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law.



Please mail the completed form and required material to:

New Hampshire Division of Historical Resources  
State Historic Preservation Office  
Attention: Review & Compliance  
172 Pembroke Road, Concord, NH 03301

RECEIVED SEP 19 2024

DHR Use Only	16472
R&C #	91924
Log In Date	9/19/24
Response Date	9/30/24
Sent Date	10/2/24

## Request for Project Review by the New Hampshire Division of Historical Resources

This is a new submittal  
 This is additional information relating to DHR Review & Compliance (R&C) #:

### GENERAL PROJECT INFORMATION

Project Title Martell Court Pump Station Permanent Bypass

Project Location Martell Court Pump Station

City/Town Keene Tax Map 114 Lot # 36 & 37

NH State Plane - Feet Geographic Coordinates: Easting 42.9195 Northing -72.2788  
(See RPR Instructions and R&C FAQs for guidance.)

Lead Federal Agency and Contact (if applicable)  
(Agency providing funds, licenses, or permits)

Permit Type and Permit or Job Reference #

State Agency and Contact (if applicable) NHDES

Permit Type and Permit or Job Reference # Standard Dredge & Fill

### APPLICANT INFORMATION

Applicant Name City of Keene

Mailing Address 350 Marlboro Street Phone Number 603-352-6550

City Keene State NH Zip 03431 Email dlussier@keenenh.gov

### CONTACT PERSON TO RECEIVE RESPONSE

Name/Company Miranda Pierre / Wright-Pierce

Mailing Address 320 Commerce Way Suite 302 Phone Number 603-570-7159

City Portsmouth State NH Zip 03801 Email miranda.pierre@wright-pierce.com

*This form is updated periodically. Please download the current form at <https://www.nhdhr.dnrc.nh.gov/project-review/project-review-compliance/requests-project-review>. Please refer to the Request for Project Review Instructions for direction on completing this form. Submit one copy of this project review form for each project for which review is requested. Please include a self-addressed stamped envelope. Project submissions will not be accepted via facsimile or e-mail. This form is required. Review request form must be complete for review to begin. Incomplete forms will be sent back to the applicant without comment. Please be aware that this form may only initiate consultation. For some projects, additional information will be needed to complete the Section 106 review. All items and supporting documentation submitted with a review request, including photographs and publications, will be retained by the DHR as part of its review records. Items to be kept confidential should be clearly identified. For questions regarding the DHR review process and the DHR's role in it, please visit our website at: <https://www.nhdhr.dnrc.nh.gov/project-review/project-review-compliance/requests-project-review> or contact the R&C Specialist at Elizabeth.A.Schneible@dnrc.nh.gov or 603-271-2813.*

## PROJECTS CANNOT BE PROCESSED WITHOUT THIS INFORMATION

### Project Boundaries and Description

- Attach the Project Mapping **using EMMIT or relevant portion of a 7.5' USGS Map.** (See RPR Instructions and R&C FAQs for guidance.)
- Attach a detailed narrative description of the proposed project.
- Attach a site plan. The site plan should include the project boundaries and areas of proposed excavation.
- Attach photos of the project area (overview of project location and area adjacent to project location, and specific areas of proposed impacts and disturbances.) (*Informative photo captions are requested.*)
- A DHR records search must be conducted to identify properties within or adjacent to the project area. Provide records search results via EMMIT or in **Table 1.** (*Blank table forms are available on the DHR website.*) Please note, using EMMIT Guest View for an RPR records search does not provide the necessary information needed for DHR review.

EMMIT or in-house records search conducted on 09 / 05 / 2024.

### Architecture

Are there any buildings, structures (bridges, walls, culverts, etc.) objects, districts or landscapes within the project area?  Yes  No

If no, skip to Archaeology section. If yes, submit all of the following information:

Approximate age(s):

- Photographs of **each** resource or streetscape located within the project area, with captions, along with a mapped photo key. (Digital photographs are accepted. All photographs must be clear, crisp and focused.)
- If the project involves rehabilitation, demolition, additions, or alterations to existing buildings or structures, provide additional photographs showing detailed project work locations. (i.e. Detail photo of windows if window replacement is proposed.)

### Archaeology

Does the proposed undertaking involve ground-disturbing activity?  Yes  No

If yes, submit all of the following information:

- Description of current and previous land use and disturbances.
- Available information concerning known or suspected archaeological resources within the project area (such as cellar holes, wells, foundations, dams, etc.)

**Please note that for many projects an architectural and/or archaeological survey or other additional information may be needed to complete the Section 106 process.**

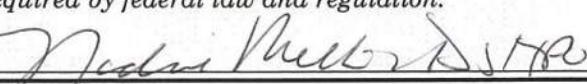
### **DHR Comment/Finding Recommendation This Space for Division of Historical Resources Use Only**

Insufficient information to initiate review.  Additional information is needed in order to complete review.

No Potential to cause Effects  No Historic Properties Affected  No Adverse Effect  Adverse Effect

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*If plans change or resources are discovered in the course of this project, you must contact the Division of Historical Resources as required by federal law and regulation.*

Authorized Signature:  Date: 9/30/24



# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
New England Ecological Services Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301-5094  
Phone: (603) 223-2541 Fax: (603) 223-0104



In Reply Refer To: 09/12/2024 17:51:40 UTC

Project Code: 2024-0143384

Project Name: Martell Court Pump Station Permanent Bypass

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

*Updated 4/12/2023 - Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.*

## About Official Species Lists

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested by returning to an existing project's page in IPaC.

## Endangered Species Act Project Review

Please visit the **“New England Field Office Endangered Species Project Review and Consultation”** website for step-by-step instructions on how to consider effects on listed

species and prepare and submit a project review package if necessary:

<https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review>

**\*NOTE\*** Please do not use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

**Northern Long-eared Bat - (Updated 4/12/2023)** The Service published a final rule to reclassify the northern long-eared bat (NLEB) as endangered on November 30, 2022. The final rule went into effect on March 31, 2023. You may utilize the **Northern Long-eared Bat Rangewide Determination Key** available in IPaC. More information about this Determination Key and the Interim Consultation Framework are available on the northern long-eared bat species page:

<https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis>

For projects that previously utilized the 4(d) Determination Key, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective. If your project was not completed by March 31, 2023, and may result in incidental take of NLEB, please reach out to our office at [newengland@fws.gov](mailto:newengland@fws.gov) to see if reinitiation is necessary.

#### *Additional Info About Section 7 of the Act*

Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/service/section-7-consultations>

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Please contact NEFO if you would like more information.

**Candidate species** that appear on the enclosed species list have no current protections under the ESA. The species' occurrence on an official species list does not convey a requirement to

consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

### **Migratory Birds**

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

<https://www.fws.gov/program/migratory-bird-permit>

<https://www.fws.gov/library/collections/bald-and-golden-eagle-management>

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

Attachment(s):

- Official Species List

## **OFFICIAL SPECIES LIST**

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**New England Ecological Services Field Office**  
70 Commercial Street, Suite 300  
Concord, NH 03301-5094  
(603) 223-2541

## PROJECT SUMMARY

Project Code: 2024-0143384  
Project Name: Martell Court Pump Station Permanent Bypass  
Project Type: Wastewater Pipeline - Maintenance / Modification - Below Ground  
Project Description: The proposed Martell Court Pump Station Permanent Bypass is located in the City of Keene, on City owned lots 36 and 37 and crosses the Ashuelot River. On July 10, 2023, the 30-inch discharge knife gate on the effluent force main failed and began leaking large volumes of wastewater into the dry pit. The knife gate has been temporarily outfitted to reduce the leakage to a volume that can be maintained by the sump pumps. The station needs a bypass to allow for the repair or replacement of the leaking knife gate.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@42.91925625000004,-72.2786822667595,14z>



Counties: Cheshire County, New Hampshire

## ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## MAMMALS

NAME	STATUS
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/10515">https://ecos.fws.gov/ecp/species/10515</a>	Proposed Endangered

## CLAMS

NAME	STATUS
Dwarf Wedgemussel <i>Alasmidonta heterodon</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/784">https://ecos.fws.gov/ecp/species/784</a>	Endangered

## INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Candidate

## CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

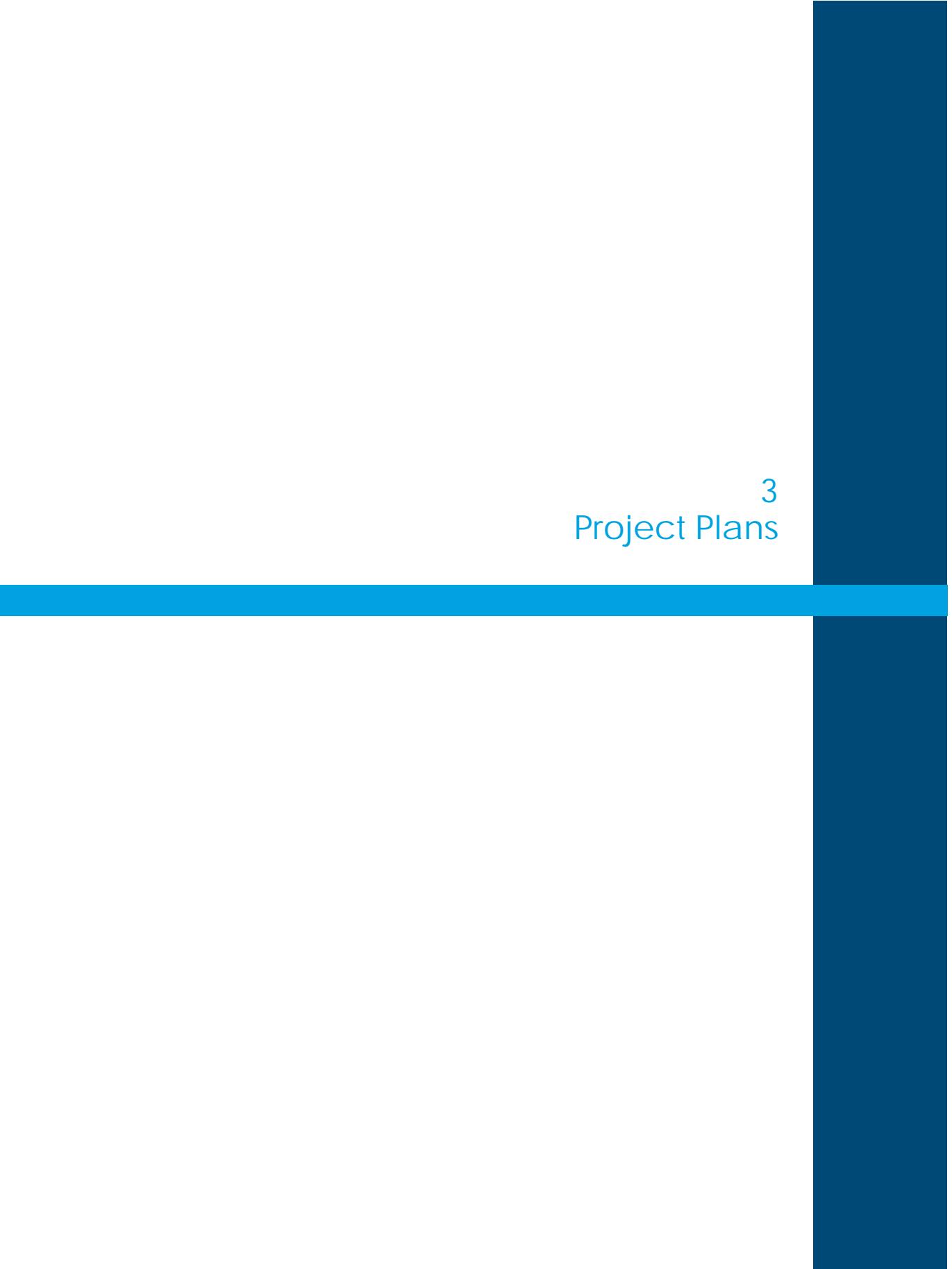
YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

## **IPAC USER CONTACT INFORMATION**

Agency: Portsmouth city  
Name: Miranda Pierre  
Address: 230 Commerce Way Suite 302  
City: Portsmouth  
State: NH  
Zip: 03801  
Email: [miranda.pierre@wright-pierce.com](mailto:miranda.pierre@wright-pierce.com)  
Phone: 6035707159

## **LEAD AGENCY CONTACT INFORMATION**

Lead Agency: Keene city



3  
Project Plans

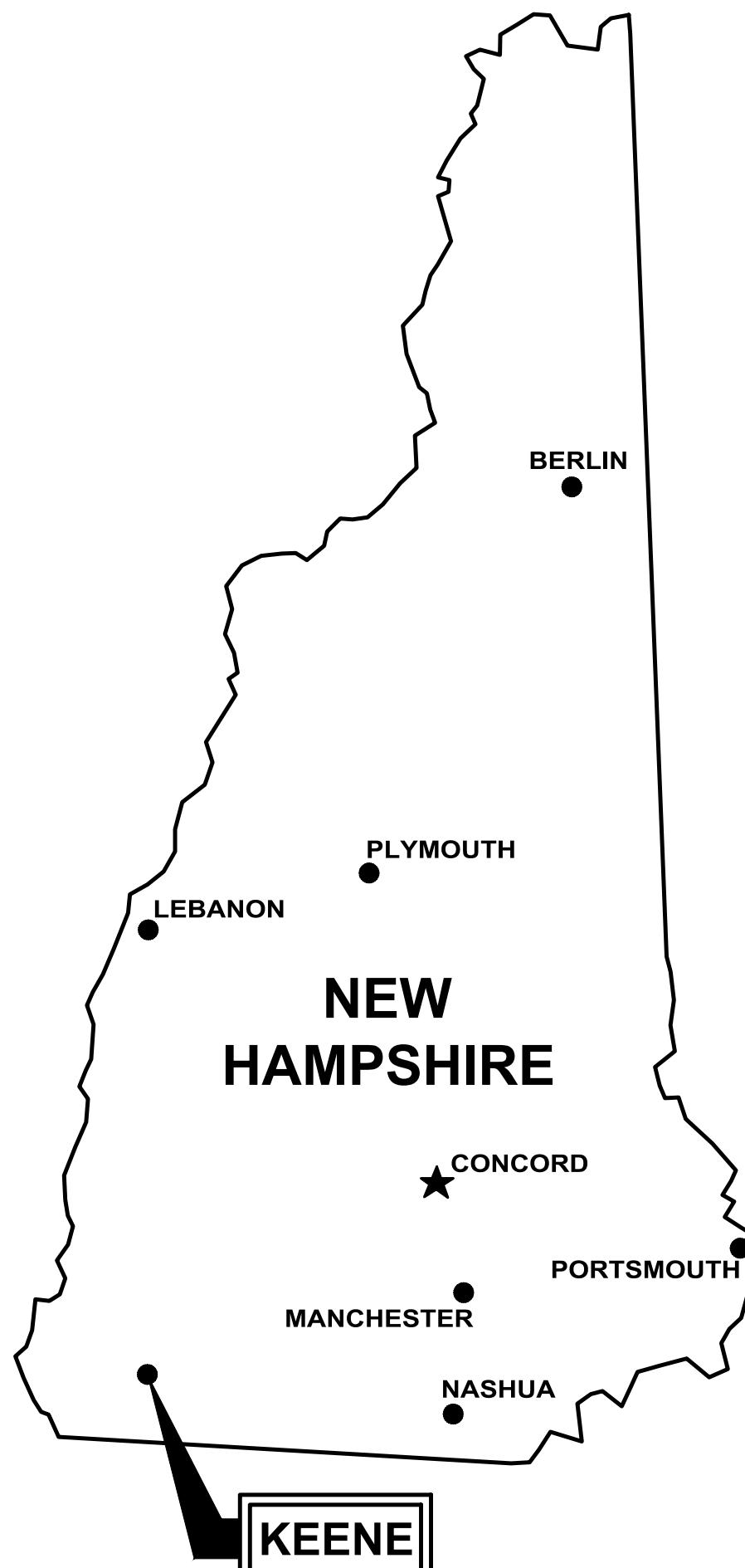
# CITY OF KEENE, NEW HAMPSHIRE

## CONTRACT DRAWINGS FOR

# MARTELL COURT PUMP STATION

# REHABILITATION AND BYPASS FORCE MAIN

JANUARY 2026  
90% DESIGN REVIEW  
KEENE PROJECT # 01-26-08



### DRAWING INDEX

#### GENERAL

--- COVER SHEET

#### CIVIL

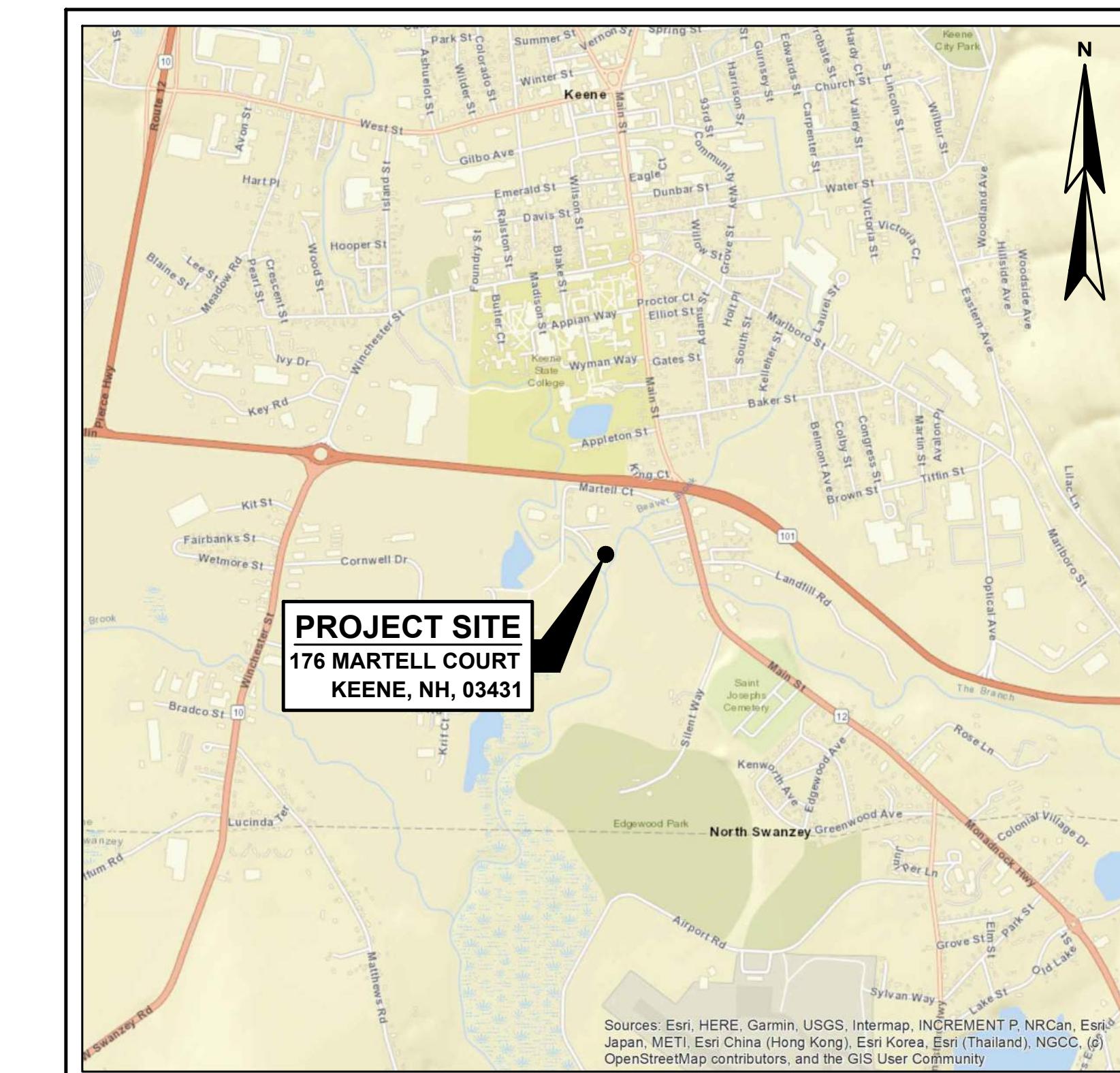
C-001 GENERAL NOTES I  
C-002 GENERAL NOTES II, LEGEND & ABBREVIATIONS  
C-101 EXISTING CONDITIONS & DEMOLITION PLAN  
C-102 PLAN AND PROFILE  
C-103 STREAMBANK STABILIZATION PLAN & SECTIONS  
C-104 DETAILS  
C-105 EROSION CONTROL NOTES & DETAILS  
L-100 LANDSCAPE PLAN & DETAILS

#### PROCESS

PR-001 PROCESS GENERAL NOTES, LEGEND AND ABBREVIATIONS  
PR-101 MARTELL COURT PUMP STATION BYPASS DEMOLITION PLAN AND SECTION  
PR-102 MARTELL COURT PUMP STATION BYPASS MODIFICATION PLAN AND SECTION  
PR-103 PROCESS DETAILS

#### ELECTRICAL

E-001 ELECTRICAL NOTES, LEGEND, ABBREVIATIONS, NEMA, AND CONDUIT INSTALLATION SCHEDULE  
E-101 MARTELL COURT PUMP STATION BYPASS ELECTRICAL DEMOLITION PLAN AND SECTION  
E-102 MARTELL COURT PUMP STATION BYPASS ELECTRICAL MODIFICATIONS PLAN AND SECTION



LOCATION PLAN  
SCALE: 1"=2,000'



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WP PROJECT No. 22220

**GENERAL NOTES**

1. THE OWNER WILL BE RESPONSIBLE FOR OBTAINING THE PERMITS LISTED BELOW. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE FAMILIAR WITH THE APPLICABLE PROVISIONS OF EACH PERMIT AS THEY APPLY TO THE WORK PRIOR TO BIDDING AND ABIDE BY THOSE PROVISIONS DURING CONSTRUCTION. COPIES OF ALL OBTAINED PERMITS ARE AVAILABLE FOR REVIEW FROM THE OWNER. ALL OTHER PERMITS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

**CONTRACTOR PERMITS: (TO BE ADDED AT 99% DESIGN)**

1. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY RIGHTS OF WAY AND EASEMENTS. THE CONTRACTOR SHALL VERIFY THAT THE NECESSARY EASEMENTS HAVE BEEN SECURED BY THE OWNER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE FAMILIAR WITH THE APPLICABLE PROVISIONS OF EACH EASEMENT AS THEY APPLY TO THE WORK PRIOR TO BIDDING AND ABIDE BY THOSE. REFER TO SPECIFICATION 01050 AND ASSOCIATED APPENDIX COPIES OF ALL RIGHTS-OF-WAY AND EASEMENTS ARE AVAILABLE FOR REVIEW FROM THE OWNER.
2. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).
3. CONTRACTOR SHALL COMPLY WITH THE COORDINATION REQUIREMENTS AND RELATED COSTS, IF ANY, AS SPECIFIED IN SPECIFICATION SECTION 01050.
4. CONTRACTOR SHALL NOTE THAT, IN GENERAL, ALL EXISTING CONDITION INFORMATION ON THE DRAWINGS ARE SHOWN WITH A LIGHTER LINE WEIGHT AND WITH A SLANTED TYPE TEXT.
5. ALL EXISTING SEWER AND STORM DRAIN LINES ENCOUNTERED DURING CONSTRUCTION ARE TO REMAIN IN SERVICE. ANY EXISTING SEWERS, STORM DRAIN LINES OR CULVERTS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

**EXISTING SITE CONDITIONS**

1. THE LOCATIONS OF UNDERGROUND UTILITIES AND STRUCTURES, AS SHOWN ON THE DRAWINGS, ARE APPROXIMATE BASED ON THE BEST AVAILABLE INFORMATION AND MAY NOT BE COMPLETE. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE BASED ON PREVIOUS CONSTRUCTION DESIGN PLANS. NO GUARANTEE IS MADE THAT UTILITIES OR STRUCTURES WILL BE ENCOUNTERED WHERE SHOWN, OR THAT ALL UNDERGROUND UTILITIES AND STRUCTURES ARE SHOWN. ALL LOCATIONS AND SIZES OF EXISTING UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD WITH TEST PITS AS REQUIRED PRIOR TO BEGINNING CONSTRUCTION OF NEW FACILITIES OR PIPING THAT MAY BE AFFECTED. THE CONTRACTOR WILL REALIGN NEW PIPE LOCATIONS AS REQUIRED TO CONFORM TO EXISTING LINES AND AS APPROVED BY THE ENGINEER.

2. BELOW GRADE UTILITY INFORMATION IS BASED ON INFORMATION PROVIDED BY EACH UTILITY. LOCATION OF PUBLIC UTILITIES SHOWN IS ONLY APPROXIMATE AND MAY NOT BE COMPLETE. PRIVATE UNDERGROUND UTILITIES SUCH AS, BUT NOT LIMITED TO, SEWER LINES, WATER LINES AND BURIED ELECTRICAL SERVICE ENTRANCES ARE NOT SHOWN. THE CONTRACTOR SHALL ASCERTAIN THE LOCATION AND SIZE OF EXISTING UTILITIES IN THE FIELD WITH THE RESPECTIVE UTILITY COMPANY REPRESENTATIVE PRIOR TO COMMENCING WORK. REFER TO SPECIFICATION SECTION 01050. ADDITIONAL TEST PITS, BEYOND THOSE SHOWN, MAY BE REQUIRED. UTILITY CONTACTS ARE AS FOLLOWS:

<u>ELECTRIC:</u> EVERSOURCE	<u>CITY ENGINEER:</u> CITY OF KEENE: BRYAN M. RUOFF	<u>KEENE FIRE DEPARTMENT:</u> PHONE: (603) 357-9861
350 MARLBORO ST, KEENE, NH 03431 PHONE: (603) 352-6550	BRYAN M. RUOFF PHONE: (603) 352-6550 X6621	
<u>WATER/SEWER:</u> KEENE WATER & SEWER DIVISION	<u>GAS:</u> LIBERTY UTILITIES STEVE ROKES PHONE: (603) 209-2582	<u>KEENE POLICE DEPARTMENT:</u> PHONE: (603) 357-9815
TODD CALDERWOOD PHONE: (603) 352-6550 X6325		
<u>TELEPHONE/CABLE:</u> CONSOLIDATED COMMUNICATIONS	<u>KEENE HIGHWAY OPERATIONS:</u> SUPERINTENDENT MITCHELL SMITH PHONE: (603) 352-6550 X6319	<u>DIG SAFE:</u> PHONE: 811
STEVE ANGLUND PHONE: (603) 305-1345		

**SITE DEMOLITION**

1. A SOLID GREY HATCH HIGHLIGHTS AND REPRESENTS DEMOLITION ON AN ITEM(S) IN THE AREA ASSOCIATED WITH THE HATCH.
2. REFER TO THE EXISTING SITE PLAN ON SHEET C-101, FOR ADDITIONAL INFORMATION REGARDING EXISTING FACILITIES. REFER TO THE LAYOUT DRAWING FOR LIMITS OF WORK.
3. REFER TO PROCESS, AND ELECTRICAL DRAWINGS FOR SPECIFIC INFORMATION REGARDING DEMOLITION AND REMOVAL.
4. REFER TO SPECIFICATION SECTION 01010, WHICH CONTAINS INFORMATION ON CONSTRAINTS OF CONSTRUCTION SEQUENCING.
5. DEMOLISH/REMOVE EXISTING PIPING AS REQUIRED FOR CONSTRUCTION OF NEW PIPING. ALL PIPING, EQUIPMENT AND MATERIALS TO BE DEMOLISHED AND/OR REMOVED FROM SERVICE SHALL BE COORDINATED WITH THE OWNER AND ENGINEER BEFORE COMMENCING THAT WORK. EXISTING PIPING THAT NEEDS TO BE REMOVED TO CONSTRUCT THE NEW FACILITIES, BUT IS TO REMAIN, SHALL BE REINSTALLED/REPLACED AS NEEDED. EXISTING PIPES AND CONDUIT DESIGNATED AS "ABANDONED" MAY BE REMOVED IF THE CONTRACTOR SO CHOOSES. IF ABANDONED PIPE CONFLICTS WITH NEW SITE PIPING OR FACILITIES, THEN A PORTION OF THE ABANDONED PIPE SHALL BE REMOVED, AND THE NEW ENDS OF ABANDONED PIPE CAPPED OR PLUGGED WITH CONCRETE.
6. SEVERING OF EXISTING UTILITIES FOR ABANDONMENT, OR REMOVAL OF A SEGMENT FROM SERVICE, SHALL BE PERFORMED IN SUCH A MANNER AS TO ALLOW THE REMAINING ACTIVE SEGMENT TO CONTINUE IN ITS INTENDED SERVICE. CAP ACTIVE SEGMENTS WITH APPROPRIATE FITTINGS, JOINT RESTRAINT, ETC. TO ENSURE THEIR INTEGRITY. PLUG ENDS OF ABANDONED PIPE SEGMENTS WITH CONCRETE UNLESS SPECIAL CIRCUMSTANCES DICTATE PLUGGING ABANDONED PIPES WITH BLIND FLANGES, RESTRAINED MECHANICAL JOINT PLUGS, ETC. AS APPROPRIATE.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND DISPOSING OF ALL DEMOLISHED PIPING, EQUIPMENT AND MATERIALS. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL STATE AND LOCAL REGULATIONS. THE OWNER RESERVES THE RIGHT TO RETAIN ANY SUCH PIPING, EQUIPMENT AND MATERIALS DESIGNATED FOR DEMOLITION. SUCH MATERIALS TO BE RETAINED SHALL BE PROPERLY STORED IN AN ON-SITE LOCATION. COORDINATE LOCATION AND MATERIALS TO BE SALVAGED WITH THE OWNER/ENGINEER. REFER TO SPECIFICATION SECTION 02050A.
8. THE CONTRACTOR SHALL KEEP A RECORD OF DEMOLITION AS PART OF THE PROJECT RECORD DOCUMENTS IN ACCORDANCE WITH SPECIFICATION SECTION 01720.
9. THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO ENSURE THAT ALL PROCESS FLOWS ARE MAINTAINED DURING CONSTRUCTION. GRAVITY OR PUMPED BYPASSES AND OTHER MEANS OF MAINTAINING FLOW SHALL BE SUBJECT TO THE REVIEW AND ACCEPTANCE OF THE ENGINEER. THE CONTRACTOR SHALL COORDINATE ANY TEMPORARY STOPPAGES OR BYPASSES WITH THE OWNER AND ENGINEER. REFER TO SPECIFICATION SECTION 01010.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE APPROPRIATE DISPOSAL AND BYPASS OF FLOWS RESULTING FROM PRECIPITATION, STREAMFLOW AND GROUNDWATER DEWATERING OPERATIONS IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.

**SITE CLEARING, GRUBBING AND GRADING**

1. STRIPPING OF TOPSOIL (LOAM) SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02115. REFER TO THE LAYOUT AND GRADING DRAWINGS FOR LIMIT OF WORK AND STRIPPING.
2. CONTRACTOR SHALL MINIMIZE CLEARING OPERATIONS. CLEARING AND GRUBBING SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02110. CLEARING LIMITS SHALL BE AS INDICATED ON THE DRAWINGS. ALL CLEARING AND GRUBBING MATERIAL SHALL BE THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF AT A SITE PROVIDED BY THE CONTRACTOR IN COMPLIANCE WITH ALL STATE AND LOCAL LAWS.
3. CONTRACTOR SHALL PROVIDE PROPER EROSION CONTROL AND DRAINAGE MEASURES IN ALL AREAS OF WORK, AND CONFINE SOIL SEDIMENT TO WITHIN THE LIMITS OF EXCAVATION AND GRADING. PRIOR TO BEGINNING EXCAVATION WORK, EROSION CONTROL FENCE SHALL BE INSTALLED AT THE DOWN GRADIENT PERIMETER OF THE ACTUAL LIMITS OF GRUBBING AND/OR GRADING, AND AS SHOWN ON THE DRAWINGS. EROSION CONTROL MEASURES SHOWN ON THE DRAWINGS ARE A MINIMUM, CONTRACTOR SHALL TAKE ALL OTHER NECESSARY MEASURES. EROSION CONTROL FENCE SHALL ALSO BE INSTALLED AT THE DOWN GRADIENT PERIMETER OF THE TOPSOIL

STOCKPILES. ALL DISTURBED EARTH SURFACES SHALL BE STABILIZED IN THE SHORTEST PRACTICAL TIME AND TEMPORARY EROSION CONTROL DEVICES SHALL BE EMPLOYED UNTIL SUCH TIME AS ADEQUATE SOIL STABILIZATION HAS BEEN ACHIEVED. TEMPORARY STORAGE OF EXCAVATED MATERIAL SHALL BE STABILIZED IN A MANNER THAT WILL MINIMIZE EROSION. ALL INSTALLED EROSION CONTROL FACILITIES SHALL BE REMOVED AT THE END OF THE PROJECT. REFER TO SPECIFICATION SECTION 02270.

4. ALL STORM DRAINAGE INLETS SHALL BE PROTECTED BY HAY BALE FILTERS TO PREVENT ENTRY OF SEDIMENT FROM RUNOFF WATERS DURING CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL COLLECTED SEDIMENT, AND THAT WHICH COLLECTS IN THE STORM DRAIN SYSTEM. REFER TO THE CIVIL DETAIL DRAWINGS.
5. THE GEOTECHNICAL DATA REPORT FOR THE PROJECT SITE IS INCLUDED IN APPENDIX A.
6. CONTRACTOR SHALL CONTROL DUST ON THE CONSTRUCTION SITE TO A REASONABLE LIMIT, AS DETERMINED BY THE ENGINEER, AND AS OUTLINED IN SPECIFICATION SECTION 01562.
7. CONTRACTOR SHALL NOT TRACK OR SPILL EARTH, DEBRIS OR OTHER CONSTRUCTION MATERIAL ON PUBLIC OR PRIVATE STREETS AND PLANT DRIVES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMMEDIATE ASSOCIATED CLEAN UP.
8. ALL CATCH BASINS, MANHOLES, VALVE PITS, VALVE BOXES AND OTHER BURIED FACILITIES WITH SURFACE ACCESS SHALL BE ADJUSTED TO MATCH FINAL GRADES, UNLESS OTHERWISE INDICATED.
9. SUITABLE EXCAVATED MATERIAL MAY BE INCORPORATED IN THE PROJECT, WITH EXCESS MATERIAL DISPOSED OF AT A LOCATION PROVIDED BY THE CONTRACTOR. THESE PROVISIONS SHALL IN NO WAY RELIEVE THE CONTRACTOR OF OBLIGATIONS TO PROPERLY DISPOSE OF AND REPLACE ANY MATERIAL DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING. THE CONTRACTOR SHALL DISPOSE OF UNSUITABLE AND EXCESS MATERIAL IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE CONTRACT DOCUMENTS.
10. CONTRACTOR SHALL REMOVE AND REPLACE, OR REPAIR, ALL CURBS, SIDEWALKS, PAVEMENT AND OTHER ITEMS DAMAGED BY CONSTRUCTION ACTIVITIES TO AT LEAST THEIR ORIGINAL CONDITION, TO THE SATISFACTION OF THE OWNER AND ENGINEER.
11. WHERE EXISTING PAVEMENT IS REMOVED AND REPLACED, MATCH EXISTING GRADES TO THE EXTENT POSSIBLE. COORDINATE FINE GRADING WITH THE ENGINEER.
12. ALL NON-ROADWAY AREAS THAT ARE EXCAVATED, FILLED, OR OTHERWISE DISTURBED BY THE CONTRACTOR SHALL BE TOPSOILED, GRADED, LIMED, FERTILIZED, SEDED AND MULCHED, UNLESS OTHERWISE NOTED. THE TOP 4-INCHES OF SOIL SHALL BE TOPSOIL. REFER TO SPECIFICATION SECTION 02480 LANDSCAPING.
13. ALL EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION ARE TO REMAIN IN SERVICE UNLESS OTHERWISE NOTED ON THE CIVIL EXISTING CONDITIONS AND DEMOLITION PLAN. ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF ALL DEMOLITION MATERIALS IN ACCORDANCE WITH SPECIFICATION SECTION 02050.
15. ALL STRUCTURES AND PIPELINES LOCATED ADJACENT TO ANY TRENCH EXCAVATION SHALL BE PROTECTED AND FIRMLY SUPPORTED BY THE CONTRACTOR UNTIL THE TRENCH IS BACKFILLED. DAMAGE TO ANY SUCH STRUCTURES CAUSED BY OR RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. ALL UTILITIES REQUIRING REPAIR, RELOCATION OR ADJUSTMENT AS A RESULT OF THE PROJECT SHALL BE COORDINATED THROUGH THE OWNER.
16. ELECTRICAL AND CONTROLS CONDUIT RUNS ARE INDICATED ON THE CIVIL DRAWINGS CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION, EXCAVATION AND BACKFILLING REQUIRED FOR THE ELECTRICAL AND CONTROLS CONDUITS, AND SHALL FURNISH AND INSTALL ELECTRICAL MANHOLES AND HANDHOLES. COORDINATE THE LOCATION OF THE ELECTRICAL MANHOLES AND HANDHOLES, AND THE REQUIRED OPENING SIZES, WITH THE ELECTRICAL CONTRACTOR.

**CIVIL SITE LAYOUT**

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THIS PROVIDED LAYOUT INFORMATION THROUGHOUT THE COURSE OF CONSTRUCTION. REPORT ANY LAYOUT DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
2. REFER TO THE SITE PIPING AND SITE GRADING DRAWINGS FOR ADDITIONAL LAYOUT INFORMATION.
3. CONTRACTOR SHALL EXCAVATE TEST PITS, WHERE NECESSARY, PRIOR TO CONSTRUCTION LAYOUT AND RESULTS REPORTED TO THE ENGINEER FOR REVIEW FOR CONFORMANCE TO THE PLANS. TEST PITS ARE REQUIRED WHERE SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER.
4. IN GENERAL, THE GIVEN STRUCTURE LOCATIONS ARE TO THE OUTSIDE FACE OF THE STRUCTURE FOUNDATION WALL, NOT FOOTINGS. REFER TO THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR BUILDING AND STRUCTURE DIMENSIONS. RADII SHOWN FOR ROADS ARE TO EDGE OF PAVEMENT.
5. THE LOCATIONS AND LIMITS OF ALL ON-SITE WORK AND STORAGE AREAS SHALL BE REVIEWED/COORDINATED WITH, AND ACCEPTABLE TO, THE OWNER AND ENGINEER. THE CONTRACTOR SHALL LIMIT ACTIVITIES TO THESE AREAS. THE LIMIT OF WORK MUST NOT EXCEED PERMITTED WETLAND AND SHORELAND IMPACT AREAS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RE-ESTABLISHING AND RESETTING ALL EXISTING PROPERTY MONUMENTATION DISTURBED BY CONSTRUCTION. THIS WORK SHALL BE DONE BY A LAND SURVEYOR REGISTERED IN THE STATE OF NEW HAMPSHIRE, AT NO ADDITIONAL COST TO THE OWNER.
7. WRITTEN DIMENSIONS SHALL PREVAIL. DO NOT SCALE DISTANCES FROM THE DRAWINGS. REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER. BOLLARD LOCATIONS SHOWN ARE APPROXIMATE. COORDINATE BOLLARD LOCATIONS WITH THE ENGINEER. REFER TO THE CIVIL DETAIL DRAWINGS.
8. PROJECT BENCH MARK IS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL VERIFY BENCHMARK ELEVATIONS PRIOR TO USING IN CONSTRUCTION.
9. CONSTRUCTION LAYDOWN AREA, ACCESS, AND ACTIVITIES SHALL BE COORDINATED WITH THE OTHER PROJECTS BEING PERFORMED AT THE SITE, INCLUDING, BUT NOT LIMITED TO, THE REPLACEMENT OF THE FUEL STORAGE TANK.
10. EXISTING TOPOGRAPHICAL INFORMATION AND WETLAND FLAGS SHOWN IS BASED ON AN "ON-THE-GROUND" TOPOGRAPHIC SURVEY. PERFORMED ON SEPTEMBER 22, 2023 BY WRIGHT-PIERCE UTILIZING A TS12 TOTAL STATION AND REDUNDANT RTK GPS UTILIZING THE LEICA SMARTNET NETWORK. WRIGHT-PIERCE COMPLETED A SUPPLEMENTAL SURVEY INCLUDING IN-STREAM TOPOGRAPHY AND SITE FEATURES IN JUNE 2025. THE PROJECT IS ORIENTED TO GRID NORTH, NORTH AMERICAN DATUM OF 1983 (NAD 83), NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM. VERTICAL DATUM IS REFERENCED TO NAVD88.
11. SUPPLEMENTAL INFORMATION SHOWN, WAS DIGITIZED FROM A PLAN SET TITLED "CITY OF KEENE WASTEWATER PUMP STATION CONTRACT NO. 3, RECORD DRAWINGS (3 AND 5), DATED 10/24/1986. AS WELL AS A PLAN SET TITLED "MARTELL COURT PUMP STATION HEADWORKS UPGRADE (DRAWING C2), DATED MAY 2021".
12. SUPPLEMENTAL CONTOUR INFORMATION PROVIDED BY "NH GRANIT - CONNECTICUT RIVER WATERSHED", DATED 2015.
13. FEMA FLOOD INFORMATION WAS OBTAINED FROM FEMA.GOV.
14. JURISDICTIONAL WETLAND BOUNDARIES AND ORDINARY HIGH WATER WERE DELINEATED BY MARC JACOBS, CERTIFIED WETLANDS SCIENTIST NUMBER 090, IN SEPTEMBER 2023.

**SITE PIPING NOTES**

1. SITE PIPING REQUIREMENTS ARE SHOWN ON THE PIPE SCHEDULE IN SPECIFICATION SECTION 15050 AND AS REFERENCED. PROCESS ABBREVIATIONS AND PROCESS FLOW SCHEMATICS ARE SHOWN ON THE PROCESS DRAWINGS.
2. ALL PIPE LINES SHALL SLOPE UNIFORMLY BETWEEN ELEVATIONS INDICATED ON THE DRAWINGS. NO CRESTS IN PIPING WILL BE PERMITTED. CONCRETE THRUST BLOCKS OR OTHER ACCEPTABLE RESTRAINT SYSTEM IS REQUIRED ON ALL FITTINGS ON PRESSURE PIPE. WHERE A RESTRAINED JOINT SYSTEM IS USED, THE NUMBER OF PIPES WITH RESTRAINED JOINTS ON EITHER SIDE OF THE FITTING SHALL BE DESIGNED TO REFLECT THE PROJECT SOIL CONDITIONS AND PEAK SURGE PRESSURE IN THE PIPING SYSTEM. SEE THE CIVIL DETAIL DRAWINGS FOR THRUST BLOCK DETAILS. PROVIDE ALL BENDS (HORIZONTAL AND VERTICAL) AS REQUIRED TO MEET THE GRADES AND ALIGNMENT INDICATED ON THE DRAWINGS.
3. THE CONTRACTOR SHALL ASCERTAIN THE LOCATION AND SIZE OF EXISTING PIPING AND UTILITIES IN THE FIELD BY TEST PIT EXCAVATION PRIOR TO COMMENCING INSTALLATION OF ANY OF THE NEW PIPING AFFECTED. WHERE NEW PIPE CONNECTS TO EXISTING PIPING OR STRUCTURAL PENETRATION, CONTRACTOR SHALL VERIFY ELEVATION BY TEST PIT, AS REQUIRED, PRIOR TO INSTALLATION OF ANY OF THE ASSOCIATED/AFFECTED NEW PIPING. IDENTIFIED CONFLICTS WITH EXISTING PIPING AND UTILITIES WILL BE REVIEWED WITH THE ENGINEER PRIOR TO COMMENCING INSTALLATION. THE HORIZONTAL ALIGNMENT OF NEW PIPING MAY BE ADJUSTED IN THE FIELD SUBJECT TO PRIOR REVIEW AND ACCEPTANCE OF THE ENGINEER. CONTRACTOR SHALL BE RESPONSIBLE FOR LAYOUT OF ALL PROPOSED WORK AS SHOWN ON THE DRAWINGS AND REPORT ANY LAYOUT DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
4. ALL BURIED CONNECTIONS TO STRUCTURES SHALL HAVE SLEEVE TYPE FLEXIBLE CONNECTIONS APPROXIMATELY 4-FEET FROM THE STRUCTURES. ALL SLEEVE TYPE COUPLINGS ON PRESSURE LINES SHALL BE RESTRAINED (SOLID SLEEVE). REFER TO SPECIFICATION SECTION 15088.
5. PROVIDE CAST OR DUCTILE IRON WALL CASTINGS, OR GALVANIZED STEEL PIPE SLEEVES, FOR ALL PIPE PENETRATIONS MADE THROUGH CONCRETE FOUNDATIONS, WALLS AND SLABS. ALL WALL SLEEVES AND WALL CASTINGS SHALL HAVE WATERSTOP. SEE PROCESS, MECHANICAL AND STRUCTURAL DRAWINGS FOR LOCATIONS OF PENETRATIONS. NEW PENETRATIONS THROUGH EXISTING STRUCTURE WALLS SHALL BE BY CORING MACHINE AND LINK-TYPE SEALS, UNLESS OTHERWISE INDICATED. OPENINGS TO BE COMPATIBLE WITH REQUIRED PIPING AND STANDARD LINK SEAL SIZES. SEE PROCESS DETAIL DRAWINGS. REFER TO SPECIFICATION SECTION 15092.
6. TRENCH INSULATION SHALL BE USED WHERE DEPTH OF COVER IS LESS THAN 5-FEET. REFER TO THE CIVIL DETAIL DRAWINGS FOR THE TRENCH INSULATION DETAIL.
7. MANHOLES ARE 4-FEET IN DIAMETER UNLESS OTHERWISE NOTED. THE TOP OF MANHOLE FRAMES SHALL BE SET FLUSH WITH FINISH GRADE, UNLESS OTHERWISE NOTED ON DRAWINGS. SEWER MANHOLE INVERTS SHOWN ON THE DRAWINGS ARE TO THE INSIDE FACE OF THE MANHOLE.

8. PIPES WITHIN VALVE PITS (MANHOLES) SHALL BE SUPPORTED 12-INCHES ABOVE BOTTOM OF MANHOLE ON ADJUSTABLE PIPE SADDLES SUPPORTS, IN ACCORDANCE WITH SPECIFICATION SECTION 15094, UNLESS OTHERWISE INDICATED.

9. REFER TO SPECIFICATION SECTION 02200 FOR PIPE AND STRUCTURE BEDDING AND BACKFILL REQUIREMENTS.

10. COMPACTION TESTS WILL BE PERFORMED IN ACCORDANCE WITH SPECIFICATION SECTION 02200. ANY SETTLEMENT OCCURRING WITHIN ONE-YEAR OF FINAL COMPLETION OF THE WORK SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST.

11. IN THOSE INSTANCES WHERE POWER OR TELEPHONE POLE SUPPORT IS REQUIRED, THE CONTRACTOR SHALL PROVIDE A MINIMUM 7-DAY NOTICE TO THE RESPECTIVE UTILITY POLE OWNER. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR TEMPORARY BRACING OF UTILITIES.

12. WHERE NEW PIPING IS TO BE CONNECTED TO EXISTING PIPING, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ADAPTERS, FITTINGS, AND ADDITIONAL PIPE AS REQUIRED TO COMPLETE THE CONNECTION. CONTRACTOR SHALL VERIFY LOCATION, ELEVATION, ORIENTATION AND MATERIAL OF CONSTRUCTION. TEST PITS SHALL BE USED AS REQUIRED.

13. ALL EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION ARE TO REMAIN IN SERVICE UNLESS OTHERWISE NOTED ON THE CIVIL EXISTING CONDITIONS AND DEMOLITION PLAN. ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

14. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF ALL DEMOLITION MATERIALS IN ACCORDANCE WITH SPECIFICATION SECTION 02050.

15. ALL STRUCTURES AND PIPELINES LOCATED ADJACENT TO ANY TRENCH EXCAVATION SHALL BE PROTECTED AND FIRMLY SUPPORTED BY THE CONTRACTOR UNTIL THE TRENCH IS BACKFILLED. DAMAGE TO ANY SUCH STRUCTURES CAUSED BY OR RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. ALL UTILITIES REQUIRING REPAIR, RELOCATION OR ADJUSTMENT AS A RESULT OF THE PROJECT SHALL BE COORDINATED THROUGH THE OWNER.

16. ELECTRICAL AND CONTROLS CONDUIT RUNS ARE INDICATED ON THE CIVIL DRAWINGS CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION, EXCAVATION AND BACKFILLING REQUIRED FOR THE ELECTRICAL AND CONTROLS CONDUITS, AND SHALL FURNISH AND INSTALL ELECTRICAL MANHOLES AND HANDHOLES. COORDINATE THE LOCATION OF THE ELECTRICAL MANHOLES AND HANDHOLES, AND THE REQUIRED OPENING SIZES, WITH THE ELECTRICAL CONTRACTOR.

APPD	DATE
NO	
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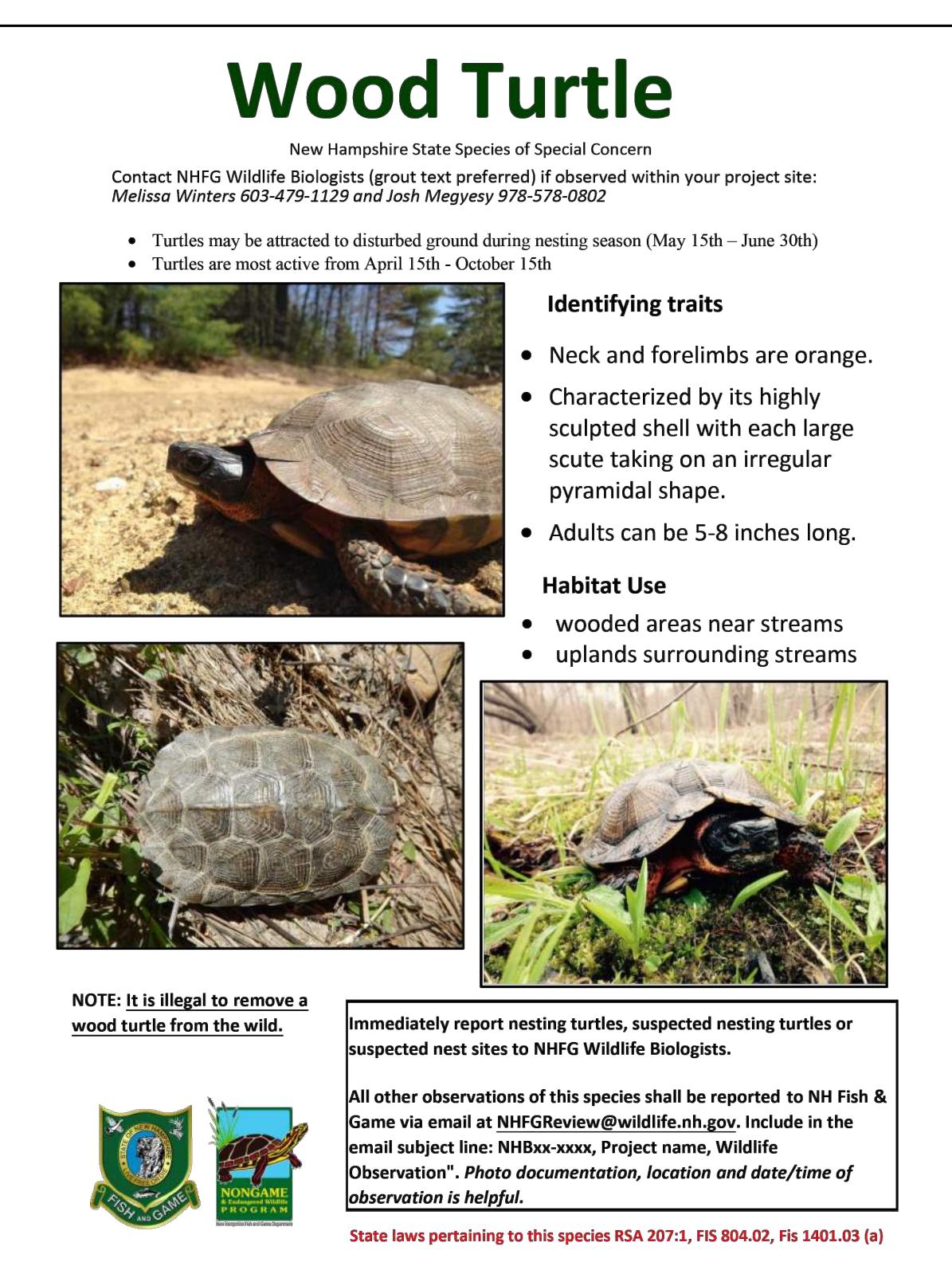
PROJECT NO: 22220	DESIGNED: L SHACTMAN
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## **WILDLIFE PROTECTION NOTES:**

1. WOOD TURTLE (STATE SPECIAL CONCERN) AND NORTHERN LEOPARD FROG (STATE SPECIAL CONCERN) OCCUR WITHIN THE VICINITY OF THE PROJECT AREA. ALL OPERATORS AND PERSONNEL WORKING ON OR ENTERING THE SITE SHALL BE MADE AWARE OF THE POTENTIAL PRESENCE OF THESE SPECIES AND SHALL BE PROVIDED FLYERS THAT HELP TO IDENTIFY THESE SPECIES, ALONG WITH NHFG CONTACT INFORMATION.
2. RARE SPECIES INFORMATION (E.G. IDENTIFICATION, OBSERVATION AND REPORTING OF OBSERVATIONS, WHEN TO CONTACT NHFG IMMEDIATELY AND NHFG CONTACT INFORMATION) SHALL BE COMMUNICATED DURING MORNING TAILGATE MEETINGS PRIOR TO WORK COMMENCEMENT DURING THE CONSTRUCTION PHASE OF THE PROJECT.
3. CONTRACTOR SHALL CONDUCT SWEEPS DAILY PRIOR TO BEGINNING PROJECT ACTIVITIES TO IDENTIFY RARE WILDLIFE WITHIN THE WILDLIFE EXCLUSIONARY BARRIER. SEE CONDITIONS BELOW IF RARE WILDLIFE ARE FOUND.
4. TURTLES AND SNAKES MAY BE ATTRACTED TO DISTURBED GROUND DURING NESTING SEASON (MAY 15TH – JUNE 30TH). TURTLE NESTS ARE PROTECTED BY NH LAWS. IF A NEST IS OBSERVED OR SUSPECTED, OPERATORS SHALL CONTACT MELISSA WINTERS OR JOSH MEGYESY AT NHFG IMMEDIATELY FOR FURTHER CONSULTATION. SEE SPECIES FLYERS FOR NHFG CONTACT INFORMATION.
  - a. THE NEST OR SUSPECTED NEST SHALL BE MARKED (SURROUNDING ROPE OFF OR CONE BUFFER DEPLOYED) AND AVOIDED; THIS SHALL BE COMMUNICATED TO ALL PERSONNEL ONSITE.
  - b. SITE ACTIVITIES SHALL NOT OCCUR IN THE AREA SURROUNDING THE NEST OR SUSPECTED NEST UNTIL FURTHER GUIDANCE IS PROVIDED BY NHFG.
5. ALL MANUFACTURED EROSION AND SEDIMENT CONTROL PRODUCTS, WITH THE EXCEPTION OF TURF REINFORCEMENT MATS, UTILIZED FOR, BUT NOT LIMITED TO, SLOPE PROTECTION, RUNOFF DIVERSION, SLOPE INTERRUPTION, PERIMETER CONTROL, INLET PROTECTION, CHECK DAMS, AND SEDIMENT TRAPS SHALL NOT CONTAIN PLASTIC, OR MULTIFILAMENT OR MONOFILAMENT POLYPROPYLENE NETTING OR MESH WITH AN OPENING SIZE OF GREATER THAN 1/8 INCHES.
6. ALL OBSERVATIONS OF THREATENED OR ENDANGERED SPECIES ON THE PROJECT SITE SHALL BE REPORTED IMMEDIATELY TO THE NHFG NONGAME AND ENDANGERED WILDLIFE ENVIRONMENTAL REVIEW PROGRAM BY PHONE AT 603-271-2461 AND BY EMAIL AT NHFGREVIEW@WILDLIFE.NH.GOV, WITH THE EMAIL SUBJECT LINE CONTAINING THE NHB DATACHECK TOOL RESULTS LETTER ASSIGNED NUMBER, THE PROJECT NAME, AND THE TERM WILDLIFE SPECIES OBSERVATION.
  - a. A.PHOTOGRAPHS OF THE OBSERVED SPECIES AND NEARBY ELEMENTS OF HABITAT OR AREAS OF LAND DISTURBANCE SHALL BE PROVIDED TO NHFG IN DIGITAL FORMAT AT THE ABOVE EMAIL ADDRESS FOR VERIFICATION, AS FEASIBLE.
8. IN THE EVENT A THREATENED OR ENDANGERED SPECIES IS OBSERVED ON THE PROJECT SITE DURING THE TERM OF THE PERMIT, THE SPECIES SHALL NOT BE DISTURBED, HANDLED, OR HARMED IN ANY WAY PRIOR TO CONSULTATION WITH NHFG AND IMPLEMENTATION OF CORRECTIVE ACTIONS RECOMMENDED BY NHFG.
9. NHFG, INCLUDING ITS EMPLOYEES AND AUTHORIZED AGENTS, SHALL HAVE ACCESS TO THE PROPERTY DURING THE TERM OF THE PERMIT.

## INVASIVE SPECIES CONTROL

1. INVASIVE SPECIES INCLUDING KNOTWEED, BITTERSWEET, HONEYSUCKLE, JAPANESE BARBERRY, GLOSSY BUCKTHORN, AND BURNING BUSH HAVE BEEN IDENTIFIED WITHIN THE PROJECT AREA. CONTRACTOR SHALL REMOVE AND DISPOSE OF INVASIVE SPECIES WITHIN THE LIMIT OF WORK IN ACCORDANCE WITH THE BEST MANAGEMENT PRACTICES FOR THE CONTROL OF INVASIVE AND NOXIOUS PLANT SPECIES (2018).
2. EQUIPMENT SHALL BE INSPECTED BY THE CONTRACTOR PRIOR TO USE TO ENSURE THAT IT IS FREE OF ALL AQUATIC AND TERRESTRIAL INVASIVE PLANTS AND ALL EXOTIC AQUATIC SPECIES OF WILDLIFE.
3. TO PREVENT THE USE OF SOIL OR SEED STOCK CONTAIN NUISANCE OR INVASIVE SPECIES, THE CONTRACTOR SHALL BE REQUIRED TO FOLLOW THE BEST MANAGEMENT PRACTICES FOR THE CONTROL OF INVASIVE AND NOXIOUS PLANT SPECIES (2018).

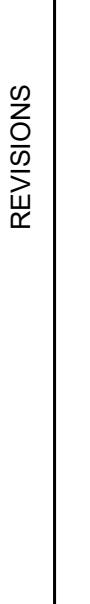


## LEGEND

<u>EXISTING</u>	<u>PROPOSED</u>
— — — — —	PROPERTY/ROW LINE
— — — — —	SETBACK LINE
— — — — —	EASEMENT LINE
— — — — —	CENTERLINE
— — — — —	EDGE OF PAVEMENT
— — — — —	CURBING
— — — — —	EDGE OF GRAVEL
— — — — —	EDGE OF CONCRETE
— — — 122 — —	CONTOUR
— — — — —	123
— — — — —	BUILDING
— — — — —	STONEWALL
— — — — —	TREELINE
— — — — —	CHAIN LINK FENCE
— — — — —	STOCKADE FENCE
— — — — —	BARB WIRE FENCE
— — — — —	RETAINING WALL
— — — — —	GUARDRAIL
— — — — —	SEWER
— — — — —	SEWER FORCE MAIN
— — — — —	GAS
— — — — —	WATER
— — — — —	STORM DRAIN
— — — — —	UNDERDRAIN
— — — — —	CULVERT
— — — — —	UNDERGROUND ELECTRIC
— — — — —	OVERHEAD ELECTRIC
— — — — —	IRON PIPE/REBAR
— — — — —	DRILLHOLE
— — — — —	MONUMENT
— — — — —	SURVEY CONTROL POINT
— — — — —	SPOT ELEVATION
— — — — —	134.5
— — — — —	SEWER MANHOLE
— — — — —	SMH
— — — — —	DRAINAGE MANHOLE
— — — — —	DMH
— — — CB — —	CATCH BASIN
— — — CB — —	CB
— — — EMH — —	ELECTRIC MANHOLE
— — — EMH — —	EMH
— — — TMH — —	TELEPHONE MANHOLE
— — — TMH — —	TMH
— — — — —	GATE VALVE
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— — — — —	CURB STOP
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— — — — —	YARD HYDRANT
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— — — — —	HYDRANT
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— — — — —	UTILITY POLE W/ GUY
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— — — — —	LIGHT POLE
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— — — — —	BOLLARD
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— — — — —	FLAGPOLE
— — — — —	●
— — — — —	CONIFEROUS TREE
— — — — —	●
— — — — —	DECIDUOUS TREE
— — — — —	●
— — — — —	SHRUB
— — — — —	●
— — — — —	EDGE OF WATER
— — — — —	●
— — — — —	STREAM
— — — — —	●
— — — — —	EDGE OF WETLANDS
— — — — —	●
— — — — —	FLOODPLAIN
— — — — —	●
— — — — —	WETLANDS
— — — — —	●
— — — — —	DRAINAGE FLOW
— — — — —	●
— — — — —	DRAINAGE SWALE
— — — — —	●
— — — — —	PAVEMENT MARKINGS
— — — — —	►
— — — — —	●
— — — — —	SIGN
— — — — —	MAILBOX
— — — — —	TEMPORARY BENCH MARK
— — — — —	TEST PIT
— — — — —	TP-2
— — — — —	TEST BORING
— — — — —	B-3
— — — — —	TEST PROBE
— — — — —	P-4
— — — — —	MONITORING WELL
— — — — —	MW
— — — — —	LIMIT OF WORK
— — — — —	— — — — —
— — — — —	SILT FENCE
— — — — —	— — — — —
— — — — —	RIPRAP
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— — — — —	RAILROAD
— — — — —	— — — — —
— — — — —	MATCHLINE
— — — — —	— — — ● ● — — —
— — — — —	ROCK OUTCROP
— — — — —	— — — — —
— — — — —	SEWER
— — — — —	8" S
— — — — —	SEWER FORCE MAIN
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— — — — —	4" G
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— — — — —	8" W
— — — — —	STORM DRAIN
— — — — —	15" SD
— — — — —	UNDERDRAIN
— — — — —	6" UD
— — — — —	CULVERT
— — — — —	12" CMP
— — — — —	128.11
— — — — —	PIPE SPOT ELEVATION
— — — — —	8" S
— — — — —	CULVERT/UNDERDRAIN
— — — — —	6" XX
— — — — —	PIPING
— — — — —	6" XX
— — — — —	LARGE DIA PIPING (18"+)
— — — — —	30" XX
— — — — —	PIPE PREVIOUSLY
— — — — —	ABANDONED
— — — — —	ABANDONED
— — — — —	PIPING TO BE DEMOLISHED
— — — — —	PIPING TO ABANDON

## CIVIL ABBREVIATIONS

&	AND
Ø, DIA	DIAMETER
#, NO	NUMBER
AC	ASBESTOS CEMENT
APP'D	APPROVED
BR	BRICK
BLDG	BUILDING
CB	CATCH BASIN
CEN	CENTER
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CIPP	CURED-IN-PLACE-PIPE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
COR	CORNER
CPE	CORRUGATED POLYETHYLENE PIPE
CY	CUBIC YARD
DEMO	DEMOLITION
DMH	DRAIN MANHOLE
DI	DUCTILE IRON
DR	DRAIN
DWG	DRAWING
EL	ELEVATION
EMH	ELECTRIC MANHOLE
FM	FORCE MAIN
FT	FEET
G	GAS
HDPE	HIGH DENSITY POLYETHYLENE
HYD	HYDRANT
IN	INCH
INF	INFLUENT
INV	INVERT
LB	POUNDS
LF	LINEAR FOOT
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MW	MONITORING WELL
N	NORTH
NGVD	NATIONAL GEODETIC VERTICAL DATUM
N/A	NOT AVAILABLE/APPLICABLE
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
OUT	OUTFALL
PC	PERFORATED CLAY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PS	PRIMARY SLUDGE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
REQ'D	REQUIRED
S	SLOPE, SEWER
SD	STORM DRAIN
SF	SQUARE FEET
SMH	SANITARY SEWER MANHOLE
SQ	SQUARE
STA	STATION
T, XFMR	TRANSFORMER
TBM	TEMPORARY BENCH MARK
THK	THICKNESS
TOS	TOP OF STRUCTURE
TYP	TYPICAL
UD	UNDERDRAIN
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
VC	VITRIFIED CLAY
VF	VERTICAL FOOT
W/	WITH
W	WATERS

	<b>CITY OF KEENE, NEW HAMPSHIRE</b> <b>MARTIN COURT PUMP STATION REHAB AND</b> <b>BYPASS FORCE MAIN FINAL DESIGN</b>	
	<b>DRAWING</b> <b>C-002</b>	<b>GENERAL NOTES, LEGEND &amp; ABBREVIATIONS</b>
<p>603.430.3728   <a href="http://www.wright-pierce.com">www.wright-pierce.com</a></p> <p>230 COMMERCE WAY, SUITE 302, PORTSMOUTH, NH 03801</p>		
<p>PROJECT NO: 22220          DESIGNED: J.SHACTMAN          CAD COORD: B.ELLIOTT          CAD: K.BLAIS          CHECKED: J.SHACTMAN          DATE: 09-2025          APPROVED: R.GIBSON          DATE: 01-2026          SUBMISSION: 90% DESIGN REVIEW</p>		
<p>NO          1          2          3          4          5</p>		
<p>REVISIONS</p>		
<p>APP'D DATE</p>		



## **EXISTING CONDITIONS & DEMOLITION PLAN**

SCALE: 1"

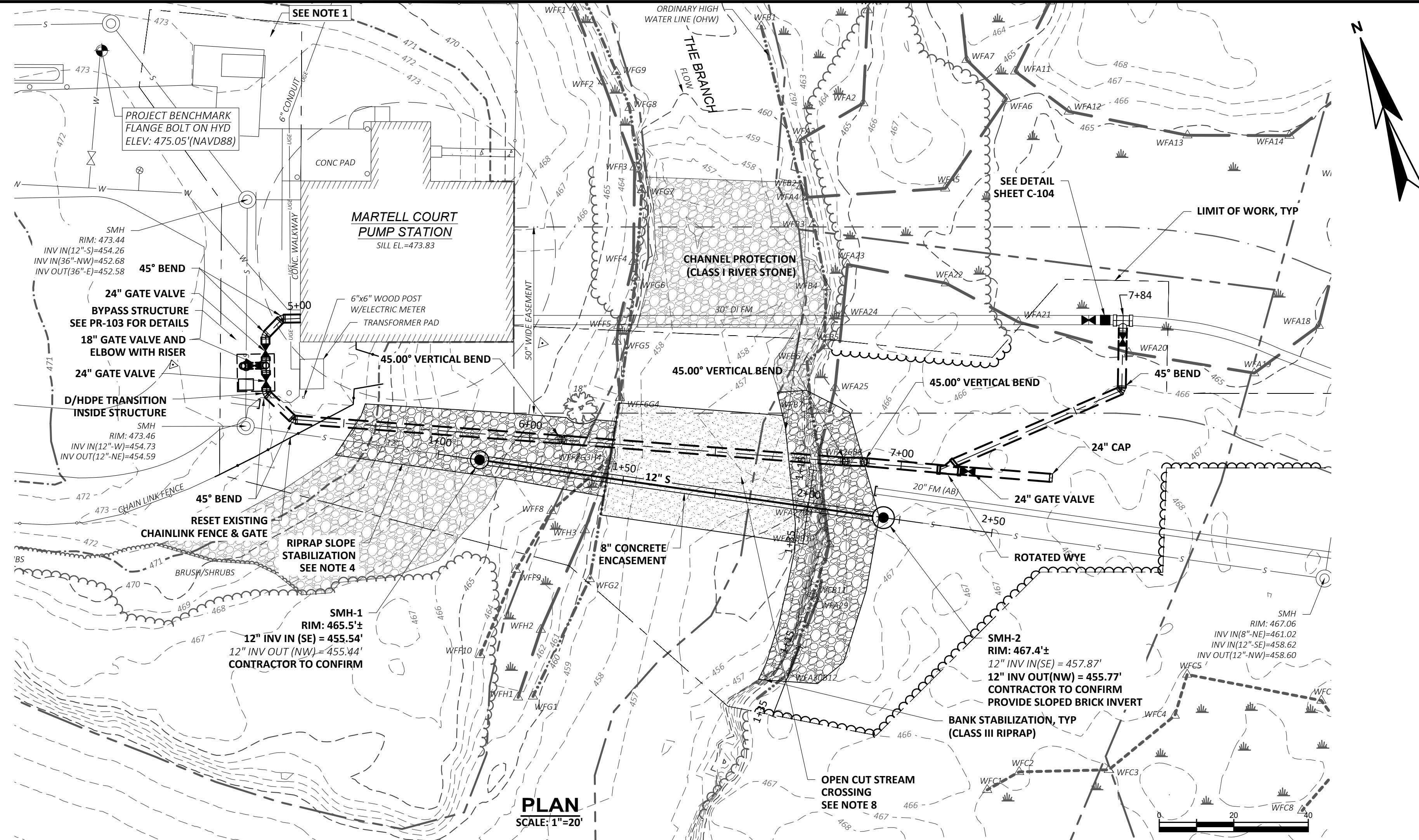
DRAWING	CITY OF KEENE, NEW HAMPSHIRE	
	MARTIN COURT PUMP STATION REHAB AND BYPASS FORCE MAIN FINAL DESIGN	
C-101	WRIGHT-PIERCE	
	EXISTING CONDITIONS & DEMOLITION PLAN	
NO	REVISIONS	APP'D DATE
PROJECT NO: 22220	NO	
DESIGNED: J.SHACTMAN	△1	
CAD COORD: B. ELLIOTT	△2	
CAD: K. BLAIS	△3	
CHECKED: J.SHACTMAN	△4	
DATE: 09-2025	△5	
APPROVED: R. GIBSON		
DATE: 01-2026		
SUBMISSION: 90% DESIGN REVIEW		

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NOTES:

1. FUEL TANK TO BE REPLACED BY OTHERS. CONTRACTOR TO COORDINATE ACCESS
2. TOP OF RIVER STONE (MINIMUM 2-FT THICKNESS) ELEVATION NOT TO EXCEED EXISTING STREAM BED ELEVATION EXCEPT WHERE GRAVITY SEWER ENCASEMENT EXTENDS ABOVE STREAM BED. SEE NOTE 5.
3. SEE STREAM BANK STABILIZATION PLAN & SECTIONS DWG C-103.
4. CONTRACTOR MAY REUSE EXISTING RIPRAP WHERE LIMITS OF PROPOSED SLOPE STABILIZATION CONTAIN EXISTING RIPRAP. IF EXISTING RIPRAP MEETS CLASS III GRADATION REQUIREMENTS.
5. WHERE GRAVITY SEWER ENCASEMENT EXTENDS ABOVE THE EXISTING STREAMBED PROVIDE 5-FOOT SMOOTH TRANSITION OF RIVER STONE BETWEEN STREAM BED AND TOP OF CONCRETE.
6. FORCE MAIN SHALL BE PITCHED FROM THE EXIT OF THE BUILDING TO THE WEST SIDE OF THE STREAM CROSSING AND FROM THE WEST SIDE OF THE STREAM CROSSING TO THE TAPPING SLEEVE SO AS NOT TO CREATE ADDITIONAL HIGH POINTS IN THE LINE.
7. TRENCH DAMS SHALL BE PROVIDED ON ALL PIPE SLOPES.
8. CONTRACTOR SHALL DESIGN, FURNISH, AND INSTALL WATER CONTROL PLAN FOR TEMPORARY WATER DIVERSION OF THE BRANCH RIVER AND Dewatering OF EXCAVATION AREAS TO AN ELEVATION OF AT LEAST 2-FT BELOW LOWEST SUBGRADE OR BOTTOM OF PIPE TRENCH WITHIN APPROVED LIMIT OF WORK.

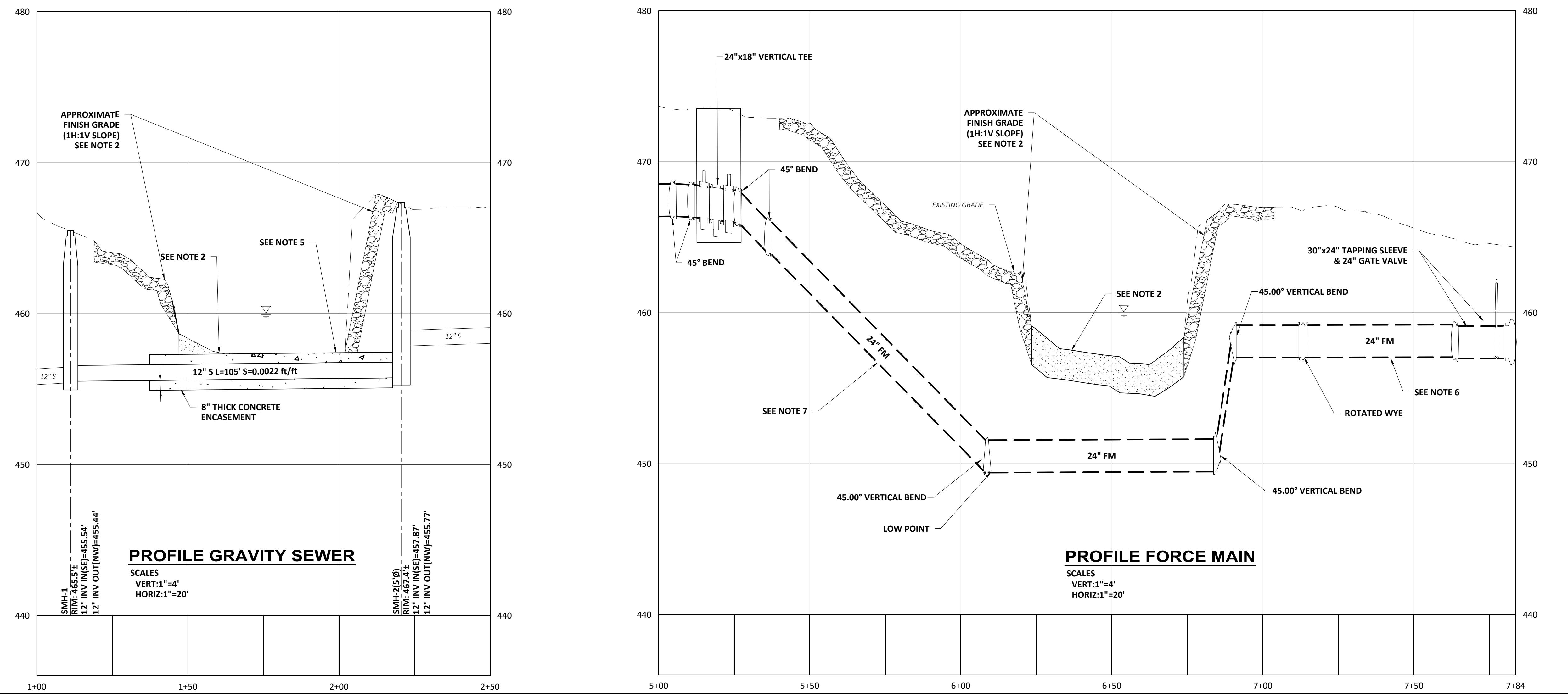


**TEMPORARY WATER CONTROL NOTES:**

1. THE TEMPORARY WATER DIVISION SYSTEM REQUIRED TO CONSTRUCT FORCE MAIN, GRAVITY MAIN, STREAM BED, AND BANK STABILIZATION SHALL BE DESIGNED BY THE CONTRACTOR AND APPROVED BY THE OWNER AND ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADEQUATE WATER DIVERSION APPROPRIATE TO MAINTAIN DRY WORKING CONDITIONS.
2. THE CONTRACTOR MUST SUBMIT A COMPLETE DESIGN, LAYOUT, AND PHASING OF THE PROPOSED Dewatering AND WATER DIVERSION SYSTEM FOR REVIEW BY THE ENGINEER PRIOR TO COMMENCING CONSTRUCTION. SUCH REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF SOLE RESPONSIBILITY FOR THE WATER DIVERSIONS AS NECESSARY TO PREVENT DAMAGE OF ADJACENT STRUCTURES OR INFRASTRUCTURE ADJACENT TO THE EXCAVATION AND FOR THE SAFETY OF PERSON WORKING WITHIN THE EXCAVATED AREA (SEE SPECIFICATION 02140).
3. DISPOSE OF WATER PUMPED OR DRAINED FROM THE CONSTRUCTION SITE IN A SUITABLE MANNER TO AVOID SILTATION OF ADJACENT WETLANDS OR WATER BODIES, INJURY TO PUBLIC HEALTH, DAMAGE TO PUBLIC AND PRIVATE PROPERTY, AND DAMAGE TO THE WORK COMPLETED OR IN PROGRESS. COORDINATE DISCHARGE LOCATION WITH OWNER.
4. CONTRACTOR SHALL FOLLOW THE REQUIREMENTS ASSOCIATED WITH THE APPROVED NHDES WETLANDS PERMIT.
5. PEAK FLOW STATISTICS ARE PROVIDED BASED ON FEMA PRELIMINARY FLOOD INSURANCE STUDY CHESHIRE COUNTY, NEW HAMPSHIRE (JULY 2025). Q2 FLOW VALUE HAS BEEN EXTRAPOLATED.

**PEAK FLOW STATISTICS**  
DRAINAGE AREA = 63,750 AC.

STATISTIC:	VALUE:	UNIT:
Q2	2,200	FT <sup>3</sup> /S
Q10	4,730	FT <sup>3</sup> /S
Q25	5,970	FT <sup>3</sup> /S
Q50	6,950	FT <sup>3</sup> /S
Q100	8,110	FT <sup>3</sup> /S



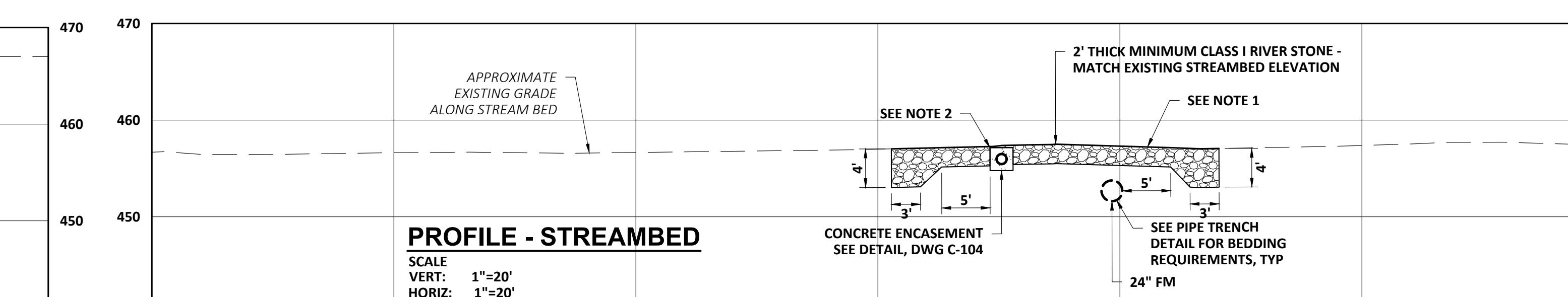
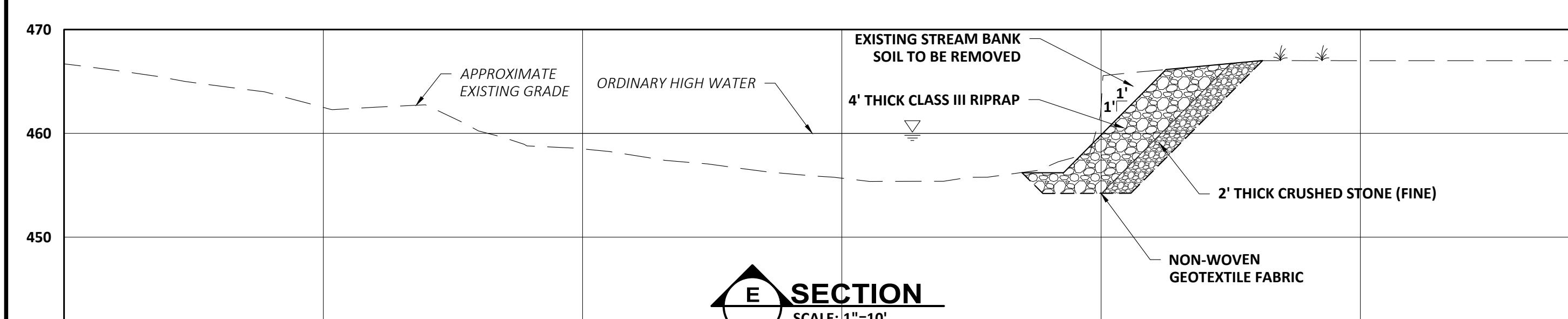
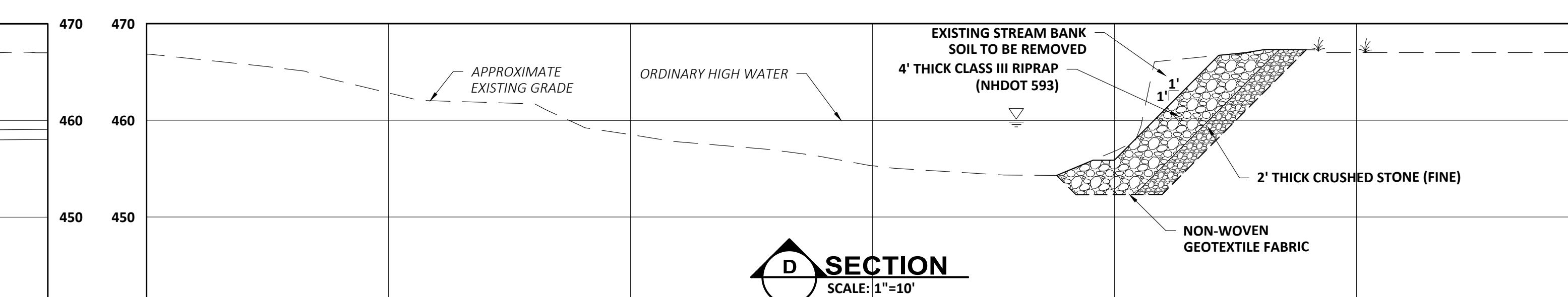
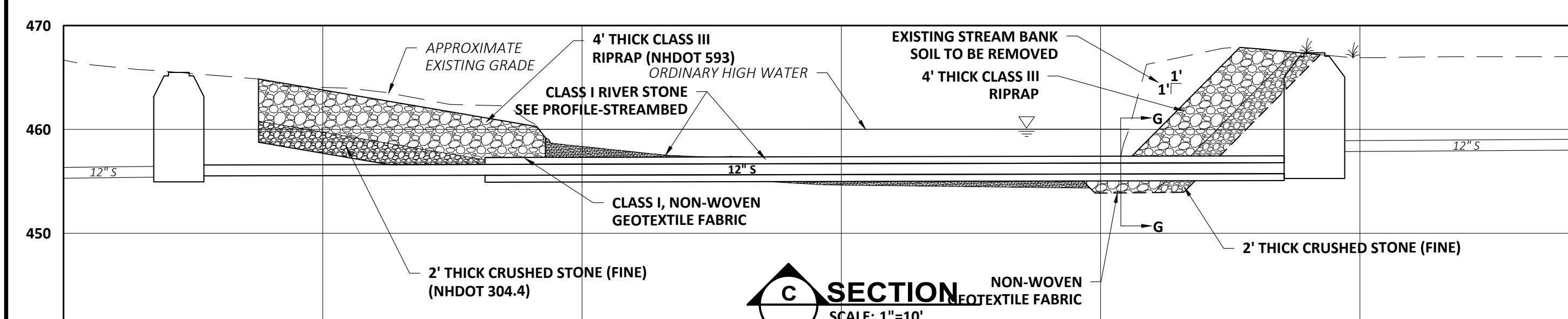
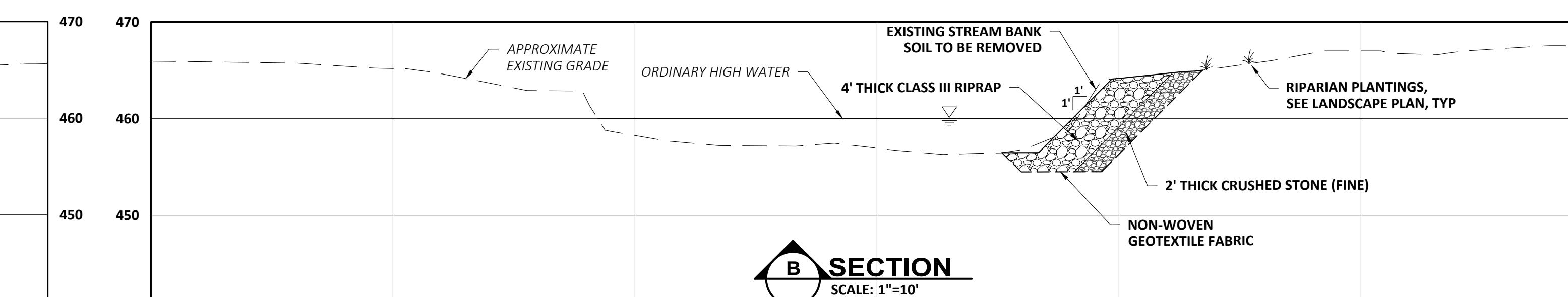
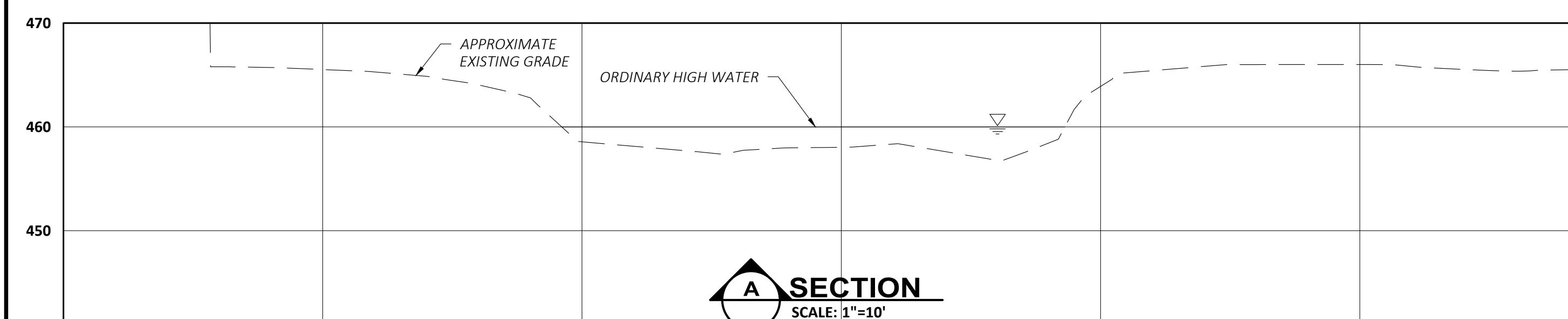
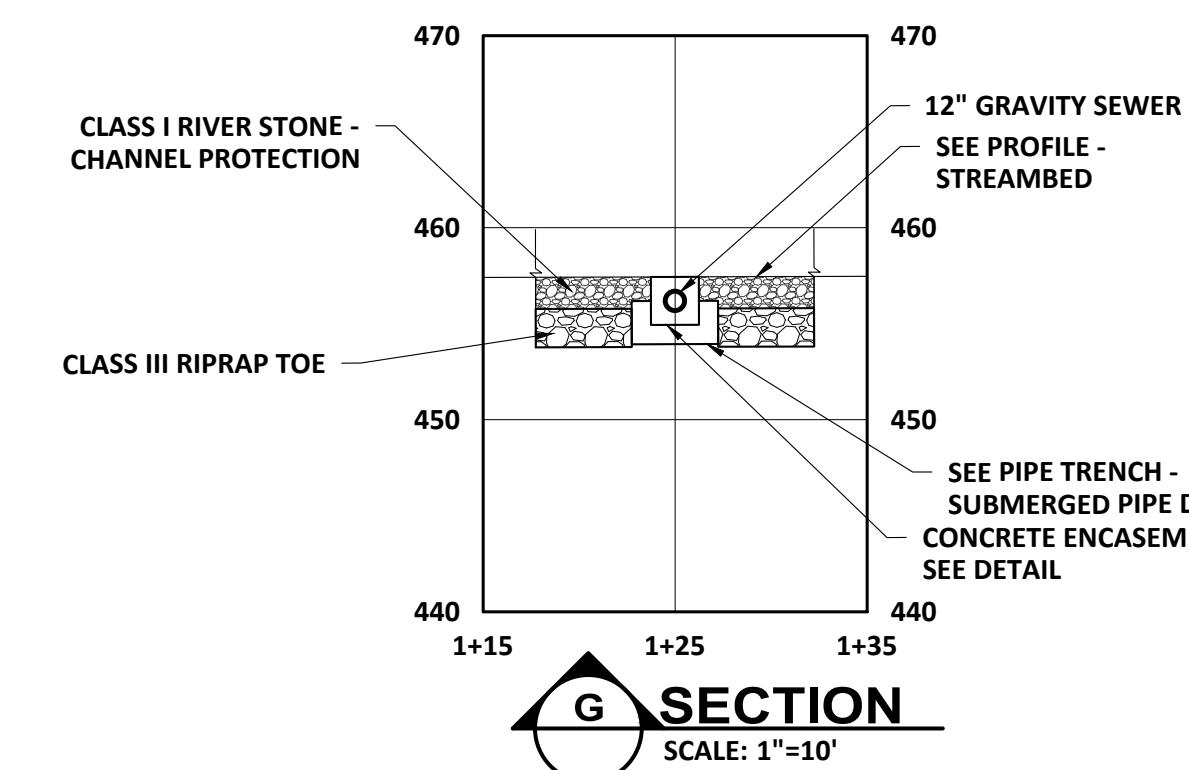
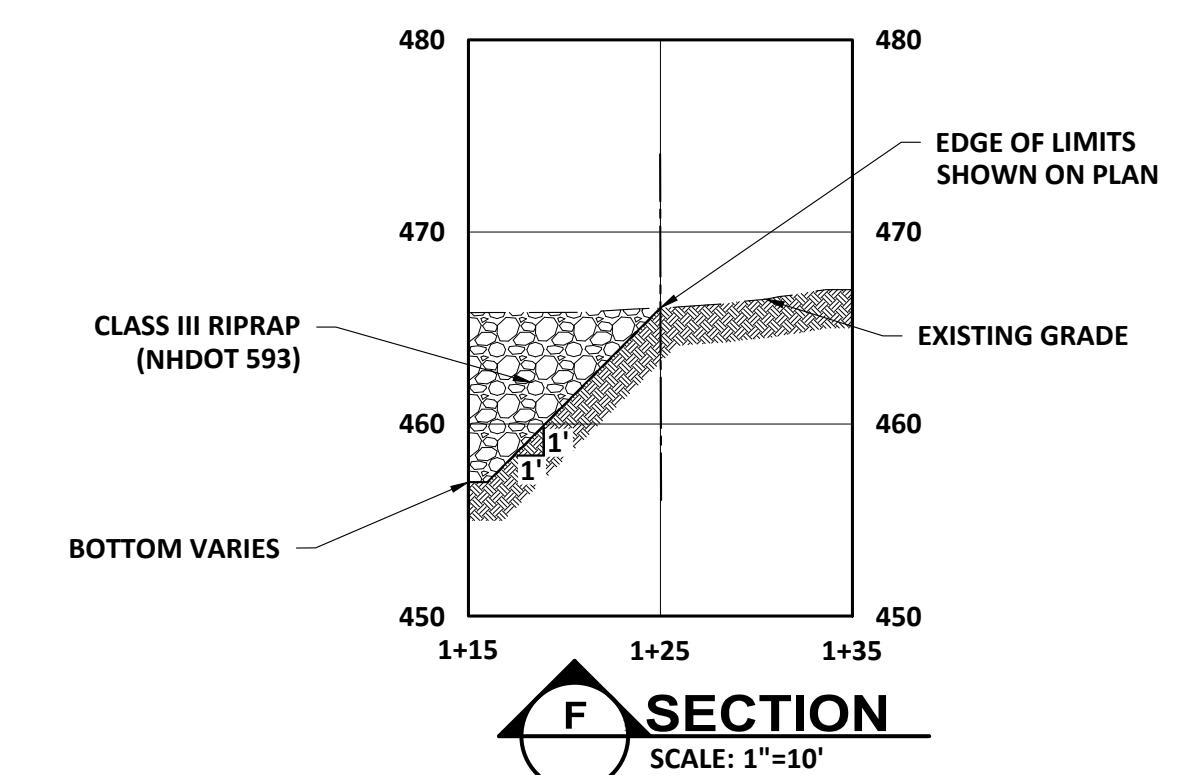
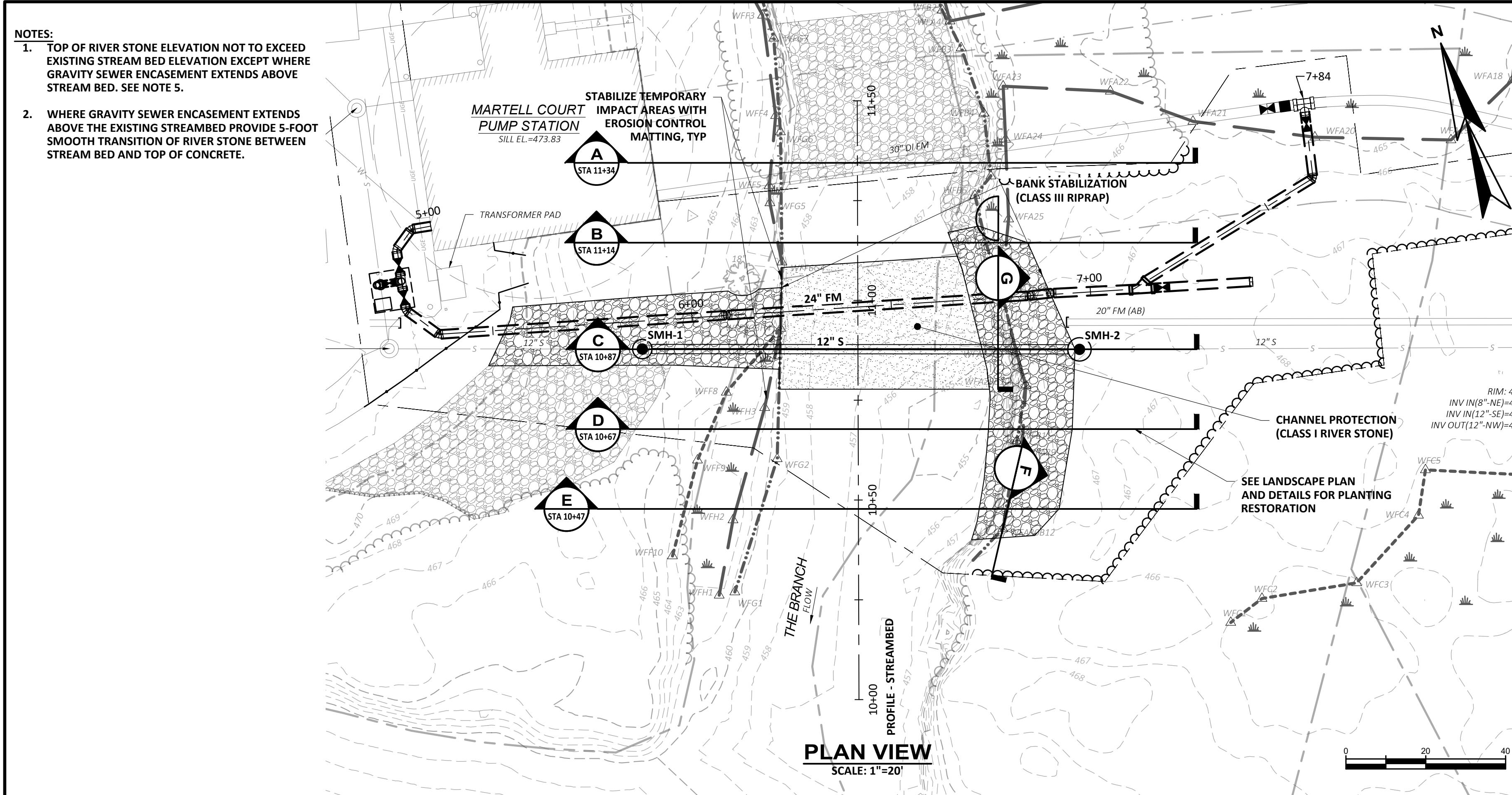
CITY OF KEENE, NEW HAMPSHIRE  
MARTELL COURT PUMP STATION REHAB AND  
BYPASS FORCE MAIN FINAL DESIGN

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PLAN AND PROFILE

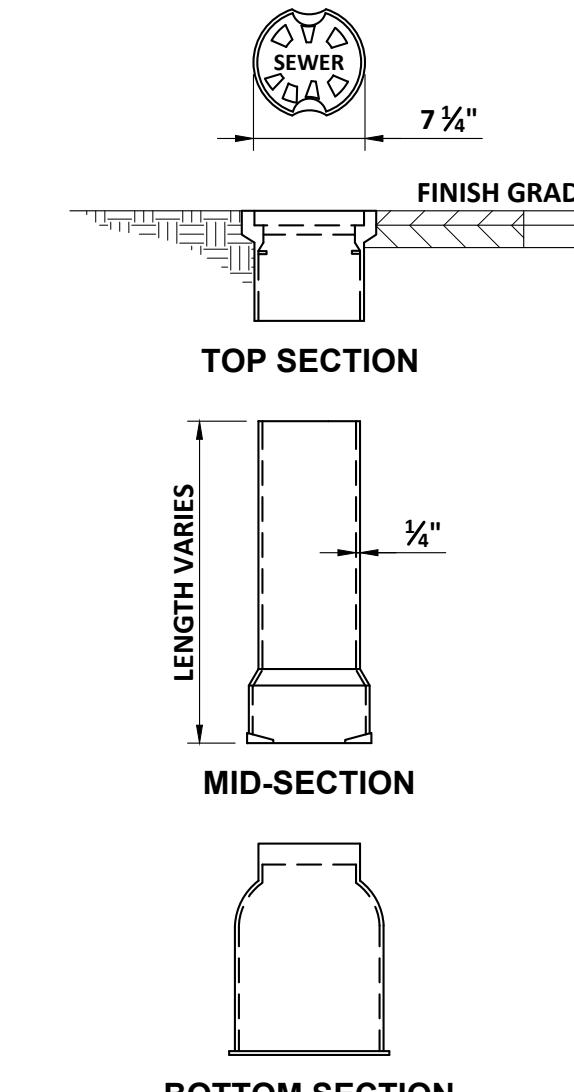
DRAWING

C-102

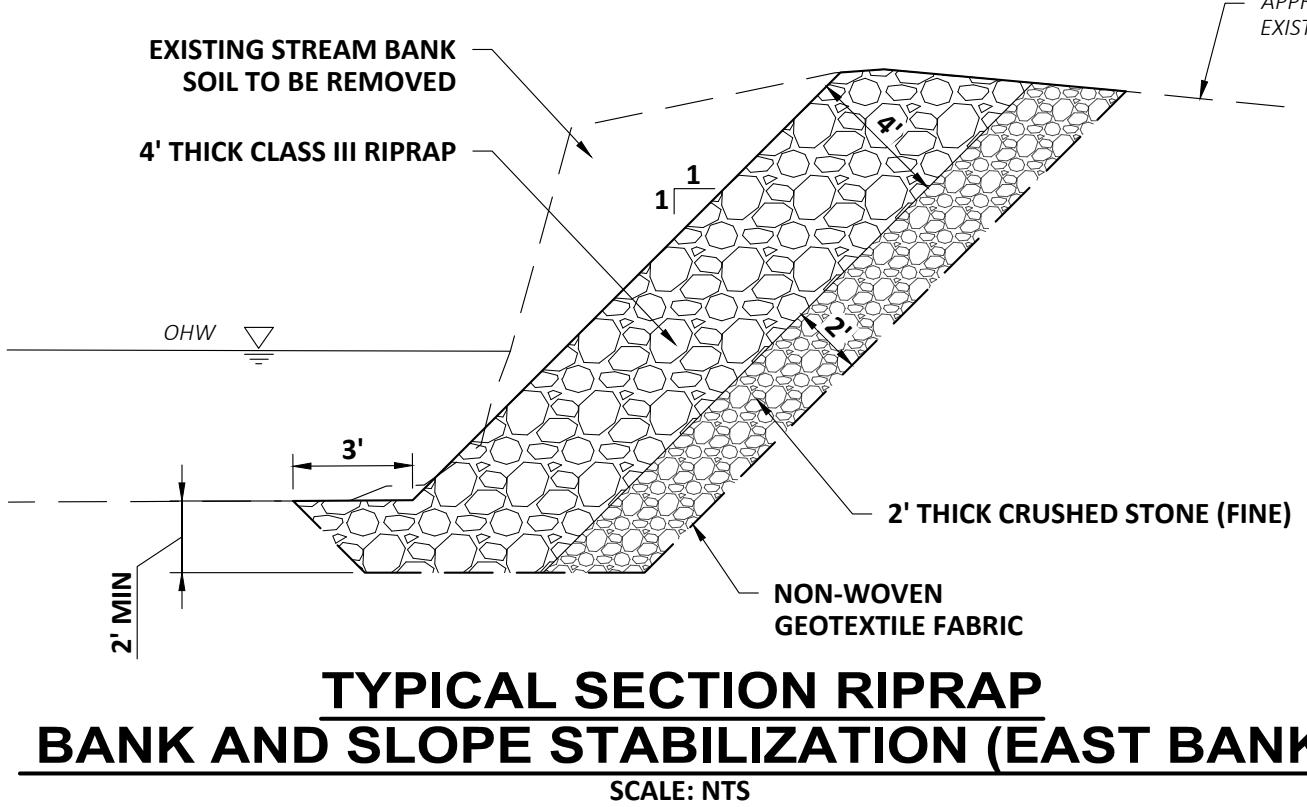


PROJECT NO.	22220	NO.		REVISIONS		APPD DATE	
DESIGNED:	J. SHACTMAN	△		CAD COORD:	B. ELLIOTT	△	
CAD:	K. BLAIS	△		CHECKED:	J. SHACTMAN	△	
DATE:	05-20-25			APPROVED:	R. GIBSON	△	
SUBMISSION:	01-20-26			DESIGN REVIEW			

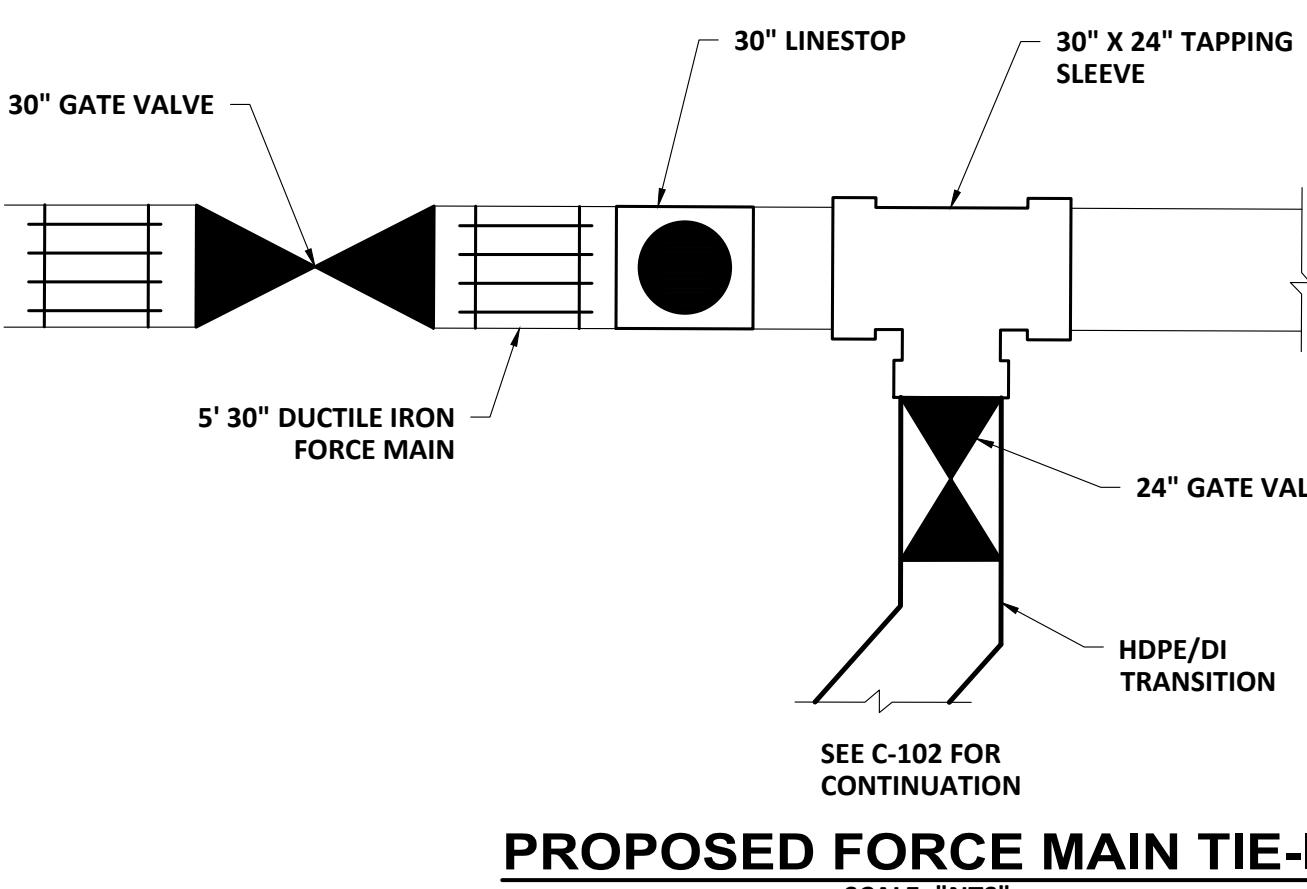
<b>CITY OF KEENE, NEW HAMPSHIRE</b>	<b>MARTELL COURT PUMP STATION REHAB AND BYPASS FORCE MAIN FINAL DESIGN</b>	<b>STREAMBANK STABILIZATION PLAN &amp; SECTIONS</b>
<b>DRAWING</b>	<b>C-103</b>	



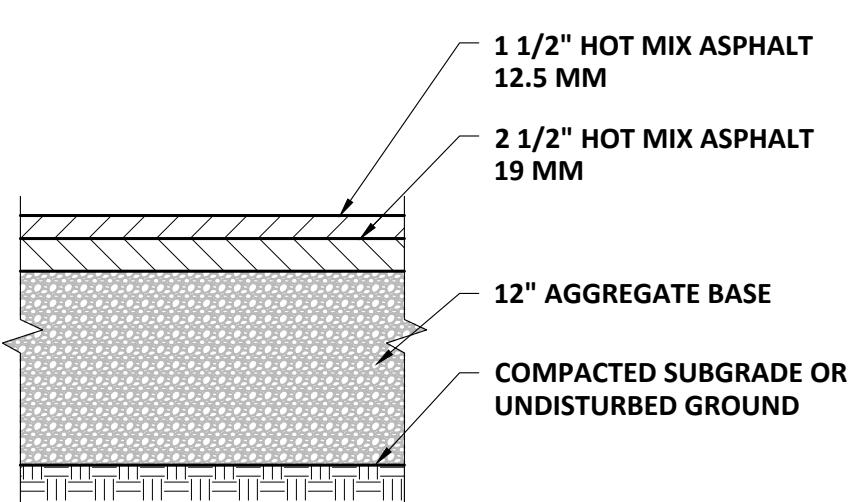
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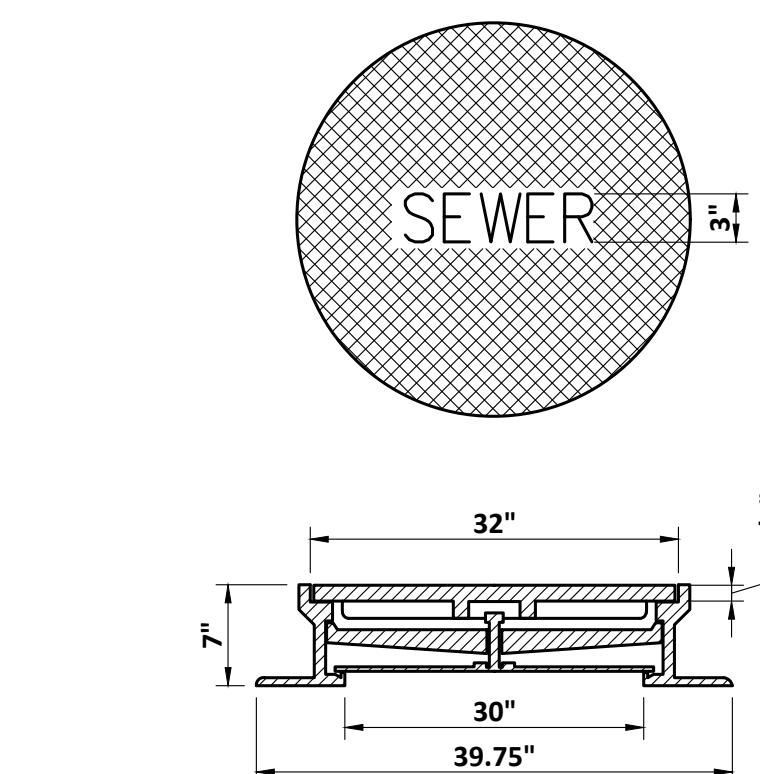
**TYPICAL SECTION RIPRAP  
BANK AND SLOPE STABILIZATION (EAST BANK)**  
SCALE: NTS



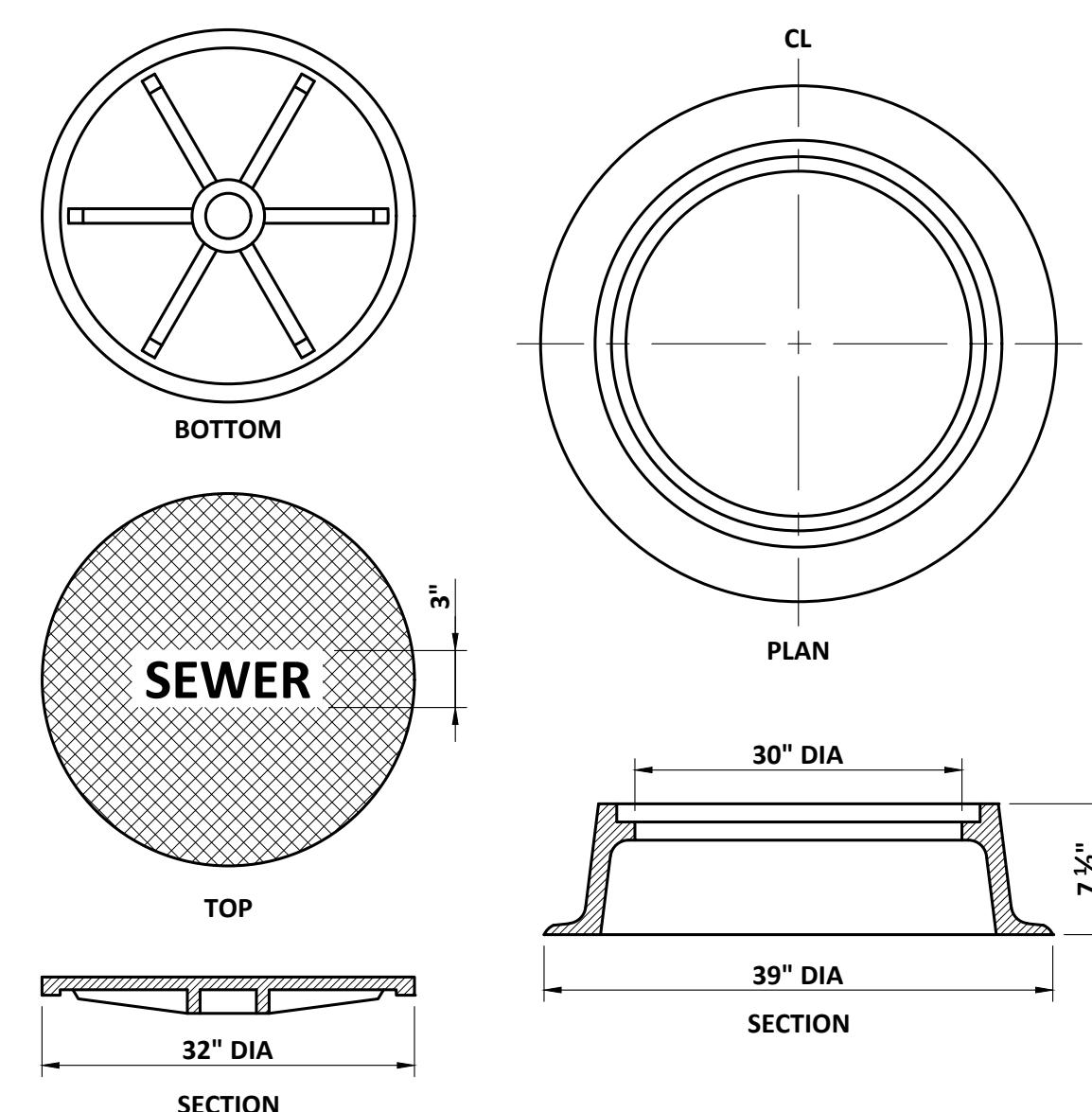
**PROPOSED FORCE MAIN TIE-IN**  
SCALE: NTS



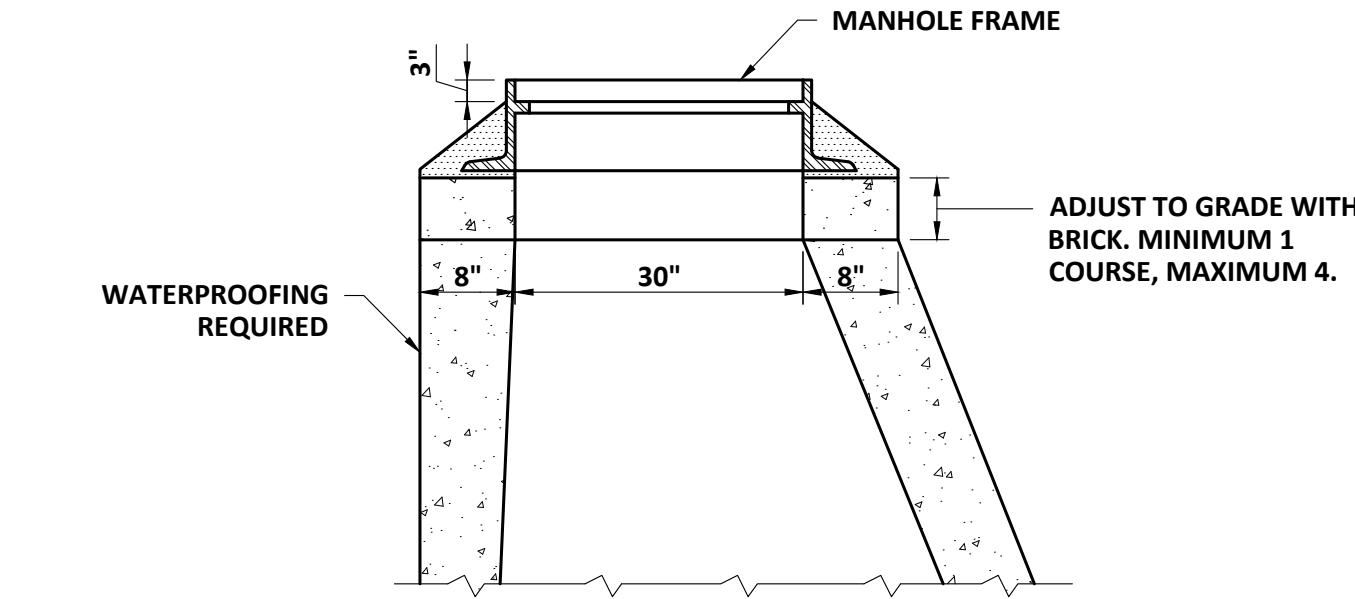
**PARKING LOT PAVEMENT**  
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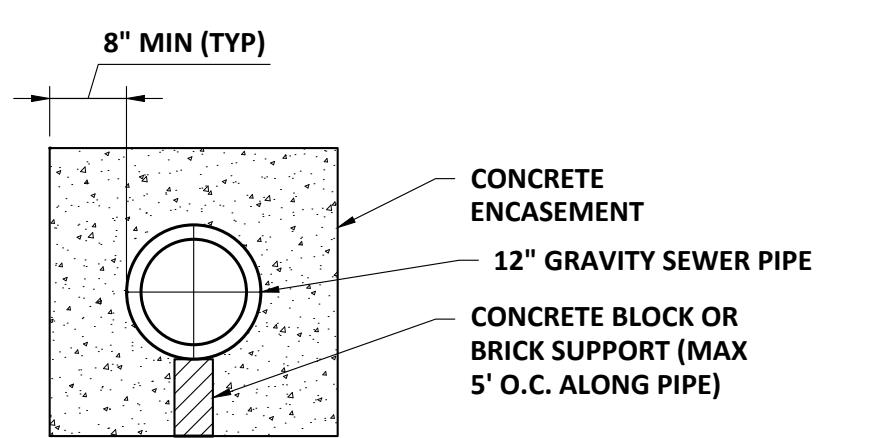
**WATERTIGHT COVER AND FRAME**  
SCALE: NTS



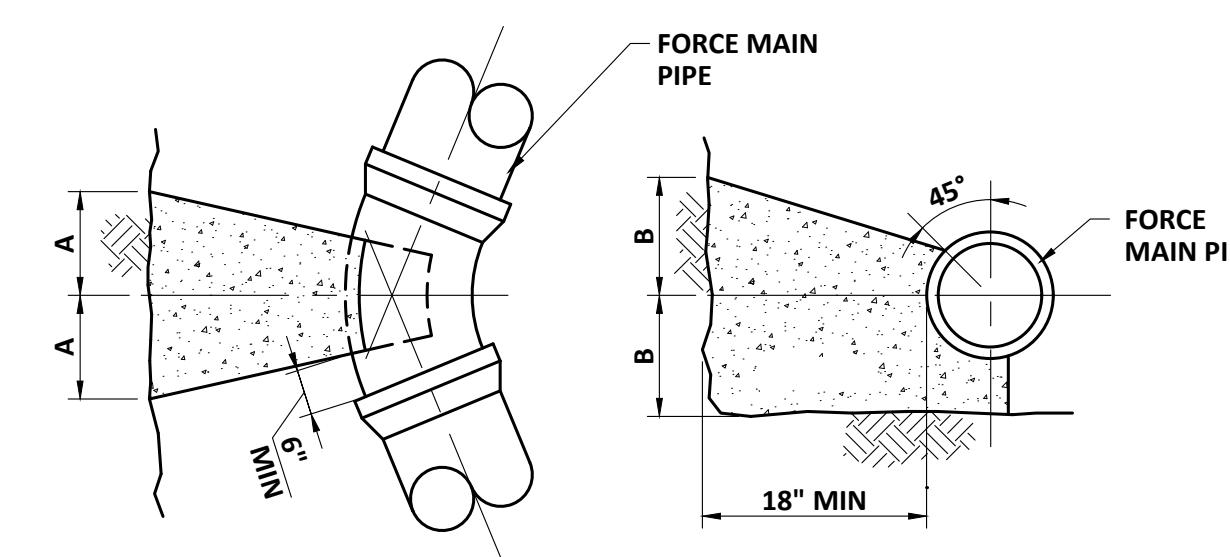
**STANDARD MANHOLE  
COVER AND FRAME**  
SCALE: NTS



**MANHOLE AND  
FRAME INSTALLATION**  
SCALE: NTS



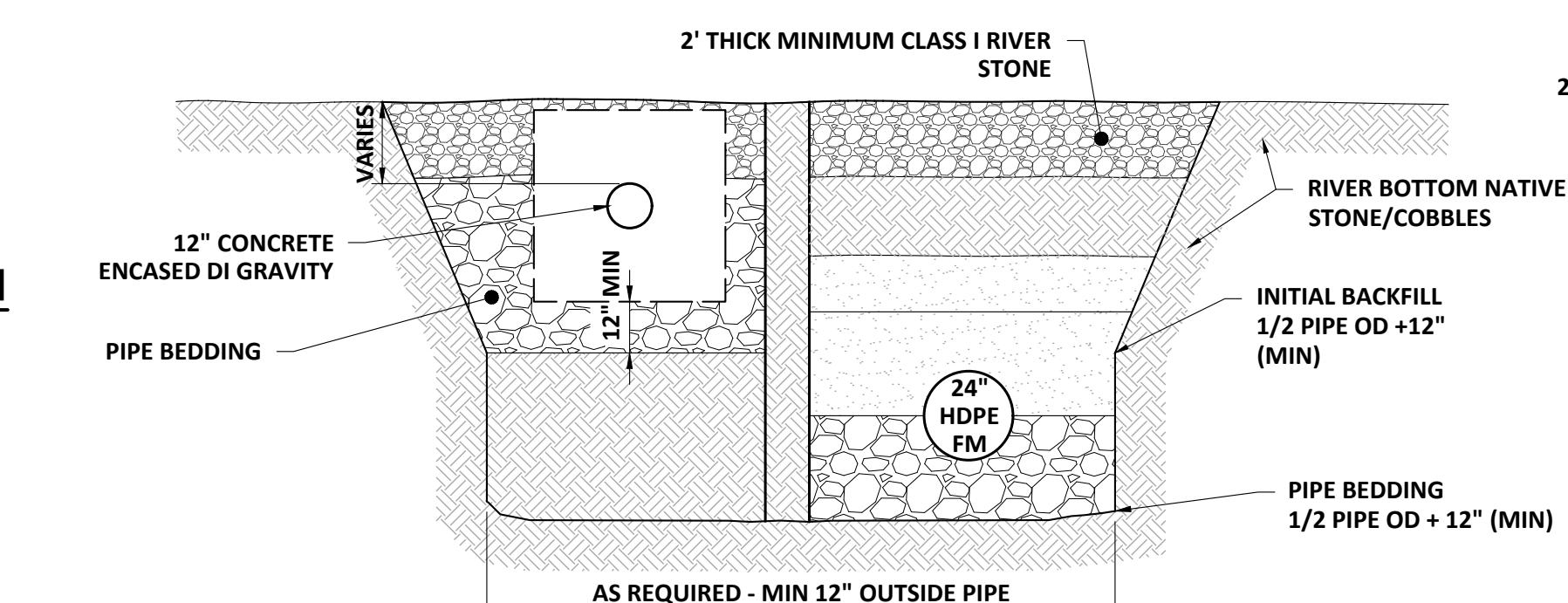
**CONCRETE ENCASEMENT**  
SCALE: "NTS"



PIPE SIZE	90 Bend		45 Bend		22.5 Bend	
	A	B	A	B	A	B
4"	12"	11"	9"	8"	6"	6"
6"	17"	17"	13"	12"	9"	9"
8"	23"	23"	17"	17"	12"	12"
10"	29"	28"	21"	21"	15"	15"
12"	34"	34"	25"	25"	18"	18"
14"	40"	40"	29"	29"	21"	21"
16"	45"	45"	34"	33"	24"	24"
18"	51"	51"	38"	37"	27"	27"
20"	57"	57"	42"	42"	30"	30"
24"	68"	68"	50"	50"	36"	36"
30"	85"	85"	63"	62"	45"	45"

**NOTES:**

1. THRUST BLOCK SIZES ABOVE ARE BASED ON A SOIL BEARING CAPACITY OF 1000 PSF AND TEST PRESSURES OF 100 PSI. CONTRACTOR SHALL NOTIFY THE ENGINEER IF LOW BEARING STRENGTH SOILS ARE ENCOUNTERED.
2. THRUST BLOCKS SHALL BE CAST-IN-PLACE AND NOT PRE-CAST UNLESS PRE-APPROVED BY THE ENGINEER

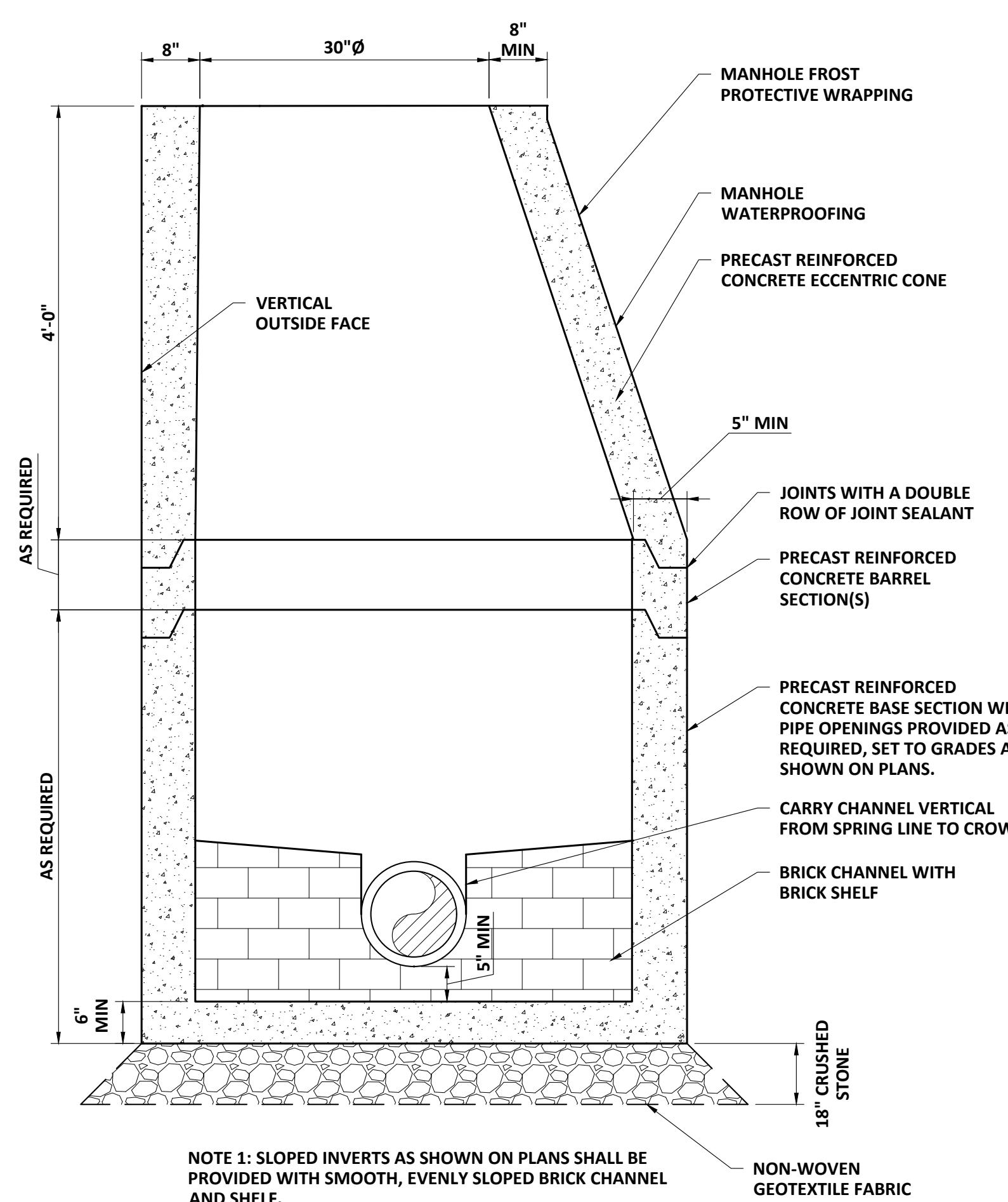


**FORCE MAIN THRUST BLOCK**  
SCALE: "NTS"

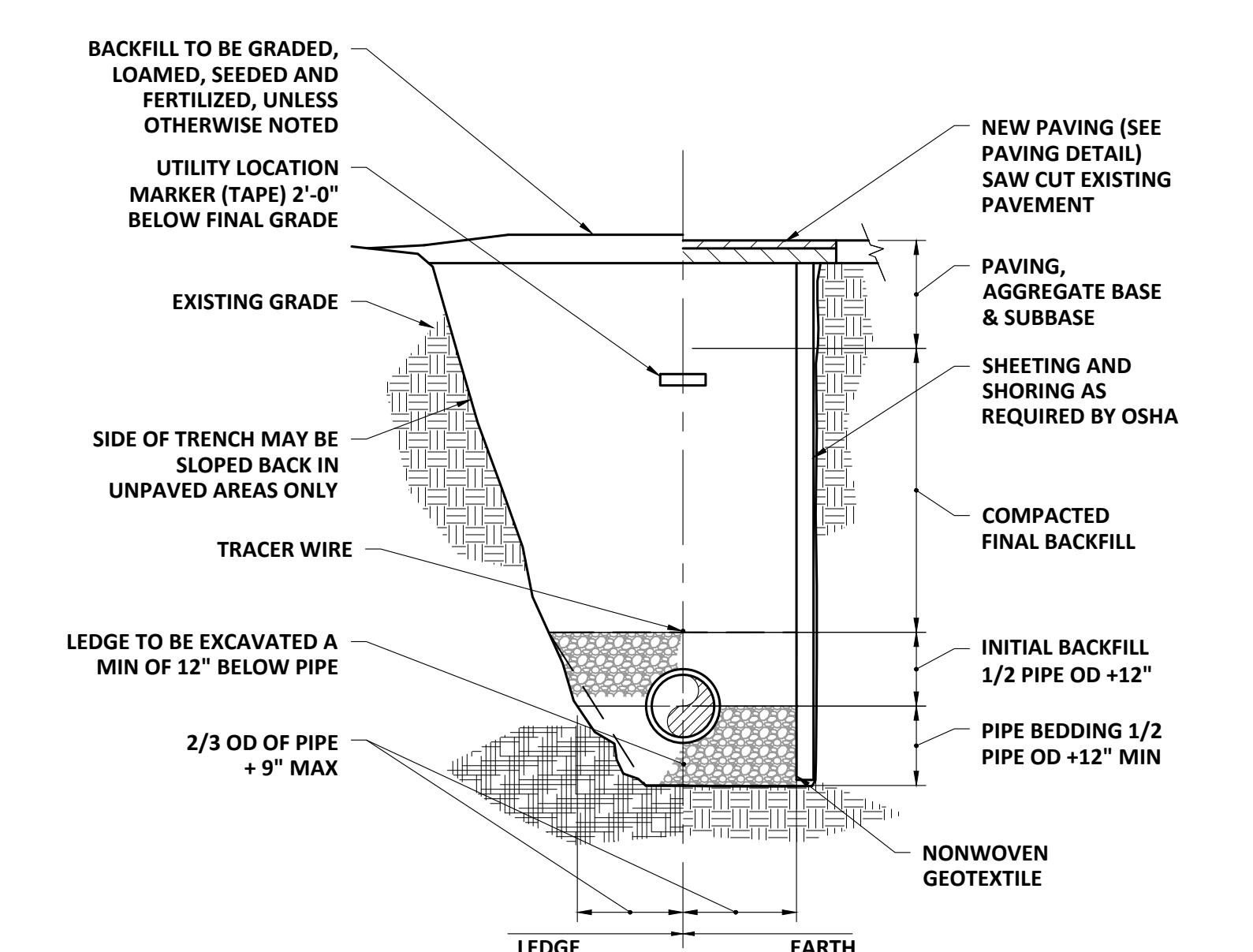
**NOTES:**

1. RIVER BOTTOM SHALL BE RESTORED TO ITS PRECONSTRUCTION ELEVATION AND CONDITION (STONE/COBBLES) IN AREA OUTSIDE OF RIPRAP SECTION.
2. WORK MUST BE PERFORMED IN ACCORDANCE WITH REGULATIONS AND PERMIT CONDITIONS.
3. EXCESS EXCAVATED NATIVE RIVERBED MATERIAL THAT CANNOT BE RETURNED TO THE PIPE TRENCH SHALL BE LEVELED AND GRADED WITHIN THE LIMITS OF WORK WITHIN THE RIVER TO MATCH THE EXISTING RIVERBED CONTOURS AND GRADES TO THE MAXIMUM EXTENT PRACTICAL.
4. SEE SPECIFICATIONS FOR BEDDING AND BACKFILL MATERIALS AND COMPACTED BACKFILL REQUIREMENTS.
5. PIPE SPACING SHOWN IS TYPICAL UNLESS OTHERWISE NOTED.
6. TRENCH WIDTH TO BE MINIMUM POSSIBLE TO ACHIEVE SPECIFIED DEPTH OF COVER AND AT LEAST 12" OF PIPE BEDDING ON EITHER SIDE OF PIPE.

**PIPE TRENCH (SUBMERGED PIPE)**  
SCALE: "NTS"



**TYPICAL 4-Ft MANHOLE**  
SCALE: "NTS"



**NOTES:**

1. ALL EXCAVATION MUST MEET OSHA STANDARDS.

2. INSTALL 3 FOOT LONG IMPERVIOUS MATERIAL DAM IN BEDDING/INITIAL BACKFILL MATERIAL EVERY 100' AND WHERE SHOWN ON PLANS TO PREVENT TRENCH GROUNDWATER FROM BEING CHANNELED ALONG BEDDING/INITIAL BACKFILL.
3. SEE SPECIFICATIONS FOR BEDDING AND BACKFILL REQUIREMENTS.

**PIPE TRENCH (NON-SUBMERGED)**  
SCALE: "NTS"

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**CITY OF KEENE, NEW HAMPSHIRE  
MARTEL COURT PUMP STATION REHAB AND  
BYPASS FORCE MAIN FINAL DESIGN**

DETAILS

DRAWING

C-104

PROJECT NO:	2220	DESIGNED BY:	J.SCHAFFMAN
DESIGNED BY:		CAD COORD:	B. ELLIOTT
CAD:		CHECKED:	K. BLAIS
DATE:	05-2025	APPROVED:	R. GIBSON
DATE:	01-2026	SUBMISSION:	90% DESIGN REVIEW

## EROSION AND SEDIMENTATION CONTROL NOTES

THE CONTRACTOR SHALL BE REQUIRED TO SUBMIT AN EROSION CONTROL PLAN IN ACCORDANCE WITH NEW HAMPSHIRE STORMWATER MANUAL (2025) AND SPECIFICATION SECTION 02270.

THE PROPOSED LOCATIONS OF SILTATION AND EROSION CONTROL STRUCTURES REQUIRED ARE SHOWN ON THE DRAWINGS. PROVIDE SILT FENCE, STONE CHECK DAMS AND OTHER EROSION CONTROL MEASURES AS REQUIRED TO ADEQUATELY PREVENT SEDIMENT TRANSPORT AS NOTED IN THE BMP.

ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE IN ACCORDANCE WITH THE NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL AND THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES, ENV-WQ 1500: ALTERATION OF TERRAIN.

1. THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION, IN NO CASE AT MORE THAN 5 ACRES AT A TIME, WILL BE MAINTAINED IN AN UNTREATED OR UN-VEGETATED CONDITION FOR THE MINIMUM TIME REQUIRED. IN GENERAL, AREAS TO BE VEGETATED SHALL BE PERMANENTLY STABILIZED WITHIN 3 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE OF THE SOIL.
2. TEMPORARY STORAGE OF STOCKPILED MATERIAL SHALL BE STABILIZED IN A MANNER THAT WILL MINIMIZE EROSION.
3. EROSION CONTROL MEASURES SUCH AS SEDIMENT BARRIERS (SILT FENCE, STONE CHECK DAMS, ETC.) AND OUTLET PROTECTION (WHERE APPLICABLE) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OR EARTH MOVING OPERATIONS OF UPGRADE DRAINAGE AREAS.
4. FUGITIVE DUST MUST BE CONTROLLED IN ACCORDANCE WITH NEW HAMPSHIRE STANDARDS.
5. ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSITION. SEDIMENT DEPOSITS MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE THIRD THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE PERMANENTLY STABILIZED AND/OR WILL NOT ERODE UNDER THE CONDITIONS OF A 10-YEAR STORM. STABILIZATION SHALL BE DEFINED AS ONE OF THE FOLLOWING:

- A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
- B. A MINIMUM OF 85% VEGETATIVE GROWTH HAS BEEN ESTABLISHED;
- C. A MINIMUM OF 3" OF NON-EROSIVE MATERIALS SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED; OR
- D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

6. NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL NOT BE STEEPER THAN THREE HORIZONTAL TO ONE VERTICAL (3 TO 1) UNLESS STABILIZED WITH PERMANENT EROSION CONTROL MEASURES. IF MOWING IS TO OCCUR, MAXIMUM SLOPE ANGLE SHALL BE THREE HORIZONTAL TO ONE VERTICAL (3 TO 1). ON SLOPES FOUR HORIZONTAL TO ONE VERTICAL (4 TO 1), FINAL PREPARATION SHOULD INCLUDE SURFACE ROUGHING.
7. DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND RE-GRADED ONTO OPEN AREAS. POST SEEDING SEDIMENT, IF ANY, WILL BE DISPOSED OF IN AN ACCEPTABLE MANNER. AT NO TIME SHALL THE INTEGRITY OF THE EROSION CONTROL FENCE BE IN DANGER DUE TO BUILD UP OF SEDIMENT.
8. RF-VEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND RE-VEGETATED.
9. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR HAY AT A RATE OF 2 BALES (70-90 LB) PER 1,000 SQUARE FEET OR 1.5 TO 2 TONS (90-100 BALES) PER ACRE TO COVER 75 TO 90% OF THE GROUND SURFACE.
10. DITCHES AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
11. SEED MIX SELECTION AND APPLICATION RATES WILL BE CONSISTENT WITH THE FOLLOWING TABLES AS REFERENCED FROM MINNICK, E.L. AND H.T. MARSHALL, STORMWATER MANAGEMENT AND EROSION CONTROL FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE, ROCKINGHAM COUNTY CONSERVATION DISTRICT, AUGUST 1992, AND TABLES 4-1 THROUGH 4-3 OF SECTION 3 IN THE NEW HAMPSHIRE STORMWATER MANUAL. NOTE: REED CANARY GRASS SHALL NOT BE USED.
12. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE WORK AREA IS STABILIZED.
13. WETLANDS (EXCEPT THOSE WHICH ARE TO BE FILLED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS) WILL BE PROTECTED WITH SILT FENCE INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE.
14. IN GENERAL, AREAS WITHIN 100 FEET OF DELINEATED WETLANDS OR STREAMS SHALL HAVE A MAXIMUM PERIOD OF EXPOSURE OF NOT MORE THAN 15 DAYS.
15. FOLLOW APPROPRIATE EROSION CONTROL MEASURES PRIOR TO EACH STORM IN ALL AREAS WITHIN 100 FEET OF DELINEATED WETLANDS OR STREAMS.

## EROSION CONTROL DURING WINTER CONSTRUCTION

1. WINTER CONSTRUCTION PERIOD DEFINED: NOVEMBER 1 THROUGH MAY 1
2. WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
3. EXPOSED AREAS SHOULD BE LIMITED TO WHICH CAN BE MULCHED IN ONE DAY PRIOR TO ANY PRECIPITATION EVENT.
4. 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 EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHOR 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.
5. 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.
6. AFTER NOVEMBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NH DOT ITEM 304.3

## LIME AND FERTILIZER SCHEDULE

SEEDING TYPE	SEED DATES	LIME RATE [TONS/ACRE]	FERTILIZER RATE/RATIO (TYPE) [LB/1,000 ACRE]
PERMANENT AND/OR TEMPORARY	MAY. 1 - SEPT. 15	3	600/ENGINEER APPROVED (N-P205-K20)

## NOTES

1. USE LOW PHOSPHATE FERTILIZER AT ALL TIMES AND SLOW RELEASE NITROGEN FERTILIZER WHEN BETWEEN 25 AND 250 FEET OF A SURFACE WATER BODY.
2. NO FERTILIZER EXCEPT LIMESTONE SHOULD BE APPLIED WITHIN 25 FEET OF THE SURFACE WATER.
3. APPLY LIMESTONE AT 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE.

## TEMPORARY VEGETATION (TABLE 4-1)

ADDITIONAL TEMPORARY SEED MIXTURE (FOR PERIODS LESS THAN 12 MONTHS)

DATES	SEED	RATE
PRIOR TO MAY 15	OATS	80 LB/ACRE
AUG. 15 - SEP. 15	ANNUAL RYE GRASS	40 LB/ACRE
AUG. 15 - SEP. 15	WINTER RYE GRASS	112 LB/ACRE
APR. 1 - JUN. 1 (AUG. 15 - SEP. 15)	PERENNIAL RYE GRASS	40 LB/ACRE

## PERMANENT VEGETATION (TABLE 4-2)

USE	MIXTURE TABLES	I.	SOIL DRAINAGE II.	III.	IV.
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A B C E	FAIR POOR POOR FAIR	GOOD GOOD GOOD EXC.	GOOD EXC. EXC. EXC.	FAIR FAIR GOOD POOR
WATERWAYS, EMERGENCY SPILLWAYS AND OTHER CHANNELS WITH FLOWING WATER	A C	GOOD GOOD	GOOD EXC.	GOOD EXC.	FAIR FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES	A B C	GOOD GOOD GOOD	GOOD GOOD EXC.	GOOD FAIR EXC.	FAIR POOR FAIR
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF)	F G	FAIR FAIR	EXC. EXC.	EXC. EXC.	

## NOTES

1. I. DROUGHTY
- II. WELL DRAINED
- III. MODERATELY WELL DRAINED
- IV. POORLY DRAINED
2. EXC.= EXCELLENT
3. REFER TO TABLE 4-3 FOR SEED MIXTURE AND APPLICATION RATES

## PERMANENT VEGETATION (TABLE 4-3)

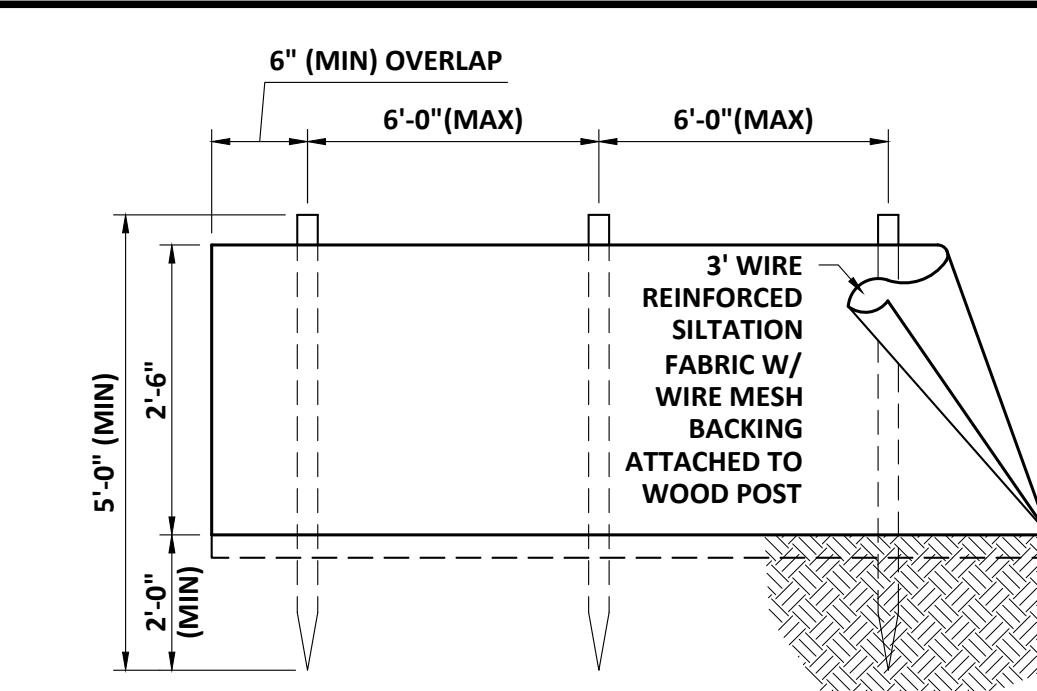
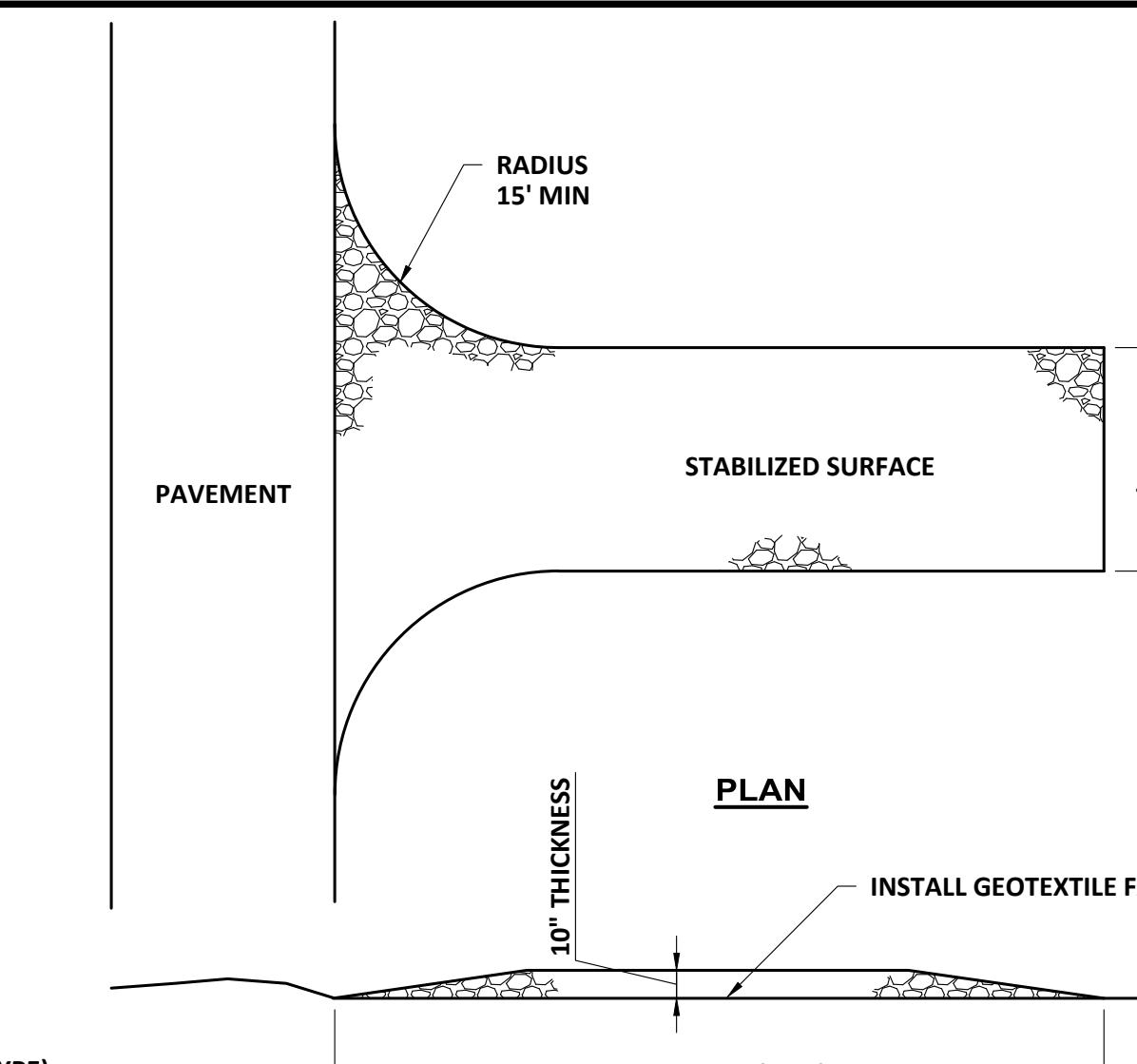
MIXTURE	SPECIES	RATE-POUNDS PER ACRE	1,000 SQ. FT.
A	TALL FESCUE	20	0.45
	CREEPING RED FESCUE	20	0.45
	REDTOP	2	0.05
	TOTAL	42	0.95
B	TALL FESCUE	15	0.35
	CREEPING RED FESCUE	10	0.25
	CROWN VETCH/OR	15	0.35
	FLATPEA	30	0.75
	TOTAL	40 OR 55	0.95 OR 1.35
C	TALL FESCUE	20	0.45
	CREEPING RED FESCUE	20	0.45
	BIRDSFOOT TREFOIL	8	0.2
	TOTAL	48	1.10
E	CREEPING RED FESCUE	50	1.15
	KENTUCKY BLUEGRASS	50	1.15
	TOTAL	100	2.30
F	TALL FESCUE	150	3.60

## NOTES:

1. ALL MATERIAL TO MEET SPECIFICATIONS
2. SILT SOCK COMPOST/SOIL/ROCK/SEED FILL TO MEET APPLICATION REQUIREMENTS
3. SILT SOCK DEPICTED IS FOR MINIMUM SLOPES. GREATER SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER
4. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

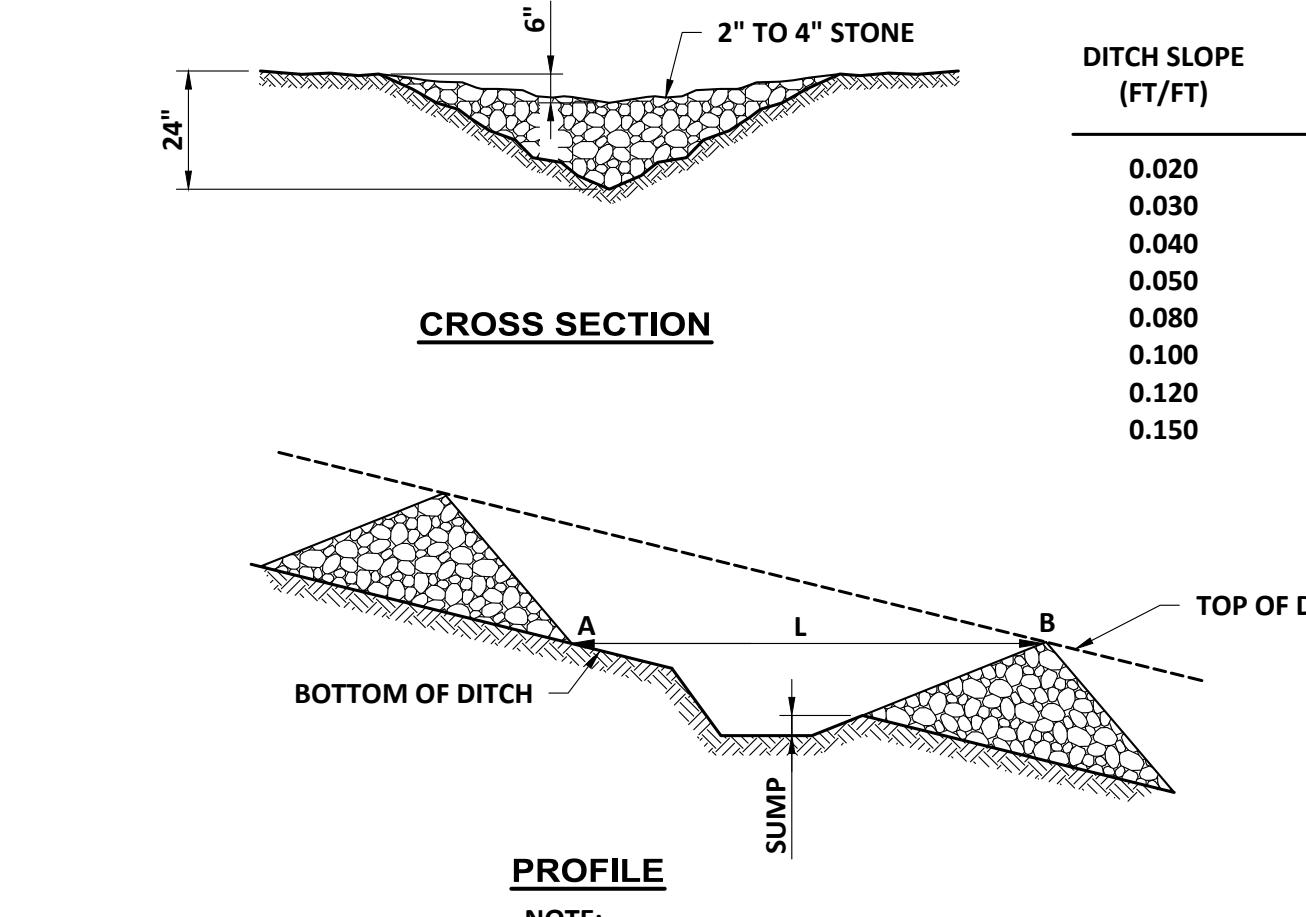
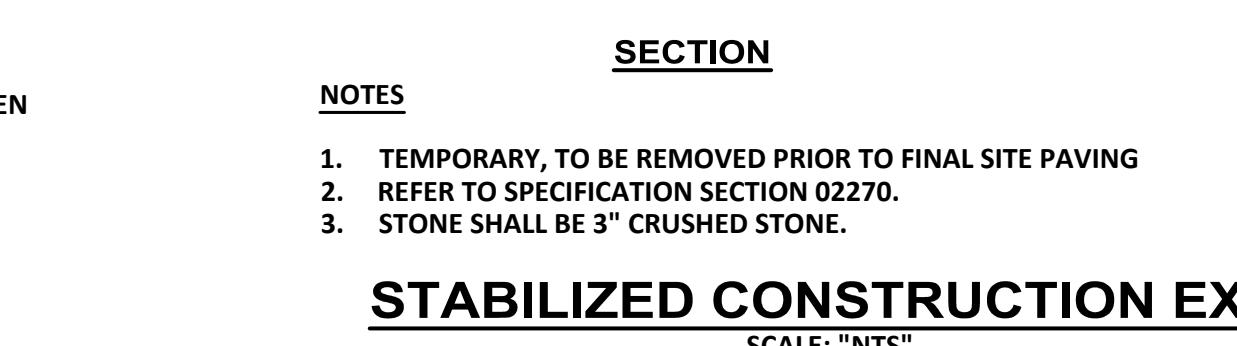
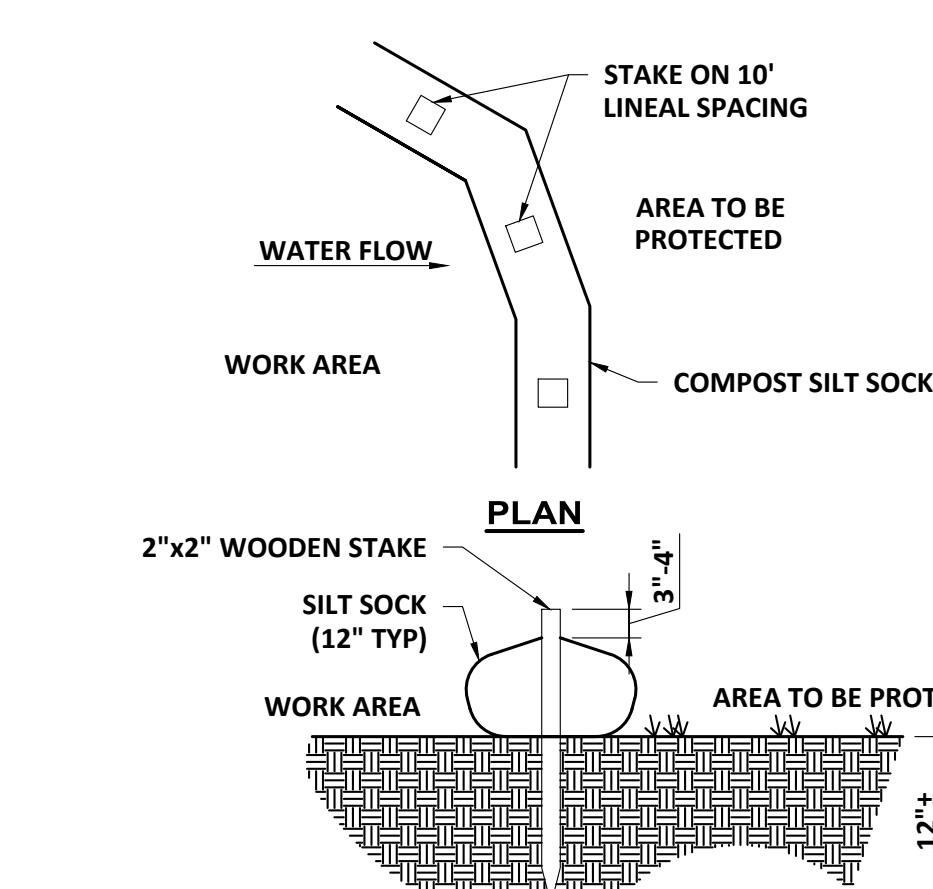
## COMPOST SILT SOCK

SCALE: "NTS"



**SILT FENCE INSTALLATION DETAIL**  
SCALE: "NTS"

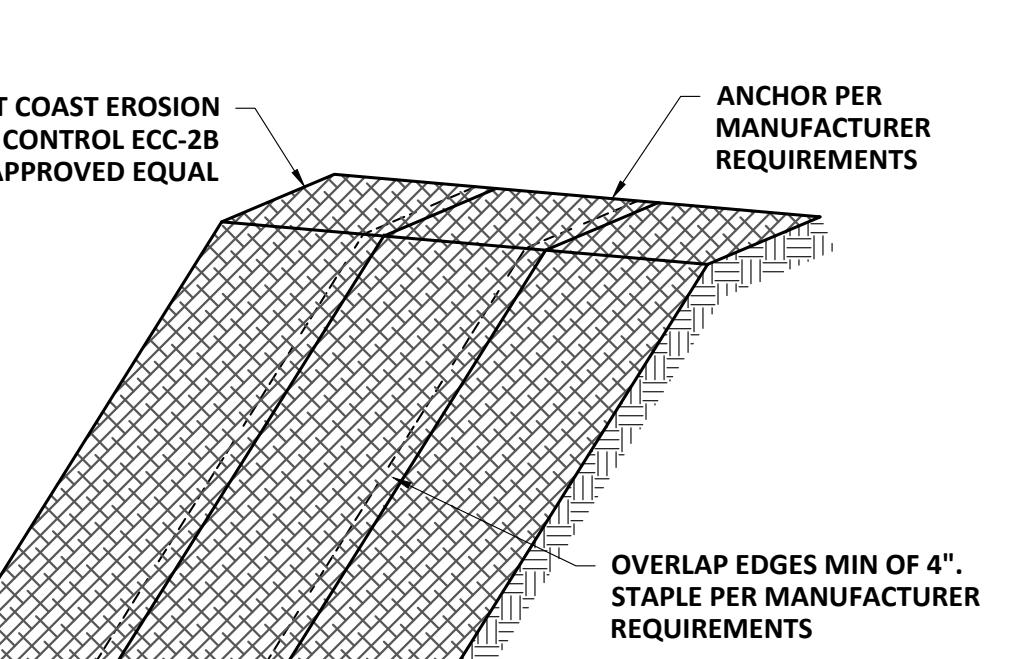
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REVISIONS	
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△	△
△	△
△	△
△	△

STONE CHECK DAM DETAIL  
SCALE: "NTS"

1. ALL MATERIAL TO MEET SPECIFICATIONS
2. SILT SOCK COMPOST/SOIL/ROCK/SEED FILL TO MEET APPLICATION REQUIREMENTS
3. SILT SOCK DEPICTED IS FOR MINIMUM SLOPES. GREATER SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER
4. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

## COMPOST SILT SOCK

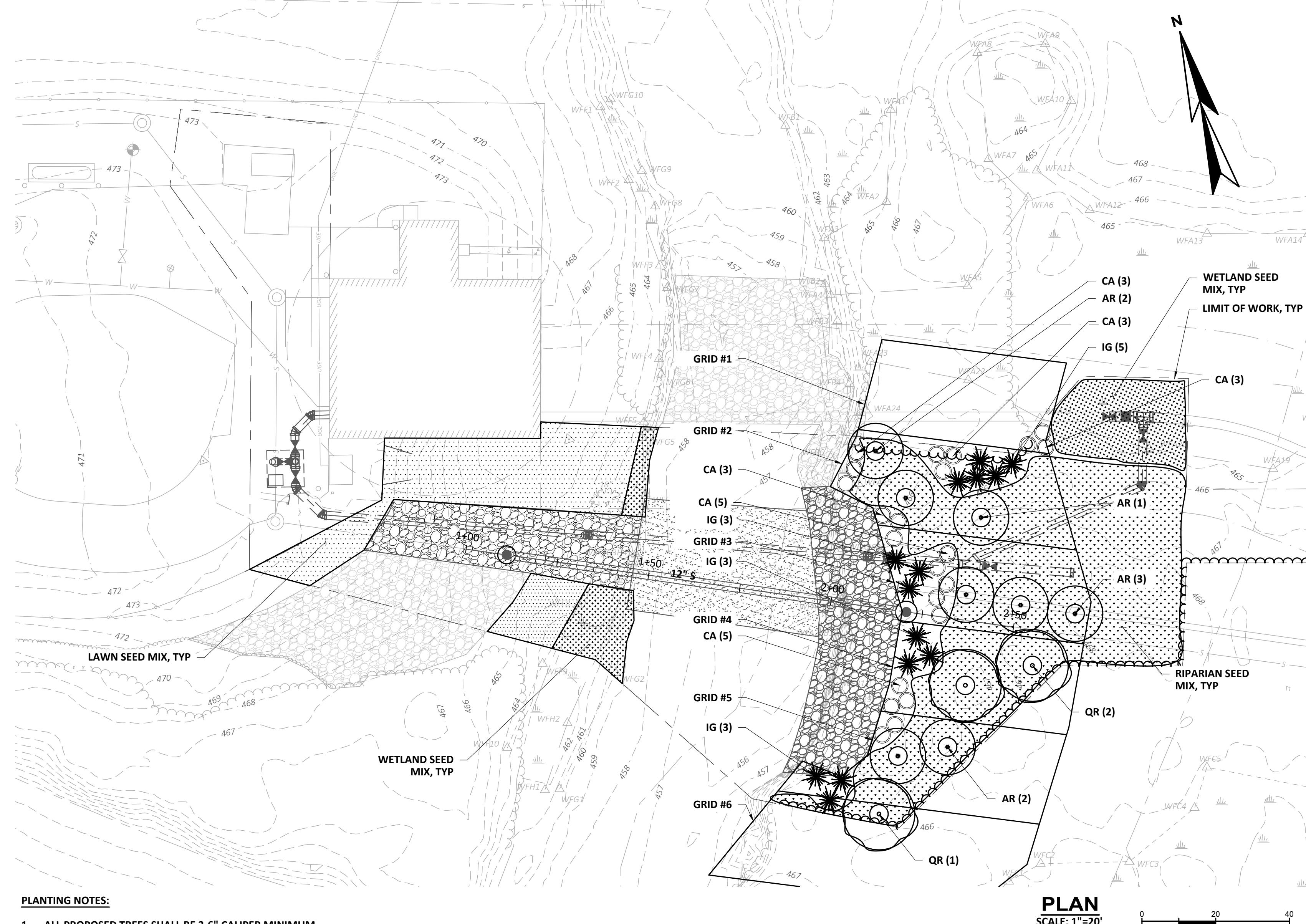
SCALE: "NTS"

EROSION CONTROL MATTING - SLOPES  
SCALE: NTS

APPD DATE	
REVISIONS	
NO	△
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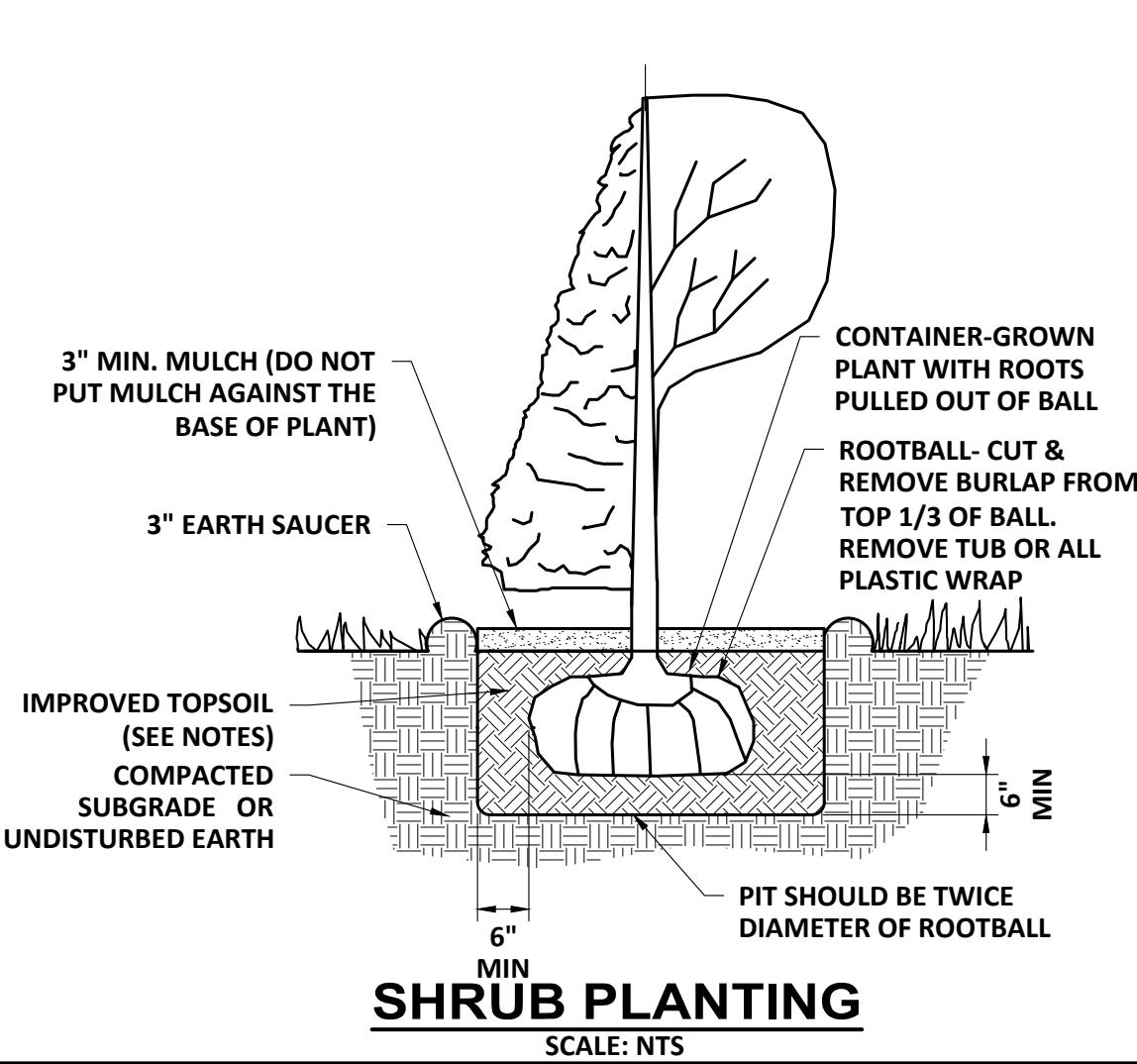
DRAWING	C-105
EROSION CONTROL NOTES & DETAILS	

**WRIGHT-PIERCE</b**



## PLANTING NOTES:

- ALL PROPOSED TREES SHALL BE 3-6" CALIPER MINIMUM.
- DISTURBANCE AREAS OUTSIDE OF THE 8-FT GRAVEL PATH AND 20-FT UTILITY EASEMENT SHALL BE RESTORED WITH NATIVE SEED MIX, SEE NOTE 21.
- SHORELAND WATERFRONT GRIDS SHOWN ON SHORELAND IMPACT FIGURE INCLUDED AS APPENDIX "X" OF CONSTRUCTION DOCUMENTS.
- PLANTINGS TO BE IN ACCORDANCE WITH NHDES SHORELAND PROTECTION RULES ENV-Wg 1400 AND APPENDIX C: RSA 483-B.
- PLANTING LOCATIONS TO BE LOCATED IN SPECIFIED GRIDS. FINAL PLACEMENT LOCATIONS WITHIN EACH GRID TO BE STAKED OUT PRIOR TO PLANTING AND COORDINATED WITH OWNER/ENGINEER/LANDSCAPE ARCHITECT.
- ALL NEW PLANT MATERIAL SHALL CONFORM TO THE REQUIREMENTS AS ESTABLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMAN, LATEST EDITION. IN ADDITION, ALL NEW PLANT MATERIAL FOR THE PROJECT SHALL BE OF THE HIGHEST SPECIMEN QUALITY.
- SEE SPECIFICATIONS FOR ITEMS NOT COVERED ON THE PLANS AND DETAILS.
- CONTRACTOR SHALL INSPECT SITE PRIOR TO BEGINNING PLANTING OPERATIONS AND NOTIFY THE ENGINEER OF ANY CONDITIONS THAT ARE NOT SUITABLE TO PERFORMING PLANTING OPERATIONS. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY CONDITIONS THAT WOULD PREVENT HEALTHY GROWTH OF PLANT MATERIAL. THIS INCLUDES PRESENCE OF PESTS AND/OR DISEASES ON EXISTING VEGETATION.
- NO TREES SHALL BE PLANTED BEFORE ACCEPTANCE OF ROUGH GRADING. TREES SHALL BEAR SAME RELATIONSHIP TO FINISH GRADE AS THEY BORE TO PREVIOUS GRADE.
- PLANT MATERIAL DELIVERED ON SITE SHALL BE HEALED-IN AT A SHADY LOCATION UNTIL PLANTING AREA IS PREPARED FOR INSTALLATION. ANY PLANTS REMAINING UNPLANTED ON THE SITE FOR MORE THAN 24 HOURS SHALL BE PROTECTED AND MAINTAINED INCLUDING BUT NOT LIMITED TO WATER AND SHADE. DAMAGED OR STRESSED PLANTS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
- THERE WILL BE NO SUBSTITUTIONS OF PLANT MATERIAL WITHOUT PRIOR WRITTEN APPROVAL BY THE ENGINEER. ANY PROPOSED SUBSTITUTIONS OF PLANT SPECIES SHALL BE MADE WITH PLANTS OF EQUIVALENT OVERALL FORM HEIGHT, BRANCHING HABIT, FLOWER, LEAF, COLOR, FRUIT AND CULTURE ONLY AS APPROVED BY THE ENGINEER.
- THE GENERAL CONTRACTOR OR SHALL SUPPLY ALL NEW PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTING SHOWN ON THE DRAWINGS.
- THE CONTRACTOR SHALL MAINTAIN PREPLANTED PLANTING AREAS FREE FROM DEBRIS. NO STORAGE OR STOCKPILING SHALL OCCUR ON PLANTING AREAS.
- THE CONTRACTOR IS TO USE CARE DURING EXCAVATION AND PLANTING TO AVOID DISTURBING OR DAMAGING ANY ADJACENT CONSTRUCTION SUBSURFACE DRAINAGE OR UTILITIES. ANY DAMAGE RESULTING FROM THIS CONSTRUCTION WILL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE RESTORED AT HIS EXPENSE TO THE SATISFACTION OF THE OWNER.
- STAKE LOCATION OF ALL PROPOSED PLANTING FOR APPROVAL BY THE ENGINEER PRIOR TO COMMENCEMENT OF PLANTING.
- THE CONTRACTOR SHALL SUPPLY PLANT MATERIAL IN THE QUANTITIES INDICATED ON THE PLANS. FOR DISCREPANCIES BETWEEN THE PLANS AND THE PLANT SCHEDULE, THE PLAN QUANTITIES SHALL PREVAIL.
- PLANTS WITH GIRDLING ROOTS SHALL BE REJECTED.
- THE TREE ROOT FLARE SHALL BE EXPOSED AND PLANTED EVEN WITH THE FINISH GRADE. PREPARE ALL TREE PITS WITH IMPROVED TOPSOIL TO A MINIMUM DEPTH AS SHOWN IN THE DETAIL.
- ALL PLANT BEDS ARE TO RECEIVE THREE INCHES (3") OF SHREDDED BARK MULCH AS SPECIFIED. NO SEPARATE PAY ITEM FOR MULCH OR AND/OR FERTILIZER PACKETS. PAID FOR UNDER PLANTING ITEMS.
- SEE SPECIFICATION SECTION 02480 LANDSCAPING FOR HOW TO AMEND TOPSOIL.

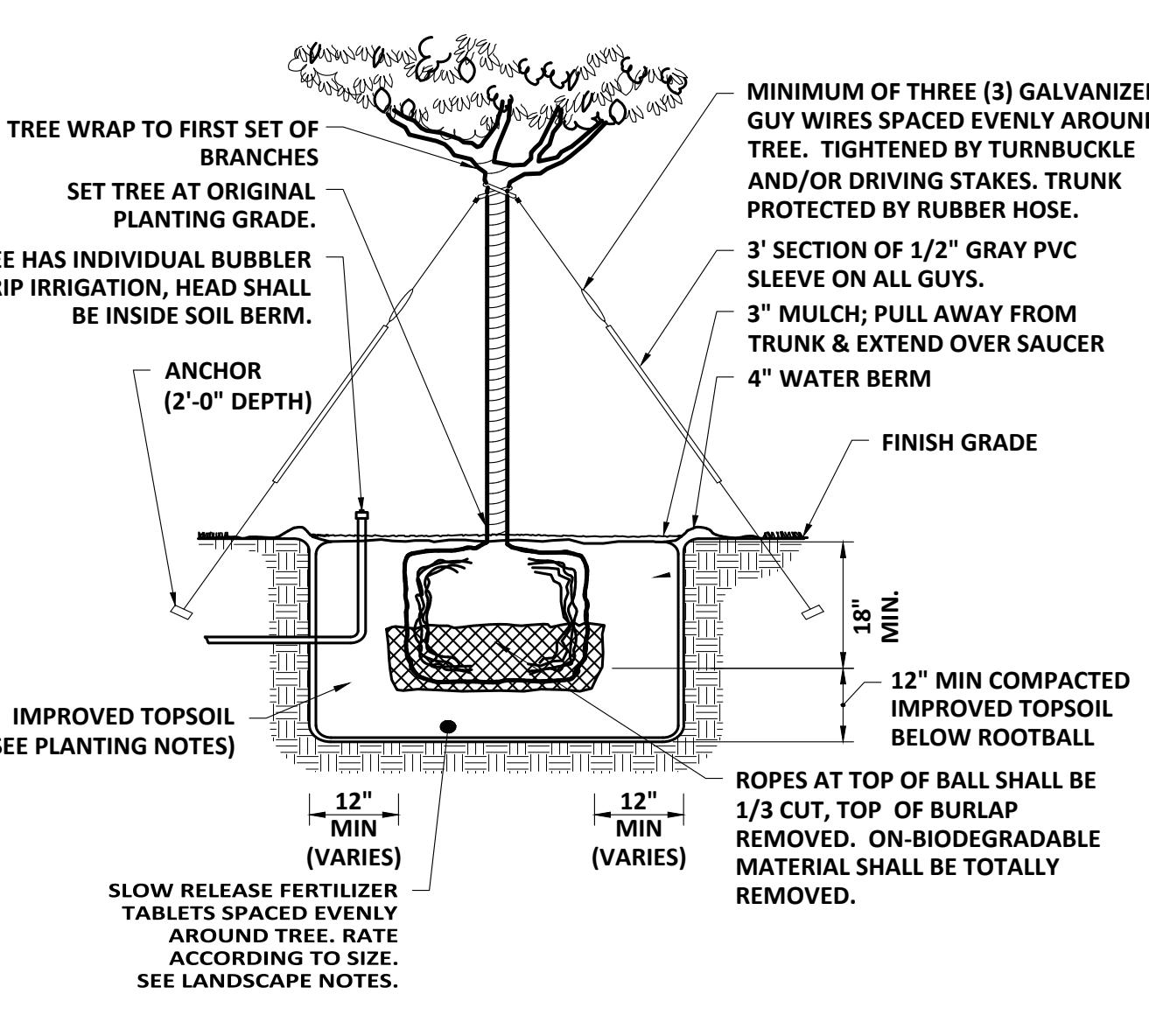


SHRUB PLANTING

SCALE: NTS

## PLANTING SCHEDULE

SHORELAND WATERFRONT GRID NO.	NO. OF TREES NEEDED	NO. OF SHRUBS NEEDED	GROUNDCOVER NEEDED	SYMB.	QTY	BOT. NAME	COMMON NAME	SIZE	ROOT	COMMENTS				
DECIDUOUS SHRUBS														
1	0	3	0 SY	CA	3	CORNUS AMOMUM	SILKY DOGWOOD	24'X36" HT	CONT.	PLANT 4' O.C.				
DECIDUOUS TREES														
2	3	13	100 SY	AR	3	ACER RUBRUM	RED MAPLE	3-4" CAL.	B&B	FULL, HEAVY, MATCHED				
DECIDUOUS SHRUBS														
3	3	9	100 SY	CA	8	CORNUS AMOMUM	SILKY DOGWOOD	24'X36" HT	CONT.	PLANT 4' O.C.				
RIPARIAN SEED MIX														
4	2	6	86 SY	IG	5	ILEX GLABRA	INKBERRY	#5 CONT.	CONT.	PLANT 4' O.C.				
100 SY RIPARIAN SEED MIX, SEE NOTES BELOW														
5	2	4	62 SY	DECIDUOUS TREES										
AR 2 ACER RUBRUM RED MAPLE 3-4" CAL. B&B FULL, HEAVY, MATCHED														
6	1	1	15 SY	CA	2	CORNUS AMOMUM	SILKY DOGWOOD	24'X36" HT	CONT.	PLANT 4' O.C.				
IG 2 ILEX GLABRA INKBERRY #5 CONT. CONT. PLANT 4' O.C.														
RIPARIAN SEED MIX														
7	1	1	15 SY	15 SY RIPARIAN SEED MIX, SEE NOTES BELOW										
SEED MIX TOTAL														
520 SY	NEW ENGLAND PROVINCE RIPARIAN MIX			ERNST CONSERVATION SEEDS: 8884 MERCER PIKE MEADVILLE, PA 16335 ITEM NUMBER: ERNMIX-253, OR APPROVED EQUAL										
130 SY	WETLAND SEED MIX			ERNST CONSERVATION SEEDS: 8884 MERCER PIKE MEADVILLE, PA 16335 ITEM NUMBER: ERNMIX-137; OR APPROVED EQUAL										
222 SY	LAWN SEED MIX			SEE SPECIFICATIONS										
20 CY	TREES & SHRUBS			MULCH SHALL BE A MINIMUM OF 3" THICK FOR ALL PLANTING AREAS										



TREE INSTALLATION: 10' AND TALLER

SCALE: NTS

CITY OF KEENE, NEW HAMPSHIRE  
MARTELL COURT PUMP STATION REHAB AND  
BYPASS FORCE MAIN FINAL DESIGN

Landscape Plan & Details

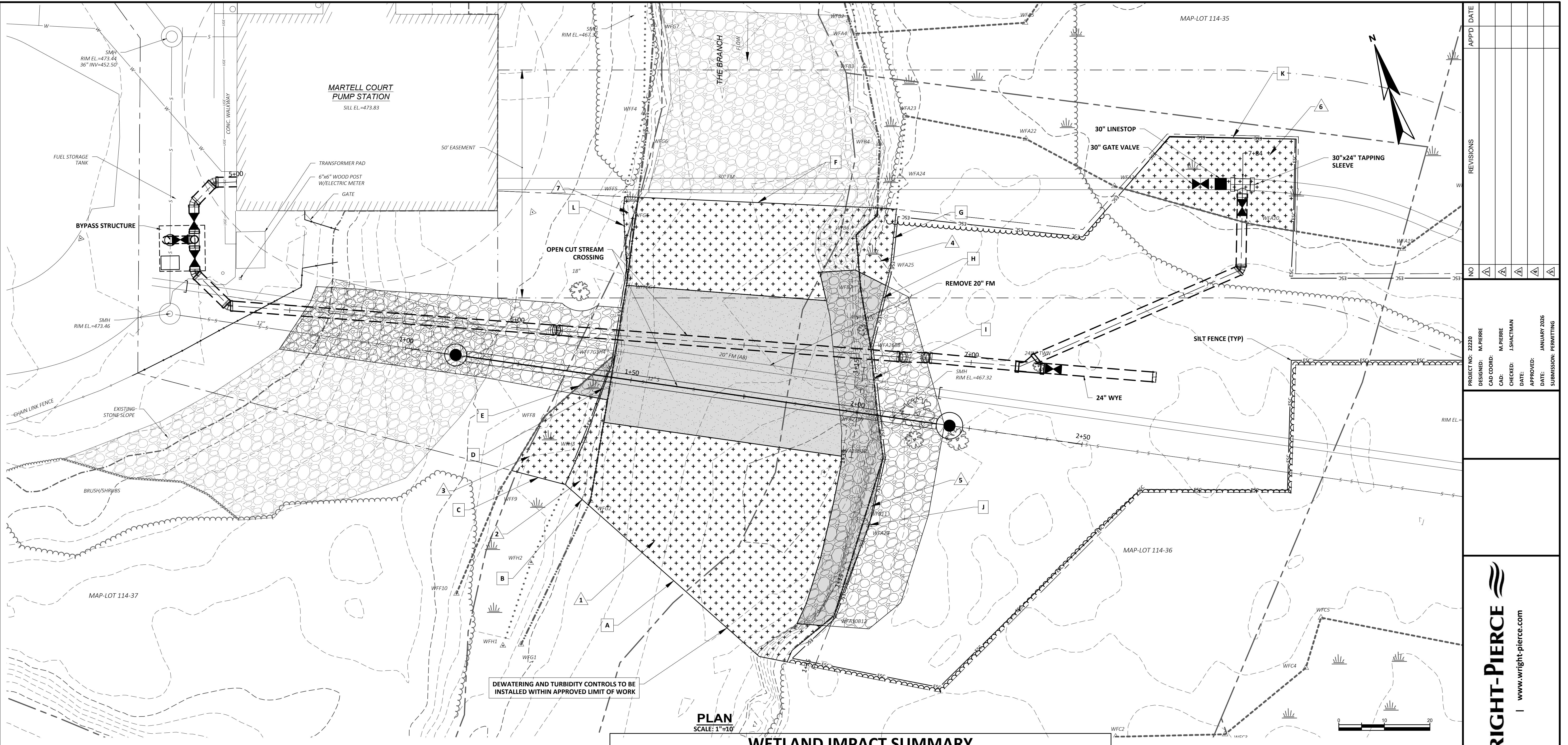
Drawing L-100

WRIGHT-PIERCE

603.430.3728 | www.wright-pierce.com  
230 COMMERCE WAY, SUITE 302, PORTSMOUTH, NH 03801

APPD DATE	REVISIONS

PROJECT NO.	DESIGNED	CAD COORD.	CAD	CHEKED	DATE	APPROVED	DATE	SUBMISSION
22220	J.SCHACTMAN	B.ELLIOTT	K.BLAIS	I.SCHACTMAN	05-2025	R.GIBSON	01-2026	90% DESIGN REVIEW



LEGEND:	
TEMPORARY IMPACT	
PERMANENT IMPACT	
ORDINARY HIGH WATER (OHW)	
TOP OF BANK	
EDGE OF WETLANDS	
SILT FENCE	
WETLAND DESIGNATION NUMBER	
WETLAND IMPACT LOCATION	

**NOTE:**  
JURISDICTIONAL WETLANDS DEPICTED WERE DELINEATED IN FALL 2023 BY MARC JACOBS, CERTIFIED WETLANDS SCIENTIST NUMBER 090. A DELINEATION REPORT AND FUNCTIONAL ASSESSMENT ARE ATTACHED FOR REFERENCE. "ON-THE-GROUND" TOPOGRAPHIC SURVEY WAS COMPLETED BY WRIGHT-PIERCE. SUPPLEMENTAL INFORMATION SHOWN, WAS DIGITIZED FROM A PLAN SET TITLED "CITY OF KEENE WASTWATER PUMP STATION CONTRACT NO. 3, RECORD DRAWINGS 3 AND 5, DATED 10/24/1986". AS WELL AS A PLAN SET TITLED "MARTELL COURT PUMP STATION HEADWORKS UPGRADE (DRAWING C2), DATED MAY 2021".

HORIZONTAL DATUM: NEW HAMPSHIRE STATE NAD83  
VERTICAL DATUM: NAVD88  
UNITS: US SURVEY FEET

PROPOSED IMPACTS WITHIN JURISDICTIONAL SHORELAND OF THE BRANCH WILL BE ADDRESSED IN AN NHDES SHORELAND PERMIT APPLICATION

WETLAND NUMBER	WETLAND CLASSIFICATION	LOCATION	AREA IMPACTS			
			PERMANENT		TEMPORARY	
			SF	LF	SF	LF
1	R3UBH	A			1805	45
2	BANK	B			85	25
3	PEM	C			205	
2	BANK	D	10	10		
3	PEM	E	35			
1	R3UBH	F			970	20
4	BANK	G			105	15
4	BANK	H	50	15		
1	R3UBH	I	2170	80		
5	BANK	J	30	35		
6	PFO1E	K			560	
7	BANK	L			30	20
		TOTAL	2,295	140	3,760	125

MARTELL COURT PUMP STATION REHAB AND BYPASS FORCE MAIN FINAL DESIGN

WETLAND IMPACT FIGURE

WRIGHT-PIERCE

www.wright-pierce.com

FIGURE 1

NO	△	△	△	△	△	△	△	△	△
PROJECT NO: 22220									
DESIGNED: M. PIERRE									
CAD COORD: M. PIERRE									
CAD: I. SHATMAN									
CHECKED: I. SHATMAN									
APPROVED: I. SHATMAN									
DATE: JANUARY 2026									
SUBMISSION: PERMITTING									

APPD DATE

4  
Project Narrative

## Project Introduction

The City of Keene (City) owns, maintains, and operates the Martell Court Pump Station which conveys all wastewater from the City of Keene and the Town of Marlborough to the City's wastewater treatment plant (WWTP). The pump station is located near the intersection of State Route 101 and Main Street and adjacent to the Branch River. Refer to Locus Map provided in Section 10. On July 10, 2023, the 30-inch discharge knife gate on the effluent force main failed and began leaking large volumes of wastewater into the dry pit. As the last isolation valve on the force main before leaving the facility and with no redundant force main, the knife gate cannot be isolated for repair without taking the entire pump station offline. The knife gate has been temporarily outfitted to reduce the leakage to a volume that can be maintained by the sump pumps and the City has been operating the pump station under these emergency conditions since the incident. The pump station requires a bypass forcemain to allow for the permanent repair of the failed knife gate.

The pump station is situated near the west bank of the Branch River approximately 150 ft upstream of the Branch's confluence with the Ashuelot River. Wastewater generated in the City of Keene flows to this pump station where it is pumped from the station via a 30-inch force main that exits the east side of the station, crosses beneath the Branch River and extends southerly approximately 2-miles to the City's WWTP. Currently the pump station conveys an average daily flow of 3-MGD and 8- to 9-MGD during most wet weather events. The pump station is sized to meet a peak flow of 18-MGD. Approximately 50 feet downstream of the active, 30-inch force main there is an abandoned 24-inch force main and an active 12-inch gravity sewer that conveys wastewater from the east of the Branch to the pump station.

## Natural Resources

### Wetlands

The project is located along the Branch River. The Branch discharges to the Ashuelot River, just south of the project area. Wetlands and resource areas were delineated by Marc Jacobs, CWS in September 2023. Ordinary high water and top of bank were delineated for the Branch. (Wetland flag series B and G; Wetland flag series A and F). The Branch was classified as riverine, upper perennial, unconsolidated bottom, permanently flooded.

An area to the east of the Branch was also evaluated for the presence of jurisdictional wetlands. Much of this area has been cleared of vegetation as a part of utility easement maintenance. An area adjacent to the Branch near the existing 30-inch force main was delineated as palustrine scrub-shrub wetlands, located within a floodplain. The limits of floodplain extend beyond the project area on either side of The Branch, as shown in FEMA FIRMette flood map in Section 2. The presence of floodplain wetlands are considered a priority resource area (PRA) by NHDES. Refer to Section 5 for a detailed description of the resource areas provided in a wetland delineation report and Functional Assessment Report prepared by Marc Jacobs.

The Branch River, like many in the western area of the state, has been subjected to significant flooding in recent years after intense rain events. During additional investigation of the project area in the summer of 2024, it was observed that significant erosion has occurred on the east bank of the Branch in the project area.

### Rare, Endangered and Threatened Species

A New Hampshire Natural Heritage Bureau DataCheck results letter was received on September 26, 2024 (NHB-24-2778) and updated on October 29, 2025 (DCT25-2963). DataCheck results indicated two vertebrate species of special concern and one natural community within the vicinity of the project area including the *Northern Leopard*

*Frog (Lithobates pipiens), Wood Turtle (Glyptemys insculpta), Silver maple - false nettle – sensitive fern floodplain forest.* There were no Threatened or Endangered species identified by the DataCheck..

NHB requested further coordination regarding potential impacts to the nearby silver maple – false nettle – sensitive fern forest. On October 16, 2024, NHB confirmed impacts to this natural community are unlikely and there are no further concerns regarding NHB24-2778. The updated DataCheck (DCT25-2963) include NHB findings that impacts to the silver maple – false nettle – sensitive fern floodplain forest are unlikely and that NHB has no further concerns regarding the project. Consultation with New Hampshire Fish & Game Department was completed on October 11, 2024 and some of NHF&G recommendations have been incorporated into the project plans. On November 14, 2025, NHF&G confirmed that previous correspondence on October 11, 2024 is still applicable to the project. NHF&G confirmed that even though the Dwarf Wedge Mussel was listed on the DCT25-2963 report, they do not anticipate this species will be impacted by the proposed project. The NHB DataCheck and correspondence with NHB and NHF&G is included in Section 12.

### **Proposed Project**

Several alternatives were considered to install a bypass force main that would allow for installation of the replacement knife gate. Trenchless technologies were evaluated for installation of the proposed permanent bypass across the Branch. However, they were ruled out after a geotechnical analysis determined that trenchless installation in existing soils was not feasible. A temporary emergency bypass system, involving a temporary bypass pumping system, force main connection, and bridge over the Branch River was also considered. The temporary bridge was deemed infeasible due to the magnitude of costs for the construction of the temporary bypass and utility bridge and would not provide the benefit of a permanent bypass forcemain. The only feasible alternative to install a permanent bypass forcemain is by trench excavation. A permanent forcemain bypass will allow the City's investment to be retained and will improve overall system resiliency if bypass is needed in the future.

The proposed project includes the following:

- Demolish the existing, exposed, and abandoned 20-inch forcemain crossing the river south of the active forcemain.
- Install a permanent sleeve and bypass forcemain under the Branch River.
- On the existing force main to the east of the Branch River, install a 30-inch line stop, valve to isolate the pump station from the remainder of the force main, and tapping sleeve and for the new bypass connection.
- Install a new bypass pumping structure at the pump station site with a valve cluster to allow for a bypass pumping connection.
- Reconfigure the discharge piping in the pump station dry pit to allow for the removal of three existing knife gate valves, installation of new discharge valves, and new piping to allow for the conveyance of flows into the existing force main or the permanent pump station and river crossing bypass.
- Replace the existing 12-inch gravity main crossing the Branch River adjacent to the new bypass force main crossing and encase in concrete.
- Protect 12-inch gravity main and new bypass force main with 2-ft Class 1 River Stone matching existing streambed elevation.
- Stabilize all temporary and permanent impact areas as described below.

The Contractor will be required to submit a dewatering and water diversion plan designed by a licensed Professional Engineer in the State of NH prior to construction. Construction impacts will be limited to the limit of

work shown on the contract drawings and approved wetland impact areas and can be provided to NHDES prior to construction.

### **Env-Wt 514.02-514.03 Approval Criteria and Application Requirements for Bank Stabilization Projects.**

The existing site conditions within the project area were summarized as follows by Streamworks based on a site visit on September 10, 2024:

- Based on the Federal Emergency Management Agency's (2006) Flood Insurance Rate Map that is effective for the project area, the Project is located within a regulatory floodway of The Branch; to comply with local ordinances, any development within the regulatory floodway cannot raise the Base Flood (one percent annual chance storm) at any point within or beyond the project area;
- Surficial geologic mapping of the area prepared by the New Hampshire Geological Survey indicates the project area is a former glacial lake bed comprised predominantly of silty and sandy deposits; alluvial processes have re-shaped many of these features in the Project vicinity but alluvial-deposited sediments in many cases are indistinguishable from glacial lake sediments;
- The existing gravity sewer main and an abandoned force main are both exposed in the streambed;
- The active force main is protected by a riprap cap that controls the upstream grade, the voids of which have filled in to create a form of artificial riffle; riprap on the streambanks in this area appears stable;
- Based on a Rapid Geomorphic Assessment performed per the procedures of the Vermont Agency of Natural Resources' (2007) *Vermont Stream Geomorphic Assessment*, The Branch in the vicinity of the project area exhibits evidence of incision – most of which is historic – and widening; such processes are interpreted to be the result of increased sediment transport capacity resulting from urbanization, both direct encroachments (exhibit by extensive artificial fill on NHGS's surficial geologic map) and indirect increase in runoff from changing land use and climate change. If not managed:
  - The outside streambank that would be disturbed by the proposed project is actively eroding and unstable; based on implementation of Rosgen's Bank Erosion Hazard Index (BEHI) methodology, this streambank had a high BEHI score indicative of a relatively high propensity for erosion; much of this score is due to the height of the streambank (approximately nine feet) and undermining of the roots of riparian vegetation that would otherwise reduce the erosion resistance of the bank;
  - Considering that a small depositional point bar has formed on the inside of the small bend where the project is proposed would direct concentrate flow along the outside streambank and thus increase erosive forces along the more erosion-prone outside streambank;
  - If no interventions are proposed, the geomorphic trajectory of The Branch in the vicinity of the Project area is the continued erosion of the outside streambank and increased exposure of the existing gravity main and abandoned force main.

Bank stabilization is necessary to protect critical wastewater collection and conveyance infrastructure including a 12-inch gravity sewer main and 24-inch bypass force main. Alternative bank stabilization approaches were evaluated during preliminary design in accordance with the hierarchy of practices (Env-Wt 514.02(c)), which included:

- Replace embankment in-kind
- Bioengineered stabilization, including coir log with fabric encapsulated soil lifts

- Hybrid bioengineered stabilization, including a stone toe to OHW with fabric encapsulated soil lifts to TOB
- Structural protection including riprap stabilization
- Structural protection including crib wall or block revetment

The following site-specific conditions were evaluated during design:

- **Existing Bank Constraints**
  - **Bank height** (~9 ft) and **steep slope** (vertical, undercut bank).
  - **Poor soil conditions** due to silty/sandy glacial lake deposits are prone to failure and limit root anchoring and slope stability.
  - **Active erosion and undermining** of riparian vegetation, as documented in the BEHI assessment, indicate a high erosion hazard.
- **Proximity of critical infrastructure** (gravity sewer, manhole, and force main) requires a stabilization method to protect the stream grade vertically for piping and horizontally for manholes/valves, with minimal risk of failure. Migration of the bank at this location would pose significant risks to this critical infrastructure.
  - The proposed project goals include construction of resilient wastewater infrastructure to protect the water quality of The Branch and Ashuelot River and the City's investment to construct this infrastructure.
  - Fully removing the stressor of the system is beyond the scope of the proposed project, which seeks to minimize impacts to jurisdictional wetland while protecting infrastructure. The project scope includes local stabilization measures required for protection of critical wastewater infrastructure<sup>1</sup> (p.10).

**Table 4-1 Bank Stabilization Alternatives**

Stabilization Practice	Existing Bank Constraints	Infrastructure Protection / Risk of Failure	Env-Wt 514.02 Compliance
Restore Embankment In-Kind	<ul style="list-style-type: none"> <li>- Not feasible due to vertical bank height.</li> <li>- Bank is actively eroding and undermined.</li> <li>- Poor silty/sandy soils are prone to erosion.</li> </ul>	<ul style="list-style-type: none"> <li>- High risk of continued bank erosion and undermining, threatening to undermine critical infrastructure.</li> <li>- Instability exacerbated by construction of sewer force main and gravity main.</li> </ul>	<ul style="list-style-type: none"> <li>- Physically impractical.</li> <li>- Cannot meet stabilization standards or protect infrastructure.</li> </ul>
Bioengineered Stabilization – Soil Lifts	<ul style="list-style-type: none"> <li>- Existing bank is prone to scour, where depositional point bar is channelizing flow at outside bend.</li> <li>- Does not function effectively unless primary stressor has been removed from the system, often failing when applied to patch channel response<sup>1</sup> (p.163)</li> </ul>	<ul style="list-style-type: none"> <li>- Lower material stability thresholds<sup>1</sup> (p.162).</li> <li>- Fragile post-construction periods, vulnerable to drought and floods<sup>1</sup> (p.163).</li> <li>- Reduced lifespan<sup>1</sup> (p.163).</li> </ul>	<ul style="list-style-type: none"> <li>- Impractical under consideration of physical site constraints.</li> </ul>
Hybrid Bioengineered Stabilization	<ul style="list-style-type: none"> <li>- Toe protection possible, but encapsulated soil lifts on upper bank remains vulnerable due to steep bank geometry.</li> </ul>	<ul style="list-style-type: none"> <li>- Reduced risk compared to pure bioengineering but still leaves infrastructure vulnerable<sup>2</sup> (p.18).</li> </ul>	<ul style="list-style-type: none"> <li>- Does not fully meet Env-Wt 514.02(c) for infrastructure protection; risk remains.</li> </ul>

Stabilization Practice	Existing Bank Constraints	Infrastructure Protection / Risk of Failure	Env-Wt 514.02 Compliance
	<ul style="list-style-type: none"> <li>- Requires extensive grading and tie-in adjustments, expanding jurisdictional wetland and shoreland impacts.</li> </ul>	<ul style="list-style-type: none"> <li>- Limited effectiveness under site constraints<sup>1</sup> (p.163).</li> </ul>	
Structural Protection Riprap	<ul style="list-style-type: none"> <li>- Suitable for applications where immediate effectiveness is critical and to minimize exposure time and failure risks with vegetative solutions <sup>3</sup> (p. 14-6).</li> <li>- Maintains natural alignment; no channel bed alteration.</li> </ul>	<ul style="list-style-type: none"> <li>- High structural integrity; protects infrastructure from bank movement.</li> <li>- Lower risk of failure when designed properly.</li> <li>- Reliable protection of infrastructure; Existing riprap located adjacent to the project protects existing sewer infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>- Meets Env-Wt 514.02(c)(3) where bioengineered stabilization is impractical, and infrastructure protection required.</li> <li>- Slope is cut back to eliminate requirement for wall, in accordance with Env-Wt 514.02(c)(4).</li> </ul>
Structural Protection – Revetment	<ul style="list-style-type: none"> <li>- Feasible for vertical banks but requires deep foundation and significant disturbance.</li> </ul>	<ul style="list-style-type: none"> <li>- High structural integrity; protects infrastructure.</li> <li>- Increase in local channel velocities.</li> <li>- Greater environmental impact and footprint.</li> </ul>	<ul style="list-style-type: none"> <li>- Last available option under Env-Wt 514.02(e) if all other stabilization methods are impracticable.</li> <li>- Least consistent with naturalized design goals.</li> <li>- Greatest footprint and cost</li> <li>- Increased channel velocity.</li> </ul>

Vegetated and hybrid methods were considered in accordance with Env-Wt 514.02 tier hierarchy and determined to be impracticable due to physical site constraints provided for each alternative. The proposed project meets the definition of high physical site constraints as described in the NHDES Guidelines, stating “Hard structural stabilization may be appropriate where site constraints, infrastructure proximity, and high shear stress conditions make bioengineering impractical or ineffective”<sup>1</sup> (p.184). The proposed bank stabilization has a desired lifespan of 50-years. Based on a risk-assessment of the intended project goals, a 100-year return interval was used for the design discharge velocity during design to reduce the risk of failure and reduce maintenance frequency. In comparison, NHDES & NHDOT Guidelines<sup>1</sup> (p.163) indicate the lifespan on bioengineering materials is typically much shorter than practices made from rock, unless full re-vegetation is accomplished before the bank can fail again.

Proposed bank restoration of 1:1 slope is required to tie in existing grades. Grading the bank back at a slope of 2:1 or 3:1 would greatly increase the potential for bank erosion at the upstream and downstream tie in locations due to the existing topography of the banks. The proposed stabilization is required to maximize protection of critical infrastructure to reduce risk of compromising active sewer lines and infrastructure, which would result in a significant environmental impact and emergency response to repair and mitigate. The proposed design and limit of work minimizes impacts to existing, surrounding vegetation, while improving riparian habitat beyond the top of bank to provide key habitat features including vegetative cover and overhanging vegetation/canopy.

Proposed stabilization includes maintaining the natural alignment of the banks on The Branch. There are no proposed alterations to the channel bed elevation along the stream profile. Stabilization along the west bank includes riprap for protection of the force main bypass and gravity sewer replacement. Temporary impact areas proposed for construction access, dewatering and water diversion, and erosion and sediment controls will be restored with wetland seed mix. The proposed east bank restoration includes riprap bank stabilization and vegetated riparian buffer. Hard armoring from previous activities at the location already exist. The proposed bank stabilization has been designed to minimize wetland impacts to the maximum extent practical. The proposed bank stabilization extents are required to minimize impacts associated with tying in grades to the existing bank. The proposed vegetation includes a combination of native trees, shrubs, and seed mix to reduce risk of erosion and restore riparian habitat. See attached Streambed Stabilization Plan & Sections (Drawing C-103) and Landscaping Plan & Details (Drawing L-100) included in Section 3. The design includes:

- 4-ft thick Class III Riprap (nominal stone size 12", max 24") graded at 1:1 slope.
- 2-ft thick crushed stone filter layer and non-woven geotextile fabric.
- Bank layback to increase stability and flow area (increasing flood storage) to avoid hydraulic constriction.

This riprap gradation and section design was developed by Haley & Aldrich using a peak design velocity of 10 ft/s and procedures from Hydraulic Engineering Circular No. 11 (USDOT/FHWA, 1967). The proposed design is consistent with Env-Wt 514.04(d), which allows hard armoring where necessary to protect infrastructure and prevent significant environmental impacts. Vegetated riparian buffers will be re-established above the riprap using native trees, shrubs, and seed mix to restore habitat and reduce erosion. The riparian buffer design and plantings plan is consistent with recommendations in Section 10.5 of the NHDES Guidelines<sup>1</sup> (p. 124). The proposed design increases the channel's hydraulic area, reducing channel velocities and has been designed to minimize adverse impacts to local channel hydraulics, stream bank stability, and floodplain connectivity. A Floodplain Development Permit will be obtained with the City of Keene prior to construction.

#### References:

<sup>1</sup> "Guidelines for Naturalized River Channel Design and Bank Stabilization" dated February 2007, R. Schiff, J.G. MacBroom, and J. Armstrong Bonin

<sup>2</sup> National Engineering Handbook Part 654 (NEH 654), Technical Supplement 141, Streambank Soil Bioengineering, dated August 2007, NRCS

<sup>3</sup> NEH 654, Stream Restoration Design, dated August 2007, NRCS

#### Proposed Wetland Impacts

The proposed impact area within the jurisdictional wetlands are depicted in the Wetland Impact Figures included in Section 3. All temporary impacts will be restored to match existing conditions. Proposed impacts have been minimized to the maximum extent practicable to install proposed force main tie in, utility crossings, bank stabilization, and channel protection.

The project proposes temporary impacts to jurisdictional areas as follows:

**Table 4-2 Proposed Temporary Impact Areas**

Activity	Emergent Wetlands (SF)	Forested Wetlands (SF)	Surface Waters Perennial River (SF/ LF)	Banks Perennial River (SF/ LF)
Forcemain Tie In - Trench Excavation, Install Valves, Line Stop, Tapping Sleeve	-	560	-	-
Utility Crossing - Construction Access, Install Forcemain, Gravity Sewer, Water Diversion, Dewatering, Erosion and Sediment Controls	205	-	2,775 / 65	220 / 60
<b>Total</b>	<b>205</b>	<b>560</b>	<b>2,775 / 65</b>	<b>220 / 60</b>

The project proposes permanent impacts to jurisdictional areas as follows:

**Table 4-3 Proposed Permanent Impact Areas**

Activity	Emergent Wetlands (SF)	Forested Wetlands (SF)	Perennial River Surface Waters (SF/ LF)	Banks Perennial River (SF/ LF)
Bank Stabilization and Channel Protection	35	-	2,170 / 80	90 / 60
<b>Total</b>	<b>35</b>	<b>-</b>	<b>2,170 / 80</b>	<b>90 / 60</b>

### Avoidance and Minimization

The proposed project is designed to avoid potential wetland impacts and minimize necessary wetland impacts to the maximum extent practical. There is no practical alternative that would meet the project goals and have a less adverse impact on jurisdictional wetlands. The Avoidance and Minimization Checklist is included in Section 14. The proposed project design minimizes jurisdictional wetland impacts in size and impacts to wetland function to the maximum extent practicable to restore construction disturbances associated with construction of a new bypass force main and gravity sewer replacement. The proposed stabilization design minimizes impacts to river flow in the project vicinity by extending the riprap downstream to a location where a gradual tie in can occur, as opposed to creating a point bar or cut out in the stream bank with a sharp transition. The project results in a larger hydraulic area as slopes are laid back at 1:1 slope, which is improved from the existing vertical bank conditions. As a result of the larger hydraulic area, hydrologic connections are maintained, hydraulic capacity is maintained, and post construction stream velocities are reduced in the project area. Additionally, the streambed profile will match existing elevations, and the gravity sewer alignment has been lowered in elevation as much as possible to increase cover. Temporary impacts have been minimized, while maintaining sufficient area for construction access requirements. Erosion and sediment controls will be installed and maintained by the contractor throughout the duration of construction to minimize water quality impacts.

Compensatory mitigation is not proposed as part of this project. The proposed permanent wetland impacts associated with bank stabilization, required for public sewer utility protection, are proposed for exemption from compensatory mitigation in accordance with Env-Wt 313.04(b)(1).

Principal functions and values are provided in the Wetland Functional Assessment, Table 1 (Section 5) and listed in Table 4-4 below as well as a summary of how the project design has minimized impacts to the functions and values

**Table 4-4 Functions and Values**

Principal Functions and Values	Avoidance and Minimization Summary
Ecological Integrity	The study area scored 5.6 (moderate), with the east bank retaining the highest ecological value due to intact floodplain forest and undeveloped riparian buffer. Permanent impacts are minimized to stabilize an actively failing vertical bank that currently provides low ecological function due to erosion, soil loss, and invasive species. Project design improves long-term integrity by replacing the unstable bank with a stable slope, restoring a native riparian buffer, removing invasives where encountered, and re-establishing vegetation above the riprap.
Fish and Aquatic Life Habitat	The Branch is located between two high-value fisheries (Beaver Brook and the Ashuelot River). While the NWI does not identify the area as high-value aquatic habitat, the reach likely supports fish movement and aquatic macroinvertebrates. In-water impacts are minimized through phased construction and turbidity controls to prevent sediment discharges. The project maintains existing streambed elevation, avoids channel realignment, and increases hydraulic area, which helps reduce velocities post-construction. Riprap stone gradation creates habitat beneficial to macroinvertebrates. NHF&G recommendations have been included where practical for protection of state Species of Special Concern during construction. See Wildlife Protection Notes on drawing C-002 (Section 3).
Flood Storage	The proposed project results in no loss of flood storage; instead, minor grading to lay the bank back to 1:1 slightly increases hydraulic area and available conveyance. The project will obtain a no-rise certification, demonstrating no increase in flood elevations. Impacts are minimized by matching existing bank alignment and streambed elevation.
Noteworthiness	NHB identified a Silver maple – false nettle – sensitive fern floodplain forest as a nearby natural community. NHB confirmed the nearby community is unlikely to be impacted and has no further concerns. Impacts are minimized by stabilizing the eroding bank, erosion and sediment controls, restoring disturbed areas with native vegetation, and avoiding the core of the mapped natural community. Proposed impacts are limited to where necessary for infrastructure protection, preserving adjacent high-value community features.
Nutrient Trapping / Retention & Transport	The forested floodplain were found to provide nutrient trapping and transformation as a principal function, although NWI does not rank the study area high for nutrient transformation or carbon sequestration. No changes are made to hydrology that would reduce floodplain inundation or cause nutrient bypass.
Production Export (Nutrient)	Floodplain wetlands in this reach contribute minimally to production export, while the river transports nutrients (export). Proposed work does not alter floodplain connectivity or hydrologic exchange. By stabilizing the bank and reducing erosion, the project maintains the current function and reduces sediment-bound nutrient export. No direct loss of productive wetland area is proposed.

Principal Functions and Values	Avoidance and Minimization Summary
Scenic Quality	To minimize visual impacts, impacts are minimized only where required and native vegetation, including trees and shrubs are proposed in the riparian area to re-establish canopy and visual screening. Temporary clearing is minimized, and areas beyond the approved limit of work remain undisturbed.
Sediment Trapping	The current unstable bank contributes sediment loads due to active erosion occurring. Stabilization reduces sediment input while maintaining floodplain trapping functions. Temporary impacts will be restored, and erosion control measures prevent construction-related sediment discharge.
Shoreline Anchoring	Proposed riprap stabilization directly improves shoreline anchoring in an area with documented active erosion and high BEHI scores. The design enhances long-term stability and resiliency.
Uniqueness/Heritage	Uniqueness/heritage was indicated as a principal function due to the natural community of Silver maple – false nettle – sensitive fern floodplain forest and potential wood turtle habitat. See above regarding proposed plan for avoidance and minimization, including coordination with NHB and NHFG. Design features such as shaded riparian buffers, overhanging vegetation, and maintenance of floodplain hydrology support continued habitat use.
Wetland-based Recreation	The river is suitable for canoeing, wildlife viewing, and fishing. The proposed project does not adversely impact channel navigability, flow depth, or water quality following construction. Construction impacts are temporary, and the project improves long-term stability and reduces erosion that could impede recreation. Public access is unchanged, and restored riparian vegetation maintains scenic and recreational value.
Wetland-dependent Wildlife Habitat	Work limits and clearing are minimized. The design restores native vegetation and avoids permanent wetland impacts to forested wetlands.

### Proposed Construction BMPs

In general, proposed construction will be completed in accordance with the Best Management Practices Manual: Utility Maintenance in and Adjacent to Wetlands and Waterbodies in New Hampshire.

*The following sections describe how the proposed project will meet standard permit conditions required in Env-Wt 307.*

#### Env-Wt 307.03 Protection of Water Quality

- Best management practices (BMPs) will be used to protect water quality during construction.
- Soil stockpiles will be managed to minimize risk of erosion and sedimentation to surface waters or wetlands.
- All water quality measures will be selected to provide maximum protection during storm events during construction and will be removed when construction is complete and vegetated areas are stable. Wildlife friendly erosion control shall be used.
- During construction, erosion and sedimentation controls will be inspected, replaced, and/or repaired every 7 days and immediately following any significant rainfall or snowmelt. Any accumulated sediments will be removed and disposed of to a stable and suitable site.

- e. Disturbance areas will be permanently stabilized with 3 days of completion of final grades.
- f. Sheet, cofferdam, and/or turbidity curtain will be removed after work within the turbidity control is completed, contained water has returned to background clarity. The contractor will be required to provide a dewatering and water diversion plan, stamped by a licensed NH professional engineer prior to construction. The contractor will be required to install cofferdams within the limit of work, with anticipated phasing involving constructing half of the in-water work at a time. Turbidity controls will be dependent on the contractor's dewatering and water diversion means and methods.
- g. The contractor will be required to inspect equipment daily for leaking fuel, oil and hydraulic fluid prior to initiating work. All leaks shall be contained and repaired to prevent fluids from reaching groundwater, surface water or wetlands.
- h. Equipment will be staged and refueled in accordance with Env-Wt 307.15.

**Env-Wt 307.04 Protection of Fisheries and Breeding Areas Required**

Impacts to fish and shellfish are not anticipated following coordination with NHB and NHFG. NonFIS consultation was completed with NHFG, as a result, NHFG recommendations have been incorporated in the project plans where practical. Erosion and sedimentation BMPs will be utilized to prevent discharge of sediment with stormwater runoff.

**Env-Wt 307.05 Protection Against Invasive Species**

- a. Not applicable.
- b. Equipment will be inspected prior to use to ensure that it is free of all aquatic and terrestrial invasive plants and all exotic aquatic species of wildlife.
- c. Not applicable.
- d. Not applicable.
- e. To prevent the use of soil or seed stock containing nuisance or invasive species, the Contractor will be required to follow the Invasive Plant BMPs.

During delineation of wetlands and other resource areas, Marc Jacobs observed the presence of Japanese knotweed, purple loosestrife, bittersweet, honeysuckle, glossy buckthorn, burning bush, and Japanese barberry. The Contractor will be required to complete the project such that the project will not cause the spread of invasive species. Any impacted invasive species will be removed and disposed of properly.

**Env-Wt 307.06 Protection of Rare, Threatened or Endangered Species or Critical Habitat**

a-c. All proposed activities will be conducted to minimize impacts to threatened and endangered species. No Threatened or Endangered species were identified within the project area. See Section 12 for concurrence with NHB and NHFG that no impacts are anticipated as a result of the proposed project.

**Env-Wt 307.07 Consistency with Shoreland Water Quality Protection Act**

All project activities will be conducted in compliance with the applicable requirements of RSA 483-B and Env-Wq 1400 during and after construction. A Shoreland Permit shall be submitted in concurrence for impacts outside of the jurisdictional wetlands and within 250 ft of the Reference Line.

**Env-Wt 307.08 Protection of Designated Prime Wetlands and Duly Established 100-foot Buffers**

There are no designated prime wetlands located in the City of Keene.

#### **Env-Wt 307.09 Shoreline Structures**

The proposed project does not involve the construction of any structures over public waters.

#### **Env-Wt 307.10 Dredging Activity Conditions**

- a. Existing conditions shall be restored where dredging is proposed, except for the proposed east bank stabilization which will be graded as shown in the plans. Dredging shall not create violations of any setbacks specified in RSA 485-A and RSA 483-B.
- b. The contractor will be required to submit a dewatering and water diversion plan, designed by a licensed NH professional engineer prior to construction.
- c. Turbidity controls shall be installed prior to construction and maintained during construction to prevent turbidity migration from the dredged area. Turbidity controls shall remain in place until water has returned to normal clarity.
- d. All dredged materials shall be returned to the trench once the new forcemain is installed. There shall be no disposal of dredged materials.
- e. There is no proposed disposal of dredged material within jurisdictional areas.
- f. Dredged materials from upland areas will be stockpiled within the construction area, outside of jurisdictional wetland resources. These stockpiles will have sedimentation controls installed around them to prevent sediment from leaving the site.
- g. The proposed project area is not mapped as a cold-water fishery, endangered fishery or rainbow smelt habitat area.
- h. Not applicable.
- i. Not applicable.
- j. Not applicable.
- k. The proposed project has not been flagged as a spawning area for fish, based on coordination with NHFG.
- l. Not applicable.
- m. The proposed dredging is not located near an active intake for the public water supply.
- n. Not applicable.

#### **Env-Wt 307.11 Filling Activities**

- a. The contractor will be required to import clean fill material in accordance with project specifications.
- b. Limits of permitted impacts will be identified prior to commencement of work to ensure that fill does not spill over or erode into areas where filling is not authorized.
- c. Slopes shall be immediately stabilized by methods specified in Env-Wq 1506 and in accordance with the NHDES Stormwater Manual to prevent erosion into adjacent wetlands and surface waters.
- d. Not applicable.
- e. The proposed project will restore existing grades and will not change the direction of surface water runoff.
- f. Not applicable.
- g. Not applicable.
- h. Not applicable.
- i. The use of corduroy is not proposed.
- j. Impacted jurisdictional areas will be restored to pre-construction conditions and elevations, except for permanent impact areas for bank stabilization.
- k. Not applicable.
- l. Not applicable.

#### **Env-Wt 307.12 Restoring Temporary Impacts; Site Stabilization**

- a. Within 3 days of final grading or temporary suspension of work in an area that is in or adjacent to surface waters, all exposed soil areas shall be stabilized by seeding and mulching, if during the growing season or mulching with tackifiers on slopes less than 3:1 or netting and pinning on slopes steeper than 3:1 if not within the growing season.
- b. Impacts to wetlands will be restored to match existing grades with wetland seed mix. Vegetated riparian buffers will be re-established above the proposed riprap using native trees, shrubs, and seed mix to restore habitat and reduce erosion.
- c. Any seed mix used shall not contain plant species that are exotic aquatic weeds.
- d. Mulch used within an area being restored shall be natural straw or equivalent non-toxic, non-seedbearing organic material.
- e. Wetland soils from areas vegetated with invasive plant species shall not be used in the area being restored.
- f. If any temporary impact area that is stabilized with seeding or plantings does not have at least 75% successful establishment of wetlands vegetation after 2 growing seasons, the area shall be replanted or reseeded, as applicable.
- g. If a temporary impact area is restored by seeding or plantings, then:
  - (1) The work shall not be deemed successful if the area is invaded invasive species during the first full growing season following the completion of construction; and
  - (2) The person responsible for the work shall submit a remediation plan to the department that proposes measures to be taken to eradicate nuisance species during this same period.
- h. Unless otherwise authorized, any trees cut in an area of authorized temporary impacts shall be cut at ground level with the shrub and tree roots left intact, to prevent disruption to the wetland soil structure and to allow stump sprouts to revegetate the work area. This permit application requests authorization to remove trees and roots from the wetlands where permanent impact or trench excavation is proposed to install the new force main and components. Tree removal will be minimized to the maximum extent practicable, and roots will be left intact where feasible.
- i. Unless otherwise authorized, wetland areas where permanent impacts are not authorized shall be restored to their pre-impact conditions and elevation by replacing the removed soil and vegetation in their pre-construction location and elevation such that vegetation schemes areas close as practicable to pre-construction conditions.

#### **Env-Wt 307.13 Property Line Setbacks**

The proposed project includes impacts on City owned parcels. There are no proposed impacts to private properties. There are no proposed wetland impacts within 10-ft of abutting parcels.

#### **Env-Wt 307.14 Rock Removal**

Streambed material temporarily removed for trench installation will be stockpiled and replaced to match existing stream grades.

#### **Env-Wt 307.15 Use of Heavy Equipment in Wetlands**

- a. This permit application is requesting authorization to use heavy equipment within wetlands as shown on plans.
- b. Mobile heavy equipment will be prohibited from being stored, maintained, or repaired in wetlands, except for where repairing or refueling cannot practicably be complete and secondary containment is provided.
- c. The proposed project does not require operation of equipment over wetlands.

- d. Timber mats are not anticipated but, if necessary, shall be in good condition prior to installation, use and removal, and thoroughly cleaned before re-use.
- e. Timbers mats shall be placed in the wetland from the upland or from equipment positioned on timber mats; be installed, used and removed to minimize impacts to wetland areas; and be installed with adequate erosion and sediment controls as approaches to the mats to promote a smooth transition to and minimize sediment tracking onto, the mats.

#### **Env-Wt 307.16 Adherence to Approved Plans Required**

Construction documents will require that the contractor complete all work in accordance with the approved plans. A qualified professional will periodically inspect the construction site to confirm work is being performed in accordance with the approved permit conditions.

#### **Env-Wt 307.18 Reports**

All required reporting will be completed in accordance with the approved permit conditions.

#### **Env-Wt 313.01 Criteria for Approving Standard Permit Applications**

- a. Functional assessment was completed by Marc Jacobs (Section 5). Avoidance and minimization checklist is included in Section 14. No compensatory mitigation is anticipated. Resource specific criteria are included in Section 5. The proposed project will occur within the city owned parcels.
- b. Not applicable.
- c. The proposed project has been designed to minimize adverse impact to jurisdictional areas. Completion of the project is intended to provide the City of Keene a permanent bypass for the Martell Court Pump Station.

#### **Env-Wt 514.02 Approval Criteria for All Bank/Shoreline Stabilization Projects**

- a. This narrative includes a summary of alternatives evaluated, physical site constraints, and risk assessment used to demonstrate the proposed stabilization design is required to restore construction impacts associated with open-cut installation. The proposed bank stabilization is required to protect critical infrastructure investments and reduce risk of sewer failure associated with instability of the stream and surrounding banks.
- b. (1) The proposed bank stabilization is designed in accordance with Chapter 8 of the A/M BMPs to the maximum extent practicable.  
(2) The proposed project conforms to the natural alignment of the existing bank.  
(3) The dimensions of the stream are maintained. Restoration of the stream bed will match the existing elevation profile.  
(4) The proposed bank stabilization extents are designed to minimize impacts as to not adversely affect or alter local channel hydraulics, natural stream bank stability, or floodplain connectivity. The proposed projects will meet FEMA requirements to certify there is no-rise in flood elevation and the applicant will obtain a Floodplain Development Permit prior to construction.  
(5) Proposed impacts to shoreline resource functions have been minimized to the maximum extent practicable.  
(6) Not applicable.  
(7) The proposed riprap design includes a 2-ft thick stone toe, tying into existing grade of the stream and graded up at a 1:1 slope to tie into top of bank elevation.

- c. Alternative bank stabilization practices were evaluated in accordance with the hierarchy of bank stabilization practices.
- d. Project plans are provided in Section 3 in accordance with applicable guidelines 1-3 listed and as described in the narrative above.

## Resource Specific Information

## Resource Specific Information

5

Applicable resource specific information required by Eng-Wt 311.09 is presented as follows:

- a. *Project in tidal areas* – Not Applicable
- b. *Project affecting non-tidal shoreline* – Not applicable
- c. *Project on property leased from state* – Not applicable
- d. *Projects within the protected shoreland:*
  - 1. *Reference Line* – OHW, shown on Project Plans in Section 3
  - 2. *Location of existing structures* – Shown on Project Plans in Section 3
  - 3. *Location of proposed structure* – Not applicable
  - 4. *Projects adjacent to tidal water, landward limit of the TBZ* – Not applicable
  - 5. *Total disturbed area within the protected shoreland*: TBD
- e. *Stream crossing projects* – Not applicable



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## MEMORANDUM

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**VIA:** First class mail/Certified/Facsimile/Hand Delivery/Overnight/**E-mail**

**TO:** Jacob Shactman  
Wright-Pierce

**FROM:** Marc Jacobs, CWS, CSS, CPESC *MCJ*

**DATE:** October 4, 2023

**SUBJECT:** Temporary Utility Bypass Bridge  
Martell Court Pump Station  
Keene, NH

**RE:** Wetland Delineation

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The following preliminary remarks summarize observations made during a site inspection conducted on September 18, 2023 at the above-referenced location to identify and delineate jurisdictional wetlands and other resources as appropriate and applicable according to the New Hampshire Department of Environmental Services (NHDES) – Code of Administrative Rules (Env-Wt 100-900).

Jurisdictional wetlands were identified and wetland-upland boundaries within the area-of-interest (AOI) were delineated in the field based upon on-the-ground investigations using the technical guidance cited in the certification statement below to evaluate soils, signs of hydrology and vegetation communities. Typical survey flags were then placed at random intervals to mark wetland-upland and other resource boundaries in the field. The AOI is identified by a red dashed line in Figure 1 below. Three digital images are appended to the back of this report. Refer to the attached existing conditions plan.

Each flag series bears a unique letter and each flag within a particular series bears a unique number to assist in subsequent field location by instrument survey as well as to ascertain exact field position when referencing site plans during any future site visits or during review of this report. The following flag series and flag numbers were used: A1-A24, B1-B12, C1-C8, D1-D6, E1-E8, F1-F10, G1-G10 and H1-H4.

Whereas the AOI represents active flood plain near the confluence of the Ashuelot River, Beaver Brook and the Branch, the delineation relied on protocols for altered wetlands as well as best professional judgment and prior experience with similar conditions to ascertain the presence of wetlands and establish wetland-upland and other resource area boundaries where necessary.

**FIGURE 1**



Similarly, portions of the AOI had recently been cleared of brush, including some parts of the area identified by flag series 'A' that were subsequently identified and delineated as wetlands by this office. In those areas that were recently cleared of vegetation, the delineation relied on observations of typical soil wetness characteristics for wetland-upland boundary determinations. All wetland-upland boundaries identify wetlands comprised of poorly drained hydric soils. No very poorly drained soils were observed.

Common vegetation includes silver maple (*Acer saccharinum*) trees, dogwood (*Cornus* sp.) shrubs and sensitive ferns (*Onoclea sensibilis*). Commonly observed invasive plants included: Emergent / herbaceous species such as Japanese knotweed (*Polygonum cuspidatum*) and purple loosestrife (*Lythrum salicaria*); vines such as bittersweet (*Celastrus orbiculatus*); and shrubs such as honeysuckle (*Lonicera* sp.), glossy buckthorn (*Frangula alnus*), burning bush (*Euonymus alatus*) and Japanese barberry (*Berberis thunbergii*). Japanese knotweed and purple loosestrife are easily spread within and between sites during mowing and construction related activities.

The Branch and the Ashuelot River are jurisdictional under the Shoreland Water Quality Protection Act (SWQPA), RSA 483-B and associated regulations (Env-Wq 1400). Portions of the AOI are subject to Article 11, the Surface Water Protection Overlay District, and Article 23, Floodplain Regulations, found in the City of Keene - Land Development Regulations.

Wetlands and resources identified by the flag series identified above are described in general below. The descriptions are generally organized by the particular flag series and resource type. Note that in some areas, the top-of-bank (TOB), ordinary high water (OHW) and/or wetland-upland boundary are coincident and share the same locus. It should also be noted that, by definition, wetland-upland boundaries are also considered jurisdictional bank. We have made it a point however to note TOB where it is associated with a surface water such as the river. Where not apparent in the field, OHW is based upon observations of surface water flows on the day field investigations were conducted, which are believed to be representative OHW.

#### A series flags

The 'A' series flags (1-30) are solid pink color. Flags A1-A3 and A4-A23 identify the jurisdictional wetland-upland boundary. Flags A3-A4 identify TOB by definition. An imaginary straight line drawn between flags A4 and A23 also identifies TOB. Flags A23-A30 identify TOB by definition and topography. The wetland would likely have been classified (according to the National Wetland Inventory and Cowardin – typical) as palustrine scrub-shrub (PSS), although parts of the area would likely have been classified as palustrine emergent (PEM) prior to mowing.

#### B series flags

The 'B' series flags (1-12) are solid blue color and identify the OHW of surface waters. Flags B8-B12 also identify TOB by definition and topography. Within the AOI the river would be classified as riverine, upper perennial, unconsolidated bottom, permanently flooded (R3UBH).

#### C series flags

The 'C' series flags (1-8) are solid pink color and identify a jurisdictional wetland-upland boundary. Only a portion of the wetland was delineated; that portion which was perceived to fall within or immediately adjacent to the AOI. The wetland identified by the 'C' series flags was partially cleared of vegetation but likely would be classified as PSS.

#### D series flags

The 'D' series flags (1-6) are solid pink color and identify the jurisdictional wetland-upland boundary associated with a likely seasonal / temporary backwater area. Only the portion of the wetland that was perceived to fall within or immediately adjacent to the AOI was delineated in the field. The wetland identified by the 'D' series flags would be classified as PEM adjacent to the AOI. This may be due, at least in part, to its location beneath overhead transmission lines.

#### E series flags

The 'E' series flags (1-8) are solid pink color and identify the wetland-upland boundary associated with a seasonally flooded area. Only the portion of the wetland that was perceived to fall within or immediately adjacent to the AOI was delineated in the field. The wetland identified by the 'E' series flags would be classified as palustrine forested (PFO).

#### F series flags

The 'F' series flags (1-10) are solid pink color. Flags F1-F7 identify the TOB of the river. Flags F7-F10 identify the jurisdictional wetland-upland boundary and the TOB by definition. The area confined by flags F7-F10 and flags H1-H4 floods very frequently and would be classified as PEM.

#### G series flags

The 'G' series flags (1-10) are solid blue color and identify OHW. Flag G3 shares the same locus with flags F7 and H4. Flag G4 shares the same locus with flag F6.

#### H series flags

The 'H' series flags (1-4) are solid pink color and identify the TOB of the river by topography. The area confined by the 'H' series flags and flags G1-G3 is largely devoid of vegetation, likely due to frequent scouring by the river, and is comprised by sandy sediments.

#### Certification statement:

Man-made, altered and/or natural jurisdictional wetland boundaries were delineated by Marc Jacobs, Certified Wetland Scientist number 090, in September 2023 according to the standards of the US Army Corps of Engineers – 1987 Wetlands Delineation Manual; the 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region; and the Code of Administrative Rules, NH Department of Environmental Services - Wetlands Bureau – Env Wt 100-900. Predominant hydric soils were identified utilizing the Field Indicators for Identifying Hydric Soils in New England, Version 4, June 2020 and the Field Indicators of Hydric Soils in the United States, Version 8, 2016. The status of vegetation as hydrophytic was determined according to the U.S. Army Corps of Engineers - Northcentral and Northeast 2020 Regional Wetland Plant List. Copies of site plans depicting the wetland delineation which have been reviewed by the wetland scientist are individually stamped, signed and dated. This note has been customized for this project. Ordinary High Water was identified and delineated per Env-Wt 103.50 and RSA 483-B:4, XI-e. Bank associated with streams was identified per Env-Wt 102.15.



Image 1 – Part of Wetland Area 'A' looking west toward the river. Note the vegetation has been cleared.

Martell Court Pump Station  
Keene, N.H.



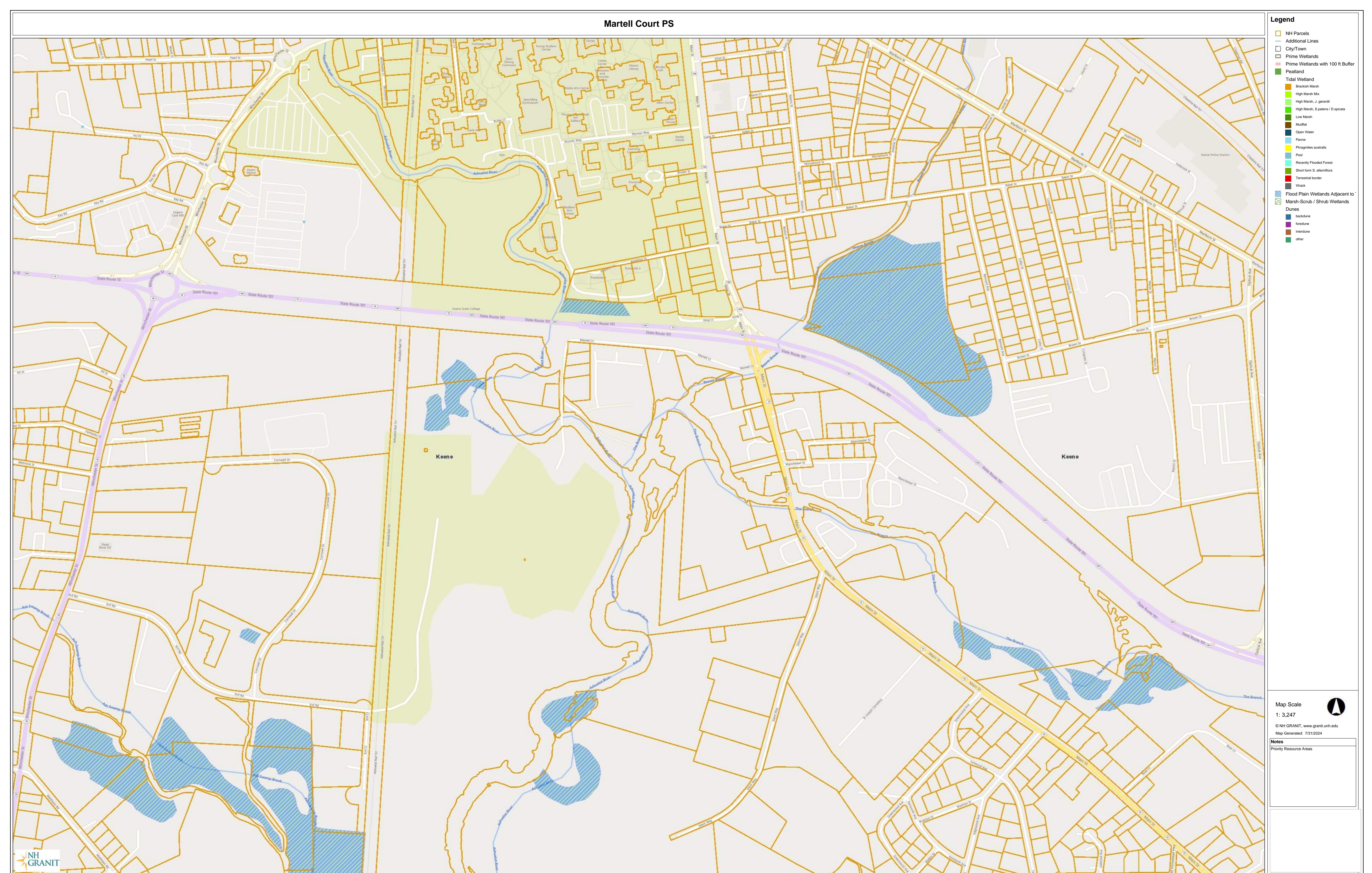
Image 2 – Looking southwest at Wetland Area 'D'



Image 3 – Looking easterly from the pump station towards the river and the area in Image 1.



### Martell Court PS



### Martell Court PS

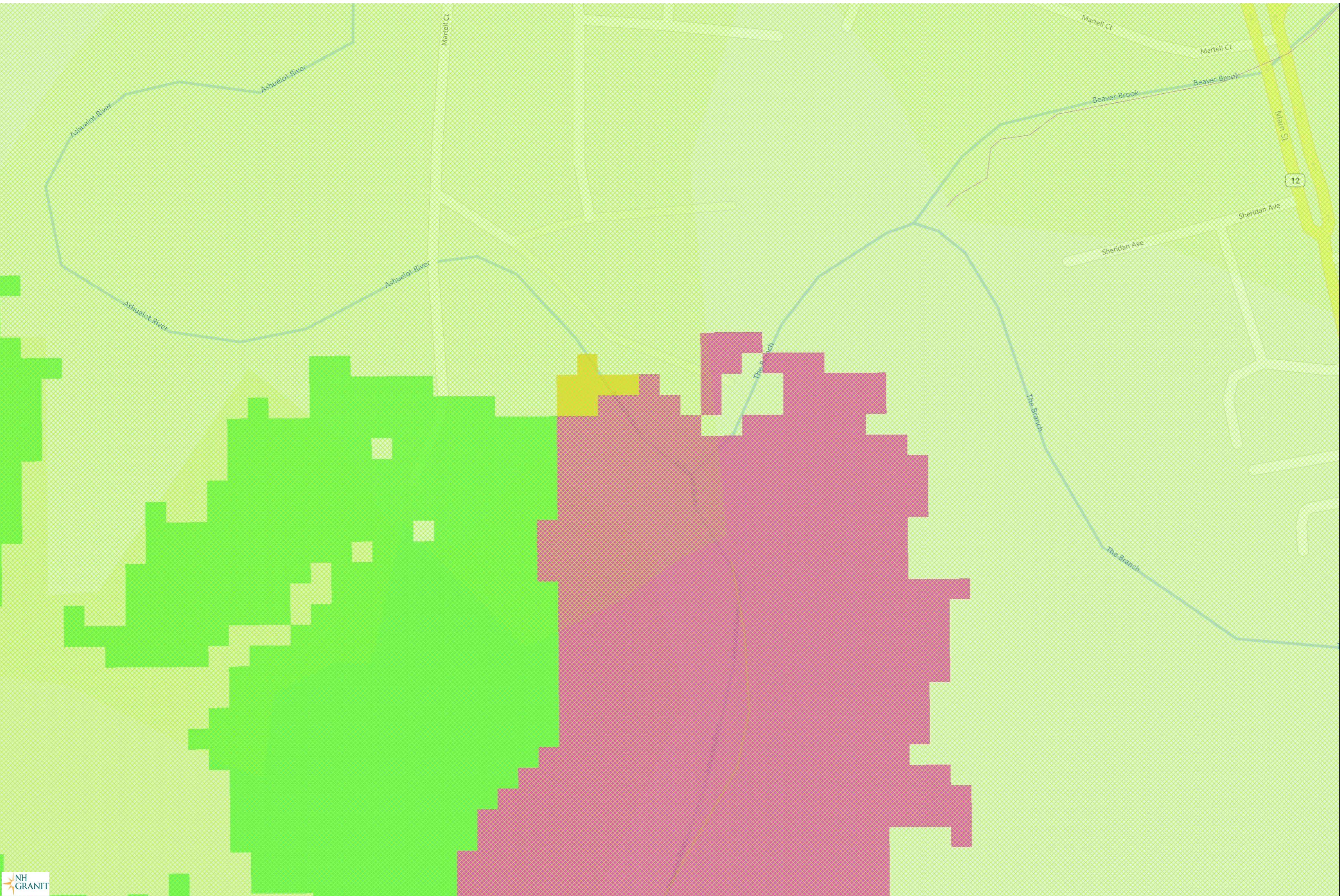
**Legend**

- Additional Lines
- Designated Rivers with a quarter mile buffer
- Ammonoosuc
- Ashuelot
- Cocheco
- Cold
- Connecticut
- Contoocook
- Exeter
- Isinglass
- Lamprey
- Little
- Mascoma
- Merrimack-Lower
- Merrimack-Upper
- Middle Branch Piscataquog
- North
- North Branch Contoocook
- North Branch Lamprey
- North Branch Piscataquog
- Oyster
- Pawtuckaway
- Pemigawasset
- Piscassic
- Piscataquog
- Saco
- Souhegan
- South Branch Piscataquog
- Squamscott
- Swift
- Warner
- West Branch Warner
- Surface Waters with Impairments: Quarter Mile Buffer
- Outstanding Resource Water Waters
- Rivers and Streams
- Rivers and Streams
- Rivers and Streams
- Rivers and Streams
- Highest Ranked Wildlife Habitat
- 0
- 1 Highest Ranked Habitat in NH
- 2 Highest Ranked Habitat in Region
- 3 Supporting Landscape

Map Scale  
1: 812

© NH GRANIT, www.granit.unh.edu  
Map Generated: 7/31/2024

**Notes**  
Resource Planning Layers



# **Wetland Functional Assessment**

Of

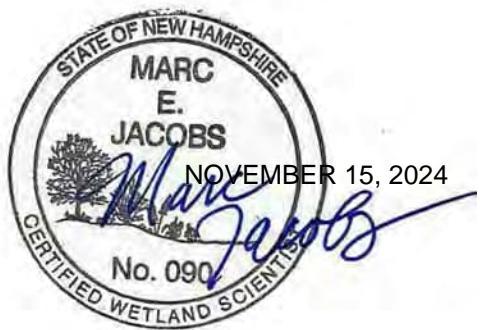
**Martell Court Pump Station  
Martell Court Extension  
Branch River  
Keene, NH**

Prepared for

Wright-Pierce  
230 Commerce Way, Suite 302  
Portsmouth, NH 03801

By

Marc E. Jacobs  
Certified Wetland & Soil Scientist  
P.O. Box 417  
Greenland, NH 03840-0417



November 15, 2024

**Martell Court  
The Branch  
Keene, NH**

**Wetland Functional Assessment**

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- 2.0 EXISTING CONDITIONS
- 3.0 WETLAND FUNCTIONS & VALUES
- 4.0 SUMMARY AND DISCUSSION
- 5.0 IMPACT ANALYSIS

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- 1 – USGS Topographic Locus –Keene 7.5 Minute Quad 1: 24,000
- 2 – Light Detection and Ranging – Hillshade Map
- 3 – Natural Heritage Bureau DataCheck (NHB24-2778)
- 4 – National Wetland Inventory (NWI) Functions – Screen Shots
- 5 – Priority Resource Area Map
- 6 – Natural Resources Cons. Serv. Map
- 7 – Wetland Delineation Report
- 8 – Wildlife Action Plan Map
- 9 – Wildlife Action Plan Fisheries Map
- 10 – Impaired Surface Waters Map
- 11 – Flood map
- 12 – Ecological Integrity Worksheet
- 13 – Aerial Imagery with 500-foot Buffer
- 14 – NHDES Wetlands Functional Assessment Worksheet
- 15 – Highway Method Worksheet
- 16 – Highway Method Workbook Supplement – Appendix A
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- 18 – Potential Sources of Contamination Map

**APPENDIX**

- Photo Log

**Wetland Functional Assessment**  
**Martell Court Sewer Pump Station**  
**The Branch**  
**Martell Court Extension**  
**Keene, NH**

## **1.0 Introduction**

As a requirement for obtaining a wetland permit from the State of New Hampshire – Department of Environmental Services (NHDES) - Wetlands Bureau to make repairs to the sewer at this location, this Wetland Functional Assessment (WFA) is being provided to supplement the permit application as required under the NH Code of Administrative Rules Env-Wt 100-900, specifically Env-Wt 311.03(b)(10). Six images obtained during site investigations conducted on September 18, 2023 are appended to this report.

WFA's generally provide an inventory and survey of physical attributes, such as, but not limited to, topographic position, vegetative patterns, potential wildlife habitat and soils, which then allow professional practitioners to assess functions and values that arise from those attributes. This report provides an assessment of the existing functions and values of the wetlands at this location according to the United States Army Corps of Engineers - New England District, Highway Methodology Workbook *Supplement* – September 1999 Edition (updated in 2015) and The Method for Inventorying and Evaluating Freshwater Wetlands in New Hampshire – 2011 (NH Method). This study does not specifically evaluate the potential effects of global climate change on the functions and values of the wetlands at this location, as the effects of climate change cannot be properly or fully assessed at this time.

This assessment evaluates fourteen (14) functions and values for this location based upon current conditions. The functions and values of a wetland or adjacent wetlands may be altered, or more specifically, the effectiveness of a wetland or adjacent wetlands to provide a particular function may be altered (increased or decreased) as a result of modifications to adjacent uplands and other properties, impacts to wetlands elsewhere on site or other development within the watershed.

## **2.0 Existing and Proposed Conditions**

The City of Keene owns, maintains, and operates the Martell Court Pump Station which conveys all wastewater from the City of Keene and the Town of Marlborough to the City's wastewater treatment plant (WWTP). On July 10, 2023, the 30-inch discharge knife gate on the effluent force main failed and began leaking large volumes of wastewater into the dry pit. The knife gate has been temporarily outfitted to reduce the leakage to a volume that can be maintained by the sump pumps. The station requires a bypass force main to allow for the repair of the leaking gate.

The area-of-interest (AOI) and study area that is the focus of this WFA generally involves the existing sewer pump station and floodplain adjacent to the Branch, a perennial river. Attached is a copy of a United States Geological Survey (USGS) and other topographic maps upon which the subject property is identified. Refer to Attachments 1 and 2. The sewer pump station is situated adjacent to the west bank of the river at this location and the AOI is located just north of the

confluence with the Ashuelot River and just south of the confluence with Beaver Brook. The pump station is generally surrounded by areas of managed turf. The sewer main passes beneath the river at this location.

The east side of the river within the AOI is generally undeveloped and consists primarily of floodplain forest, although portions of the forest have been cleared and there is an electric transmission line that passes through the area. A locked / gated woods road from Route 12 / Main Street provides access to this side of the river.

Distant land uses include additional commercial development to the north and east as well as athletic fields belonging to Keene State College to the south, on the opposite side of the Ashuelot River. Observations for this assessment were made during a site visit conducted on September 18, 2023 to identify and delineate jurisdictional resources.

An inquiry to the New Hampshire Natural Heritage Bureau (NHB-24-2778) identified a potential natural community of Silver maple - false nettle - sensitive fern floodplain forest and two vertebrate species of special concern at the state level. These species include northern leopard frog (*Lithobates pipiens*) and wood turtle (*Glyptemys insculpta*). Our observations confirm a tree canopy dominated by Silver maple. The nettle and fern herbaceous species were observed randomly and sporadically. The community next to the river was pervaded with invasive shrubs. Refer to Attachments 3 and 7 for more information.

Classification of dominant conditions within the Branch per our direct observations and according to the National Wetland Inventory (NWI) and Cowardin *et.al.*<sup>1</sup> system are Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded (R3UBH). Classification of dominant wetland conditions adjacent to the Branch are Palustrine, Forested, Broad-leaved Deciduous, Seasonally Flooded / Saturated (PFO1E). Classification of dominant conditions within the Ashuelot River are Riverine, Lower Perennial, Unconsolidated Shore, Seasonally Flooded (R2USC). We have also included maps for functions that the NWI has indicated are performed by the wetlands at this location. (These maps were captured as screen shots due to technical difficulties with web resources.) Refer to Attachment 4.

The AOI does not contain any Priority Resource Areas (PRA) according to Env-Wt 103.66 (f) and consultation with the NHDES wetland permit planning tool (WPPT). There are no prime wetlands on or immediately adjacent to the study area. Prime wetlands are those wetlands that receive additional protection under state law. Flood plain wetlands adjacent to tier 3 streams (another type of PRA) exist up river on the Ashuelot but not adjacent to the AOI and study area per the WPPT. This is curious given that apparent floodplain soils are mapped by the Natural Resources Conservation Service (NRCS) in this area and were confirmed by this office during field investigations and furthermore, consultation with United States Geologic Survey (USGS) StreamStats calculates that the watershed which contributes to a point on the Branch at the study area is 99.6 square miles (63,744 acres). The threshold for tier 3 streams per NHDES rules is one square mile or 640 acres.

<sup>1</sup> Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U. S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Home Page. <http://www.npwrc.usgs.gov/resource/1998/classwet/classwet.htm> (Version 04DEC98).

It is noteworthy that the NRCS mapped Rippowam series floodplain soils, which are customarily considered hydric (poorly drained) and are frequently associated with jurisdictional wetlands, on the west side of the Branch, adjacent to existing commercial development. The NRCS did not map any hydric soils on the east side of the Branch within the study area although our on-site investigations identified hydric floodplain soils and wetlands on this side of the river. The absence of hydric flood plain soils on the NRCS map within the study area on east side of the Branch is likely a function of the (small) scale of the NRCS map. Refer to Attachments 5, 6, 11 and 17.

The Ashuelot River is ‘designated’ under the 1988 Rivers Management Protection Act (NH RSA 483). Designation provides certain instream protection measures, depending upon the classification of a river as natural, rural, rural-community or community. Protection involves structures and activities in the river, including dams, hydroelectric facilities, channel alterations, maintenance of water quality, protected instream flows, interbasin water transfers and recreational uses for those river segments classified as natural. Protection measures that pertain to the river corridor include the siting of solid and hazardous waste facilities. Permitting of activities in wetlands jurisdiction involving designated rivers customarily requires consultation with the local river advisory committee. The Branch and Beaver Brook are currently not designated rivers under the rivers management program. Refer Attachment 5 and to the delineation report (Attachment 7) dated October 4, 2023 for additional information regarding wetlands and other jurisdictions.

A review of information regarding the NH Fish and Game Department - 2020 Wildlife Action Plan (WAP) indicates that the northern tip of the AOI is comprised of highest ranked habitat in the region, which is depicted in magenta on the attached map. The Ashuelot River is identified as important fish habitat. Beaver Brook, which feeds the Branch, is identified as a coldwater fishery and important fish habitat. The area is also identified as having impaired surface waters. Refer to Attachments 8-10.

Regarding flooding, the Branch is identified as a regulatory floodway. The 100-year floodplain extends across the entire AOI. Refer to Attachment 11.

## **Proposed Conditions**

Initially, a temporary emergency bypass system involving a temporary bypass pumping system, force main connection, and bridge over the east branch of the Ashuelot River was considered. Due to the magnitude of costs for the construction of the temporary bypass and utility bridge, the City decided to move forward with a permanent bypass forcemain. Trenchless technologies were evaluated for installation of the proposed permanent bypass across the Branch, however, these have been ruled out due to geotechnical feasibility concerns. The proposed permanent bypass requires open cut installation of the 24" bypass force main. Additionally, replacement of the existing 12" gravity sewer is proposed to be replaced as part of this project to minimize future impacts to the river. Bioengineered stabilization is proposed on the east bank, including soil encapsulated coir lifts and live stakes with a net cut to rebuild a 1:1 slope. The west bank will be restored to match existing conditions.

## 3.0 Wetland Functions and Values

Wetland functions are self-sustaining properties and physical attributes of wetlands that exist without regard to subjective human values. Wetland values, now commonly referred to as ecosystem services, are benefits for humans and the environment which are derived from these functions and physical attributes. Ecological Integrity assessed utilizing the NH Method and the functions and values assessed by the US Army Corps of Engineers Highway Methodology are identified below with a brief explanation of what each function and value considers.

### Functions

- 1 - Ecological Integrity- The human development and built environment affecting wetlands and the surrounding environment.
- 3 - Fish & Aquatic Life Habitat – The potential for waterbodies associated with wetlands to provide suitable habitat for fish or shellfish.
- 4 - Flood Storage – The potential for a wetland to reduce flood damage by attenuating floodwaters through storage and desynchronization of peak flows.
- 5 - Groundwater Recharge / Discharge – The potential for a wetland to recharge water to an aquifer or discharge groundwater to the surface.
- 7 - Nutrient Trapping / Retention & Transformation – The effectiveness of wetlands to protect water quality and prevent adverse effects associated with excess nutrients in a watershed.
- 8 - Production Export – The ability of the wetland to produce food for humans or other organisms.
- 10 - Sediment Trapping – The potential for the wetland to protect water quality by trapping sediments, toxicants and pathogens.
- 11 - Shoreline Anchoring – The ability of a wetland to stabilize stream banks or shorelines against erosion.
- 14 - Wetland-dependent Wildlife Habitat – The effectiveness of the wetland to provide suitable habitat for important wetland wildlife.

### Values

- 2 - Educational Potential – The value of the wetland as an outdoor classroom.
- 6 - Noteworthiness – The effectiveness of the wetland in supporting rare, threatened or endangered species.
- 9 - Scenic Quality – The visual or aesthetic qualities of a wetland.

12 – Uniqueness / Heritage – The value relating to the wetlands suitability to provide unique geologic features, archaeological sites and/or vernal pool habitat.

13 - Wetland-based Recreation – The suitability of the wetland and any associated waterbodies to provide consumptive and non-consumptive recreational opportunities.

### **Study Area**

Selection of an appropriate study area (AOI) is crucial to the outcome of any WFA. Determination of suitable study areas can be somewhat subjective depending upon the criteria used to define the study area, especially since wetlands are natural systems and do not recognize political boundaries such as property or town lines and because all wetland systems have variations in physical attributes within an otherwise seemingly discreet wetland area. Generally speaking, the AOI should not be limited to the project foot print or jurisdictional area proposed for direct impact. Wetland systems are frequently comprised of numerous wetlands with differing classifications, each having differing physical attributes and therefore exhibiting differing functions and values. Altering the size of a study area can therefore influence the physical attributes which are assessed, affecting the interpretation or perception of functions and values and ultimately the results of an assessment. Further complicating the definition of a study area, and thus the WFA, some considerations are focused on the watershed while others target wetlands. The results of this WFA generally apply to the jurisdictional resources within or adjacent to both sides the Branch within the study area. Data forms for Ecological Integrity and the functions and values assessed utilizing the Highway Methodology were completed and are included herein (Attachments 12, 14 and 15).

The assessment of wetland functions and values can be an inherently subjective process. The Highway Methodology strives to eliminate potential bias through implementation of a qualitative and descriptive approach to functional assessment by requiring the evaluator to review a list of considerations and qualifiers for each function or value. The list of considerations / qualifiers is referred to as Appendix A and is included as Attachment 16.

## **4.0 SUMMARY AND DISCUSSION**

The Highway Methodology identifies 13 primary functions and values which can potentially be ascribed to wetlands. The presence of these functions and values provide benefits for society and the environment.

It can be difficult to precisely implement many of the considerations / qualifiers provided in Attachment 16 since wetlands and the river are part of a much larger contiguous wetland system. It is accepted however that conclusions about the effectiveness of a wetland study area to provide a particular function can change depending upon a host of factors which include the assessment area involved and the relative juxtaposition with other wetland resources. Conclusions regarding the functions and values associated with this study area are briefly summarized below by principal function / value and in Table 1. There are differences in functions between the river and associated wetlands.

Where functional assessment is required as part of the permitting process, the State of New Hampshire also requires the assessment of each wetland and river for Ecological Integrity. Note that the Highway Methodology does not consider Ecological Integrity. Ecological Integrity is a function identified in NH RSA 482-A: Fill and Dredge in Wetlands, specifically Section 482-A:2 XI. This functional wetland assessment utilizes the field criteria in the NH Method to assess this function. A NH Method data sheet for the Ecological Integrity function is attached as well as a supporting aerial image. Refer to Attachments 12 and 13.

For those interpreting this report, caution needs to be applied when deriving conclusions about impact assessment when using the findings within. Additionally, do not be easily tempted to rank or compare the wetlands described within this report against other off-site wetlands. Ranking wetlands numerically or, for example, rating wetlands low, medium or high is tempting but is inappropriate and implies a level of accuracy or understanding of wetlands and functional assessment methodologies which may not exist.

**TABLE 1 TALLY OF PRINCIPAL FUNCTIONS / VALUES - WETLANDS**

FUNCTION / VALUE	PRINCIPAL ? (River)	PRINCIPAL ? (Wetlands)
<b>Ecological Integrity 1</b>	Y	Y
<b>Educational Potential 2</b>	N	N
<b>Fish &amp; Aquatic Life Habitat 3</b>	Y	N
<b>Flood Storage 4</b>	Y	Y
<b>Groundwater Recharge 5</b>	N	N
<b>Noteworthiness 6</b>	Y	Y
<b>Nutrient Trapping / Retention &amp; Transport 7</b>	Y	Y
<b>Production Export (Nutrient) 8</b>	Y	N
<b>Scenic Quality 9</b>	Y	Y
<b>Sediment Trapping 10</b>	N	Y
<b>Shoreline Anchoring 11</b>	Y	N
<b>Uniqueness / Heritage 12</b>	Y	Y
<b>Wetland-based Recreation 13</b>	Y	N
<b>Wetland-dependent Wildlife Habitat 14</b>	Y	Y
<b>TOTAL (14)</b>	11	8

### **Function 1 - Ecological Integrity**

The assessment of the EU considers the wetland and the 500-foot zone around the study area. Attached is an aerial image which depicts a 500-foot radius circle centered on the Branch. A review of the aerial image indicates that the west side of the AOI is developed with the sewer pump station and other commercial uses which have altered the riparian buffer. The riparian buffer on the east side of the river remains relatively undeveloped. Portions of the east side riparian buffer have been historically logged, and had apparently been cleared of brush in the days before our site visit in September 2023, presumably in an effort to locate subsurface infrastructure such as sewer manholes in advance of survey activities. Invasive plant species are commonly observed within the study area. Refer to Attachment 13.

Scoring for EI can be a maximum of 10.0. Scores closest to 10.0 indicate higher function. The EI score for the study area is 5.6. Therefore, the EI score for the study area is considered moderate. As mentioned above, the east side of the river and AOI is relatively undeveloped, for this reason we considered EI to be a principal function of the wetland as well as the river within the study area.

### **Function 2 - Educational Potential (Educational / Scientific Value)**

All ecological resources possess some educational potential/ suitability. The river and associated wetlands at this location are no exception. The land on the west side of the study area and river are publicly owned so access to the river is easier while access to the east side of the river would require more coordination due to the locked gate. On balance, we do not consider educational potential to be a principal function of the river or associated wetlands within the study area.

### **Function 3 Fish and Aquatic Life Habitat (Fish & Shellfish Habitat)**

The NWI does not rate the area high or moderate for fish and aquatic invertebrate habitat. The WAP identifies Beaver Brook as a predicted cold water fishery and important fish habitat. The WAP identifies the Ashuelot River as important fish habitat. The floodplain wetlands, at least those within the study area, have a rather short hydroperiod therefore and do not provide fisheries nor are they likely to provide vernal pool habitat. The WAP does not speak to the Branch but since the study area and this reach of the Branch is sandwiched between Beaver Brook and the Ashuelot River, we have concluded that there is likely suitability for fish and aquatic habitat, and furthermore, that fish habitat is a principal function of this study area. Refer to the NWI screen shot for this function (Attachment 4) and Attachment 9.

### **Function 4 - Flood Storage (Floodflow Alteration)**

The contributing watershed to the Branch at the study area is  $\pm 99.6$  square miles ( $\pm 63,744$  acres). The study does not include the Ashuelot River but the confluence of the Branch and the Ashuelot is a very short distance downstream from the study area and the contributing watershed to the Ashuelot at the confluence with the Branch is  $\pm 215$  square miles ( $\pm 137,491$  acres). Not surprisingly, the entire study area falls within the 100-year flood plain and the Branch is depicted as being a regulatory floodway. Surprisingly, the NWI does not rank the area for surface water detention. Flood abatement suitability exists in our opinion and is primarily associated with floodplain wetlands. Flood storage functions are principal at this location during major storm events. Refer Attachments 4 and 11.

### **Function 5 - Groundwater Discharge (Groundwater Recharge / Discharge)**

The NWI does not identify any of the wetlands that were identified and delineated by this office during on-site investigations and further does not identify any of the study area as providing streamflow maintenance. Groundwater recharge is taking place in the study area wetlands although the recharge is likely discharging to the adjacent rivers and not to an aquifer. It is our opinion that groundwater discharge is likely taking place along the river banks, contrary to the NWI information. For the reasons above, the study area provides some suitability for this

function but recharge and streamflow maintenance in support of aquifer recharge are not principal functions of the study area. Refer to the NWI streamflow maintenance screen shot (Attachment 4).

#### **Function 6 - Noteworthiness (Endangered Species Habitat)**

The NHB identified the potential for rare, threatened or endangered animal species of concern, including wood turtles, at this location. The NHB identifies a natural community of Silver maple - false nettle - sensitive fern floodplain forest and our observations confirm this. The NWI does not identify any locally or regionally significant unique, uncommon or highly diverse plant communities in the study area. Noteworthiness should be considered a principal function of this study area. Refer to the NHB report (Attachment 3) and NWI screen shot (Attachment 4).

#### **Function 7 - Nutrient Trapping / Retention & Transformation (Nutrient Removal)**

The NWI does not rank the study area high for nutrient transformation or carbon sequestration. Our observations of physical attributes (vegetation and soils) within the study area do not corroborate these findings. Nutrient trapping and transformation is a principal function of the study area wetlands. Refer to the NWI nutrient trapping and carbon sequestration screen shots (Attachment 4).

#### **Function 8 - Production Export**

The floodplain wetlands within the study area are not contributing in a significant way to production export functions. The river is transporting food sources produced upstream and thus makes production export a principal function of the river.

#### **Function 9 - Scenic Quality (Visual Quality/Aesthetics)**

The river provides a focal point for viewing and the east side, being less altered, contributes to the visual quality of the study area while the developed nature of the west side detracts. Large expanses of open water or a diversity of wetland classes are generally absent. When taken together, scenic quality is a principal function of this area.

#### **Function 10 - Sediment Trapping (Sediment / Toxicant Retention)**

The massive upland and wetland flood plain and riparian area adjacent to the river provides opportunity for sediments, and any pollutants adsorbed to those sediments, to drop out of the water column and be trapped by the vegetation, especially during major storm or flood events. It is noteworthy that there are numerous potential sources of contamination in the watersheds of the Branch and Ashuelot Rivers so there is opportunity. The NWI indicates that sediment trapping functions do not take place in the study area but we do not concur. Sediment trapping is a principal function of the area. Refer to the NWI screen shot for the sediment trapping function (Attachment 4) as well as Attachment 18.

### **Function 11 - Shoreline Anchoring (Sediment / Shoreline Stabilization)**

The river banks are distinct and generally well vegetated. The river conveys perennial flows. The flows may not be suitable for motorized boating much of the year, so opportunity is limited. The floodplain wetlands do not contribute meaningfully to shoreline stabilization. The NWI does not consider shoreline anchoring or bank stabilization as a principal function of the study area as a whole but it is our opinion that shoreline anchoring is a principal function of the river. Refer to Attachment 4, the NWI shoreline stabilization function screen shot.

### **Function 12 - Uniqueness / Heritage**

The natural community of Silver maple - false nettle - sensitive fern and the massive floodplain and forest represent a unique geologic and biologic feature. The study area lacks special features such as archaeological sites and vernal pool habitat (although there may be vernal pools elsewhere in the floodplain) but may provide critical or supporting habitat or for wood turtles, therefore Uniqueness / Heritage is a principal function of this study area.

### **Function 13 - Wetland-based Recreation (Recreation)**

The wetland and river is suitable for non-consumptive recreational activities, especially photography, bird watching and wildlife observation. Boating, especially canoeing or kayaking, is possible. Consumptive recreation such as fishing may be productive. Potential opportunities for other consumptive recreation such as waterfowl or bird hunting in the study area are possible. Access to the more desirable (east) side of the river will require coordination due to the locked gate blocking the woods road. While there is some suitability for both the river and the wetlands within the study area, wetland-based recreation is not a principal function provided by the wetlands but may be a principal function of the river.

### **Function 14 - Wetland-dependent Wildlife Habitat (Wildlife Habitat)**

The NWI does not rank the Branch corridor for waterfowl and waterbird habitat as well as other unspecified wildlife.<sup>2</sup> However, we note that the study area is situated at the terminus of an area identified by the WAP as Highest Ranked Habitat in the Region. The east side of the Branch at this location presents a relatively large area of undeveloped floodplain. Refer to the two NWI wildlife function screen shots (Attachment 4). When the above is considered in the context of the potential habitat for frog and turtle species-of-concern, wetland-dependent wildlife habitat is therefore a principal function of the study area based upon a review of available resources.

<sup>2</sup> We were generally surprised by the consistent lack of rank or low ranking of the river by the NWI within the study area.

## 5.0 IMPACT ANALYSIS

The proposed work has the potential to destabilize the river banks and promote erosion. Once destabilized, banks can be very difficult to stabilize and hard armoring may be necessary unless the bioengineered bank stabilization plan is properly implemented and monitored to determine success. (Hard armoring from previous activities at this location already exists.)

The site soils are dominated by silts and fine textured sands and are subject to erosion and subsequent downstream sedimentation, with an associated temporary diminution of water quality. Standard perimeter controls are proposed during construction but, when combined with the relatively steep slopes on the approaches to the Branch, extra care, and additional best management practices, including frequent inspections of perimeter controls, will likely need to be employed to protect water quality during construction until all exposed soils and banks are suitably vegetated or otherwise permanently stabilized.

An open cut trench will require some type of temporary stream bypass arrangement. Stream bypass systems which involve pipes or swales often result in erosion and sedimentation associated with inlets and outlets when not properly protected. However, it will likely not be practical to completely bypass flow at this location. Instead the work in the river will likely have to be phased and should, at a minimum, involve coffer dams and/or sheet piles and turbidity curtains.

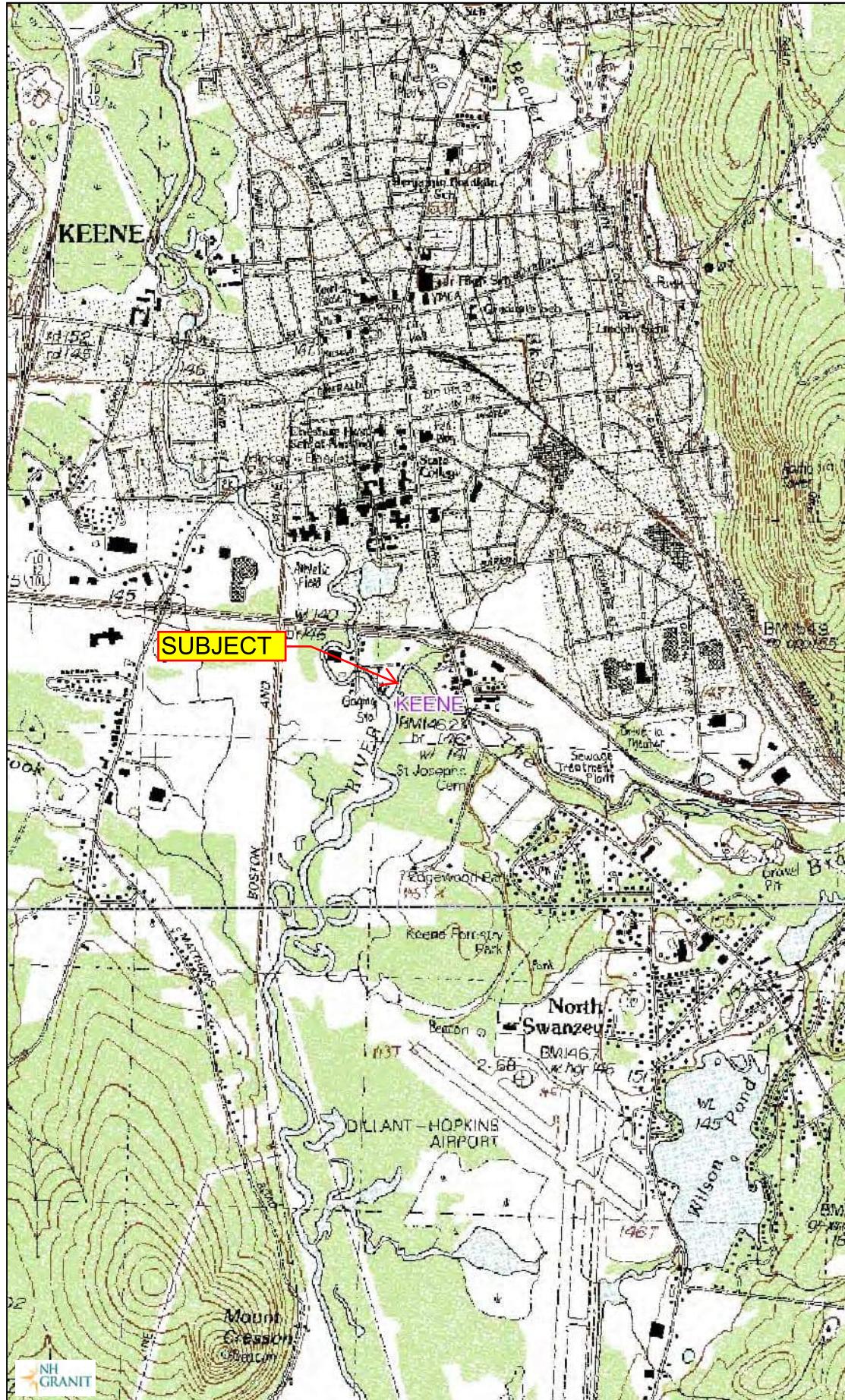
Similarly, the work area will need to be dewatered. Precautions should be taken to protect the inlet hose associated with any dewatering pump(s) from receiving sediment. Additionally, the outlet hose will need to be protected to prevent scouring and the suspension of any additional sediment at the point of discharge.

The project has the potential to spread invasive plant species within this site (or to other sites if surplus soils are transported off site or contaminated equipment and machinery are not properly cleaned before leaving the site). Several invasive species already exist at this location and some are easily spread by mowing, brush cutting and typical construction related activities or transport of soils contaminated with plant parts. A plan to identify, avoid and manage invasive plant species where encountered should be developed. (Refer to the delineation report for more information regarding species.)

Where trenching and pipes are proposed in or near wetlands, they may act as underdrains, depending upon the bedding materials that area utilized. This may alter the hydrology of nearby wetland areas. The use of trench dams may therefore be warranted.

**ATTACHMENTS**

# MARTELL COURT SEWER PUMP STATION - KEENE, NH



## Legend

- 7.5-Minute
- State
- County
- City/Town

**ATTACHMENT 1**

## Map Scale

1: 24,000



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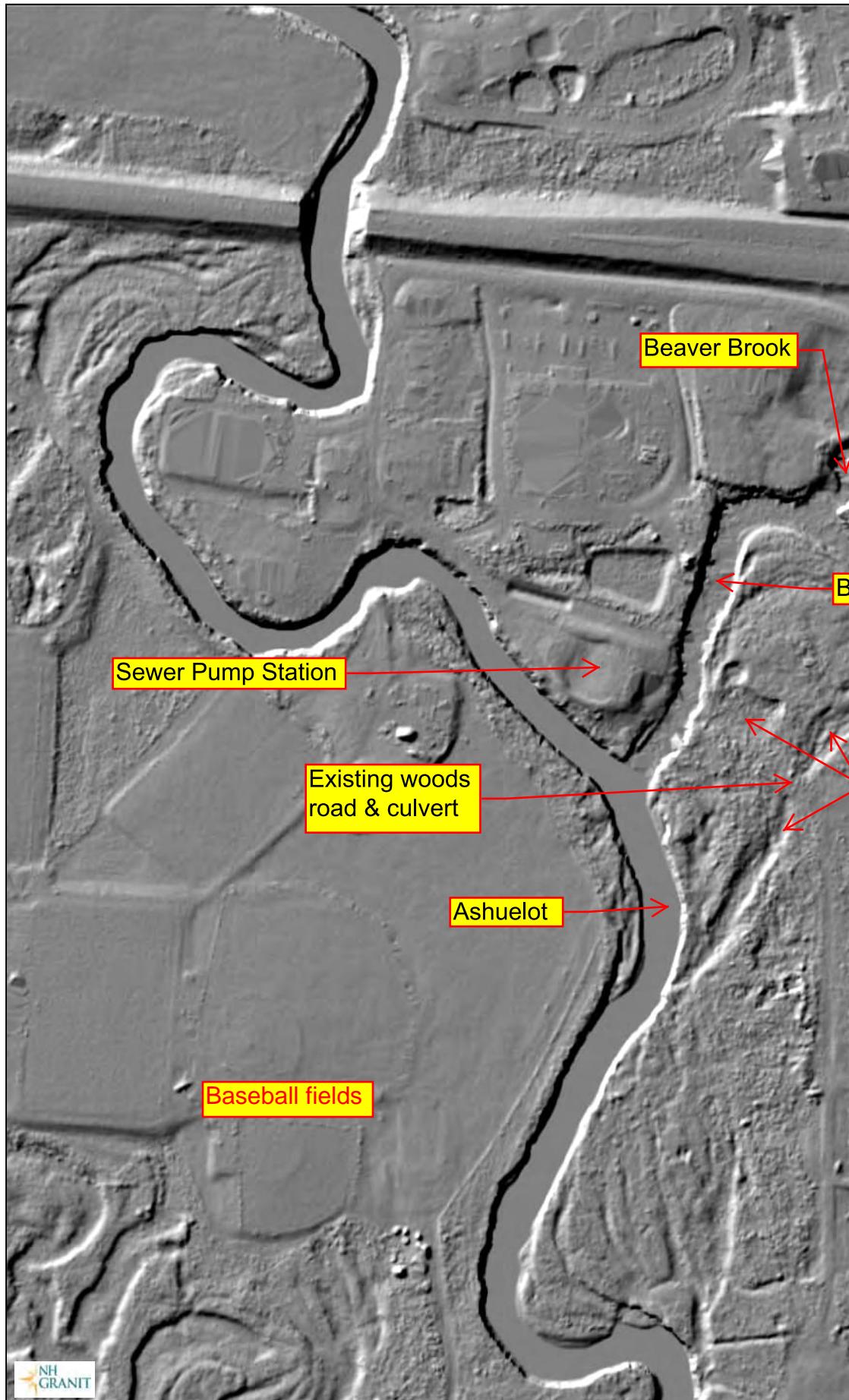
Map Generated: 11/11/2024

## Notes

USGS KEENE 7.5 MINUTE QUADRANGLE



# MARTELL COURT - KEENE, NH



## Legend

- State
- County
- City/Town

LiDAR-Based Bare Earth Hillshade

- High : 1906
- Low : -2

ATTACHMENT 2

Map Scale

1: 3,247



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Map Generated: 8/31/2023

## Notes

LiDAR HILLSHADE





## ATTACHMENT 3

### NHB DataCheck Results Letter

NH Natural Heritage Bureau

Please note: maps and NHB record pages are **confidential** and shall be redacted from public documents.

To: Miranda Pierre, Wright Pierce  
230 Commerce Way Suite 302  
Portsmouth, NH 03801  
miranda.pierre@wright-pierce.com

From: NHB Review  
NH Natural Heritage Bureau  
Main Contact: Maddie Severance - [nhbreview@dnrcr.nh.gov](mailto:nhbreview@dnrcr.nh.gov)

cc: NHFG Review

Date: 09/26/2024 (valid until 09/26/2025)  
Re: DataCheck Review by NH Natural Heritage Bureau and NH Fish & Game  
Permits: NHDES - Standard Dredge & Fill - Minor

**NHB ID:** **NHB24-2778**

Town: Keene  
Location: 176 Martell Court

**Project Description:** On July 10th, 2023, the discharge knife gate for the City's Martell Court Pump Station failed and began leaking significant quantities of sewage into the dry pit of the pump station. A state of emergency was issued by the City to conduct temporary emergency repairs inside the station and prevent sewage overflow to the Ashuelot River. To complete the emergency repair, a permanent bypass force main shall be installed across the Branch. Construction is anticipated in Summer 2025.

### **Next Steps for Applicant:**

NHB's database has been searched for records of rare species and exemplary natural communities. Please carefully read the comments and consultation requirements below.

**NHB Comments:** Please contact NHB with proposed plans and indicate if the proposed work will alter the hydrology or increase the input of nutrients and pollutants to the Ashuelot River.

**NHFG Comments:** Please refer to NHFG consultation requirements below.

### **NHB Consultation**

If this NHB DataCheck letter includes records of rare plants and/or natural communities/systems, please contact NHB and provide any requested supplementary materials by emailing [nhbreview@dnrcr.nh.gov](mailto:nhbreview@dnrcr.nh.gov).



## NHB DataCheck Results Letter

NH Natural Heritage Bureau

Please note: maps and NHB record pages are **confidential** and shall be redacted from public documents.

If this NHB DataCheck letter DOES NOT include any records of rare plants and/or natural communities/systems, no further consultation with NHB is required.

### **NH Fish and Game Department Consultation**

If this NHB DataCheck letter DOES NOT include ANY wildlife species records, then, based on the information submitted, no further consultation with the NH Fish and Game Department pursuant to Fis 1004 is required.

If this NHB DataCheck letter includes a record for a threatened (T) or endangered (E) wildlife species, consultation with the New Hampshire Fish and Game Department under Fis 1004 may be required. To review the Fis 1000 rules (effective February 3, 2022), please go to <https://www.wildlife.nh.gov/wildlife-and-habitat/nongame-and-endangered-species/environmental-review>. All requests for consultation and submittals should be sent via email to [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov) or can be sent by mail, and **must include the NHB DataCheck results letter number and “Fis 1004 consultation request” in the subject line.**

If the NHB DataCheck response letter does not include a threatened or endangered wildlife species but includes other wildlife species (e.g., Species of Special Concern), consultation under Fis 1004 is not required; however, some species are protected under other state laws or rules, so coordination with NH Fish & Game is highly recommended or may be required for certain permits. While some permitting processes are exempt from required consultation under Fis 1004 (e.g., *statutory permit by notification, permit by rule, permit by notification, routine roadway registration, docking structure registration, or conditional authorization by rule*), coordination with NH Fish & Game may still be required under the rules governing those specific permitting processes, and it is recommended you contact the applicable permitting agency. For projects not requiring consultation under Fis 1004, but where additional coordination with NH Fish and Game is requested, please email [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov), and include the NHB DataCheck results letter number and “review request” in the email subject line.

**Contact NH Fish & Game at (603) 271-0467 with questions.**



## NHB DataCheck Results Letter

NH Natural Heritage Bureau

Please note: maps and NHB record pages are **confidential** and shall be redacted from public documents.

### NHB Database Records:

The following record(s) have been documented in the vicinity of the proposed project.

Please see the map and detailed information about the record(s) on the following pages.

Natural Community	State <sup>1</sup>	Federal	Notes
Silver maple - false nettle - sensitive fern floodplain forest*	--	--	Threats are primarily changes to the hydrology of the river, land conversion and fragmentation, introduction of invasive species, and increased input of nutrients and pollutants.

Vertebrate species	State <sup>1</sup>	Federal	Notes
Northern Leopard Frog ( <i>Lithobates pipiens</i> )	SC	--	Contact the NH Fish & Game Dept (see above).
Wood Turtle ( <i>Glyptemys insculpta</i> )	SC	--	Contact the NH Fish & Game Dept (see below).

<sup>1</sup>Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list.

An asterisk (\*) indicates that the most recent report for that occurrence was 20 or more years ago.

*For all animal reviews, refer to 'IMPORTANT: NHFG Consultation' section above.*

**Disclaimer:** NHB's database can only tell you of known occurrences that have been reported to NHFG/NHB. Known occurrences are based on information gathered by qualified biologists or members of the public, reported to our offices, and verified by NHB/NHFG.

However, many areas have never been surveyed, or have only been surveyed for certain species.

NHB recommends surveys to determine what species/natural communities are present onsite.

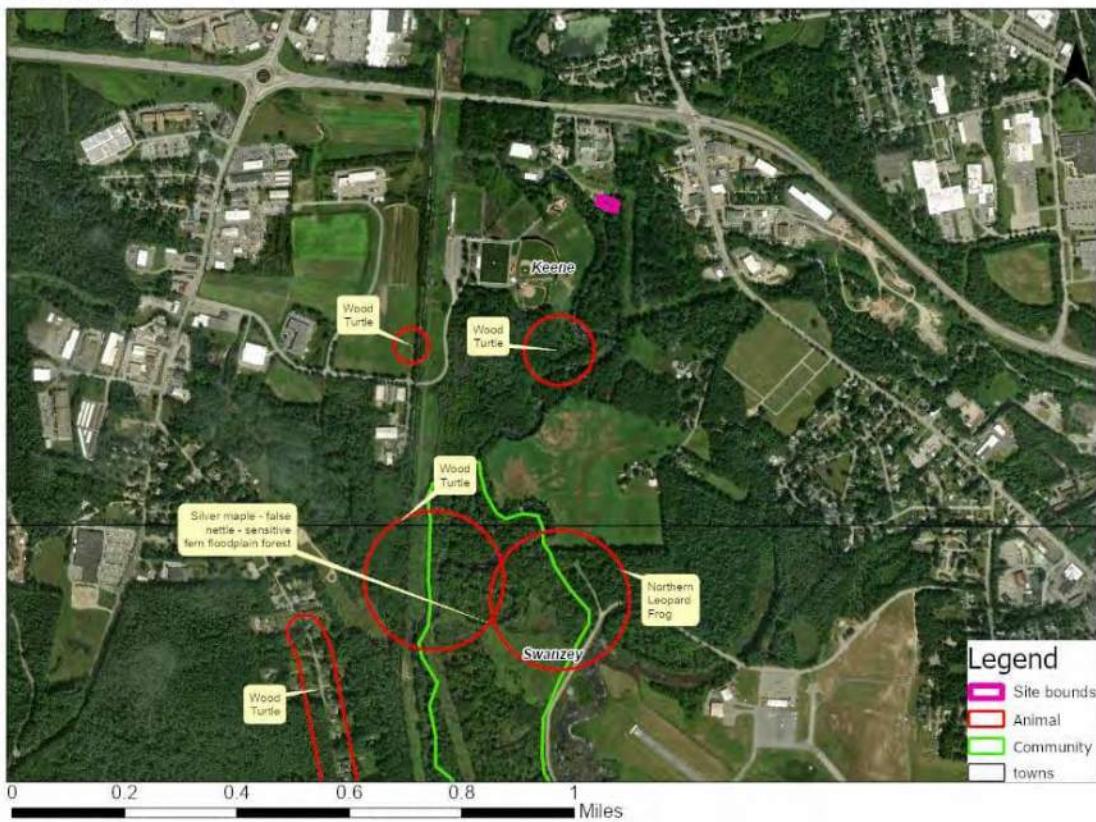


## NHB DataCheck Results Letter

NH Natural Heritage Bureau

Please note: maps and NHB record pages are **confidential** and shall be redacted from public documents.

**NHB24-2778**



## NHB DataCheck Results Letter

NH Natural Heritage Bureau

Please note: maps and NHB record pages are **confidential** and shall be redacted from public documents.

NHB24-2778

EOCODE:

CP00000144\*034\*NH

### New Hampshire Natural Heritage Bureau - Community Record

#### Silver maple - false nettle - sensitive fern floodplain forest

Legal Status	Conservation Status
Federal: Not listed	Global: Not ranked (need more information)
State: Not listed	State: Imperiled due to rarity or vulnerability

#### Description at this Location

Conservation Rank: Excellent quality, condition and landscape context ('A' on a scale of A-D).

Comments on Rank: --

Detailed Description: 1997: Extensive floodplain patches exist along this portion of the Ashuelot River, characterized by closed and open or patchy canopy closure of *Acer saccharinum* (silver maple) in the low floodplain, and silver maple, *Acer rubrum* (red maple), and *Prunus serotina* (black cherry) in the high terrace floodplain. The dbh of one silver maple was 62.6 inches. Patches of *Onoclea sensibilis* (sensitive fern), *Cinna latifolia* (drooping woodreed), *Boehmeria cylindrica* (false nettle), *Cinna arundinacea* (common woodreed), *Matteuccia struthiopteris* (ostrich fern), *Bidens frondosa* (common beggar-ticks), and scattered *Parthenocissus quinquefolia* (Virginia creeper) created a patchwork of dominant herbs and vines.

General Area: 1997: Highly variable microtopography along this stretch creates a variable natural community assemblage with slough channels, emergent marshes, flowing and still water, levees, high and low terraces, etc. Soils were predominantly fine sandy loams with loamy sands as well. Powerlines, open fields (old and newly cut) at edges, the airport, cutting of trees that had fallen across the river were the signs of human influence along this stretch, but they seem to have had little influence on the floodplain dynamics. Edge species encroach slightly, but the interior floodplain seems to be in good condition, and free of major influence. On the western side of the river, the road may pose some disturbance, but perhaps not to the floodplain on the eastern side.

General Comments: This is one of the best large patch floodplains on a medium size river in New Hampshire.

Management

--

Comments:

#### Location

Survey Site Name: South Ashuelot Confluence

Managed By:

County: Cheshire

Town(s): Swanzey

Size: 273.6 acres

Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

## NHB DataCheck Results Letter

NH Natural Heritage Bureau

Please note: maps and NHB record pages are **confidential** and shall be redacted from public documents.

NHB24-2778

EOCODE:

CP00000144\*034\*NH

Directions: From Rte. 9 in Keene take Rte. 32 south to Sawyer's Crossing. Park at covered bridge. Canoe upstream to confluence.

### **Dates documented**

---

First reported: 1997-07-30

Last reported: 1997-07-30

## NHB DataCheck Results Letter

NH Natural Heritage Bureau

Please note: maps and NHB record pages are **confidential** and shall be redacted from public documents.

NHB24-2778

EOCODE:

AAABH01170\*017\*NH

### New Hampshire Natural Heritage Bureau - Animal Record

#### **Northern Leopard Frog (*Lithobates pipiens*)**

---

##### **Legal Status**

Federal: Not listed

##### **Conservation Status**

Global: Demonstrably widespread, abundant, and secure

State: Special Concern

State: Rare or uncommon

---

##### **Description at this Location**

Conservation Rank: Not ranked

Comments on Rank: --

Detailed Description: 2009: Area 12393: 1 observed. 2008: Area 11539: Adult males heard. Too many to count.

General Area: 2008: Area 11539: Area they were calling from is described as shrub - wetland and flooded forests. Also a wet meadow nearby.

General Comments: --

Management --

Comments:

---

##### **Location**

Survey Site Name: South Ashuelot Confluence

Managed By:

County: Cheshire

Town(s): Swanzey

Size: 32.7 acres Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2009: Area 12393: (W 72 16 18.102 / N 42 47 50.226). 2008: Area 11539: Swanzey. Northern end of Airport Road between 90 degree turn in road and Ashuelot River.

---

##### **Dates documented**

First reported: 2008-04-19

Last reported: 2009-04-17

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

## NHB DataCheck Results Letter

NH Natural Heritage Bureau

Please note: maps and NHB record pages are **confidential** and shall be redacted from public documents.

NHB24-2778

EOCODE:

ARAAD02020\*167\*NH

### New Hampshire Natural Heritage Bureau - Animal Record

#### Wood Turtle (*Glyptemys insculpta*)

##### Legal Status

Federal: Not listed

##### Conservation Status

Global: Imperiled due to rarity or vulnerability

State: Special Concern

State: Rare or uncommon

##### Description at this Location

Conservation Rank: Not ranked

Comments on Rank: --

Detailed Description: 2016: Area 14306: adult observed, sex unknown. 2009: Area 12314: 1 female observed, about 8-9" long and 6-7" wide. Area 12375: 1 observed. Area 12394: 1 observed, estimated 6 years old. 2002: Area 12215: 1 male observed.

General Area: 2016: Area 14306: Trail through mowed field near forest and river. 2009: Area 12314: Field. Area 12375: Bank of Ashuelot River. Area 12394: Roadside.

General Comments: --

Management --

Comments:

##### Location

Survey Site Name: Mount Cresson

Managed By: Yale-Toumey Forest

County: Cheshire

Town(s): Swanzey

Size: 63.7 acres

Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2016: Area 14306: Walking trail in Keene State athletic complex near Ashuelot River. 2009: Area 12314: Near 139 Matthews Road, Swanzey. Area 12375: In Ashuelot near Keene - Swanzey town line. Area 12394: Rte. 32, just east of bridge over Ashuelot (42.87664 / 72.27605, WGS 84). 2002: Area 12215: Cross-country trail behind Keene State College athletic fields, Krif Road.

##### Dates documented

First reported: 2002-08-17

Last reported: 2016-05-08

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

## NHB DataCheck Results Letter

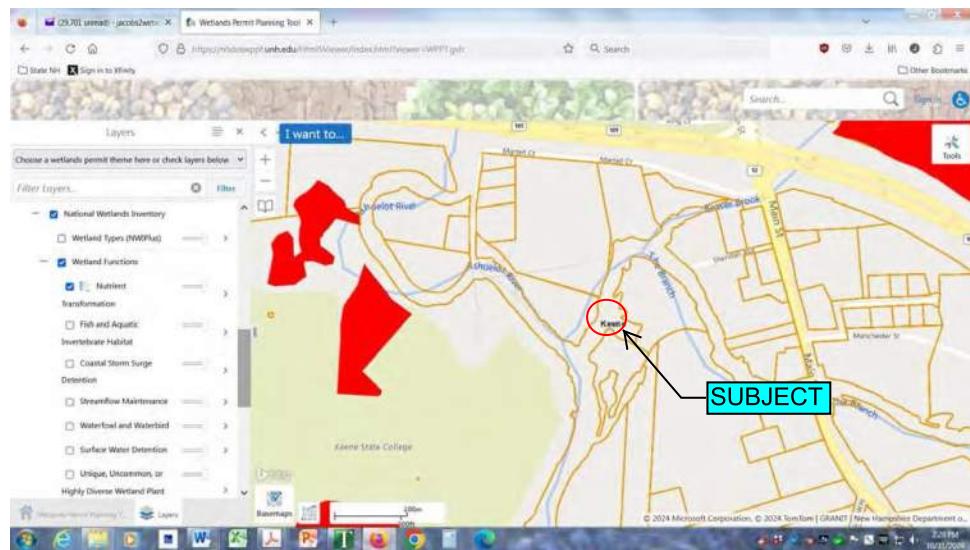
NH Natural Heritage Bureau

Please note: maps and NHB record pages are **confidential** and shall be redacted from public documents.

NHB24-2778

EOCODE:

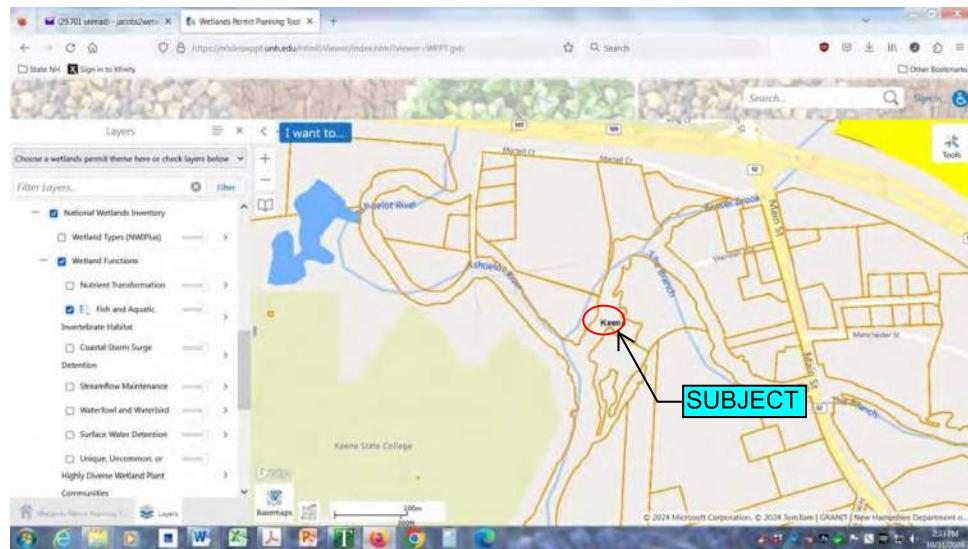
ARAAD02020\*167\*NH



**Legend**

- NH Parcels
- Additional Lines
- City/Town
- Nutrient Transformation
  - High
  - Moderate

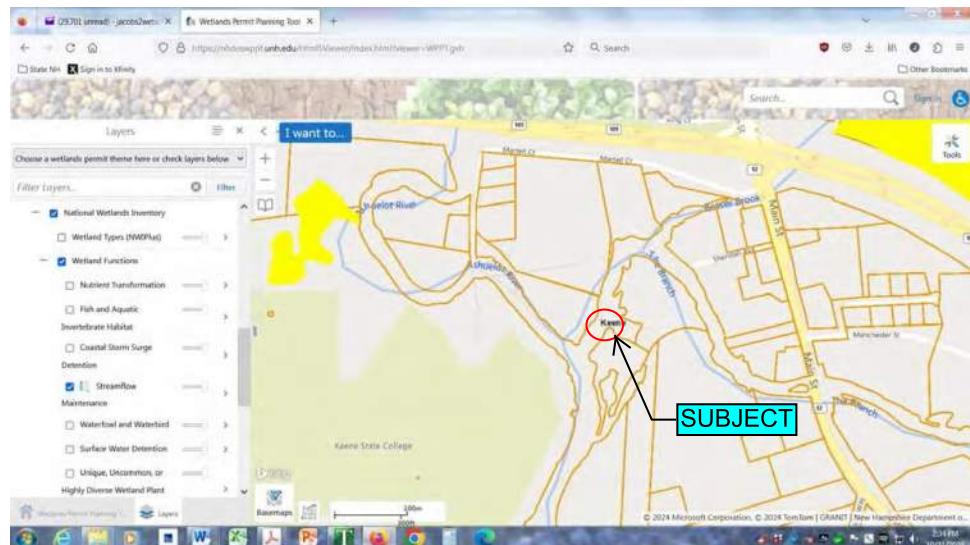
MARTELL COURT PUMP STATION – KEENE, NH  
NATIONAL WETLAND INVENTORY FUNCTIONS



**Legend**

- NH Parcels
- Additional Lines
- City/Town
- Fish and Aquatic Inverteb.
  - High
  - Moderate
  - StreamShading

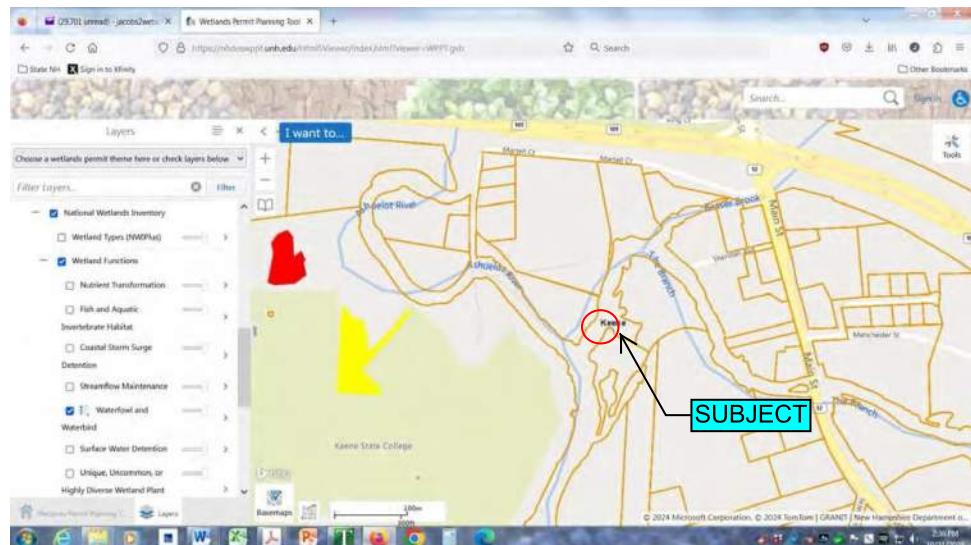
## MARTELL COURT PUMP STATION – KEENE, NH NATIONAL WETLAND INVENTORY FUNCTIONS



### Legend

- NH Parcels
- Additional Lines
- City/Town
- Streamflow Maintenance
  - High
  - Moderate

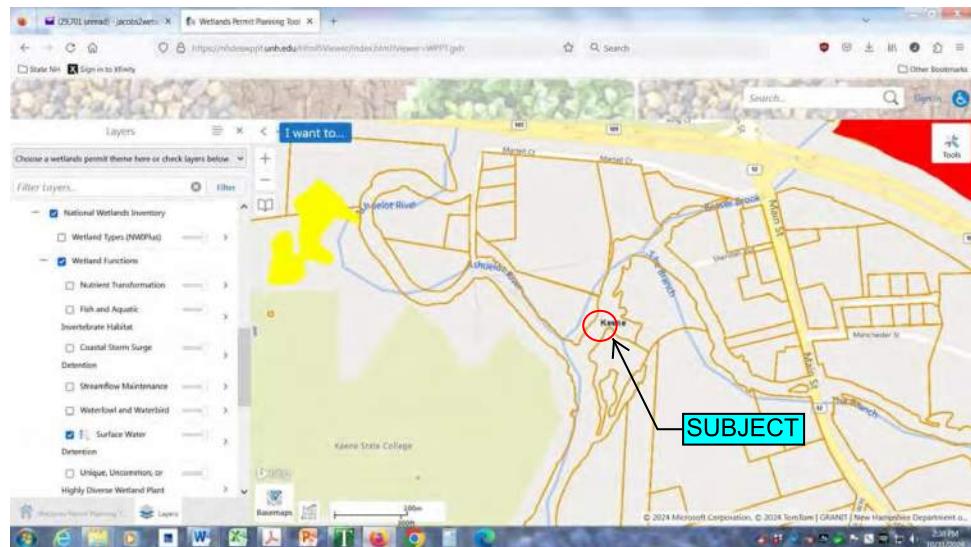
MARTELL COURT PUMP STATION – KEENE, NH  
NATIONAL WETLAND INVENTORY FUNCTIONS



**Legend**

- NH Parcels
- Additional Lines
- City/Town
- Waterfowl and Waterbird
  - High
  - Moderate

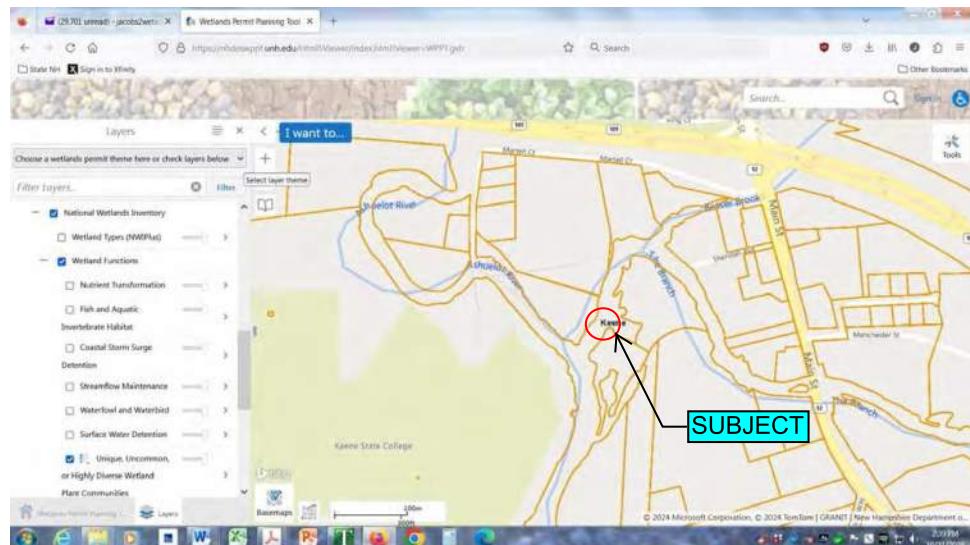
MARTELL COURT PUMP STATION – KEENE, NH  
NATIONAL WETLAND INVENTORY FUNCTIONS



**Legend**

- NH Parcels
- Additional Lines
- City/Town
- Surface Water Detention
  - High
  - Moderate

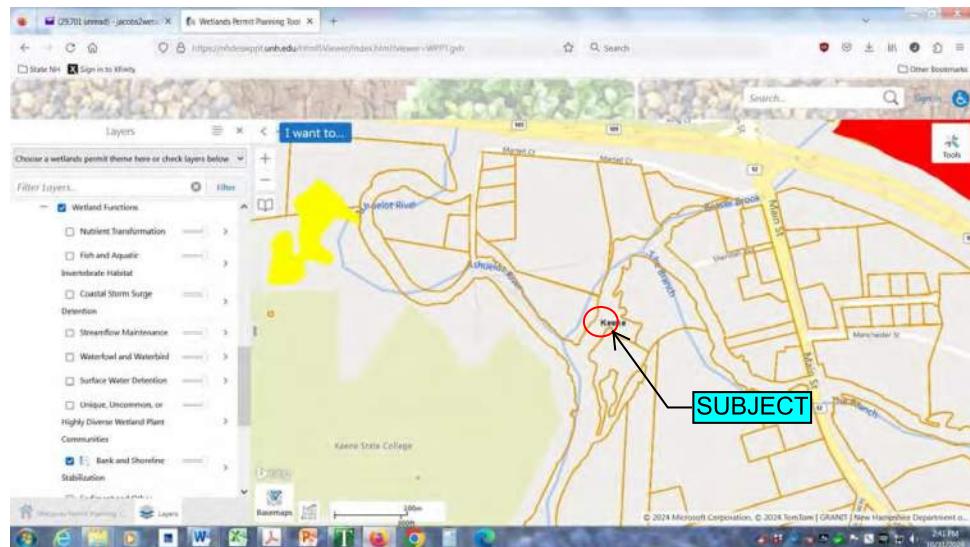
MARTELL COURT PUMP STATION – KEENE, NH  
NATIONAL WETLAND INVENTORY FUNCTIONS



**Legend**

- NH Parcels
- Additional Lines
- City/Town
- Unique, Uncommon, or Hi Plant Communities
  - LocallySignificant
  - RegionallySignificant

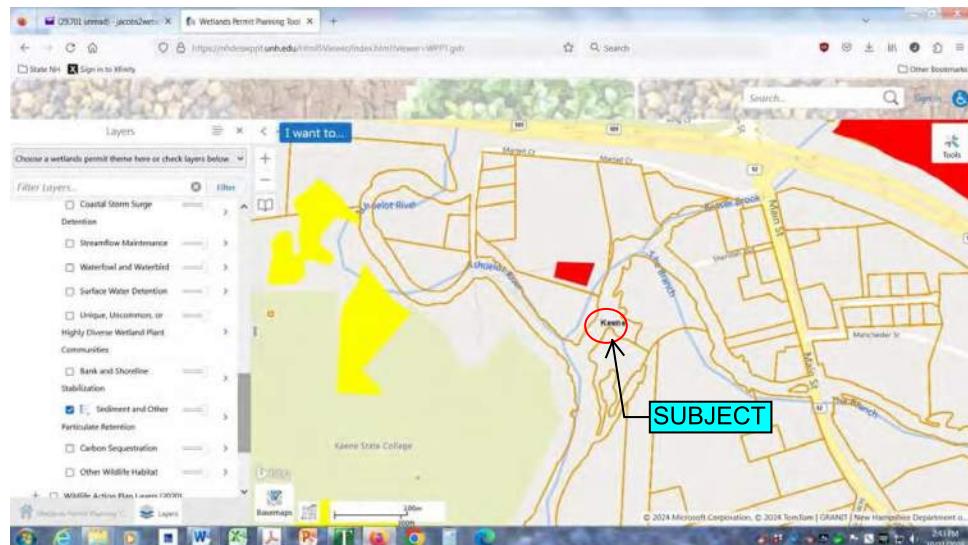
## MARTELL COURT PUMP STATION – KEENE, NH NATIONAL WETLAND INVENTORY FUNCTIONS



### Legend

- NH Parcels
- Additional Lines
- City/Town
- Bank and Shoreline Stabil
- High
- Moderate

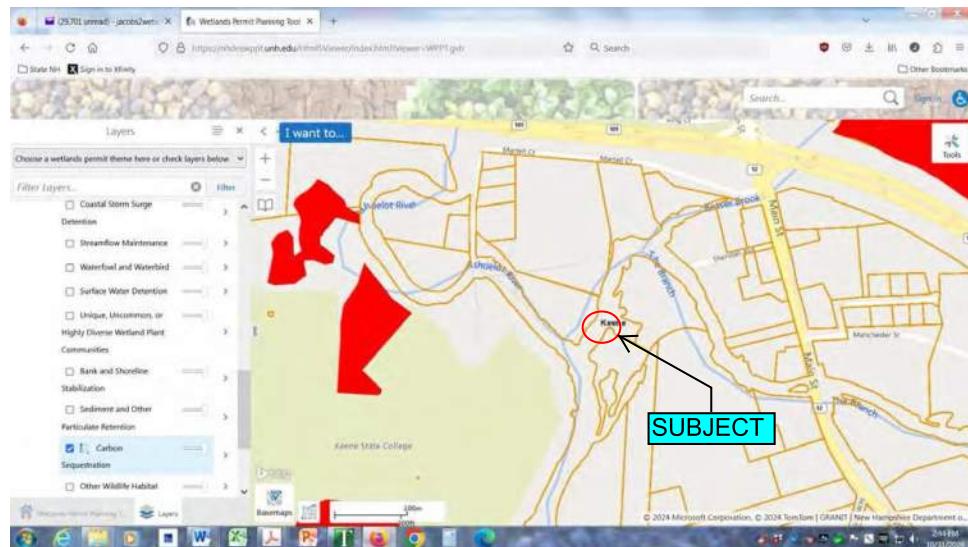
MARTELL COURT PUMP STATION – KEENE, NH  
NATIONAL WETLAND INVENTORY FUNCTIONS



**Legend**

- NH Parcels
- Additional Lines
- City/Town
- Sediment and Other Particulate Retention
  - High
  - Moderate

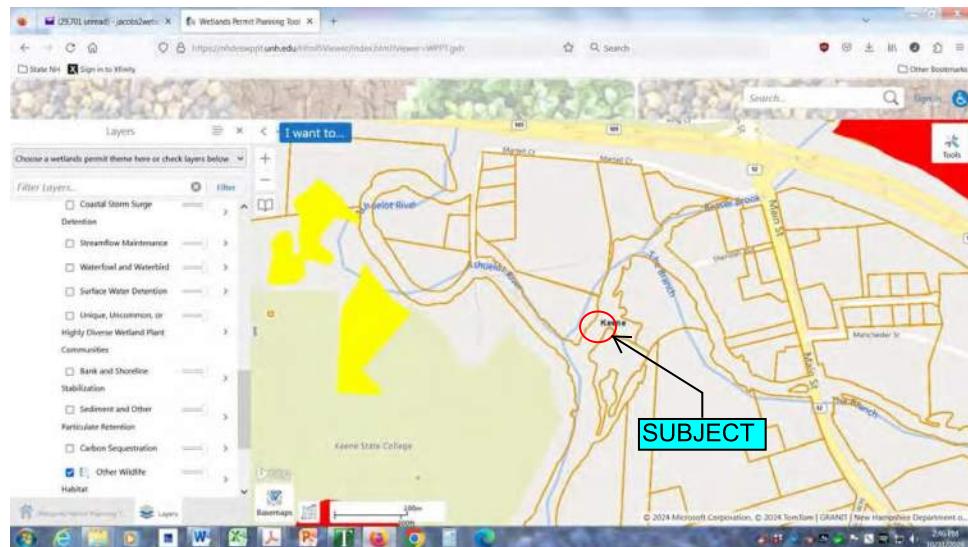
MARTELL COURT PUMP STATION – KEENE, NH  
NATIONAL WETLAND INVENTORY FUNCTIONS



**Legend**

- NH Parcels
- Additional Lines
- City/Town
- Carbon Sequestration
  - High
  - Moderate

## MARTELL COURT PUMP STATION – KEENE, NH NATIONAL WETLAND INVENTORY FUNCTIONS



### Legend

- NH Parcels
- Additional Lines
- City/Town
- Other Wildlife Habitat
  - █ High
  - █ Moderate

# Martell Court Sewer Pump Station

ATTACHMENT 5



## Legend

<input type="checkbox"/> NH Parcels
<input type="checkbox"/> Additional Lines
<input type="checkbox"/> City/Town
Designated Rivers with a
<input type="checkbox"/> Ammonoosuc
<input checked="" type="checkbox"/> <b>Ashuelot</b>
<input type="checkbox"/> Cocheco
<input type="checkbox"/> Cold
<input type="checkbox"/> Connecticut
<input type="checkbox"/> Contoocook
<input type="checkbox"/> Exeter
<input type="checkbox"/> Isinglass
<input type="checkbox"/> Lamprey
<input type="checkbox"/> Little
<input type="checkbox"/> Mascoma
<input type="checkbox"/> Merrimack-Lower
<input type="checkbox"/> Merrimack-Upper
<input type="checkbox"/> Middle Branch Piscataquog
<input type="checkbox"/> North
<input type="checkbox"/> North Branch Contoocook
<input type="checkbox"/> North Branch Lamprey

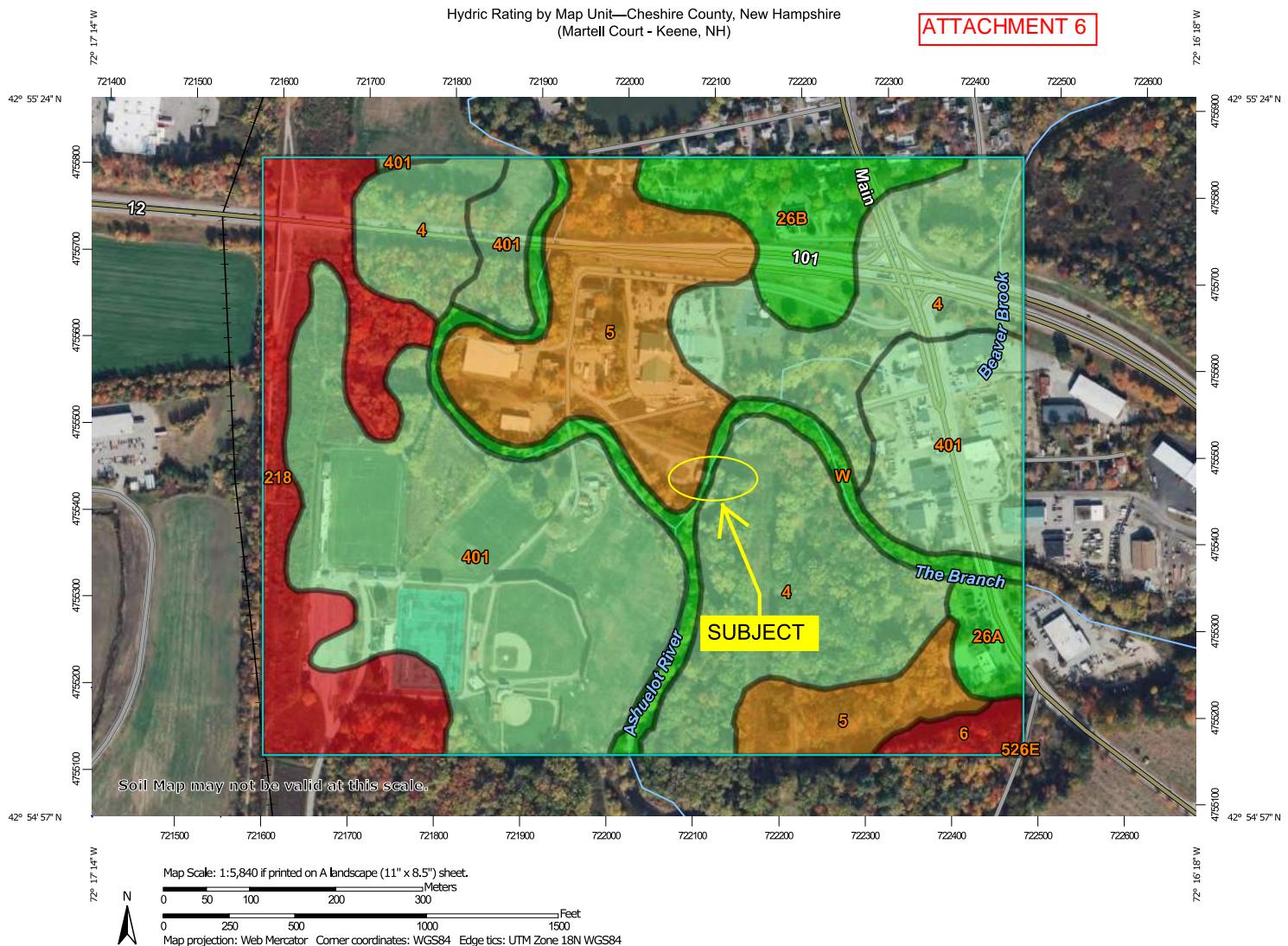
## Map Scale

1: 3,247

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Map Generated: 10/31/2024

## Notes

PRIORITY RESOURCE AREAS &  
DESIGNATED RIVERS



Natural Resources  
Conservation Service

Web Soil Survey  
National Cooperative Soil Survey

8/31/2023  
Page 1 of 5

## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils

#### Soil Rating Polygons

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available

#### Soil Rating Lines

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available

#### Soil Rating Points

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available

### Water Features

-  Streams and Canals

### Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

### Background

-  Aerial Photography

## MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Cheshire County, New Hampshire  
Survey Area Data: Version 26, Sep 9, 2022

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

Date(s) aerial images were photographed: Oct 15, 2020—Oct 31, 2020

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

## Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
4	Pootatuck fine sandy loam	5	38.7	25.7%
5	Rippowam fine sandy loam	93	23.7	15.7%
6	Saco mucky silt loam	100	1.9	1.2%
26A	Windsor loamy sand, 0 to 3 percent slopes	0	2.8	1.8%
26B	Windsor loamy sand, 3 to 8 percent slopes	0	8.7	5.8%
218	Raynham-Wareham complex, occasionally flooded	100	17.2	11.4%
401	Occum fine sandy loam	3	50.2	33.3%
526E	Caesar loamy sand, 15 to 50 percent slopes	2	0.0	0.0%
W	Water	0	7.5	5.0%
<b>Totals for Area of Interest</b>			<b>150.7</b>	<b>100.0%</b>

## Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

### References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

## Rating Options

*Aggregation Method:* Percent Present

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Lower



Marc E. Jacobs, CSS, CWS, PWS, CPESC  
Professional Wetland / Soil Scientist  
[jacobs2wetsoil2004@yahoo.com](mailto:jacobs2wetsoil2004@yahoo.com)

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## MEMORANDUM

---

**VIA:** First class mail/Certified/Facsimile/Hand Delivery/Overnight/**E-mail**

**TO:** Jacob Shactman  
Wright-Pierce

**FROM:** Marc Jacobs, CWS, CSS, CPESC *MJ*

**DATE:** November 15, 2024

**SUBJECT:** Temporary Utility Bypass Bridge  
Martell Court Pump Station  
Keene, NH

**RE:** Wetland Delineation

---

The following preliminary remarks summarize observations made during a site inspection conducted on September 18, 2023 at the above-referenced location to identify and delineate jurisdictional wetlands and other resources as appropriate and applicable according to the New Hampshire Department of Environmental Services (NHDES) – Code of Administrative Rules (Env-Wt 100-900).

Jurisdictional wetlands were identified and wetland-upland boundaries within the area-of-interest (AOI) were delineated in the field based upon on-the-ground investigations using the technical guidance cited in the certification statement below to evaluate soils, signs of hydrology and vegetation communities. Typical survey flags were then placed at random intervals to mark wetland-upland and other resource boundaries in the field. The AOI is identified by a red dashed line in Figure 1 below. Three digital images are appended to the back of this report. Refer to the attached existing conditions plan.

Each flag series bears a unique letter and each flag within a particular series bears a unique number to assist in subsequent field location by instrument survey as well as to ascertain exact field position when referencing site plans during any future site visits or during review of this report. The following flag series and flag numbers were used: A1-A24, B1-B12, C1-C8, D1-D6, E1-E8, F1-F10, G1-G10 and H1-H4.

Whereas the AOI represents active flood plain near the confluence of the Ashuelot River, Beaver Brook and the Branch, the delineation relied on protocols for altered wetlands as well as best professional judgment and prior experience with similar conditions to ascertain the presence of wetlands and establish wetland-upland and other resource area boundaries where necessary.

**FIGURE 1**



Similarly, portions of the AOI had recently been cleared of brush, including some parts of the area identified by flag series 'A' that were subsequently identified and delineated as wetlands by this office. In those areas that were recently cleared of vegetation, the delineation relied on observations of typical soil wetness characteristics for wetland-upland boundary determinations. All wetland-upland boundaries identify wetlands comprised of poorly drained hydric soils. No very poorly drained soils were observed.

Common vegetation includes silver maple (*Acer saccharinum*) trees, dogwood (*Cornus* sp.) shrubs and sensitive ferns (*Onoclea sensibilis*). Commonly observed invasive plants included: Emergent / herbaceous species such as Japanese knotweed (*Polygonum cuspidatum*) and purple loosestrife (*Lythrum salicaria*); vines such as bittersweet (*Celastrus orbiculatus*); and shrubs such as honeysuckle (*Lonicera* sp.), glossy buckthorn (*Frangula alnus*), burning bush (*Euonymus alatus*) and Japanese barberry (*Berberis thunbergii*). Japanese knotweed and purple loosestrife are easily spread within and between sites during mowing and construction related activities.

The Branch and the Ashuelot River are jurisdictional under the Shoreland Water Quality Protection Act (SWQPA), RSA 483-B and associated regulations (Env-Wq 1400). Portions of the AOI are subject to Article 11, the Surface Water Protection Overlay District, and Article 23, Floodplain Regulations, found in the City of Keene - Land Development Regulations.

Wetlands and resources identified by the flag series identified above are described in general below. The descriptions are generally organized by the particular flag series and resource type. Note that in some areas, the top-of-bank (TOB), ordinary high water (OHW) and/or wetland-upland boundary are coincident and share the same locus. It should also be noted that, by definition, wetland-upland boundaries are also considered jurisdictional bank. We have made it a point however to note TOB where it is associated with a surface water such as the river. Where not apparent in the field, OHW is based upon observations of surface water flows on the day field investigations were conducted, which are believed to be representative OHW.

#### A series flags

The 'A' series flags (1-30) are solid pink color. Flags A1-A3 and A4-A23 identify the jurisdictional wetland-upland boundary. Flags A3-A4 identify TOB by definition. An imaginary straight line drawn between flags A4 and A23 also identifies TOB. Flags A23-A30 identify TOB by definition and topography. The wetland would likely have been classified (according to the National Wetland Inventory and Cowardin – typical) as palustrine scrub-shrub (PSS), although parts of the area would likely have been classified as palustrine emergent (PEM) prior to mowing.

#### B series flags

The 'B' series flags (1-12) are solid blue color and identify the OHW of surface waters. Flags B8-B12 also identify TOB by definition and topography. Within the AOI the river would be classified as riverine, upper perennial, unconsolidated bottom, permanently flooded (R3UBH).

#### C series flags

The 'C' series flags (1-8) are solid pink color and identify a jurisdictional wetland-upland boundary. Only a portion of the wetland was delineated; that portion which was perceived to fall within or immediately adjacent to the AOI. The wetland identified by the 'C' series flags was partially cleared of vegetation but likely would be classified as PSS.

#### D series flags

The 'D' series flags (1-6) are solid pink color and identify the jurisdictional wetland-upland boundary associated with a likely seasonal / temporary backwater area. Only the portion of the wetland that was perceived to fall within or immediately adjacent to the AOI was delineated in the field. The wetland identified by the 'D' series flags would be classified as PEM adjacent to the AOI. This may be due, at least in part, to its location beneath overhead transmission lines.

#### E series flags

The 'E' series flags (1-8) are solid pink color and identify the wetland-upland boundary associated with a seasonally flooded area. Only the portion of the wetland that was perceived to fall within or immediately adjacent to the AOI was delineated in the field. The wetland identified by the 'E' series flags would be classified as palustrine forested (PFO).

#### F series flags

The 'F' series flags (1-10) are solid pink color. Flags F1-F7 identify the TOB of the river. Flags F7-F10 identify the jurisdictional wetland-upland boundary and the TOB by definition. The area confined by flags F7-F10 and flags H1-H4 floods very frequently and would be classified as PEM.

#### G series flags

The 'G' series flags (1-10) are solid blue color and identify OHW. Flag G3 shares the same locus with flags F7 and H4. Flag G4 shares the same locus with flag F6.

#### H series flags

The 'H' series flags (1-4) are solid pink color and identify the TOB of the river by topography. The area confined by the 'H' series flags and flags G1-G3 is largely devoid of vegetation, likely due to frequent scouring by the river, and is comprised by sandy sediments.

#### Certification statement:

Man-made, altered and/or natural jurisdictional wetland boundaries were delineated by Marc Jacobs, Certified Wetland Scientist number 090, in September 2023 according to the standards of the US Army Corps of Engineers – 1987 Wetlands Delineation Manual; the 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region; and the Code of Administrative Rules, NH Department of Environmental Services - Wetlands Bureau – Env Wt 100-900. Predominant hydric soils were identified utilizing the Field Indicators for Identifying Hydric Soils in New England, Version 4, June 2020 and the Field Indicators of Hydric Soils in the United States, Version 8, 2016. The status of vegetation as hydrophytic was determined according to the U.S. Army Corps of Engineers - Northcentral and Northeast 2020 Regional Wetland Plant List. Copies of site plans depicting the wetland delineation which have been reviewed by the wetland scientist are individually stamped, signed and dated. This note has been customized for this project. Ordinary High Water was identified and delineated per Env-Wt 103.50 and RSA 483-B:4, XI-e. Bank associated with streams was identified per Env-Wt 102.15.



Image 1 – Part of Wetland Area 'A' looking west toward the river. Note the vegetation has been cleared.

Martell Court Pump Station  
Keene, N.H.

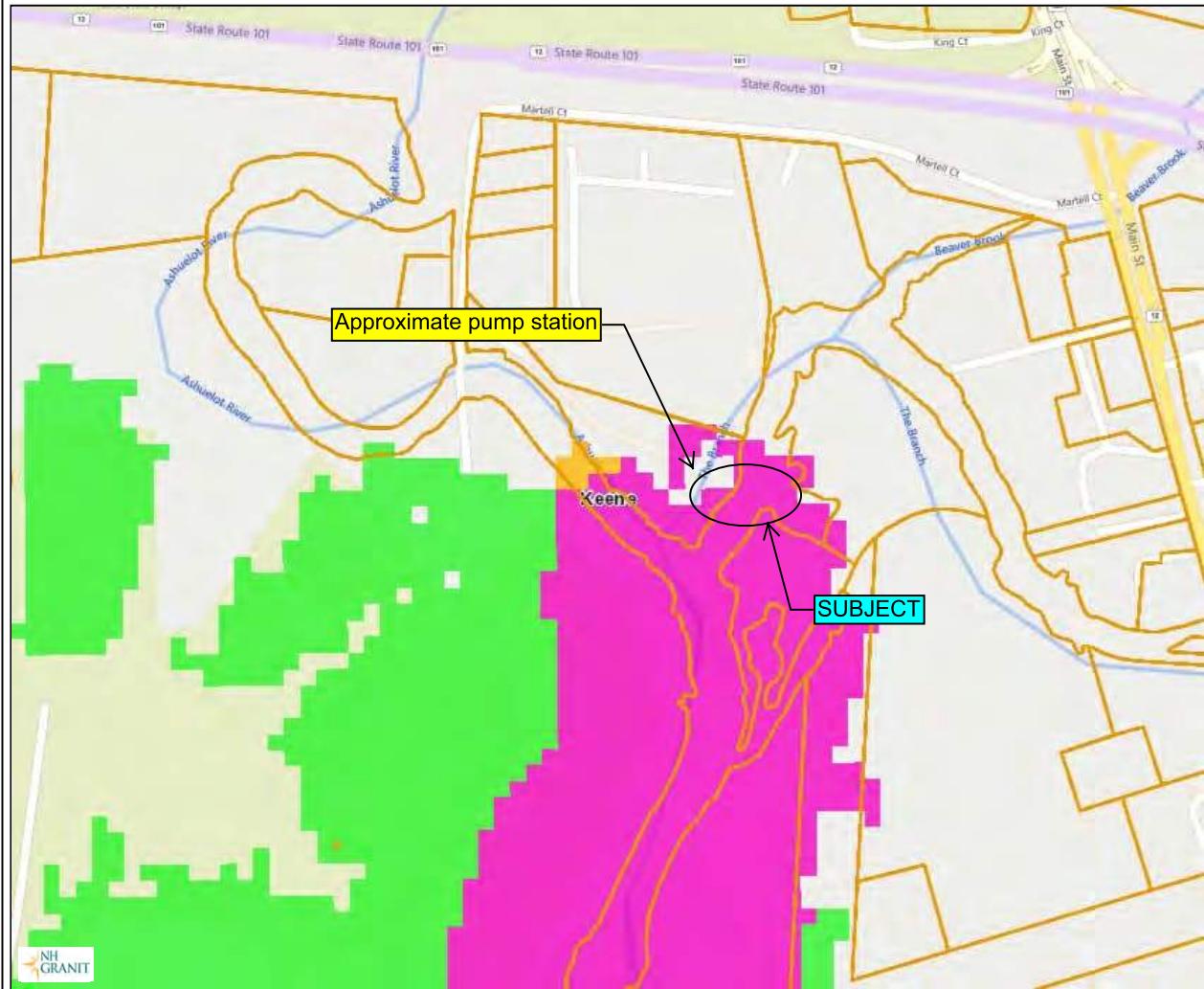


Image 2 – Looking southwest at Wetland Area 'D'



Image 3 – Looking easterly from the pump station towards the river and the area in Image 1.

## Martell Court Sewer Pump Station



### Legend

- NH Parcels
- Additional Lines
- City/Town
- Highest Ranked Wildlife H

0
1 Highest Ranked Habitat in
2 Highest Ranked Habitat in
3 Supporting Landscape

ATTACHMENT 8

### Map Scale

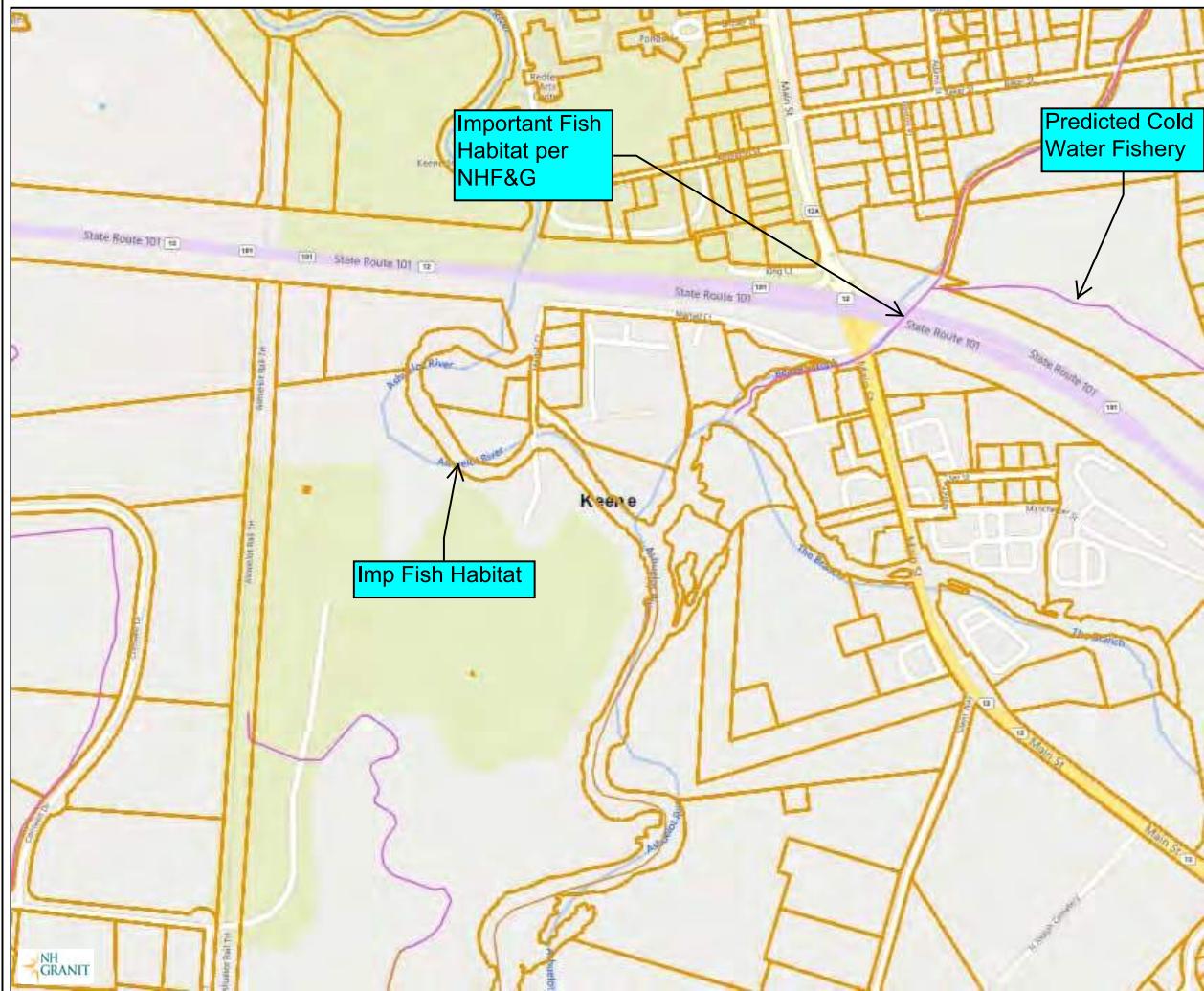
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Map Generated: 10/31/2024

### Notes

WILDLIFE ACTION PLAN - HIGHEST RANKED HABITAT

## Martell Court Sewer Pump Station



### Legend

- NH Parcels
- Additional Lines
- City/Town
- Rivers and Streams

**ATTACHMENT 9**

### Map Scale

1: 6,494

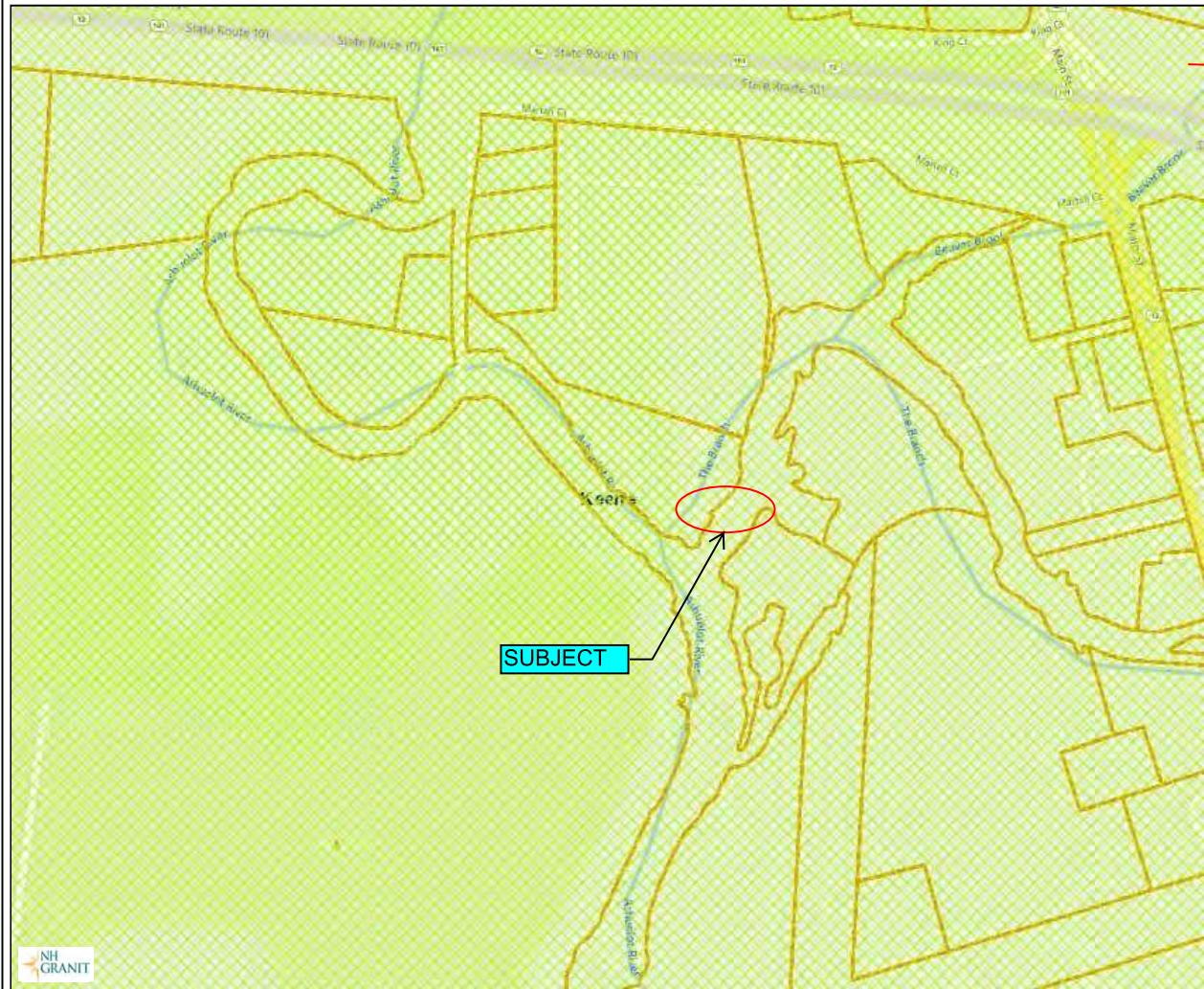
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Map Generated: 10/31/2024



### Notes

WILDLIFE ACTION PLAN - FISHERIES

## Martell Court Sewer Pump Station



## Legend

- NH Parcels
- Additional Lines
- City/Town
- Surface Waters with Impa  
Quarter Mile Buffer
- Watersheds with Chloride

## ATTACHMENT 10

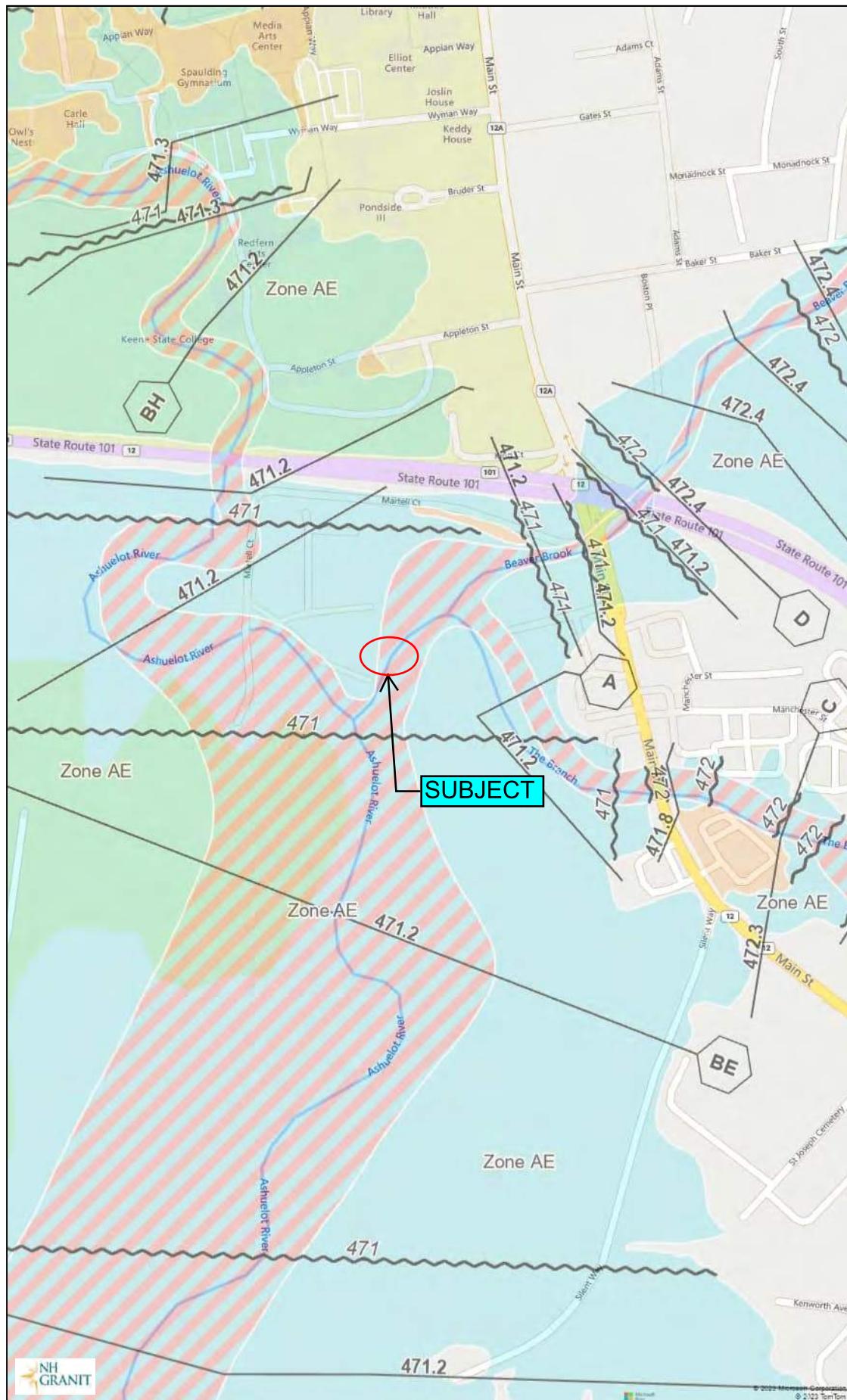
Map Scale  
1: 3,247  
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Map Generated: 10/31/2024

## Notes

### IMPAIRED WATERS

## MARTELL COURT - KEENE, NH

## ATTACHMENT 11



## Legend

- State
- County
- City/Town
- Cross-Sections
- ~ Base Flood Elevations
- Flood Hazard Boundaries**
  - Limit Lines
  - NP
  - SFHA / Flood Zone Boundary
  - Flowage Easement Boundary
- Flood Hazard Zones**
  - 1% Annual Chance Flood Hazard
  - Regulatory Floodway
  - Special Floodway
  - Area of Undetermined Flood Hazard
  - 0.2% Annual Chance Flood Hazard
  - Future Conditions 1% Annual Chan Hazard
  - Area with Reduced Risk Due to Lev
  - Area with Risk Due to Levee

## Map Scale

1: 6,494



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Map Generated: 8/31/2023

## Notes

## 100 YEAR FLOOD PLAIN



Wetland Name/Code: The Branch at Martell Ct. Evaluation Date: 09/18/23 &amp; 10/31/24 Evaluator: Marc Jacobs, CWS

## 1 – ECOLOGICAL INTEGRITY

Evaluation Questions	Observations & Notes	Answers	Score
<b>1. Are there land uses in the wetland's watershed that could degrade water quality in the wetland?</b> eroding road banks/ditches, const. sites, impervious surf., such as roads/parking lots/industrial parks/airports/land fills, active cropland & areas w/little or no vegetation	Refer to StreamStats (attached) for depiction of contributing watershed. Watershed(s) are very large - square miles versus acres. Refer to Potentially Contaminated Sites locus (depicting fraction of the watershed.	a. Less than 5% of the watershed has land uses that could degrade water quality. b. 5-10% of the watershed has land uses that could degrade water quality. c. > 10% of the watershed has land uses that could degrade water quality.	10 5 1
<b>2. Is there evidence of fill in the wetland?</b> railroads, borrow pits, transportation, residential, comm., or industrial development	Sewer main crosses the Branch River. Boulders placed nearby, presumably to stabilize river bank.	a. Less than 1 % b. From 1-3 % c. More than 3 %	10 5 1
<b>3. What percentage of the wetland has been altered by agricultural activities?</b> pastures, mowed areas, agricultural drainage ditches	Some flood plain wetlands adjacent to the river have been cleared of trees and mowed, inc. poss. athletic fields and cross country sewer.	a. Less than 5 % b. From 5 to 25 % c. More than 25 %	10 5 1
<b>4. What percentage of the wetland has been adversely impacted by logging activity within the last 10 years?</b> logging roads, rutting, altered hydrology, sedimentation	No significant logging w/in last 10 years.	a. Less than 1% b. From 1 to 10 % c. More than 10 %	10 5 1
<b>5. How much human activity is taking place in the wetland (e.g. ATV use, trails, cars, dumping of brush and garbage, etc.)?</b> other than agriculture& logging		a. Low: Few trails in use, little or no traffic, and little or no litter. b. Moderate: Some used trails, roads, litter c. High: Many trails, roads, and/or litter	10 5 1
<b>6. What percentage of the wetland is occupied by invasive plant species?</b>	Knotweed, bittersweet, honeysuckle, Japanese barberry, glossy buckthorn, burning bush	a. None b. 1-5% of the wetland has invasive species c. > 5% of the wetland has invasive species	10 5 1
<b>7. Are there roads, driveways and/or railroads crossing or adjacent to the wetland or come within 500 ft. of the wetland?</b> inc. roads at the edges of AOI	Martell Court and Pump House access road	a. No roads, driveways or railroads. within 500 ft. of, or in the wetland b. Roads, driveways, railroads are within 500 ft of the wetland c. Roads, driveways, railroads cross, or are adjacent to, the wetland	10 5 1
<b>8. How much human activity is taking place in the upland within 500 feet of the wetland edge?</b> land dist., clearing, logging, active trails, development, roads	Commercial development, Pump station, Athletic fields	a. Less than 5% or no activity b. Human activity evident in up to 25% of the 500 ft zone c. Human activity evident in more than 25% of the 500 ft zone	10 5 1
<b>9. What is the percent of impervious surface within 500 feet of the wetland edge?</b>	Estimated from aerial imagery.	a. Less than 3% impervious area within 500 ft of the wetland edge b. 3-10% impervious area within 500 ft of the wetland edge c. Greater than 10% impervious area within 500 ft of the wetland edge	10 5 1
<b>10. Is there a human-made structure that regulates the flow of water through the wetland?</b> W/IN 1/2 MILE dams, bridge abutments, culverts, roads exc beaver dams	Three vehicle bridges upstream. One on Beaver Brook, one on the Branch and one on the Ashuelot River w/in 1/2 mile. One foot bridge over the Ashuelot River.	a. No human made structures present <b>upstream of, or in</b> the wetland. b. One or more human made structures present <b>upstream of, or in</b> the wetland but hydrologic modification is slight c. One or more human made structures present <b>upstream of, or in</b> the wetland that severely block or alter surface water hydrology	10 5 1

## AVERAGE SCORE FOR ECOLOGICAL INTEGRITY

(Add scores for each question and divide by 10)

56/10 = 5.6 out of a possible 10

# Martell Court Pump Station

Keene, NH - May 2024 Image - 500' Radius Circle

ATTACHMENT 13

Legend

 Martell Ct





# WETLANDS FUNCTIONAL ASSESSMENT WORKSHEET

Water Division/Land Resource Management  
Wetlands Bureau  
[Check the Status of your Application](#)



**RSA/Rule:** RSA 482-A / Env-Wt 311.03(b)(10); Env-Wt 311.10

**APPLICANT LAST NAME, FIRST NAME, M.I.:** **Wright-Pierce -Martell Ct Pump Station - Keene, NH**

As required by Env-Wt 311.03(b)(10), an application for a standard permit for minor and major projects must include a functional assessment of all wetlands on the project site as specified in Env-Wt 311.10. This worksheet will help you compile data for the functional assessment needed to meet federal (US Army Corps of Engineers (USACE); if applicable) and NHDES requirements. Additional requirements are needed for projects in tidal area; please refer to the [Coastal Area Worksheet \(NHDES-W-06-079\)](#) for more information.

Both a desktop review and a field examination are needed to accurately determine surrounding land use, hydrology, hydroperiod, hydric soils, vegetation, structural complexity of wetland classes, hydrologic connections between wetlands or stream systems or wetland complex, position in the landscape, and physical characteristics of wetlands and associated surface waters. The results of the evaluation are to be used to select the location of the proposed project having the least impact to wetland functions and values (Env-Wt 311.10). This worksheet can be used in conjunction with the [Avoidance and Minimization Written Narrative \(NHDES-W-06-089\)](#) and the [Avoidance and Minimization Checklist \(NHDES-W-06-050\)](#) to address Env-Wt 313.03 (Avoidance and Minimization). If more than one wetland/ stream resource is identified, multiple worksheets can be attached to the application. All wetland, vernal pools, and stream identification (ID) numbers are to be displayed and located on the wetlands delineation of the subject property.

<b>SECTION 1 - LOCATION (USACE HIGHWAY METHODOLOGY)</b>	
ADJACENT LAND USE: Floodplain/Forest, Athletic Fields, Sewer Pump Station	
CONTIGUOUS UNDEVELOPED BUFFER ZONE PRESENT? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
DISTANCE TO NEAREST ROADWAY OR OTHER DEVELOPMENT (in feet): 40 to Branch River	
<b>SECTION 2 - DELINEATION (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)</b>	
CERTIFIED WETLAND SCIENTIST (if in a non-tidal area) or QUALIFIED COASTAL PROFESSIONAL (if in a tidal area) who prepared this assessment: Marc Jacobs, CWS	
DATE(S) OF SITE VISIT(S): 09/18/23	DELINEATION PER ENV-WT 406 COMPLETED? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
CONFIRM THAT THE EVALUATION IS BASED ON:	
<input checked="" type="checkbox"/> Office and <input checked="" type="checkbox"/> Field examination.	
METHOD USED FOR FUNCTIONAL ASSESSMENT (check one and fill in blank if "other"):	
<input checked="" type="checkbox"/> USACE Highway Methodology. <input checked="" type="checkbox"/> Other scientifically supported method (enter name/ title): NH Method re: Ecological Integrity	

SECTION 3 - WETLAND RESOURCE SUMMARY (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)	
WETLAND ID: Martell Ct Pump Station	LOCATION: (LAT/ LONG) N42 55.1666 <sup>1</sup> /W72 16.7076 <sup>1</sup>
WETLAND AREA: virtually unlimited	DOMINANT WETLAND SYSTEMS PRESENT: Riverine
HOW MANY TRIBUTARIES CONTRIBUTE TO THE WETLAND? virtually unlimited	COWARDIN CLASS: R3UBH, R2USC, PFO
IS THE WETLAND A SEPARATE HYDRAULIC SYSTEM? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No if not, where does the wetland lie in the drainage basin? Branch = upper perennial, Ashuelot = lower perennial	IS THE WETLAND PART OF: <input checked="" type="checkbox"/> A wildlife corridor or <input type="checkbox"/> A habitat island? IS THE WETLAND HUMAN-MADE? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IS THE WETLAND IN A 100-YEAR FLOODPLAIN? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ARE VERNAL POOLS PRESENT? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If yes, complete the Vernal Pool Table)
ARE ANY WETLANDS PART OF A STREAM OR OPEN-WATER SYSTEM? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ARE ANY PUBLIC OR PRIVATE WELLS DOWNSTREAM/DOWNGRADIENT? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
PROPOSED WETLAND IMPACT TYPE: TBD	PROPOSED WETLAND IMPACT AREA: TBD
SECTION 4 - WETLANDS FUNCTIONS AND VALUES (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)	
<p>The following table can be used to compile data on wetlands functions and values. The reference numbers indicated in the "Functions/ Values" column refer to the following functions and values:</p> <ol style="list-style-type: none"> <li>1. Ecological Integrity (from RSA 482-A:2, XI)</li> <li>2. Educational Potential (from USACE Highway Methodology: Educational/Scientific Value)</li> <li>3. Fish &amp; Aquatic Life Habitat (from USACE Highway Methodology: Fish &amp; Shellfish Habitat)</li> <li>4. Flood Storage (from USACE Highway Methodology: Floodflow Alteration)</li> <li>5. Groundwater Recharge (from USACE Highway Methodology: Groundwater Recharge/Discharge)</li> <li>6. Noteworthiness (from USACE Highway Methodology: Threatened or Endangered Species Habitat)</li> <li>7. Nutrient Trapping/Retention &amp; Transformation (from USACE Highway Methodology: Nutrient Removal)</li> <li>8. Production Export (Nutrient) (from USACE Highway Methodology)</li> <li>9. Scenic Quality (from USACE Highway Methodology: Visual Quality/Aesthetics)</li> <li>10. Sediment Trapping (from USACE Highway Methodology: Sediment /Toxicant Retention)</li> <li>11. Shoreline Anchoring (from USACE Highway Methodology: Sediment/Shoreline Stabilization)</li> <li>12. Uniqueness/Heritage (from USACE Highway Methodology)</li> <li>13. Wetland-based Recreation (from USACE Highway Methodology: Recreation)</li> <li>14. Wetland-dependent Wildlife Habitat (from USACE Highway Methodology: Wildlife Habitat)</li> </ol>	
<p>First, determine if a wetland is suitable for a particular function and value ("Suitability" column) and indicate the rationale behind your determination ("Rationale" column). Please use the rationale reference numbers listed in Appendix A of USACE <i>The Highway Methodology Workbook Supplement</i>. Second, indicate which functions and values are principal ("Principal Function/value?" column). As described in <i>The Highway Methodology Workbook Supplement</i>, "functions and values can be principal if they are an important physical component of a wetland ecosystem (function only) and/or are considered of special value to society, from a local, regional, and/or national perspective". "Important Notes" are to include characteristics the evaluator used to determine the principal function and value of the wetland.</p>	

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE (Reference #)	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Score of 5.6	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	East side higher than west, See NH Method data form
2	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,5,9,11,13,14	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Poss. RTE species, short drive to schools, access locked by gate east side
3	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,4,6-8,10-12,14,17	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Wetland, for River see below
4	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5,6,8,10-14,17	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	dense vegetation likely absent in spring, principal function at a moderate level
5	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2,4,5,7,9	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Any recharge in floodplain soils likely discharges back to rivers quickly not to an aquifer
6	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Possible northern leopard frog and wood turtle per NHB
7	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2-4,7,8,10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Wetlands opportunity during flood events
8	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,4,7,10,12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Export via rivers, limited visible signs of export
9	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6,7,8,10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Rivers are focal point, pump station detracts, flood plain forest unique
10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,4,6,8,10,12,16	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Rivers have high bed load, wetlands provide retention during flood events
11	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1-4,6,7,9,12-14	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Rivers applicable, Adjacent wetlands less so
12	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2,3,5,7,8,10-13,19,22,26	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	wooded swamp, Silver maple-false nettle-sensitive fern floodplain forest community
13	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2,4-6,8,9,12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Recreation possible, Access limited
14	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2,3,5-8,11-13,19,21	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	No per NWI, Highest ranked habitat per WAP, Potential RTE turtles & frogs per NHB

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

## SECTION 5 - VERNAL POOL SUMMARY (Env-Wt 311.10)

Delineations of vernal pools shall be based on the characteristics listed in the definition of "vernal pool" in Env-Wt 104.44. To assist in the delineation, individuals may use either of the following references:

- *Identifying and Documenting Vernal Pools in New Hampshire 3<sup>rd</sup> Ed., 2016*, published by the New Hampshire Fish and Game Department; or
- The USACE *Vernal Pool Assessment* draft guidance dated 9-10-2013 and form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

All vernal pool ID numbers are to be displayed and located on the wetland delineation of the subject property.

"Important Notes" are to include documented reproductive and wildlife values, landscape context, and relationship to other vernal pools/wetlands.

Note: For projects seeking federal approval from the USACE, please attach a completed copy of The USACE "Vernal Pool Assessment" form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

VERNAL POOL ID NUMBER	DATE(S) OBSERVED	PRIMARY INDICATORS PRESENT (LIST)	SECONDARY INDICATORS PRESENT (LIST)	LENGTH OF HYDROPERIOD	IMPORTANT NOTES
1	NA	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2	NA	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
3	NA	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
4	NA	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
5	NA	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

## SECTION 6 - STREAM RESOURCES SUMMARY

DESCRIPTION OF STREAM: <b>Perennial</b>	STREAM TYPE (ROSGEN): <b>Branch = F5 or F5b</b>
HAVE FISHERIES BEEN DOCUMENTED? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	DOES THE STREAM SYSTEM APPEAR STABLE? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
OTHER KEY ON-SITE FUNCTIONS OF NOTE: <b>Floodplain</b>	
The following table can be used to compile data on stream resources. "Important Notes" are to include characteristics the evaluator used to determine principal function and value of each stream. The functions and values reference number are defined in Section 4.	

FUNCTIONS/VALUES	SUITABILITY (Y/N)	RATIONALE	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	score of 5.6	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Few obstructions
2	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,5,9,11,13,14	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Poss. RTE species, access to east side of river gated
3	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,4,6-8,10-12,14,17	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Ashuelot & Beaver Brook imp. hab. per NHF&G, Beaver Brook cold water fishery per NHF&G
4	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5,6,8,10-14,17	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Branch River a floodway
5	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2,4,5,7,9	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	No recharge to aquifer
6	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Possible northern leopard frog and wood turtle per NHB
7	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2-4,7,8,10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Higher function than immediate wetlands
8	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,4,7,10,12	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Export via river
9	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6,7,8,10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	River is focal point
10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,4,6,8,10,12,16	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	lots sediment transport
11	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1-4,6,7,9,12-14	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Rivers applicable, wetlands contribute but less so
12	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2,3,5,7,8,10-13,19,22,26	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Silver maple-false nettle-sensitive fern flood plain forest adjacent to two rivers
13	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2,4-6,8,9,12	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Recreation possible, watercraft, access elsewhere
14	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2,3,5-8,11-13,19,21	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Highest ranked hab. per NHF&G WAP, Potential RTE species per NHB

#### SECTION 7 - ATTACHMENTS (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)

- Wildlife and vegetation diversity/abundance list.
- Photograph of wetland.
- Wetland delineation plans showing wetlands, vernal pools, and streams in relation to the impact area and surrounding landscape. Wetland IDs, vernal pool IDs, and stream IDs must be indicated on the plans.
- For projects in tidal areas only: additional information required by Env-Wt 603.03/603.04. Please refer to the [Coastal Area Worksheet \(NHDES-W-06-079\)](#) for more information.

## Wetland Function-Value Evaluation Form

Total area of wetland unlimited Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? NoAdjacent land use Floodplain, Athletic Fields, Pump Station, Forest Distance to nearest roadway or other development +/ 40 feet-BranchDominant wetland systems present PFO, Branch = R3UBH, Ashuelot = R2USC Contiguous undeveloped buffer zone present Partial-east sideIs the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? LowerHow many tributaries contribute to the wetland? unlimited Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Martell Ct Pump Station  
 Latitude N42 55.1666' Longitude W72 16.7076'  
 Prepared by: M. Jacobs Date 10/31/24

Wetland Impact:  
 Type INDIRECT Area TBD

Evaluation based on:  
 Office Yes Field Yes

Corps manual wetland delineation completed? Y Yes N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
 Groundwater Recharge/Discharge	Y	2,4,5,7,9	N	any recharge in floodplain soils generally discharges back to river not aquifers
 Floodflow Alteration	Y	5,6,8,10-14,17	Y	dense vegetation absent in spring, principal function at moderate level
 Fish and Shellfish Habitat	Y	1,4,6-8,10-12,14,17	Y	Ashuelot & Beaver Bk important fish habitat per F&G, Beaver Bk a cold water fishery per F&G
 Sediment/Toxicant Retention	Y	1,2,4,6,8,10,12,16	Y	Rivers have high bed load, wetlands provide retention during major flood events
 Nutrient Removal	Y	2-4,7,8,10	Y	<b>Wetlands have opportunity during flood events</b>
 Production Export	Y	1,4,7,10,12	N	Export occurs via rivers, No visible signs of export
 Sediment/Shoreline Stabilization	Y	1-4,6,7,9,12-14	Y	<b>Rivers applicable, Adjacent wetlands no</b>
 Wildlife Habitat	Y	2,3,5-8,11-13,19,21	Y	No per NWI, Highest ranked habitat per NHF&G WAP, Potential turtles & frogs per NHB
 Recreation	Y	2,4-6,8,9,12	N	<b>Recreation possible but access is limited</b>
 Educational/Scientific Value	Y	1,2,5,9,11,13,14	N	1-possible RTE species, 9-short drive to schools
 Uniqueness/Heritage	Y	2,3,5,7,8,10-13,19,22,26	Y	5-wooded swamp, 26-NHB - Silver maple-false-nettle-sensitive fern floodplain forest
 Visual Quality/Aesthetics	Y	6,7,8,10	Y	<b>Ashuelot and Branch rivers are focal point</b>
 Endangered Species Habitat	Y	1	Y	Possible northern leopard frog and wood turtle per NHB
Other Ecological Integrity	Y	Score of 5.6	Y	Eco Integrity of east side of Branch River higher than west side

Notes:

\* Refer to backup list of numbered considerations.

# Appendix A

## Wetland evaluation supporting documentation; Reproducible forms.

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Below is an example list of considerations that was used for a New Hampshire highway project. Considerations are flexible, based on best professional judgment and interdisciplinary team consensus. This example provides a comprehensive base, however, and may only need slight modifications for use in other projects.



**GROUNDWATER RECHARGE/DISCHARGE**— This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. It refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

### CONSIDERATIONS/QUALIFIERS

1. Public or private wells occur downstream of the wetland.
2. Potential exists for public or private wells downstream of the wetland.
3. Wetland is underlain by stratified drift.
4. Gravel or sandy soils present in or adjacent to the wetland.
5. Fragipan does not occur in the wetland.
6. Fragipan, impervious soils, or bedrock does occur in the wetland.
7. Wetland is associated with a perennial or intermittent watercourse.
8. Signs of groundwater recharge are present or piezometer data demonstrates recharge.
9. Wetland is associated with a watercourse but lacks a defined outlet or contains a constricted outlet.
10. Wetland contains only an outlet, no inlet.
11. Groundwater quality of stratified drift aquifer within or downstream of wetland meets drinking water standards.
12. Quality of water associated with the wetland is high.
13. Signs of groundwater discharge are present (e.g., springs).
14. Water temperature suggests it is a discharge site.
15. Wetland shows signs of variable water levels.
16. Piezometer data demonstrates discharge.
17. Other



**FLOODFLOW ALTERATION (Storage & Desynchronization)** — This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas.

## CONSIDERATIONS/QUALIFIERS

1. Area of this wetland is large relative to its watershed.
2. Wetland occurs in the upper portions of its watershed.
3. Effective flood storage is small or non-existent upslope of or above the wetland.
4. Wetland watershed contains a high percent of impervious surfaces.
5. Wetland contains hydric soils which are able to absorb and detain water.
6. Wetland exists in a relatively flat area that has flood storage potential.
7. Wetland has an intermittent outlet, ponded water, or signs are present of variable water level.
8. During flood events, this wetland can retain higher volumes of water than under normal or average rainfall conditions.
9. Wetland receives and retains overland or sheet flow runoff from surrounding uplands.
10. In the event of a large storm, this wetland may receive and detain excessive flood water from a nearby watercourse.
11. Valuable properties, structures, or resources are located in or near the floodplain downstream from the wetland.
12. The watershed has a history of economic loss due to flooding.
13. This wetland is associated with one or more watercourses.
14. This wetland watercourse is sinuous or diffuse.
15. This wetland outlet is constricted.
16. Channel flow velocity is affected by this wetland.
17. Land uses downstream are protected by this wetland.
18. This wetland contains a high density of vegetation.
19. Other

**FISH AND SHELLFISH HABITAT (FRESHWATER)** — This function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.



## CONSIDERATIONS/QUALIFIERS

1. Forest land dominant in the watershed above this wetland.
2. Abundance of cover objects present.

### STOP HERE IF THIS WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE

3. Size of this wetland is able to support large fish/shellfish populations.
4. Wetland is part of a larger, contiguous watercourse.
5. Wetland has sufficient size and depth in open water areas so as not to freeze solid and retain some open water during winter.
6. Stream width (bank to bank) is more than 50 feet.
7. Quality of the watercourse associated with this wetland is able to support healthy fish/shellfish populations.
8. Streamside vegetation provides shade for the watercourse.
9. Spawning areas are present (submerged vegetation or gravel beds).
10. Food is available to fish/shellfish populations within this wetland.
11. Barrier(s) to anadromous fish (such as dams, including beaver dams, waterfalls, road crossing) are absent from the stream reach associated with this wetland.
12. Evidence of fish is present.
13. Wetland is stocked with fish.
14. The watercourse is persistent.
15. Man-made streams are absent.
16. Water velocities are not too excessive for fish usage.
17. Defined stream channel is present.
18. Other

Although the above example refers to freshwater wetlands, it can also be adapted for marine ecosystems. The following is an example provided by the National Marine Fisheries Service (NMFS) of an adaptation for the fish and shellfish function.

**FISH AND SHELLFISH HABITAT (MARINE)** — This function considers the effectiveness of wetlands, embayments, tidal flats, vegetated shallows, and other environments in supporting marine resources such as fish, shellfish, marine mammals, and sea turtles.

#### CONSIDERATIONS/QUALIFIERS

1. Special aquatic sites (tidal marsh, mud flats, eelgrass beds) are present.
2. Suitable spawning habitat is present at the site or in the area.
3. Commercially or recreationally important species are present or suitable habitat exists.
4. The wetland/waterway supports prey for higher trophic level marine organisms.
5. The waterway provides migratory habitat for anadromous fish.
6. Essential fish habitat, as defined by the 1996 amendments to the Magnuson-Stevens Fishery & Conservation Act, is present (consultation with NMFS may be necessary).
7. Other



**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 in runoff water from surrounding uplands or upstream eroding wetland areas.

#### CONSIDERATIONS/QUALIFIERS

1. Potential sources of excess sediment are in the watershed above the wetland.
2. Potential or known sources of toxicants are in the watershed above the wetland.
3. Opportunity for sediment trapping by slow moving water or deepwater habitat are present in this wetland.
4. Fine grained mineral or organic soils are present.
5. Long duration water retention time is present in this wetland.
6. Public or private water sources occur downstream.
7. The wetland edge is broad and intermittently aerobic.
8. The wetland is known to have existed for more than 50 years.
9. Drainage ditches have not been constructed in the wetland.

#### STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE.

10. Wetland is associated with an intermittent or perennial stream or a lake.
11. Channelized flows have visible velocity decreases in the wetland.
12. Effective floodwater storage in wetland is occurring. Areas of impounded open water are present.
13. No indicators of erosive forces are present. No high water velocities are present.
14. Diffuse water flows are present in the wetland.
15. Wetland has a high degree of water and vegetation interspersion.
16. Dense vegetation provides opportunity for sediment trapping and/or signs of sediment accumulation by dense vegetation is present.
17. Other



**NUTRIENT REMOVAL/RETENTION/TRANSFORMATION** — This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.

#### CONSIDERATIONS/QUALIFIERS

1. Wetland is large relative to the size of its watershed.
2. Deep water or open water habitat exists.
3. Overall potential for sediment trapping exists in the wetland.

4. Potential sources of excess nutrients are present in the watershed above the wetland.
5. Wetland saturated for most of the season. Ponded water is present in the wetland.
6. Deep organic/sediment deposits are present.
7. Slowly drained fine grained mineral or organic soils are present.
8. Dense vegetation is present.
9. Emergent vegetation and/or dense woody stems are dominant.
10. Opportunity for nutrient attenuation exists.
11. Vegetation diversity/abundance sufficient to utilize nutrients.

STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE.

12. Waterflow through this wetland is diffuse.
13. Water retention/detention time in this wetland is increased by constricted outlet or thick vegetation.
14. Water moves slowly through this wetland.
15. Other

PRODUCTION EXPORT (Nutrient) — This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.



#### CONSIDERATIONS/QUALIFIERS

1. Wildlife food sources grow within this wetland.
2. Detritus development is present within this wetland
3. Economically or commercially used products found in this wetland.
4. Evidence of wildlife use found within this wetland.
5. Higher trophic level consumers are utilizing this wetland.
6. Fish or shellfish develop or occur in this wetland.
7. High vegetation density is present.
8. Wetland exhibits high degree of plant community structure/species diversity.
9. High aquatic vegetative diversity/abundance is present.
10. Nutrients exported in wetland watercourses (permanent outlet present).
11. "Flushing" of relatively large amounts of organic plant material occurs from this wetland.
12. Wetland contains flowering plants that are used by nectar-gathering insects.
13. Indications of export are present.
14. High production levels occurring, however, no visible signs of export (assumes export is attenuated).
15. Other

SEDIMENT/SHORELINE STABILIZATION — This function considers the effectiveness of a wetland to stabilize streambanks and shorelines against erosion.



#### CONSIDERATIONS/QUALIFIERS

1. Indications of erosion or siltation are present.
2. Topographical gradient is present in wetland.
3. Potential sediment sources are present up-slope.
4. Potential sediment sources are present upstream.
5. No distinct shoreline or bank is evident between the waterbody and the wetland or upland.
6. A distinct step between the open waterbody or stream and the adjacent land exists (i.e., sharp bank) with dense roots throughout.
7. Wide wetland (>10') borders watercourse, lake, or pond.
8. High flow velocities in the wetland.
9. The watershed is of sufficient size to produce channelized flow.
10. Open water fetch is present.
11. Boating activity is present.
12. Dense vegetation is bordering watercourse, lake, or pond.
13. High percentage of energy-absorbing emergents and/or shrubs border a watercourse, lake, or pond.
14. Vegetation is comprised of large trees and shrubs that withstand major flood events or erosive incidents and stabilize the shoreline on a large scale (feet).
15. Vegetation is comprised of a dense resilient herbaceous layer that stabilizes sediments and the shoreline on a small scale (inches) during minor flood events or potentially erosive events.
16. Other



**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. Species lists of observed and potential animals should be included in the wetland assessment report.<sup>1</sup>

#### CONSIDERATIONS/QUALIFIERS

1. Wetland is not degraded by human activity.
2. Water quality of the watercourse, pond, or lake associated with this wetland meets or exceeds Class A or B standards.
3. Wetland is not fragmented by development.
4. Upland surrounding this wetland is undeveloped.
5. More than 40% of this wetland edge is bordered by upland wildlife habitat (e.g., brushland, woodland, active farmland, or idle land) at least 500 feet in width.
6. Wetland is contiguous with other wetland systems connected by a watercourse or lake.
7. Wildlife overland access to other wetlands is present.
8. Wildlife food sources are within this wetland or are nearby.
9. Wetland exhibits a high degree of interspersion of vegetation classes and/or open water.
10. Two or more islands or inclusions of upland within the wetland are present.
11. Dominant wetland class includes deep or shallow marsh or wooded swamp.
12. More than three acres of shallow permanent open water (less than 6.6 feet deep), including streams in or adjacent to wetland, are present.
13. Density of the wetland vegetation is high.
14. Wetland exhibits a high degree of plant species diversity.
15. Wetland exhibits a high degree of diversity in plant community structure (e.g., tree/shrub/vine/grasses/mosses)
16. Plant/animal indicator species are present. (List species for project)
17. Animal signs observed (tracks, scats, nesting areas, etc.)
18. Seasonal uses vary for wildlife and wetland appears to support varied population diversity/abundance during different seasons.
19. Wetland contains or has potential to contain a high population of insects.
20. Wetland contains or has potential to contain large amphibian populations.
21. Wetland has a high avian utilization or its potential.
22. Indications of less disturbance-tolerant species are present.
23. Signs of wildlife habitat enhancement are present (birdhouses, nesting boxes, food sources, etc.).
24. Other

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<sup>1</sup>In March 1995, a rapid wildlife habitat assessment method was completed by a University of Massachusetts research team with funding and oversight provided by the New England Transportation Consortium. The method is called WETHings (wetland habitat indicators for non-game species). It produces a list of potential wetland-dependent mammal, reptile, and amphibian species that may be present in the wetland. The output is based on observable habitat characteristics documented on the field data form. This method may be used to generate the wildlife species list recommended as backup information to the wetland evaluation form and to augment the considerations. Use of this method should first be coordinated with the Corps project manager. A computer program is also available to expedite this process.

**RECREATION (Consumptive and Non-Consumptive)** — This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, 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. Non-consumptive opportunities do not consume or diminish these resources of the wetland.



#### CONSIDERATIONS/QUALIFIERS

1. Wetland is part of a recreation area, park, forest, or refuge.
2. Fishing is available within or from the wetland.
3. Hunting is permitted in the wetland.
4. Hiking occurs or has potential to occur within the wetland.
5. Wetland is a valuable wildlife habitat.
6. The watercourse, pond, or lake associated with the wetland is unpolluted.
7. High visual/aesthetic quality of this potential recreation site.
8. Access to water is available at this potential recreation site for boating, canoeing, or fishing.
9. The watercourse associated with this wetland is wide and deep enough to accommodate canoeing and/or non-powered boating.
10. Off-road public parking available at the potential recreation site.
11. Accessibility and travel ease is present at this site.
12. The wetland is within a short drive or safe walk from highly populated public and private areas.
13. Other

**EDUCATIONAL/SCIENTIFIC VALUE** — This value considers the suitability of the wetland as a site for an “outdoor classroom” or as a location for scientific study or research.



#### CONSIDERATIONS/QUALIFIERS

1. Wetland contains or is known to contain threatened, rare, or endangered species.
2. Little or no disturbance is occurring in this wetland.
3. Potential educational site contains a diversity of wetland classes which are accessible or potentially accessible.
4. Potential educational site is undisturbed and natural.
5. Wetland is considered to be a valuable wildlife habitat.
6. Wetland is located within a nature preserve or wildlife management area.
7. Signs of wildlife habitat enhancement present (bird houses, nesting boxes, food sources, etc.).
8. Off-road parking at potential educational site suitable for school bus access in or near wetland.
9. Potential educational site is within safe walking distance or a short drive to schools.
10. Potential educational site is within safe walking distance to other plant communities.
11. Direct access to perennial stream at potential educational site is available.
12. Direct access to pond or lake at potential educational site is available.
13. No known safety hazards exist within the potential educational site.
14. Public access to the potential educational site is controlled.
15. Handicap accessibility is available.
16. Site is currently used for educational or scientific purposes.
17. Other



**UNIQUENESS/HERITAGE** — This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation, and habitat diversity.

#### CONSIDERATIONS/QUALIFIERS

1. Upland surrounding wetland is primarily urban.
2. Upland surrounding wetland is developing rapidly.
3. More than 3 acres of shallow permanent open water (less than 6.6 feet deep), including streams, occur in wetlands.
4. Three or more wetland classes are present.
5. Deep and/or shallow marsh or wooded swamp dominate.
6. High degree of interspersion of vegetation and/or open water occur in this wetland.
7. Well-vegetated stream corridor (15 feet on each side of the stream) occurs in this wetland.
8. Potential educational site is within a short drive or a safe walk from schools.
9. Off-road parking at potential educational site is suitable for school buses.
10. No known safety hazards exist within this potential educational site.
11. Direct access to perennial stream or lake exists at potential educational site.
12. Two or more wetland classes are visible from primary viewing locations.
13. Low-growing wetlands (marshes, scrub-shrub, bogs, open water) are visible from primary viewing locations.
14. Half an acre of open water or 200 feet of stream is visible from the primary viewing locations.
15. Large area of wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons.
16. General appearance of the wetland visible from primary viewing locations is unpolluted and/or undisturbed.
17. Overall view of the wetland is available from the surrounding upland.
18. Quality of the water associated with the wetland is high.
19. Opportunities for wildlife observations are available.
20. Historical buildings are found within the wetland.
21. Presence of pond or pond site and remains of a dam occur within the wetland.
22. Wetland is within 50 yards of the nearest perennial watercourse.
23. Visible stone or earthen foundations, berms, dams, standing structures, or associated features occur within the wetland.
24. Wetland contains critical habitat for a state- or federally-listed threatened or endangered species.
25. Wetland is known to be a study site for scientific research.
26. Wetland is a natural landmark or recognized by the state natural heritage inventory authority as an exemplary natural community.
27. Wetland has local significance because it serves several functional values.
28. Wetland has local significance because it has biological, geological, or other features that are locally rare or unique.
29. Wetland is known to contain an important archaeological site.
30. Wetland is hydrologically connected to a state or federally designated scenic river.
31. Wetland is located in an area experiencing a high wetland loss rate.
32. Other

**VISUAL QUALITY/AESTHETICS** — This value considers the visual and aesthetic quality or usefulness of the wetland.



**CONSIDERATIONS/QUALIFIERS**

1. Multiple wetland classes are visible from primary viewing locations.
2. Emergent marsh and/or open water are visible from primary viewing locations.
3. A diversity of vegetative species is visible from primary viewing locations.
4. Wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons.
5. Land use surrounding the wetland is undeveloped as seen from primary viewing locations.
6. Visible surrounding land use contrasts with wetland.
7. Wetland views absent of trash, debris, and signs of disturbance.
8. Wetland is considered to be a valuable wildlife habitat.
9. Wetland is easily accessed.
10. Low noise level at primary viewing locations.
11. Unpleasant odors absent at primary viewing locations.
12. Relatively unobstructed sight line exists through wetland.
13. Other

**ENDANGERED SPECIES HABITAT** — This value considers the suitability of the wetland to support threatened or endangered species.

**ES**

**CONSIDERATIONS/QUALIFIERS**

1. Wetland contains or is known to contain threatened or endangered species.
2. Wetland contains critical habitat for a state or federally listed threatened or endangered species.

**ATTACHMENT 17**

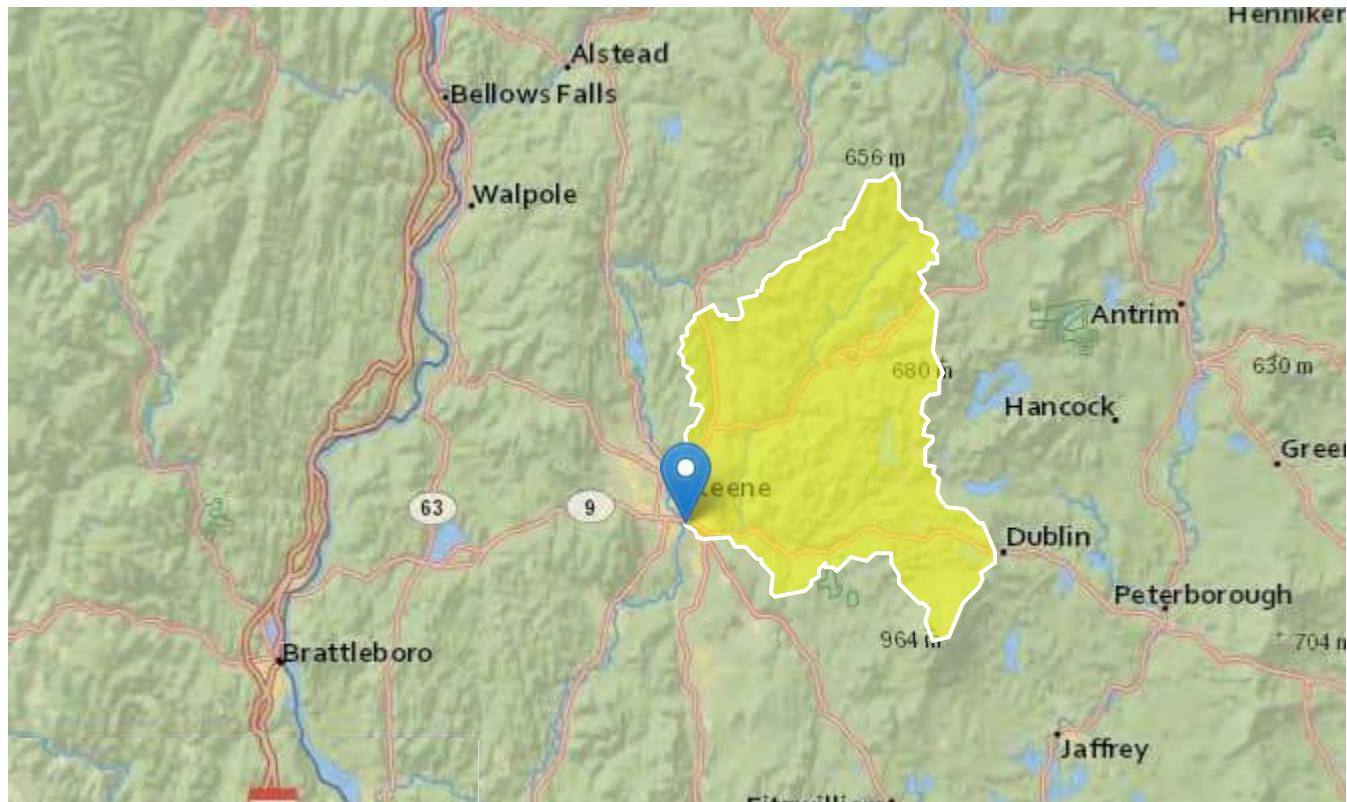
# StreamStats Report for the Branch River at Martell Court Sewer Pump Station, Keene, NH

**Region ID:** NH

**Workspace ID:** NH20241031130753958000

**Clicked Point (Latitude, Longitude):** 42.91914, -72.27871

**Time:** 2024-10-31 09:08:11 -0400



**+** [Collapse All](#)

## ➤ Basin Characteristics

Parameter	Code	Parameter Description	Value	Unit
CONIF		Percentage of land surface covered by coniferous forest	17.2851	percent
DRNAREA		Area that drains to a point on a stream	99.6	square miles (63,744 acres)

Parameter	Code	Parameter Description	Value	Unit
	ELEVMAX	Maximum basin elevation	3134.076	feet
	LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	7.28	percent
	LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	1.56	percent
	MIXFOR	Percentage of land area covered by mixed deciduous and coniferous forest	23.9764	percent
	WETLAND	Percentage of Wetlands	5.8407	percent

## General Disclaimers

The delineation point is in an exclusion area. WARNING! U.S. Army Corp of Engineers flood control reservoir upstream of this location. The regression equations are not applicable.

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

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USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

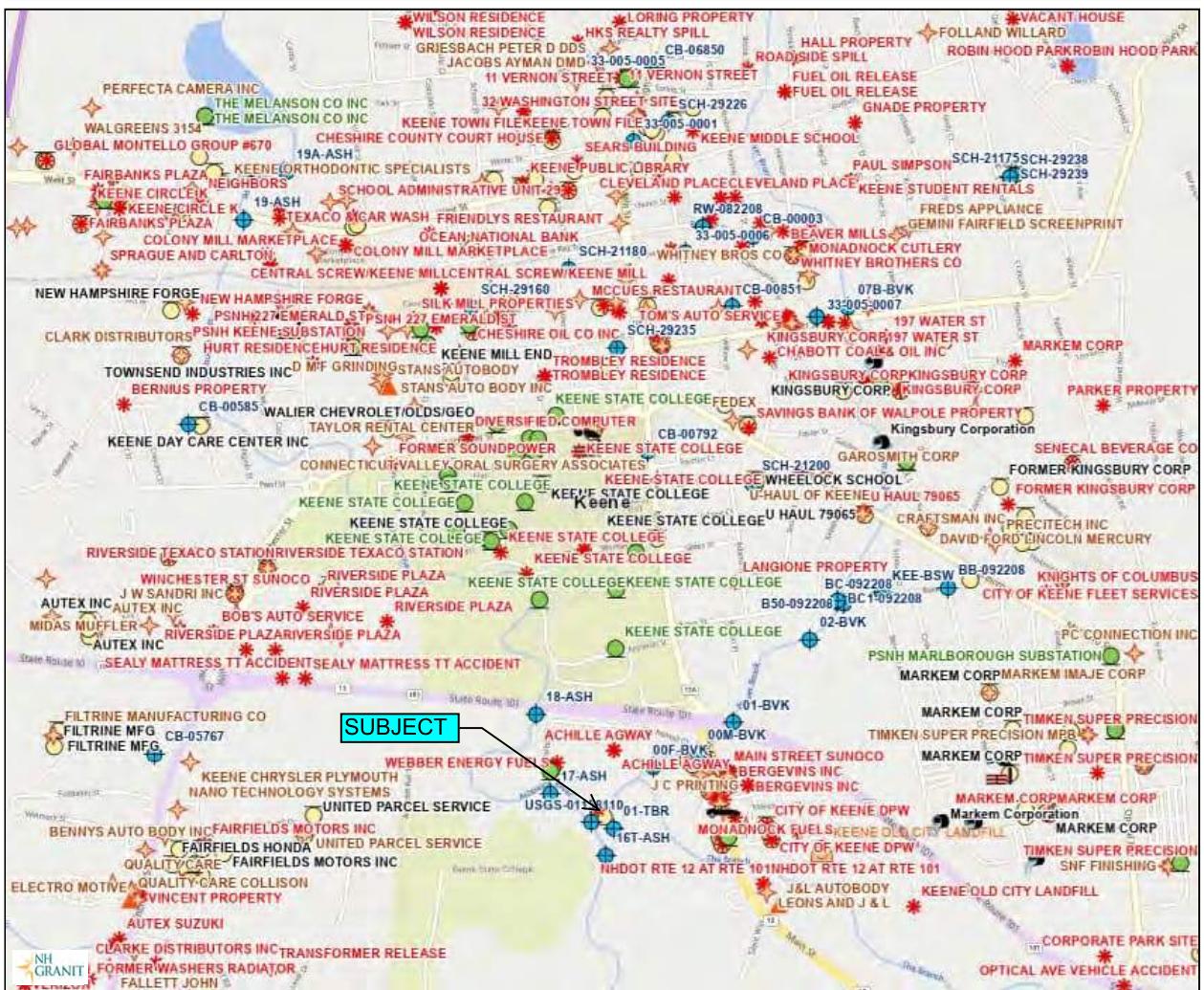
Application Version: 4.24.0

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

# Martell Court Sewer Pump Station

ATTACHMENT 18



## Legend

- Additional Lines
- City/Town
- Air Facility Systems
- Asbestos Disposal Sites
- Automobile Salvage Yard
- Environmental Monitoring
- Hazardous Waste Generators
- ▲ Local Potential Contaminants
- NPDES Outfalls
- Remediation Sites
- Solid Waste Facilities
- Underground Storage Tanks

## Map Scale

1: 12,988

© NH GRANIT, www.granit.unh.edu

Map Generated: 10/31/2024

## Notes

POTENTIALLY CONTAMINATED SITES

*MCJ*

## APPENDIX



Image 1 – Looking northwest at wetland area (identified by the 'A' series flags) that was recently cleared of vegetation.



Image 2 – Looking southwest at the wetland identified by the 'D' series flags.



Image 3 – Looking southeast at the Branch from the sewer pump station. Note the sewer pipe.



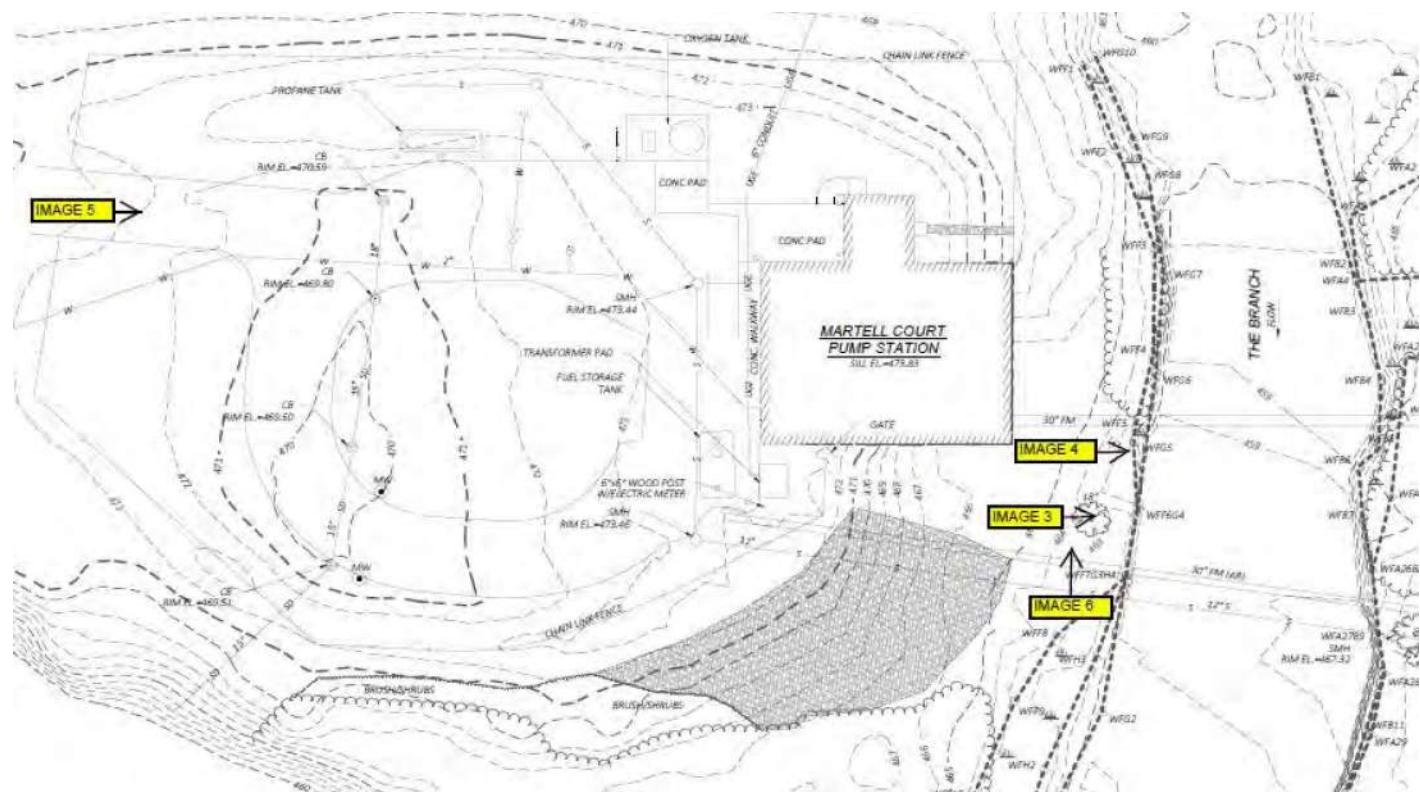
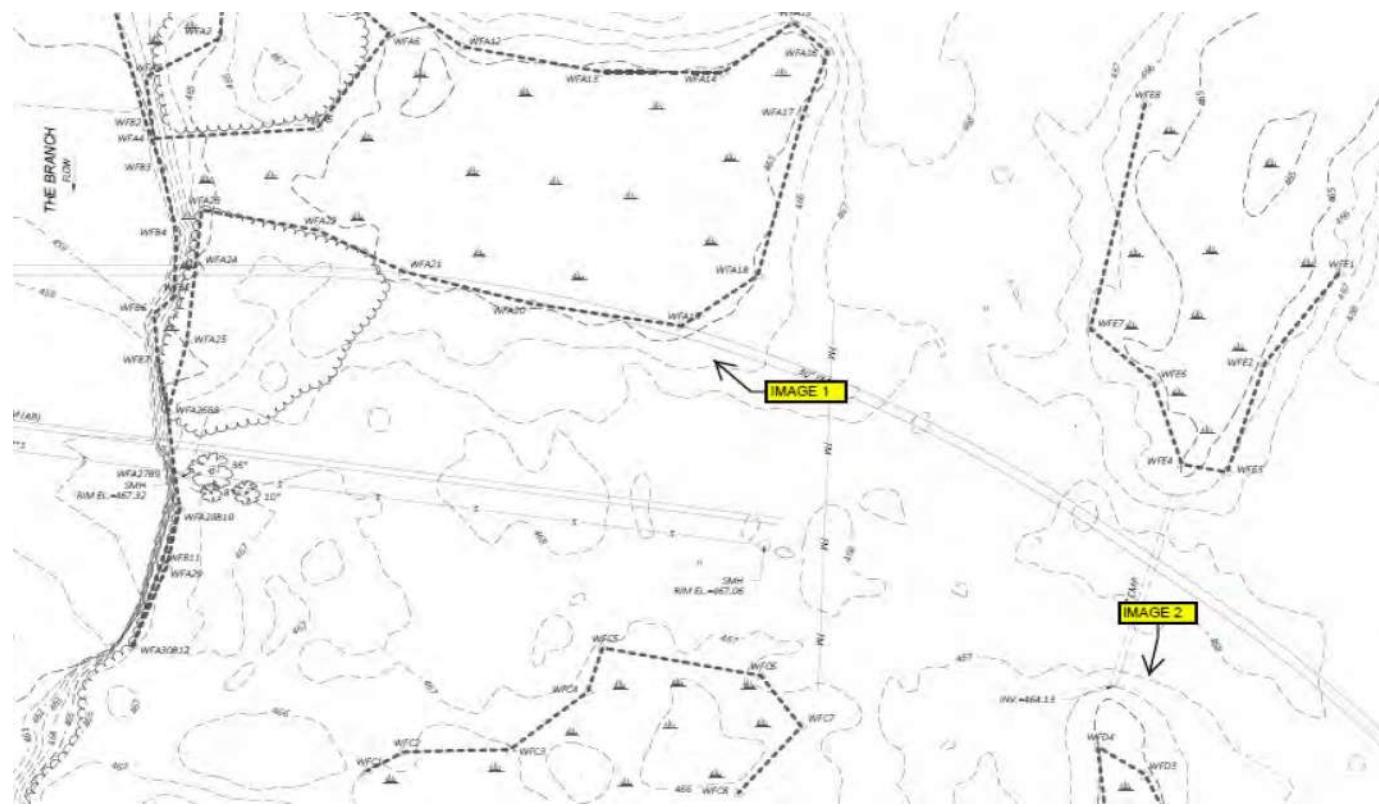
Image 4 – Looking southeast at the Branch from the sewer pump station. Note the boulders.



Image 5 – Looking southeast at the sewer pump station.



Image 6 – Looking north between the sewer pump station and the Branch.



## Attachment A - Minor & Major Projects



**STANDARD DREDGE AND FILL  
WETLANDS PERMIT APPLICATION**  
**ATTACHMENT A: MINOR AND MAJOR PROJECTS**



Water Division/Land Resources Management  
Wetlands Bureau

[Check the Status of your Application](#)

**RSA/ Rule:** RSA 482-A/ Env-Wt 311.10; Env-Wt 313.01(a)(1); Env-Wt 313.03

**APPLICANT'S NAME:** **City of Keene**

**TOWN NAME:** Keene

Attachment A is required for *all minor and major projects*, and must be completed *in addition* to the [Avoidance and Minimization Narrative](#) or [Checklist](#) that is required by Env-Wt 307.11.

For projects involving construction or modification of non-tidal shoreline structures over areas of surface waters having an absence of wetland vegetation, only Sections I.X through I.XV are required to be completed.

**PART I: AVOIDANCE AND MINIMIZATION**

In accordance with Env-Wt 313.03(a), the Department shall not approve any alteration of any jurisdictional area unless the applicant demonstrates that the potential impacts to jurisdictional areas have been avoided to the maximum extent practicable and that any unavoidable impacts have been minimized, as described in the [Wetlands Best Management Practice Techniques For Avoidance and Minimization](#).

**SECTION I.I - ALTERNATIVES (Env-Wt 313.03(b)(1))**

Describe how there is no practicable alternative that would have a less adverse impact on the area and environments under the Department's jurisdiction.

THE PROPOSED PROJECT HAS BEEN DESIGNED TO MINIMIZE IMPACTS TO JURISDICTIONAL AREAS TO THE MAXIMUM EXTENT PRACTICABLE. ALTERNATIVES INCLUDING TRENCHLESS INSTALLATION AND A TEMPORARY UTILITY BRIDGE WERE EVALUATED PRIOR TO PROPOSING THE OPEN CUT ALTERNATIVE. TRENCHLESS INSTALLATION WAS EVALUATED BY GEOTECHNICAL ENGINEERS AND DETERMINED TO BE A HIGH RISK OF FAILURE DUE TO EXISTING SOILS. PRELIMINARY DESIGN OF A TEMPORARY BYPASS UTILITY BRIDGE WAS ALSO EVALUATED INITIALLY, BUT DETERMINED TO BE COST PROHIBITIVE FOR THE CITY AND WOULD NOT PROVIDE THE BENEFIT OF A PERMANENT BYPASS THAT COULD BE USED IF NEEDED IN THE FUTURE.

[Irm@des.nh.gov](mailto:Irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095  
[www.des.nh.gov](http://www.des.nh.gov)

**SECTION I.II - MARSHES (Env-Wt 313.03(b)(2))**

Describe how the project avoids and minimizes impacts to tidal marshes and non-tidal marshes where documented to provide sources of nutrients for finfish, crustacean, shellfish, and wildlife of significant value.

The proposed project does not impact tidal or non-tidal marshes. There are no marshes within the project area.

**SECTION I.III - HYDROLOGIC CONNECTION (Env-Wt 313.03(b)(3))**

Describe how the project maintains hydrologic connections between adjacent wetland or stream systems.

The proposed project will not permanently impact hydrologic connections between adjacent wetland or stream systems. The contractor will be required to develop and submit a temporary dewatering and water diversion plan designed by a licensed professional engineer that demonstrates how flow of the Branch will be maintained during construction.

#### **SECTION I.IV - JURISDICTIONAL IMPACTS (Env-Wt 313.03(b)(4))**

Describe how the project avoids and minimizes impacts to wetlands and other areas of jurisdiction under RSA 482-A, especially those in which there are exemplary natural communities, vernal pools, protected species and habitat, documented fisheries, and habitat and reproduction areas for species of concern, or any combination thereof.

Proposed impacts within the wetlands have been minimized to the maximum extent practicable. Impacts will be minimized through the use of best management practices during construction. Coordination with NHB and NHFG indicates that impacts are not anticipated to exemplary natural communities, protected species and habitat, and documented fisheries. NHFG provided conditions, and have been included in the plans as practical, to minimize impacts to species of special concerns. The project area is not located within a documented coldwater fishery.

#### **SECTION I.V - PUBLIC COMMERCE, NAVIGATION, OR RECREATION (Env-Wt 313.03(b)(5))**

Describe how the project avoids and minimizes impacts that eliminate, deprecate or obstruct public commerce, navigation, or recreation.

The proposed project will not permanently impact public commerce, navigation, or recreation. Temporary disruptions to traffic may occur on Main Street and Martell Court during construction, however, vehicular access to private property will be maintained.

**SECTION I.VI - FLOODPLAIN WETLANDS (Env-Wt 313.03(b)(6))**

Describe how the project avoids and minimizes impacts to floodplain wetlands that provide flood storage.

Proposed impacts to floodplain wetlands are temporary and will be restored to match existing conditions. The proposed project avoids permanent impacts to floodplain wetlands and their ability to provide flood storage.

**SECTION I.VII - RIVERINE FORESTED WETLAND SYSTEMS AND SCRUB-SHRUB – MARSH COMPLEXES (Env-Wt 313.03(b)(7))**

Describe how the project avoids and minimizes impacts to natural riverine forested wetland systems and scrub-shrub – marsh complexes of high ecological integrity.

The proposed project avoids impacts to natural riverine forested wetland systems and scrub-shrub-marsh complexes of high ecological integrity.

**SECTION I.VIII - DRINKING WATER SUPPLY AND GROUNDWATER AQUIFER LEVELS (Env-Wt 313.03(b)(8))**

Describe how the project avoids and minimizes impacts to wetlands that would be detrimental to adjacent drinking water supply and groundwater aquifer levels.

The proposed project does not propose impacts to wetlands that would be detrimental to adjacent drinking water supply and groundwater aquifer levels.

**SECTION I.IX - STREAM CHANNELS (Env-Wt 313.03(b)(9))**

Describe how the project avoids and minimizes adverse impacts to stream channels and the ability of such channels to handle runoff of waters.

The proposed project force main will be located 5-ft below the stream bed and will not impact the ability of the channel to handle runoff of waters. The gravity sewer replacement will be replaced in-kind. Proposed bank stabilization on the east bank will include cutting back of the bank at a 1:1, increasing the channels ability to handle runoff waters.

**SECTION I.X - SHORELINE STRUCTURES - CONSTRUCTION SURFACE AREA (Env-Wt 313.03(c)(1))**

Describe how the project has been designed to use the minimum construction surface area over surface waters necessary to meet the stated purpose of the structures.

The proposed project does not involve shoreline structures over surface waters.

**SECTION I.XI - SHORELINE STRUCTURES - LEAST INTRUSIVE UPON PUBLIC TRUST (Env-Wt 313.03(c)(2))**

Describe how the type of construction proposed is the least intrusive upon the public trust that will ensure safe docking on the frontage.

The proposed project does not involve shoreline structures over surface waters.

**SECTION I.XII - SHORELINE STRUCTURES – ABUTTING PROPERTIES (Env-Wt 313.03(c)(3))**

Describe how the structures have been designed to avoid and minimize impacts on ability of abutting owners to use and enjoy their properties.

The proposed project does not involve shoreline structures over surface waters.

**SECTION I.XIII - SHORELINE STRUCTURES – COMMERCE AND RECREATION (Env-Wt 313.03(c)(4))**

Describe how the structures have been designed to avoid and minimize impacts to the public's right to navigation, passage, and use of the resource for commerce and recreation.

The proposed project does not involve shoreline structures over surface waters.

**SECTION I.XIV - SHORELINE STRUCTURES – WATER QUALITY, AQUATIC VEGETATION, WILDLIFE AND FINFISH HABITAT (Env-Wt 313.03(c)(5))**

Describe how the structures have been designed, located, and configured to avoid impacts to water quality, aquatic vegetation, and wildlife and finfish habitat.

The proposed project does not involve shoreline structures over surface waters.

**SECTION I.XV - SHORELINE STRUCTURES – VEGETATION REMOVAL, ACCESS POINTS, AND SHORELINE STABILITY (Env-Wt 313.03(c)(6))**

Describe how the structures have been designed to avoid and minimize the removal of vegetation, the number of access points through wetlands or over the bank, and activities that may have an adverse effect on shoreline stability.

The proposed project does not involve shoreline structures over surface waters.

## PART II: FUNCTIONAL ASSESSMENT

### REQUIREMENTS

Ensure that project meets the requirements of Env-Wt 311.10 regarding functional assessment (Env-Wt 311.04(j); Env-Wt 311.10).

### FUNCTIONAL ASSESSMENT METHOD USED:

See Section 5.

NAME OF CERTIFIED WETLAND SCIENTIST (FOR NON-TIDAL PROJECTS) OR QUALIFIED COASTAL PROFESSIONAL (FOR TIDAL PROJECTS) WHO COMPLETED THE ASSESSMENT: MARC JACOBS

DATE OF ASSESSMENT: FALL 2024

Check this box to confirm that the application includes a NARRATIVE ON FUNCTIONAL ASSESSMENT:



For minor or major projects requiring a standard permit without mitigation, the applicant shall submit a wetland evaluation report that includes completed checklists and information demonstrating the RELATIVE FUNCTIONS AND VALUES OF EACH WETLAND EVALUATED. Check this box to confirm that the application includes this information, if applicable:



Note: The Wetlands Functional Assessment worksheet can be used to compile the information needed to meet functional assessment requirements.

7  
Tax Map





# Abutter Notifications

8

Abutter notifications have been completed for this project. Copies of the certified mail receipts are included in this section.

All proposed wetland impacts are located within parcels owned by the City of Keene. An abutter notification has not been sent for Map 114 Lot 35 because this parcel is owned by the City of Keene, as they are submitting the Wetlands Permit Application.

Abutting properties are as follows:

Map-Lot	Location	Ownership	Mailing Address	Abutter Notification Required
112-012	80 Martell Court	Achille George P Jr Rev Trust	PO Box 87, Peterborough, NH 03458	Yes
112-016	164 Martell Court	Dead River Company	82 Running Hill Road, Suite 400, South Portland, ME 04106- 3218	Yes
114-022	0 Main Street	PSNH	PO Box 270, Hartford, CT	Yes
114-035	0 Off Main Street	City of Keene	3 Washington Street, Keene, NH 03431	No

Via Certified Mail

[Date]

[Recipient]

Address

Address Line 2

City, State Zip

**SUBJECT: Martell Court Pump Station Permanent Bypass – Keene, NH**  
**Abutter Notification of Wetlands Permit Application**

Dear Recipient First Name,

The City of Keene is proposing to construct a permanent bypass for the Martell Court Pump Station from Map 114 Lot 36 to Map 144 Lot 37 to allow for maintenance and repairs at the Martell Court Pump Station as needed. The project requires impacts to jurisdictional wetlands and therefore notification of the aforementioned project to abutting properties is required by RSA 482-A:3, I(e)(1).

This letter is to inform you that a Standard Wetlands Dredge & Fill Permit Application will be filed with the NH Department of Environmental Services (NHDES) Wetlands Bureau for the aforementioned project. Once filed, the permit application will be available for viewing at the City Clerk's Office in Keene or at the NHDES offices.

If you have any questions or concerns, please feel free to contact me at the email below.

Sincerely,

**WRIGHT-PIERCE**

First M. Last, PE

Title

[first.last@wright-pierce.com](mailto:first.last@wright-pierce.com)

First M. Last, PE (if needed)

Title

[first.last@wright-pierce.com](mailto:first.last@wright-pierce.com)

9  
Photographs

# Photographs

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Note: All photographs taken September 22, 2023 unless otherwise noted



Photo 1: Taken from East side, looking at West side along forcemain alignment adjacent to Pump Station



Photo 2: Taken from East side, looking at West side along forcemain alignment



Photo 3: Taken from West side, looking North

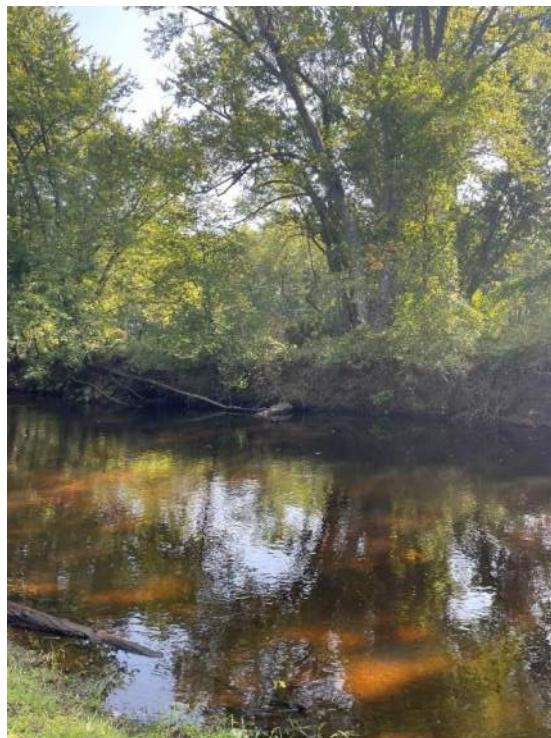


Photo 4: Taken from West side, looking East



Photo 5: Taken from East side, looking West along alignment location



Photo 6: Taken from West side, looking east along existing gravity sewer and abandoned force main (September 10, 2024)



Photo 7: Taken from channel, looking downstream along the western bank (June 25, 2025)

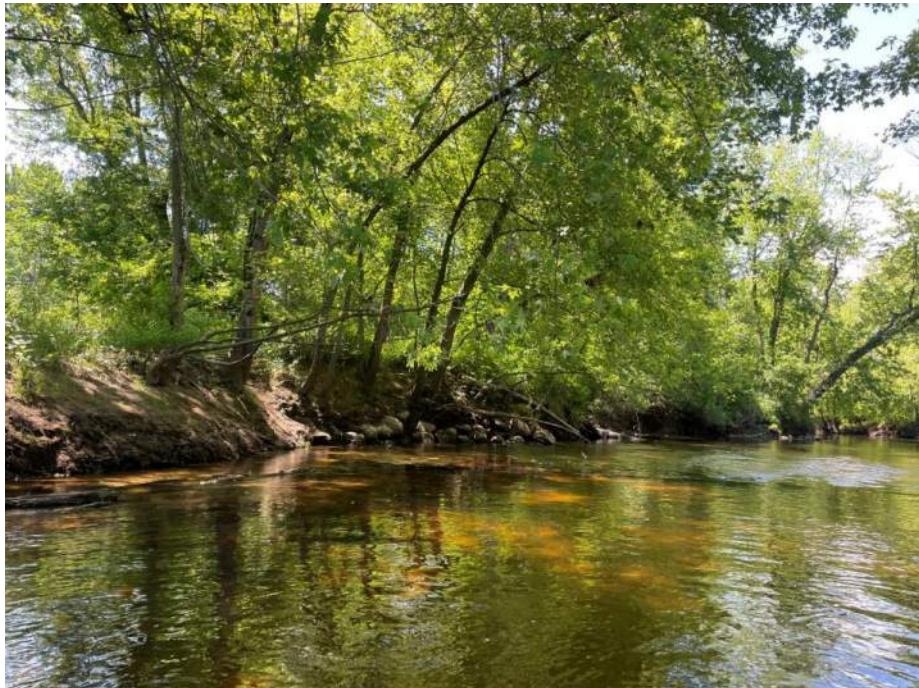


Photo 8: Taken from channel, looking downstream along the eastern bank (June 25, 2025)



Photo 9: Taken from channel, looking downstream towards the western bank (June 25, 2025)



Photo 10: Taken from channel, looking downstream towards the eastern bank and abandoned FM (June 25, 2025)



Photo 11: Taken from channel, looking upstream towards the eastern bank and abandoned FM (June 25, 2025)



Photo 12: Taken from channel, looking upstream towards the western bank(June 25, 2025)

10  
USGS Map

: \* , 6B' HYHORSSPHQW? 3URMHFWV? 1+? . HHQH? . BODUWHO&RXUW36B9DOYH? . V?QDUWHOO&RXUW36 DSU! 3URMHFW\$UHDB86\*6B [ &/0 ]

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WRIGHT-PIERCE  Engineering a Better Environment	

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Mount Cresson

A topographic map of Mount Cresson, featuring contour lines and a north arrow. The map shows the mountain's profile with various elevations marked. A north arrow is located in the bottom right corner.

## Proposed Construction Sequence

The proposed project is anticipated to begin construction in Summer 2025. A general sequence of construction activities is provided below. The final schedule will be determined by the City and contractor upon receipt of permit approvals.

General Schedule:

1. Contractor mobilizes to project area (Summer 2025).
2. Install perimeter silt fence and other applicable erosion and sedimentation controls practices.
3. Prepare staging area.
4. Remove trees, if necessary, within the limit of work. Control invasive species in accordance with invasive species control plan.
5. Begin site demolition as shown on plans.
6. Install bypass pumping for 12" gravity main.
7. Install water diversion and turbidity controls in accordance with Water Control Plan designed by licensed engineer and submitted by Contractor.
8. Begin in-water excavation in accordance with approved plans.
9. Construct and test new forcemain from east side tapping sleeve to the wall of the pump station and gravity sewer. Remove abandoned force main from the Branch.
10. Restore stream bed, stabilize banks and complete bank stabilization on east bank.
11. Remove water diversion and turbidity controls.
12. Install final connection to the new bypass forcemain.
13. Install line stop and replace remaining valves and piping inside the station.
14. Restore temporary disturbance areas to match existing conditions.
15. Once the site is permanently stabilized, remove all temporary erosion control measures.

12

NHB & NHFG Correspondence



**DataCheck Results Letter**  
For NHDES Ecological Review

To: Miranda Pierre, Wright Pierce  
230 Commerce Way Suite 302  
Portsmouth, NH 03801  
miranda.pierre@wright-pierce.com

From: Ecological Review Section  
NH Department of Environmental Services  
Main Contact: Maddie Severance - [EcologicalReviews@des.nh.gov](mailto:EcologicalReviews@des.nh.gov)

cc: NHFG Review, David Simmons

Date: 10/29/2025 (valid until 10/29/2026)

Re: DataCheck Review by NHDES Ecological Review Section and NH Fish & Game

Permits: NHDES - Wetlands Standard Dredge & Fill

**DCT ID:** **DCT25-2963**

Town: Keene  
Location: 157 Martell Court

**Project Description:** On July 10th, 2023, the discharge knife gate for the City's Martell Court Pump Station failed and began leaking significant quantities of sewage into the dry pit of the pump station. A state of emergency was issued by the City to conduct temporary emergency repairs inside the station and prevent sewage overflow to the Ashuelot River. To complete the emergency repair, a permanent bypass force main shall be installed across the Branch. Construction is anticipated in Summer 2026. The project was previously reviewed under NHB24-2778. NHF&G consultation was completed and recommended permit conditions have been received.

**Next Steps for Applicant:**

NHDES's Ecological Review Section has searched the Natural Heritage Bureau's (NHB) database of rare species and exemplary natural communities. Please carefully read the comments below and the consultation requirements on the following page.

**Plant and Natural**

**Community Comments:** Under NHB24-2778 final consultation regarding the exemplary silver maple - false nettle - sensitive fern floodplain forest occurred and NHB provided the following comments:

"Based on the provided information and the proposed plans, proper erosion and sediment controls are proposed, and the eroding bank will be stabilized. Because of this, the nearby silver maple - false nettle - sensitive fern floodplain forest is unlikely to be impacted and NHB has no further concerns regarding NHB24-2778."



**DataCheck Results Letter**  
For NHDES Ecological Review

As long as the proposed plans have not changed in a way that would impact the hydrology of the Ashuelot River or increase the input of nutrients and sediment, I have no concerns regarding this project and consultation is not needed.

**Wildlife Comments:** Please refer to NHFG consultation requirements below.

**Plant and Natural Community Consultation**

If this DataCheck letter includes records of rare plants and/or natural communities/systems, please contact the Ecological Review Section and provide any requested supplementary materials by emailing [EcologicalReviews@des.nh.gov](mailto:EcologicalReviews@des.nh.gov).

If this DataCheck letter DOES NOT include any records of rare plants and/or natural communities/systems, no further consultation with the Ecological Review Section regarding rare plants and/or natural communities/systems is required.

**Wildlife Consultation**

If this DataCheck letter DOES NOT include ANY wildlife species records, then, based on the information submitted, no further consultation with the NH Fish and Game Department (NHFG) pursuant to Fis 1004 is required.

If this DataCheck letter includes a record for a threatened (T) or endangered (E) wildlife species, consultation with the New Hampshire Fish and Game Department under Fis 1004 may be required. To review the Fis 1000 rules (effective February 3, 2022), please go to <https://www.wildlife.nh.gov/wildlife-and-habitat/nongame-and-endangered-species/environmental-review>. All requests for consultation and submittals should be sent via email to [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov) or can be sent by mail, and must include the DataCheck results letter number and "Fis 1004 consultation request" in the subject line.

If the DataCheck response letter does not include a threatened or endangered wildlife species but includes other wildlife species (e.g., Species of Special Concern), consultation under Fis 1004 is not required; however, some species are protected under other state laws or rules, so coordination with NH Fish & Game is highly recommended or may be required for certain permits. While some permitting processes are exempt from required consultation under Fis 1004 (e.g., *statutory permit by notification, permit by rule, permit by notification, routine roadway registration, docking structure registration, or conditional authorization by rule*), coordination with NH Fish & Game may still be required under the rules governing those specific permitting processes, and it is recommended you contact the applicable permitting agency. For projects not requiring consultation under Fis 1004, but where additional coordination with NH Fish and



## **DataCheck Results Letter**

### For NHDES Ecological Review

Game is requested, please email [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov), and include the DataCheck results letter number and "review request" in the email subject line.

**Contact NH Fish & Game at (603) 271-0467 with questions.**

#### **Federal ESA Compliance**

This letter does not constitute compliance with the federal Endangered Species Act (ESA). There may be occurrences of federally listed species in New Hampshire that are not included on the NH DataCheck Letter. For compliance with the federal Endangered Species Act (ESA), please visit the US Fish and Wildlife Service's (USFWS) Information for Planning and Consultation website (<https://ipac.ecosphere.fws.gov/>; IPaC) for an official list of federally listed species that may be present in your project area. If a federal agency is involved in your project through funding, permit, or other authorization, coordinate your IPaC results with your point of contact at the agency for further ESA review. If there is no federal agency nexus to your project, and you determine through IPaC, habitat evaluations, etc. that a project may cause take of a federally listed species, we recommend coordinating with the USFWS' New England Field Office ([newengland@fws.gov](mailto:newengland@fws.gov); 603-223-2541).



**DataCheck Results Letter**  
For NHDES Ecological Review

**NHB Database Records:**

The following record(s) have been documented in the vicinity of the proposed project. Please refer to this list when coordinating.

Invertebrate Species	State <sup>1</sup>	Federal	Notes
Dwarf Wedge Mussel ( <i>Prolammidonta heterodon</i> )*	E	E	Contact the NH Fish & Game Dept and the US Fish & Wildlife Service (see above).
Natural Community	State <sup>1</sup>	Federal	Notes
Silver maple - false nettle - sensitive fern floodplain forest*	--	--	Threats are primarily changes to the hydrology of the river, land conversion and fragmentation, introduction of invasive species, and increased input of nutrients and pollutants.
Vertebrate species	State <sup>1</sup>	Federal	Notes
Common Nighthawk ( <i>Chordeiles minor</i> )*	E	--	Contact the NH Fish & Game Dept (see above).
Northern Leopard Frog ( <i>Lithobates pipiens</i> )*	SC	--	Contact the NH Fish & Game Dept (see above).
Wood Turtle ( <i>Glyptemys insculpta</i> )*	SC	--	Contact the NH Fish & Game Dept (see above).

<sup>1</sup>Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list.

An asterisk (\*) indicates that the most recent report for that occurrence was 20 or more years ago.

*For all animal reviews, refer to 'Wildlife Consultation' section above. For all federally-listed species, refer to the 'Federal ESA Compliance' section above.*

**Disclaimer:** NHB's database can only tell you of known occurrences that have been reported to NHFG/NHB. Known occurrences are based on information gathered by qualified biologists or members of the public, reported to our offices, and verified by NHB/NHFG.

However, many areas have never been surveyed, or have only been surveyed for certain species.

Surveys are recommended to determine what species/natural communities are present onsite.



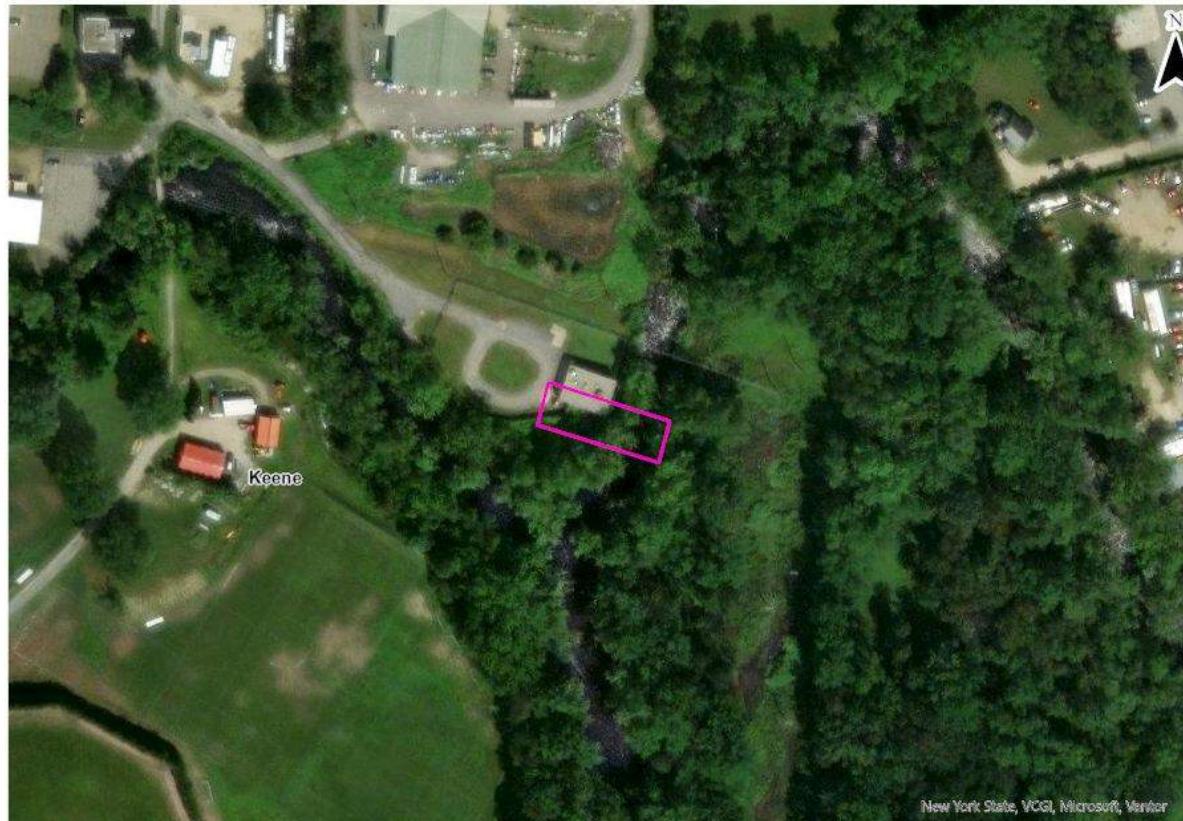
## DataCheck Results Letter

For NHDES Ecological Review

**Please note:** Effective June 10th, 2025, DataCheck letters will no longer include specific locations of rare species and exemplary natural communities. Changes to the map have been made to reflect this update.

**Important:** The list of rare species and exemplary natural communities that may be impacted by the project is included. Please refer to that list when coordinating.

**DCT25-2963**



0      0.03      0.06      0.09      0.12      0.15  
Miles

**Legend**  
City/Town  
Site bounds

## Miranda Pierre

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**From:** DNCR: NHB Review <nhbreview@dnrcr.nh.gov>  
**Sent:** Wednesday, October 16, 2024 3:17 PM  
**To:** Miranda Pierre  
**Cc:** Jacob Shactman; Britt Eckstrom; jwoidt@streamworkspllc.com  
**Subject:** RE: NHB Review: NHB24-2778

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Hi Miranda,

Thank you for providing proposed plans and for indicating that the project should not impact the input of nutrients and pollutants to the Ashuelot River. Based on the provided information and the proposed plans, proper erosion and sediment controls are proposed, and the eroding bank will be stabilized. Because of this, the nearby silver maple - false nettle - sensitive fern floodplain forest is unlikely to be impacted and **NHB has no further concerns regarding NHB24-2778.**

Best,

Madeline (Maddie) Severance (she/her/hers)  
Environmental Reviewer  
New Hampshire Natural Heritage Bureau (NHB)  
Division of Forests & Lands  
N.H. Department of Natural & Cultural Resources  
172 Pembroke Rd  
Concord, NH 03301  
(603)-271-2834 (note the new number)  
[nhbreview@dnrcr.nh.gov](mailto:nhbreview@dnrcr.nh.gov)  
[nhdfl.dnrcr.nh.gov](mailto:nhdfl.dnrcr.nh.gov)  
[NHB DataCheck Tool](#)

---

**From:** Miranda Pierre <miranda.pierre@wright-pierce.com>  
**Sent:** Friday, October 11, 2024 12:10 PM  
**To:** DNCR: NHB Review <nhbreview@dnrcr.nh.gov>  
**Cc:** Jacob Shactman <jacob.shactman@wright-pierce.com>; Britt Eckstrom <britt.eckstrom@wright-pierce.com>; jwoidt@streamworkspllc.com  
**Subject:** RE: NHB Review: NHB24-2778

**EXTERNAL:** Do not open attachments or click on links unless you recognize and trust the sender.

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Hi Maddie,

The City of Keene is proposing to install a permanent bypass for the Martell Court Pump Station. The proposed project will include minor ground disturbance to install the sewer force main and remove the abandoned sewer force main. The streambank stabilization design is ongoing and will be in accordance with NHDES Wetland Rules to minimize impacts to the maximum extent practicable. Streamworks LLC is evaluating feasibility for bioengineered stabilization. The project should not impact the input of nutrients and pollutant to the Ashuelot River, and final stabilization will address the steep bank erosion occurring at the project location. Draft plans are attached for reference.

The attached DataCheck Results indicates 1 natural community, the Silver Maple, has been documented in the vicinity of the project area. Can you advise whether additional information is needed to comment on the potential for the proposed project to impact rare species and natural communities?

Thanks,  
Miranda

**Miranda Pierre**  
**Wright-Pierce** | Engineer I  
direct 603.570.7159 | office 603.430.3728



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**From:** DNCR: NHB Review <nhbreview@dnrc.nh.gov>  
**Sent:** Thursday, September 26, 2024 11:07 AM  
**To:** Miranda Pierre <miranda.pierre@wright-pierce.com>  
**Cc:** FGC: NHFG review <NHFGreview@wildlife.nh.gov>; dlussier@keenenh.gov  
**Subject:** NHB Review: NHB24-2778

Attached, please find the review of the NH Natural Heritage Bureau's (NHB) database to determine whether the proposed project could impact rare species and exemplary natural communities.

If you received a comment on the DataCheck Letter from NHB, please reply to this email with any documents, photos, or information requested.

If you received a comment on the DataCheck Letter from NHFG, please follow the consultation requirements listed on the DataCheck Letter and coordinate with [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov)

Best,  
Maddie

Madeline Severance  
Environmental Reviewer

NH Natural Heritage Bureau  
DNCR - Forests & Lands  
172 Pembroke Rd  
Concord, NH 03301  
603-271-2834

If there are problems with your DataCheck letter or you need help using the DataCheck Tool, contact: (603) 271-0687

If there is a rare plant or exemplary natural community and an NHB Comment on your DataCheck letter, contact Maddie Severance for any environmental review questions: (603) 271-2834

If there is a rare wildlife species and an NHFG Comment on your DataCheck Letter, contact NHFG for any environmental review questions: (603) 271- 0467

Jacob Shactman

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From: Sullivan, Kevin <Kevin.M.Sullivan@wildlife.nh.gov>  
Sent: Friday, November 14, 2025 12:30 PM  
To: Jacob Shactman  
Cc: Britt Eckstrom; Miranda Pierre; FGC: NHFG review  
Subject: RE: Martell Court Pump Station Bypass\_Keene\_NHB24-2778-NHDES Wetland D&F  
File# Not Yet Filed - NHFG Recommendations (Non-Fis)  
Attachments: Martell Court Pump Station Bypass\_Keene\_NHB24-2778-NHDES Wetland DF File# Not  
Yet Filed - NHFG Recommendations (Non-Fis).pdf

 This message was sent from outside your organization.

Hi Jacob,

I reviewed the updated DCT Letter and those are not new species observations. In the earlier review process, NHFG biologists would review the species hits before the letters were sent to remove species that they had determined would likely not be affected by the proposed activities. That process changed earlier this year to avoid this type of inconsistency between subsequent DCT Letters on the same property. The issues previously issued on 10/11/2024 (that I have reattached to this email will still be applicable to this project/permit.

Thank you,  
Kevin



[wildlife.nh.gov](http://wildlife.nh.gov)

**Kevin Sullivan**  
Environmental Review Supervisor

Wildlife Division  
New Hampshire Fish and Game Department  
11 Hazen Drive, Concord, NH 03301  
p. 603-271-2605 | c.  
e. [kevin.m.sullivan@wildlife.nh.gov](mailto:kevin.m.sullivan@wildlife.nh.gov)

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Did you know? New Hampshire Fish and Game works to conserve thousands of species of wildlife, including 51 species on the state's threatened and endangered wildlife list. The Nongame & Endangered Wildlife Program depends on your generous donations to accomplish this work, and to raise matching funds required for state and federal grants. Learn more at [www.wldnh.com/nongame](http://www.wldnh.com/nongame)

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From: Jacob Shactman <jacob.shactman@wright-pierce.com>  
Sent: Wednesday, November 5, 2025 10:11 AM  
To: Sullivan, Kevin <Kevin.M.Sullivan@wildlife.nh.gov>

Cc: Britt Eckstrom <britt.eckstrom@wright-pierce.com>; Miranda Pierre <miranda.pierre@wright-pierce.com>; FGC: NHFG review <NHFGreview@wildlife.nh.gov>  
Subject: RE: Martell Court Pump Station Bypass\_Keene\_NHB24-2778-NHDES Wetland D&F File# Not Yet Filed - NHFG Recommendations (Non-Fis)

**EXTERNAL EMAIL WARNING!** This email originated outside of the New Hampshire Executive Branch network. Do not open attachments or click on links unless you recognize the sender and are expecting the email. Do not enter your username and password on sites that you have reached through an email link. Forward suspicious and unexpected messages by clicking the Phish Alert button in your Outlook and if you did click or enter credentials by mistake, report it immediately to [helpdesk@doit.nh.gov](mailto:helpdesk@doit.nh.gov)!

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Good morning Kevin,

We received an updated DataCheck for this project (DCT25-2963) . Two additional species showed up on the list that were not previously identified, including the Dwarf Wedge Mussell and the Common Nighthawk. Can you confirm whether these are newly discovered occurrences in the past year and whether further consultation is required prior to submitting the Standard Dredge and Fill application? Note, the previous recommendations provided on October 11<sup>th</sup> have been incorporated into the site plan.

Thank you,  
Jake

---

From: Sullivan, Kevin <[Kevin.M.Sullivan@wildlife.nh.gov](mailto:Kevin.M.Sullivan@wildlife.nh.gov)>  
Sent: Friday, October 11, 2024 4:08 PM  
To: FGC: NHFG review <[NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov)>; Miranda Pierre <[miranda.pierre@wright-pierce.com](mailto:miranda.pierre@wright-pierce.com)>  
Cc: Jacob Shactman <[jacob.shactman@wright-pierce.com](mailto:jacob.shactman@wright-pierce.com)>; Britt Eckstrom <[britt.eckstrom@wright-pierce.com](mailto:britt.eckstrom@wright-pierce.com)>;  
[jvvoidt@streamworkspllc.com](mailto:jvvoidt@streamworkspllc.com); Tilton, Mary Ann <[mary.a.tilton@des.nh.gov](mailto:mary.a.tilton@des.nh.gov)>; Schulz, Jessica <[Jessica.L.Schulz@des.nh.gov](mailto:Jessica.L.Schulz@des.nh.gov)>  
Subject: Martell Court Pump Station Bypass\_Keene\_NHB24-2778-NHDES Wetland D&F File# Not Yet Filed - NHFG Recommendations (Non-Fis)

Hi Miranda,

Thank you for the photographs and site plan sent. As I was reviewing the other project in the same area that I sent recommendations for recently, I had already begun this review in anticipation of you submitting an updated NHB DataCheck Letter. Please see the recommendations below for this project.

Hello Ms. Pierre,

On October 11, 2024, New Hampshire Fish and Game has completed review of materials submitted for consultation for NHB24-2778 (previously NHB23-2657) on October 11, 2024 (previously September 13, 2024) (materials submitted October 11 and September 13, 2024) prepared by Wright-Pierce. The information provided to NHFG by the applicant indicates that state permits requiring a NHFG Consultation under Fis 1004 rules are being applied for and species considered State Species of Special Concern were identified as being in the vicinity of the proposed activities, thus these recommendations constitute a Non-Fis consultation. The project proposes to complete an emergency repair to a failed pump station by installing a permanent bypass force main across the Branch. The discharge knife gate for the City's Martell Court Pump Station failed and began leaking significant quantities of sewage into the dry pit of the pump station. A state of emergency was issued by the City to conduct temporary emergency repairs inside the station and prevent sewage overflow to the Ashuelot River. Construction of the permanent bypass is anticipated in Summer 2025. The site is located near 176 Martell Court in Keene, NH (Tax Map [not provided], Lot [not provided]). Please provide NHFG with NHDES Permit numbers once permit applications are filed with NHDES.

Permit applications associated with this project include:

## **NHDES WETLAND STANDARD DREDGE & FILL - MINOR – FILE# Not Yet Filed**

*Note: If you apply for other permits not listed above, you must notify NHFG and request a response to see if recommendations provided below can be applied to other permit applications. All anticipated permits that may be required or will be applied for MUST be identified on the NHB datacheck results letter or the NHB letter is not considered valid and cannot be applied to a consultation/permit application review*

**Incorporation of NHFG recommendations is not required for Species of Special Concern; however, species are protected under other state laws or rules, and incorporation of recommendations is highly recommended or may be required for certain permits. Applicants would still be responsible for any actions that may result in the take of this species. The recommendations below should be incorporated into site plans in order to help minimize potential take.**

Based on the NHB datacheck results letter and the information provided in the submission as well as in communications and materials provided during our consultation review, we request the following recommended permit conditions. **THESE RECOMMENDED PERMIT CONDITIONS ARE APPLICABLE ONLY TO STATE PERMITS LISTED ABOVE.**

- For consideration in the AoT permit review process, please incorporate recommendations along with associated materials as detailed, into the final sheet plans as written below (update highlighted text as applicable) and provide to NHDES for final review and copy NHFG.
- For all other permits, please include recommended permit conditions in final plan sheets plans as written below (update highlighted text as applicable) and provide to NHDES for final review and copy NHFG. Permit reviewers will adopt/include NHFG permit conditions in the permit if approved.

### NHB24-2778 New Hampshire Fish and Game Recommended Permit Conditions:

1. Wood turtle (State Special Concern) and Northern leopard frog (State Special Concern) occur within the vicinity of the project area. All operators and personnel working on or entering the site shall be made aware of the potential presence of these species and shall be provided flyers that help to identify these species, along with NHFG contact information. **See Plan sheet(s) XXXXX. Include attached flyers to plan sheet set.**
2. Rare species information (e.g. identification, observation and reporting of observations, when to contact NHFG immediately and NHFG contact information) shall be communicated during morning tailgate meetings prior to work commencement during the construction phase of the project. **See Plan sheet(s) XXXXX.**
3. No activities shall occur between October 16<sup>th</sup> and March 31<sup>st</sup>.
4. NHFG recommends all project activities occur between July 15<sup>th</sup> and October 15<sup>th</sup>. If project activities cannot be completed between July 15<sup>th</sup> and October 15<sup>th</sup> and must occur between April 1<sup>st</sup> and July 15<sup>th</sup>, NHFG recommends installation of a wildlife exclusionary barrier, which shall be installed as follows:
  - a. A wildlife exclusionary barrier shall be installed around the perimeter of the construction and staging areas prior to May 15<sup>th</sup> and maintained through July 15<sup>th</sup> throughout the life of the active project/construction activities.
  - b. The wildlife exclusionary barrier shall be buried to a depth of no less than 6-8" and extend no less than 18" above existing grade. **See Plan sheet(s) XXXXX.**
  - c. The wildlife exclusionary barrier shall be installed with the wood stakes exposed on the interior side of the work zone. **See Plan sheet(s) XXXXX.**

- d. Wildlife escape mounds ("ramps") would be necessary to install on the interior of the wildlife exclusionary barrier allowing for potentially entrapped wildlife to escape from the enclosed project area. The ramps shall be constructed on the work-zone side of the wildlife exclusionary barrier and shall be constructed out of native material (sand/soil) from the site, shall be a minimum of 3 feet in width. Additional tall stakes shall be installed in the location of these Ramps to help support the wildlife exclusionary barrier as needed. Materials such as hay or mulch may be used to offset weight as long as materials do not assist animals in entering work zone. Wildlife escape mounds shall be installed at least every 50 feet along the wildlife exclusionary barrier.
- e. Sweeps shall be conducted daily prior to beginning project activities to identify rare wildlife within the wildlife exclusionary barrier. See Conditions 7 and 8 below if rare wildlife are found.
- f. Wildlife exclusionary barrier shall be inspected daily prior to site construction activities. Any defects shall be repaired immediately. The site operator shall maintain a log of all inspections that includes date/time/observations/defects/repairs/coordination efforts/photographs during the life of the permit or until project completion, whichever occurs first. The logs may be requested to be made available immediately to NHFG and NHDES upon written request.
- g. NHFG shall be informed in writing when wildlife exclusionary barrier installation has been completed.

5. Turtles and snakes may be attracted to disturbed ground during nesting season (May 15<sup>th</sup> – June 30<sup>th</sup>). Turtle nests are protected by NH laws. If a nest is observed or suspected, operators shall contact Melissa Winters or Josh Megyesy at NHFG immediately for further consultation. See Species Flyers, See Plan sheet(s) XXXXX for NHFG contact information.

- a. The nest or suspected nest shall be marked (surrounding roped off or cone buffer deployed) and avoided; this shall be communicated to all personnel onsite.
- b. Site activities shall not occur in the area surrounding the nest or suspected nest until further guidance is provided by NHFG.

6. All manufactured erosion and sediment control products, with the exception of turf reinforcement mats, utilized for, but not limited to, slope protection, runoff diversion, slope interruption, perimeter control, inlet protection, check dams, and sediment traps shall not contain plastic, or multifilament or monofilament polypropylene netting or mesh with an opening size of greater than 1/8 inches. See Plan sheet(s) XXXXX.

7. All observations of threatened or endangered species on the project site shall be reported immediately to the NHFG nongame and endangered wildlife environmental review program by phone at 603-271-2461 and by email at [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov), with the email subject line containing the NHB DataCheck tool results letter assigned number, the project name, and the term Wildlife Species Observation.

- a. Photographs of the observed species and nearby elements of habitat or areas of land disturbance shall be provided to NHFG in digital format at the above email address for verification, as feasible.

8. In the event a threatened or endangered species is observed on the project site during the term of the permit, the species shall not be disturbed, handled, or harmed in any way prior to consultation with NHFG and implementation of corrective actions recommended by NHFG.

9. NHFG, including its employees and authorized agents, shall have access to the property during the term of the permit.

NHFG has completed our review of materials submitted for Non-Fis consultation. No further coordination with NHFG is requested at this time.

These recommendations have been transmitted to the applicable permitting agency.

Respectfully,  
Kevin

## Kevin Sullivan

Environmental Review Supervisor  
NH Fish & Game Department  
11 Hazen Drive  
Concord NH 03301  
Phone: 603-271-2605  
Email: [Kevin.M.Sullivan@wildlife.nh.gov](mailto:Kevin.M.Sullivan@wildlife.nh.gov)

New Hampshire Fish and Game requirements for environmental review consultation can be found at:

[https://gencourt.state.nh.us/rules/state\\_agencies/fis1000.html](https://gencourt.state.nh.us/rules/state_agencies/fis1000.html). ALL requests for consultation and submittals should be sent via email to [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov) or can be sent hardcopy by mail. The NHB datacheck results letter number needs to be included in the email subject line to read as "NHBxx-xxxx\_Project Name\_FIS 1004 Consultation Submittal".

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Please provide shapefiles/KMZ/KMLs of the project site (and relevant features if applicable) with your submittal. Review statements provided in the NHB Datacheck Results letter for additional guidance.

*The Nongame and Endangered Wildlife Program works to conserve over 400 species of mammals, birds, fish, reptiles, and amphibians, as well as thousands of insects and other invertebrates. The program relies in part on private contributions to accomplish its work, and to raise matching funds required for state and federal grants. Learn more at [www.wldnh.com/nongame](http://www.wldnh.com/nongame)*



---

From: FGC: NHFG review <[NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov)>

Sent: Friday, October 11, 2024 1:29 PM

To: Miranda Pierre <[miranda.pierre@wright-pierce.com](mailto:miranda.pierre@wright-pierce.com)>; Sullivan, Kevin <[Kevin.M.Sullivan@wildlife.nh.gov](mailto:Kevin.M.Sullivan@wildlife.nh.gov)>

Cc: Jacob Shactman <[jacob.shactman@wright-pierce.com](mailto:jacob.shactman@wright-pierce.com)>; Britt Eckstrom <[britt.eckstrom@wright-pierce.com](mailto:britt.eckstrom@wright-pierce.com)>; FGC: NHFG review <[NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov)>; [jwoidt@streamworkspllc.com](mailto:jwoidt@streamworkspllc.com)

Subject: RE: NHB24-2778 Martell Court Pump Station FIS 1004 Consultation Request

Hi Miranda,

Thanks for sending this along. It looks like it will be a Non-Fis project. To increase ease of our review, can you provide the following please:

1. Any site photographs
2. Any maps of the area, such as aerial photographs or topographic maps

I'll add this project to our queue and we can begin our review process.

Thank you!

**Hayley Bibaud**  
**Environmental Review Planner**  
NH Fish & Game Department  
11 Hazen Drive  
Concord NH 03301  
Phone: (603) 271 - 0467  
Email: [hayley.a.bibaud@wildlife.nh.gov](mailto:hayley.a.bibaud@wildlife.nh.gov)

New Hampshire Fish and Game requirements for environmental review consultation can be found at:

[https://gencourt.state.nh.us/rules/state\\_agencies/fis1000.html](https://gencourt.state.nh.us/rules/state_agencies/fis1000.html). ALL requests for consultation and submittals should be sent via email to [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov) or can be sent hardcopy by mail. The NHB datacheck results letter number needs to be included in the email subject line to read "NHBxx-xxxx\_Project Name\_FIS 1004 Consultation Submittal".

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**Please provide shapefiles/KMZ/KMLs of the project site (and relevant features if applicable) with your submittal.** Review statements provided in the NHB Datacheck Results letter for additional guidance.

**Did you know?** New Hampshire Fish and Game protects, conserves, and manages more than 500 species of wildlife and thousands of invertebrates. Learn more at [www.wildnh.com/nongame](http://www.wildnh.com/nongame)

---

From: Miranda Pierre <[miranda.pierre@wright-pierce.com](mailto:miranda.pierre@wright-pierce.com)>  
Sent: Friday, October 11, 2024 1:01 PM  
To: Sullivan, Kevin <[Kevin.M.Sullivan@wildlife.nh.gov](mailto:Kevin.M.Sullivan@wildlife.nh.gov)>  
Cc: Jacob Shactman <[jacob.shactman@wright-pierce.com](mailto:jacob.shactman@wright-pierce.com)>; Britt Eckstrom <[britt.eckstrom@wright-pierce.com](mailto:britt.eckstrom@wright-pierce.com)>; FGC: NHFG review <[NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov)>; [jwoidt@streamworkspilc.com](mailto:jwoidt@streamworkspilc.com)  
Subject: RE: NHB24-2778 Martell Court Pump Station FIS 1004 Consultation Request

**EXTERNAL:** Do not open attachments or click on links unless you recognize and trust the sender.

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Hi Kevin,

The proposed project is to install a permanent bypass for the Martell Court Pump Station and will include minor ground disturbance to install the sewer force main and remove the abandoned sewer force main. The streambank stabilization design is ongoing and will be in accordance with NHDES Wetland Rules to minimize impacts to the maximum extent practicable. Streamworks LLC is evaluating feasibility for bioengineered stabilization. Draft plans and the updated NHB DataCheck are attached for reference.

There are no threatened or endangered species documented in the vicinity of the proposed project area. Species of special concern including the Northern Leopard Frog and Wood Turtle, have been documented. Can you please advise whether further consultation is required?

Thanks,  
Miranda

## Miranda Pierre

Wright-Pierce | Engineer I

direct 603.570.7159 | office 603.430.3728



---

From: Sullivan, Kevin <[Kevin.M.Sullivan@wildlife.nh.gov](mailto:Kevin.M.Sullivan@wildlife.nh.gov)>

Sent: Friday, October 4, 2024 1:55 PM

To: Miranda Pierre <[miranda.pierre@wright-pierce.com](mailto:miranda.pierre@wright-pierce.com)>

Cc: Jacob Shactman <[jacob.shactman@wright-pierce.com](mailto:jacob.shactman@wright-pierce.com)>; Britt Eckstrom <[britt.eckstrom@wright-pierce.com](mailto:britt.eckstrom@wright-pierce.com)>; FGC:

NHFG review <[NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov)>

Subject: RE: NHB24-2778 Martell Court Pump Station FIS 1004 Consultation Request

Hello Miranda,

I was following up on this to see if you had obtained the updated NHB DataCheck you referred to below and if you had provided that to the NHFGReview email address to update the consultation request and determine if it will be an Fis or Non-Fis consultation, which will dictate the type of information and materials you will need to provide for us to conduct the review. I am hopeful to have that review completed fairly quickly once you submit the updated NHB DataCheck Letter and it is determined which type of review it will require.

Thank you,

Kevin

## Kevin Sullivan

Environmental Review Supervisor

NH Fish & Game Department

11 Hazen Drive

Concord NH 03301

Phone: 603-271-2605

Email: [Kevin.M.Sullivan@wildlife.nh.gov](mailto:Kevin.M.Sullivan@wildlife.nh.gov)

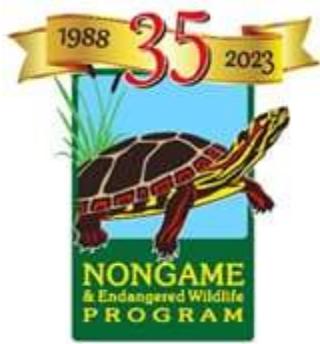
New Hampshire Fish and Game requirements for environmental review consultation can be found at:

[https://gencourt.state.nh.us/rules/state\\_agencies/fis1000.html](https://gencourt.state.nh.us/rules/state_agencies/fis1000.html). All requests for consultation and submittals should be sent via email to [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov) or can be sent hardcopy by mail. The NHB datacheck results letter number needs to be included in the email subject line to read as "NHBxx-xxxx\_Project Name\_FIS 1004 Consultation Submittal".

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From: FGC: NHFG review <[NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov)>

Sent: Wednesday, September 18, 2024 11:46 AM

To: Miranda Pierre <[miranda.pierre@wright-pierce.com](mailto:miranda.pierre@wright-pierce.com)>; FGC: NHFG review <[NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov)>

Cc: Jacob Shactman <[jacob.shactman@wright-pierce.com](mailto:jacob.shactman@wright-pierce.com)>; Britt Eckstrom <[britt.eckstrom@wright-pierce.com](mailto:britt.eckstrom@wright-pierce.com)>

Subject: RE: NHB24-2778 Martell Court Pump Station FIS 1004 Consultation Request

Hi Miranda,

I went ahead and added this project to our queue. When you receive NHB24-2778, could you send it to us as well, please? Also, if you have any site plans and photographs, or maps, please send those as well; it will help our review process efficiency. If you have any questions, please let us know.

Have a great day,

**Hayley Bibaud**  
**Environmental Review Planner**  
NH Fish & Game Department  
11 Hazen Drive  
Concord NH 03301  
Phone: (603) 271 - 0467  
Email: [hayley.a.bibaud@wildlife.nh.gov](mailto:hayley.a.bibaud@wildlife.nh.gov)

New Hampshire Fish and Game requirements for environmental review consultation can be found at:

[https://gencourt.state.nh.us/rules/state\\_agencies/fis1000.html](https://gencourt.state.nh.us/rules/state_agencies/fis1000.html). ALL requests for consultation and submittals should be sent via email to [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov) or can be sent hardcopy by mail. The NHB datacheck results letter number needs to be included in the email subject line to read as “**NHBxx-xxxx\_Project Name\_FIS 1004 Consultation Submittal**”.

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---

From: Miranda Pierre <[miranda.pierre@wright-pierce.com](mailto:miranda.pierre@wright-pierce.com)>

Sent: Friday, September 13, 2024 10:37 AM

To: FGC: NHFG review <[NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov)>

Cc: Jacob Shactman <[jacob.shactman@wright-pierce.com](mailto:jacob.shactman@wright-pierce.com)>; Britt Eckstrom <[britt.eckstrom@wright-pierce.com](mailto:britt.eckstrom@wright-pierce.com)>

Subject: NHB24-2778 Martell Court Pump Station FIS 1004 Consultation Request

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Good morning,

The City of Keene is proposing to install a permanent bypass for the Martell Court Pump Station. On July 10, 2023, a knife gate valve began leaking into the dry pit of the pump station which prompted the need to bypass flow to allow for the repair of the knife gate. The proposed project will include minor ground disturbance to install the sewer force main and valve cluster, removing the existing ground storage fuel tank, and stabilize stream disturbances. Installation of the force main through the Branch River is proposed to be completed via open cut in phases and will require a NHDES Standard Dredge & Fill Minor Impact Permit before construction. A project location map is attached for your reference.

The attached NHB DataCheck Results Letter (NHB23-2657) indicates that 2 species of special concern, including the Wood Turtle and the Northern Leopard Frog, have been identified in the vicinity of the proposed project area. The attached DataCheck results will expire on the 21<sup>st</sup> of this month and a new one has been requested. I can follow up if there is anything different found on the new DataCheck results (NHB24-2778).

Can you please advise if any further consultation is required on the potential for the proposed project to impact any threatened and endangered wildlife species?

Thank you,  
Miranda

**Miranda Pierre**  
**Wright-Pierce** | Engineer I  
direct 603.570.7159 | office 603.430.3728





# REPORT OBSERVATIONS

## Northern Leopard Frog

### (Species of Special Concern)

Report sightings to NHFG Wildlife Division at [NHFGReview@wildlife.nh.gov](mailto:NHFGReview@wildlife.nh.gov)

*Reference NHB# and project name if applicable.*

*Please report promptly, noting specific location and date.*

*Photographs strongly encouraged.*

- Small frog approximately 2 - 3.5 inches long.
- Irregular, rounded, dark spots on back.
- Dorsal color is brownish or green.
- Light line on the upper jaw.
- Distinguished from pickerel frog by the pale borders around spots.
- Voice a deep, guttural snore followed by several clucking noises.
- Found in slow streams, wetlands, marshes, bogs, or ponds. During summer, most often found in wet meadows or fields associated with river floodplains.



*Photo credit: Gary Eslinger*



*Photo credit: Stylurus*

# Wood Turtle

New Hampshire State Species of Special Concern

Contact NHFG Wildlife Biologists (grout text preferred) if observed within your project site:  
*Melissa Winters 603-479-1129 and Josh Megyesy 978-578-0802*

- Turtles may be attracted to disturbed ground during nesting season (May 15th – June 30th)
- Turtles are most active from April 15th - October 15th



## Identifying traits

- Neck and forelimbs are orange.
- Characterized by its highly sculpted shell with each large scute taking on an irregular pyramidal shape.
- Adults can be 5-8 inches long.

## Habitat Use

- wooded areas near streams
- uplands surrounding streams



**NOTE: It is illegal to remove a wood turtle from the wild.**

**Immediately report nesting turtles, suspected nesting turtles or suspected nest sites to NHFG Wildlife Biologists.**

**All other observations of this species shall be reported to NH Fish & Game via email at [NHFGReview@wildlife.nh.gov](mailto:NHFGReview@wildlife.nh.gov). Include in the email subject line: NHBxx-xxxx, Project name, Wildlife Observation". Photo documentation, location and date/time of observation is helpful.**



**State laws pertaining to this species RSA 207:1, FIS 804.02, Fis 1401.03 (a)**

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## LAC and Conservation Commission Correspondence

The Keene Conservation Commission and Ashuelot River Local Advisory Committee (LAC) will be sent a copy of this application when it is submitted to the NHDES Wetlands Bureau for project review. Comments received from the Conservation Commission and LAC will be addressed in the project design as necessary and will be forwarded to NHDES Wetlands Bureau.

## Avoidance and Minimization Checklist



# AVOIDANCE AND MINIMIZATION CHECKLIST

## Water Division/Land Resources Management

### Wetlands Bureau

[Check the Status of your Application](#)



**RSA/Rule:** RSA 482-A/ Env-Wt 311.07(c)

This checklist can be used in lieu of the written narrative required by Env-Wt 311.07(a) to demonstrate compliance with requirements for Avoidance and Minimization (A/M), pursuant to RSA 482-A:1 and Env-Wt 311.07(c).

For the construction or modification of non-tidal shoreline structures over areas of surface waters without wetland vegetation, complete only Sections 1, 2, and 4 (or the applicable sections in [Attachment A: Minor and Major Projects \(NHDES-W-06-013\)](#)).

The following definitions and abbreviations apply to this worksheet:

- “A/M BMPs” stands for [Wetlands Best Management Practice Techniques for Avoidance and Minimization](#) dated 2019, published by the New England Interstate Water Pollution Control Commission (Env-Wt 102.18).
- “Practicable” means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes (Env-Wt 103.62).

#### SECTION 1 - CONTACT/LOCATION INFORMATION

APPLICANT LAST NAME, FIRST NAME, M.I.: City of Keene

PROJECT STREET ADDRESS: 176 Martell Court

PROJECT TOWN: Keene

TAX MAP/LOT NUMBER: 114-37

#### SECTION 2 - PRIMARY PURPOSE OF THE PROJECT

Env-Wt 311.07(b)(1)	Indicate whether the primary purpose of the project is to construct a water-access structure or requires access through wetlands to reach a buildable lot or the buildable portion thereof.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
---------------------	---	---

If you answered “no” to this question, describe the purpose of the “non-access” project type you have proposed:

The purpose of this project is to install a new permanent bypass force main and replace an existing gravity sewer for the Martell Court Pump Station. Bypass for the pump station is required for maintenance and repairs.

<b>SECTION 3 - A/M PROJECT DESIGN TECHNIQUES</b> Check the appropriate boxes below in order to demonstrate that these items have been considered in the planning of the project. Use N/A (not applicable) for each technique that is not applicable to your project.		
Env-Wt 311.07(b)(2)	For any project that proposes new permanent impacts of more than one acre or that proposes new permanent impacts to a Priority Resource Area (PRA), or both, whether any other properties reasonably available to the applicant, whether already owned or controlled by the applicant or not, could be used to achieve the project's purpose without altering the functions and values of any jurisdictional area, in particular wetlands, streams, and PRAs.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 311.07(b)(3)	Whether alternative designs or techniques, such as different layouts, construction sequencing, or alternative technologies could be used to avoid impacts to jurisdictional areas or their functions and values.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 311.07(b)(4) Env-Wt 311.10(c)(1) Env-Wt 311.10(c)(2)	The results of the functional assessment required by Env-Wt 311.03(b)(10) were used to select the location and design for the proposed project that has the least impact to wetland functions.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 311.07(b)(4) Env-Wt 311.10(c)(3)	Where impacts to wetland functions are unavoidable, the proposed impacts are limited to the wetlands with the least valuable functions on the site while avoiding and minimizing impacts to the wetlands with the highest and most valuable functions.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 313.01(c)(1) Env-Wt 313.01(c)(2) Env-Wt 313.03(b)(1)	No practicable alternative would reduce adverse impact on the area and environments under the department's jurisdiction and the project will not cause random or unnecessary destruction of wetlands.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 313.01(c)(3)	The project would not cause or contribute to the significant degradation of waters of the state or the loss of any PRAs.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 313.03(b)(3) Env-Wt 904.07(c)(8)	The project maintains hydrologic connectivity between adjacent wetlands or stream systems.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 311.10 A/M BMPs	Buildings and/or access are positioned away from high function wetlands or surface waters to avoid impact.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 311.10 A/M BMPs	The project clusters structures to avoid wetland impacts.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 311.10 A/M BMPs	The placement of roads and utility corridors avoids wetlands and their associated streams.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
A/M BMPs	The width of access roads or driveways is reduced to avoid and minimize impacts. Pullouts are incorporated in the design as needed.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
A/M BMPs	The project proposes bridges or spans instead of roads/driveways/trails with culverts.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A

A/M BMPs	The project is designed to minimize the number and size of crossings, and crossings cross wetlands and/or streams at the narrowest point.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 500 Env-Wt 600 Env-Wt 900	Wetland and stream crossings include features that accommodate aquatic organism and wildlife passage.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 900	Stream crossings are sized to address hydraulic capacity and geomorphic compatibility.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
A/M BMPs	Disturbed areas are used for crossings wherever practicable, including existing roadways, paths, or trails upgraded with new culverts or bridges.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A

**SECTION 4 - NON-TIDAL SHORELINE STRUCTURES**

Env-Wt 313.03(c)(1)	The non-tidal shoreline structure has been designed to use the minimum construction surface area over surfaces waters necessary to meet the stated purpose of the structure.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 313.03(c)(2)	The type of construction proposed for the non-tidal shoreline structure is the least intrusive upon the public trust that will ensure safe navigation and docking on the frontage.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 313.03(c)(3)	The non-tidal shoreline structure has been designed to avoid and minimize impacts on the ability of abutting owners to use and enjoy their properties.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 313.03(c)(4)	The non-tidal shoreline structure has been designed to avoid and minimize impacts to the public's right to navigation, passage, and use of the resource for commerce and recreation.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 313.03(c)(5)	The non-tidal shoreline structure has been designed, located, and configured to avoid impacts to water quality, aquatic vegetation, and wildlife and finfish habitat.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 313.03(c)(6)	The non-tidal shoreline structure has been designed to avoid and minimize the removal of vegetation, the number of access points through wetlands or over the bank, and activities that may have an adverse effect on shoreline stability.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A



230 Commerce Way, Suite 302  
Portsmouth, NH 03801  
603.430.3728 | [www.wright-pierce.com](http://www.wright-pierce.com)

# Ashuelot River Local Advisory Committee

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Washington Lempster Marlow Gilsum Sullivan Surry Keene Swanzey Winchester Hinsdale

Feb. 2, 2026

Matthew Bosiak  
NH Division of Pesticide Control  
1 Granite Place South, Suite 211  
Concord, NH 03301

RE: Special Permit Application/ Watershed/PW # 26-018  
Bretwood Golf Course/Maynard

Dear Mr. Bosiak:

The Ashuelot River LAC reviewed the above noted application for a Special Watershed/PW permit at our meeting of Jan. 27, 2026. ARLAC has concerns regarding the request to make 14 pesticide applications over the season at 18 of their putting greens within 10-42 feet of the Ashuelot River.

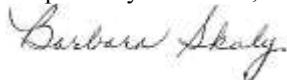
This particular segment of the Ashuelot River is one of the first noted locations of the federally endangered Dwarf Wedgemussel. Many of the proposed pesticides are toxic to aquatic life. While the applicant states they will be cautious in their application, the proximity is too close to take such a risk to this species and the existing river biota. Not only is the risk posed by drift, the proposed locations are likely within the floodplain. Residual chemicals can filter into the soil and seep into the groundwater. Any residue that binds to the soils can enter the river in a flood situation. Pollution from pesticides will most likely be fatal to this mussel population.

This location is also over a significant stratified drift aquifer from which the City of Keene draws its drinking water. Due to its high transmissivity, the aquifer is also more susceptible to contamination. Monitoring wells are present to detect contamination from Bretwood, however, what parameters are measured and what provisions are there to detect pesticides? Where are they located? If pesticides are detected will it be too late to reverse the contamination once they are in the groundwater?

The applicant states "Great pride is taken in healthy habitat for both terrestrial and aquatic wildlife that makes the property special." They stress the importance of integrated pest management. However, the toxicity of the chemicals proposed and the planned frequency of application do not reflect the practice of monitoring the health of the turf and using the least toxic and biologically based pesticides as a last resort. The river affords an added aesthetic to the golfer's experience at Bretwood. Employing management practices that attempt to balance the bacteria, fungi, insects and other invertebrates in the soil can increase plant health as well as protect the river. There are golf courses in the U.S. that successfully employ these practices without the use of toxic pesticides.

ARLAC is interested in the findings of the risk assessments of the proposed pesticides to be completed by the Division of Pesticide Control. In the meantime, we strongly oppose the granting of this permit given the great risk to the federally endangered Dwarf Wedgemussel and native aquatic biota, and to the health of the productive stratified drift aquifer located here.

Respectfully submitted,



Barbara Skuly  
Chairman

CC: T. Sales, NHRMPP  
Keene ConComm

**STATE OF NEW HAMPSHIRE**  
**INTER DEPARTMENT COMMUNICATION**

January 13, 2026

FROM: Matthew Bosiak, Division of Pesticide Control  
SUBJECT: Special Permit Application # **26-018**  
TO: DISTRIBUTION

Name	On Behalf Of/For	Type of Special Permit
<b>Jonas Maynard</b>	<b>Bretwood Golf Course/</b> <b>Keene, NH</b>	<b>Watershed/PW</b>

The Division of Pesticide Control has received a special permit application proposing course maintenance at the Bretwood Golf Course in Keene, NH within the regulatory setback distance, and within the designated river corridor, of the Ashuelot River. A copy of the subject proposal is attached, including maps showing the proposed treatment areas relative to the Ashuelot River. This is a 1<sup>st</sup>-time special permit application submitted by Bretwood Golf Course.

The 2026 application identifies 18 sites on the course where pesticide applications may occur. These sites are primarily golf putting greens. Note that the applicant included a narrative discussing maintenance of these sites. Easement has been requested from the Ashuelot River (public) and non-public surface waters (ponds throughout the course). The application includes details regarding the nearest proposed approach to surface waters at each site. The nearest requested approach to the Ashuelot is 10 feet, at the "13 North" green.

Bretwood Golf Course has proposed the use of 21 pesticide products. The DPC will conduct risk assessments of the proposed pesticides, including review of the environmental fate potential and ecotoxicity. Please be aware that the Division of Pesticide Control would not issue a permit where the proposed activity posed undue risk to the water body under consideration. If issued, special permit conditions would address concerns relative to water quality and the prevention of offsite movement of pesticides.

I would appreciate it if you would pass this information to the appropriate LAC, and if anyone wants to comment on this proposal please do so within 30 days of the date of this memorandum, or **by February 12, 2026**. Electronic responses are acceptable. Please refer to the Application # in all return correspondence.

Thank you very much for your assistance and if you have any questions, please contact me (matthew.w.bosiak@agr.nh.gov or 271-3695).

MB/mwb

**DISTRIBUTION**

Tracie Sales – NHDES  
File

Enc: Special Permit App. # **26-018** – Bretwood Golf Course/Maynard

Application No: 26-015  
Date Received: 1/8/2026

Form SP-PW Applications within Public Water Supply Watersheds  
Page 1 of 4  
06/25

## Form SP-PW Applications within Public Water Supply Watersheds NH Division of Pesticide Control

1 Granite Place South, Suite 211  
Concord, NH 03301

06/2025

### OFFICE USE ONLY

#### Referred to:

	Approve	Disapprove	Signature	Date
Dept. Environ. Services	<input type="checkbox"/>	<input type="checkbox"/>		
Dept. Nat. & Cult. Res.	<input type="checkbox"/>	<input type="checkbox"/>		
Fish & Game Department	<input type="checkbox"/>	<input type="checkbox"/>		
State Entomologist	<input type="checkbox"/>	<input type="checkbox"/>		
Division Public Health	<input type="checkbox"/>	<input type="checkbox"/>		
Div. of Pesticide Control	<input type="checkbox"/>	<input type="checkbox"/>		

Check here  if there are attached comments or conditions, or use space below:

Comments:

### APPLICANT INFORMATION

#### 1. Name of applicant (Individual, Municipality, Organization, Firm, or Agency):

Jonas Maynard

Address: 247 W Surry Rd

City: Keene

State: NH

Zip: 03431

Tel: \_\_\_\_\_ Fax: \_\_\_\_\_

Cell\* 2078077390

Lic.#: S-2730384N

Contact

Jonas Maynard

Name: \_\_\_\_\_

Tel: 2078077390

Cell\* \_\_\_\_\_

E-mail\* jonasmaynardgcs@gmail.com

#### 2. Licensed pesticide applicator(s) (if other than party named on Line 1):

Anne Barrett

Address: 253 W Surry Rd

City: Keene, NH

State: \_\_\_\_\_

Zip: 03431

E-Mail: \_\_\_\_\_

Tel: 6032096298

Fax: \_\_\_\_\_

Cell\* \_\_\_\_\_

Lic #: 0=2630385N

#### 3. Client on whose behalf the application is being made (if other than shown on Lines 1 or 2):

Name (Person or Organization): Bretwood Golf Course

Address: 365 E Surry Rd

City: Keene NH

State: \_\_\_\_\_

Zip: 03431

Tel: 6033527626

Fax: \_\_\_\_\_

E-Mail\* \_\_\_\_\_

Contact/Spokesperson (Name/Title (if any)): Tom Barrett

Tel: 6033521228

Cell\* \_\_\_\_\_

E-Mail\* \_\_\_\_\_

\* Cell # and E-mail address Optional

## TREATMENT AREA INFORMATION

4. Have there been any previous special permits issued to conduct pesticide applications at this site (whether or not pesticide were actually applied)? Yes  No   
If Yes, indicate permit number and year of most recent permit:  
Permit #: SP# \_\_\_\_\_ Year: \_\_\_\_\_

### 5. Description of Treatment Area

a. List Treatment Areas (Reference any such blocks on an attached map): \_\_\_\_\_  
Satellite Images of the 18 areas of interest are attached and labeled areas within setback are highlighted.

\_\_\_\_\_

\_\_\_\_\_

b. Number of Blocks/Sites, Acreage of each: 18 different sites on the property with varying size.

Attached is an image and description of each site. Each site was measured manually in person and confirmed with Google Earth Pro.

c. If this proposal concerns a setback easement request from surface water, specify:

(1) Name(s) of the water body or bodies: Ashuelot River, Private pond 4North, Private pond 10North, Private pond 12South, Private pond 15South, Private pond 16South (Images attached labeled with bodies)

(2) Type of Water Body (and associated setbacks):

Public Water Supply Surface Water (250')\*

\* (Applicable within watershed and within 5 miles of public water supply intake)

Name of Supplier or System: \_\_\_\_\_

Public Water that does not serve as a public water supply (50')

Non-Public Water (25')

(3) Nearest distance, in feet, to reference line (high watermark) of surface water(s) that you anticipate applying pesticides, if easement is granted:

Attached maps and descriptions describe in detail the areas of interest.

d. If this proposal concerns a setback easement request from a Public Well, specify:

(1) Name of the water supplier or system: \_\_\_\_\_

(2) Type(s) of Well(s) (and associated setbacks):

Gravel Packed (400')

Other (250')

(3) Nearest distance, in feet, to the well(s) that you anticipate applying pesticides, if easement is granted: \_\_\_\_\_

e. Are there any activities in the treatment area that might be affected by the pesticide application? Yes  No  . If Yes, please list and describe:

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6. Specify the reason or need for the pesticide application. Include measures that will be taken to minimize risk of contamination of surface- or ground-water by pesticides.

Reasoning attached.

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Check here  if state-listed invasive species are among the target pests, and list under 9a

7. Do you have approval from all property owners on whose property pesticide applications will be made under this proposal? Yes  , No  .

8. **Attach a detailed map showing the following:**

- Treatment areas (cross reference with blocks listed under 5a, above);
- Adjacent areas;
- Surface waters;
- Pertinent topographic features; and
- Land type(s)

9. **Description of Pesticide Application:**

a. Target organism(s) – (be specific): Attached

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b. Method(s) of treatment: Toro 300 gallon boom sprayer with teejet AIC nozzles

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c. Pesticide(s) to be used **[ATTACH COPIES OF COMPLETE LABELS]**

(1) Name(s) & EPA #(s) of product(s) attached

(2) Rate(s) of application(s) attached

d. Application schedule (approximate dates): attached

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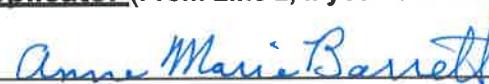
## SIGNATURES

10. By the signature(s) below, the signatories attest that the information provided in this application is accurate and true, and they acknowledge that falsification of information will result in denial of a special permit.

**Applicant (Person named under Line 1 of this form):**

Signature:  Date: 12/30/25  
\* Print or Type Name/Title: Jonas Maynard / Superintendent

**Pesticide Applicator (From Line 2, if you have not already signed as the Applicant)**

Signature:  Date: 12/30/25  
\* Print or Type Name/Title: Anne Barrett

**Client (Person named on Line 3 of this form):**

Signature:  Date: 12/30/25  
\* Print or Type Name/Title: Tom Barrett

\* **FORMS WITH ILLEGIBLY PRINTED NAMES WILL BE RETURNED**

**NOTE:** An Original, Signed Application must be submitted, to include all maps, labels, and support information. Two (2) complete copies must also be submitted. In some cases the copies, or portions thereof, may be submitted electronically. Contact the Division of Pesticide Control to determine the form in which copies may be submitted. Submit the application to the address shown at the head of this form. Where electronic copies will be allowed, the appropriate e-mail address will be provided. Applications shall be processed in accordance with RSA 541-A:29.

**ALLOW 60 DAYS FOR PROCESSING**

This package contains (please check all that apply):

- Signed, dated, and completed application form with legible name(s)
- Maps of appropriate scale containing all required information
- Copies of complete labels of pesticides being proposed
- All required lists of names and addresses

**Form SP-PW Applications within Public Water Supply Watersheds NH Division of  
Pesticide Control**

*Attached answers corresponding with form numbers and sections:*

5. a) Name of site on property (corresponding images attached): 1North, 3North, 4North, 10North, 11North, 13North, 14North, 4South, 5South, 6South, 7South, 10South, 11South, 12South, 14South, 15South, 16South, 17South.

b) 1North – 1050ft<sup>2</sup> within Ashuelot setback

3North - 535 ft<sup>2</sup> within Ashuelot setback

4North - 400 ft<sup>2</sup> within Ashuelot setback, 150 ft<sup>2</sup> within private pond 4North setback

10North - 1150 ft<sup>2</sup> within private pond 10North setback

11North - 1525 ft<sup>2</sup> within Ashuelot setback

13North - 5125 ft<sup>2</sup> within Ashuelot setback

14North - 2775 ft<sup>2</sup> within Ashuelot setback

4South - 1500 ft<sup>2</sup>, 490 ft<sup>2</sup> within Ashuelot setback

5South - 800 ft<sup>2</sup> within Ashuelot setback

6South - 680 ft<sup>2</sup> within Ashuelot setback

7South - 2950 ft<sup>2</sup> within Ashuelot setback

10South - 215 ft<sup>2</sup> within Ashuelot setback

11South - 1315 ft<sup>2</sup>, 215 ft<sup>2</sup> within Ashuelot setback

12South - 3000 ft<sup>2</sup> within setback of private pond 12South

14South - 850 ft<sup>2</sup> within Ashuelot setback

15South - 1350 ft<sup>2</sup> within setback of private pond 15South

16South - 725 ft<sup>2</sup> within setback of private pond 16South

17South - 1250 ft<sup>2</sup> within Ashuelot setback

C) 3.)) All measurements from nearest point to water body:

1North – 28ft from Ashuelot

3North – 40ft from Ashuelot

4North – 40ft from Ashuelot and 15ft from private pond 4North

10North – 8ft from private pond 10North

11North – 30ft from Ashuelot

13North – 10ft from Ashuelot

14 North – 20 ft from Ashuelot

4South – 25ft from Ashuelot

5South – 40ft from Ashuelot

6South – 35 ft from Ashuelot

7South – 20ft from Ashuelot

10South – 42ft from Ashuelot

11South – 25ft from Ashuelot

12South – 8ft from private pond 12South

14South – 35ft from Ashuelot

15South – 10ft from private pond 15South

16South – 15ft from private pond 16South

17South – 35ft from Ashuelot

6. The sites listed above are all golf putting greens that are an integral part of the golf course. They are the most tightly maintained turf surfaces critical to the success of the business and golf experience. Given the need for very low height of cut and maintenance requirements, they are very susceptible to numerous insect and fungal infestations. All applications are very targeted to prevent damage to specific stands at specific times. Applications will only be made during favorable weather conditions. I will be very mindful of wind conditions and likelihood of precipitation. Most chemistries used require ample time to dry on or be absorbed by the leaf tissue and designed to be held in place by the healthy turf stand. Great care will be taken to mitigate drift with proper nozzle selection and equipment calibration.

At Bretwood we consider ourselves stewards of the local environment and ecosystem. Great pride is taken in healthy habitat for both terrestrial and aquatic wildlife that makes the property special. There are several monitoring wells of ground and surface water located throughout the property that are maintained and monitored by the city of Keene. They test for quality and contaminates on a regular basis. We work with them to assure ground and surface waters continue to stay clean and safe.

Maintaining a healthy stand of turf on the course and healthy stands of forests with native plants and trees throughout the property and riverside, greatly reduces the risk of run off from the property. Where possible, Greens sites were constructed to positively drain surfaces away from surface water and back onto the property.

We stress the importance of integrated pest management and utilize all available cultural practices to cultivate a healthy plant that is more resistant and resilient. Pesticides are just one tool in a wide spectrum of tools to combat insect and fungal infestations.

8. All sites with measured on site with 100ft tape measures and measuring wheels to confirm proximities to high water marks. Areas were verified and illustrated using Google Earth Pro. Those images are attached with the name of each site and corresponding body of water in consideration.

9. a. Target Organisms -

- Anthracnose - *Colletotrichum cereale*
- Annual bluegrass weevil - *Listronotus maculicollis*
- Brown patch - *Rhizoctonia solani*
- Crabgrass – both *Digitaria sanguinalis* and *Digitaria ischaemum*
- Cutworm - *Agrotis ipsilon*
- Dead Spot on Bentgrass - *Ophiosphaerella agrostis*
- Dollar spot - *Clareedia jacksonii*
- Fairy ring
- Fusarium – *Fusarium nivale*

- Leaf Spots - *Bipolaris sorokiniana*, *Drechslera erythrosipa*,  
*Gaeocercospora sorghii*
- Melting out – *Bipolaris spp*
  - Microdochium patch - *Microdochium nivale*
  - Necrotic ring spot - *Ophiosphaerella korrae*
- Pythium Blight - *P. aphanidermatum*
- Pythium Root dysfunction - *Pythium volutum*
- Summer Patch – *Magnaporthe poae*
- Take-all patch - *Gaeumannomyces graminis*
- Typhula blight - *Typhula incarnata*
- Yellow patch - *Rhizoctonia cerealis*
- Waitea patch - *Waitea circinata*
- White Grubs - *Popillia japonica*(most common), *Rhizotrogus majalis*, *Maladera castanea*, *Exomala orientalis*

- b. Method of application: 300-gallon toro boom sprayer with teejet AIC nozzles.
- c. Digital submission of all product labels planned for use in 2026 season. Not all products listed are certain to be used but are part of a contingent plan dictated by disease pressure and plant health.

All rates provided per 1000ft<sup>2</sup> = M

(1 and 2) - Chipco 26019 Flo – EPA REG. NO. 432-888

3.2 oz/M

- Encartis – EPA REG. NO. 7969-348

3.2/M

- Enclave – EPA REG. NO. 53883-309

3.2oz/M or 6.2/M for snow mold application

- Game-Up - EPA REG. NO. 34704-1005

.125oz/M

- Maxtima - EPA Reg. No. 7969-404

.4 oz/M

- Navicon - EPA Reg. No. 7969-403

.7oz/M

- Radiate - EPA REG. NO. 34704-909

.25oz/M

- Tesoro 4.5F - EPA Reg. No. 34704-1162

3.2oz/M

- Xzemplar - EPA Reg No. 7969-349

.2oz/M

- Banner Maxx - EPA Reg. No. 100-1326

1oz/M

- Secure Action - EPA Reg. No. 100-1633

.5oz/M

- Daconil Action - EPA Reg. No. 100-1364

2oz/M or 3.2 oz/M

- Title Phyte - EPA REG. NO. 52287-25

3.2oz/M

- Chlorothalonil 6L - EPA Reg. No. 60063-7-52287

3.2oz/M

- Proxy - EPA Reg. No. 432-1230

5oz/M

- Legacy - EPA Reg. No. 67690-46

.125oz/M

- AneuwEZ - EPA REG. NO. 1001-92

.1oz/M

- Posterity - EPA Reg. No. 100-1600

.2oz/M.

- Suprado - EPA Reg. No: 53883-480

3oz/M

- Karma – EPA Reg. No: 83070-8

3.2 oz/M

- Acelepryn Xtra - EPA Reg. No. 100-1680

.3oz/M

d. Exact dates and schedules are difficult to specify as timing of applications are determined by environmental conditions. Extensive scouting and monitoring are used in conjunction with an overall integrated pest management program. Pesticides are used in a preventative manner to mitigate infestation and maintain adequate plant health. Applications are made in the early morning hours when wind and rain conditions allow for a responsible application. Products are used in a rotation for resistant management on a label dictated 14-28 day interval. Disease pressure and weather dictate the timing of applications and are made only deemed necessary.

Suprado is a single application product for annual blue grass weevils that will be applied between the middle of May and beginning of June based on scouting for insect activity. If pressure does not exist, then the product will not be used.

Acelepryn Xtra is also a single application aimed at white grubs and cutworms. Timing for application is typically early to the middle of May. Temperature and

growing degree day accumulations dictate timing, which can vary from season to season.

Typically applications of fungicides and growth regulators begin at some point in the month of April as the ground and air temperatures begin to rise, and biological activity ramps up. Growth regulators are utilized in a plant health program on a schedule dictated by GDD accumulation.

Label rates and intervals are strictly followed, and a daily log of applications is made throughout the growing season and available at any point. A yearly state inspection occurs and all applications will be provided with specific dates, times, and locations.

An approximate schedule of application dates:

April 15, April 29

May 12, May 27

June 5, June 25

July, 10, July 24

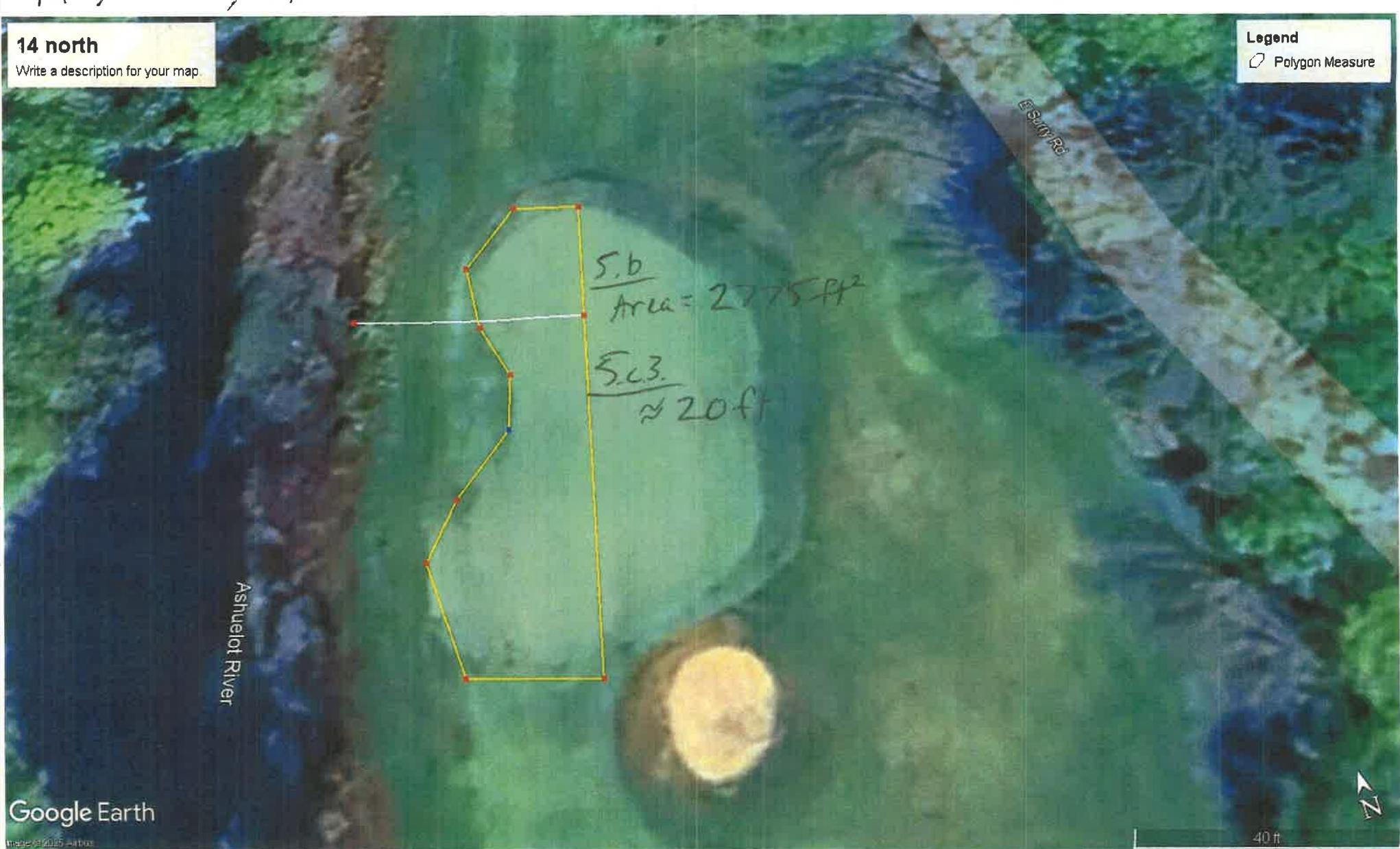
August 8, August 24

September 15, September 30

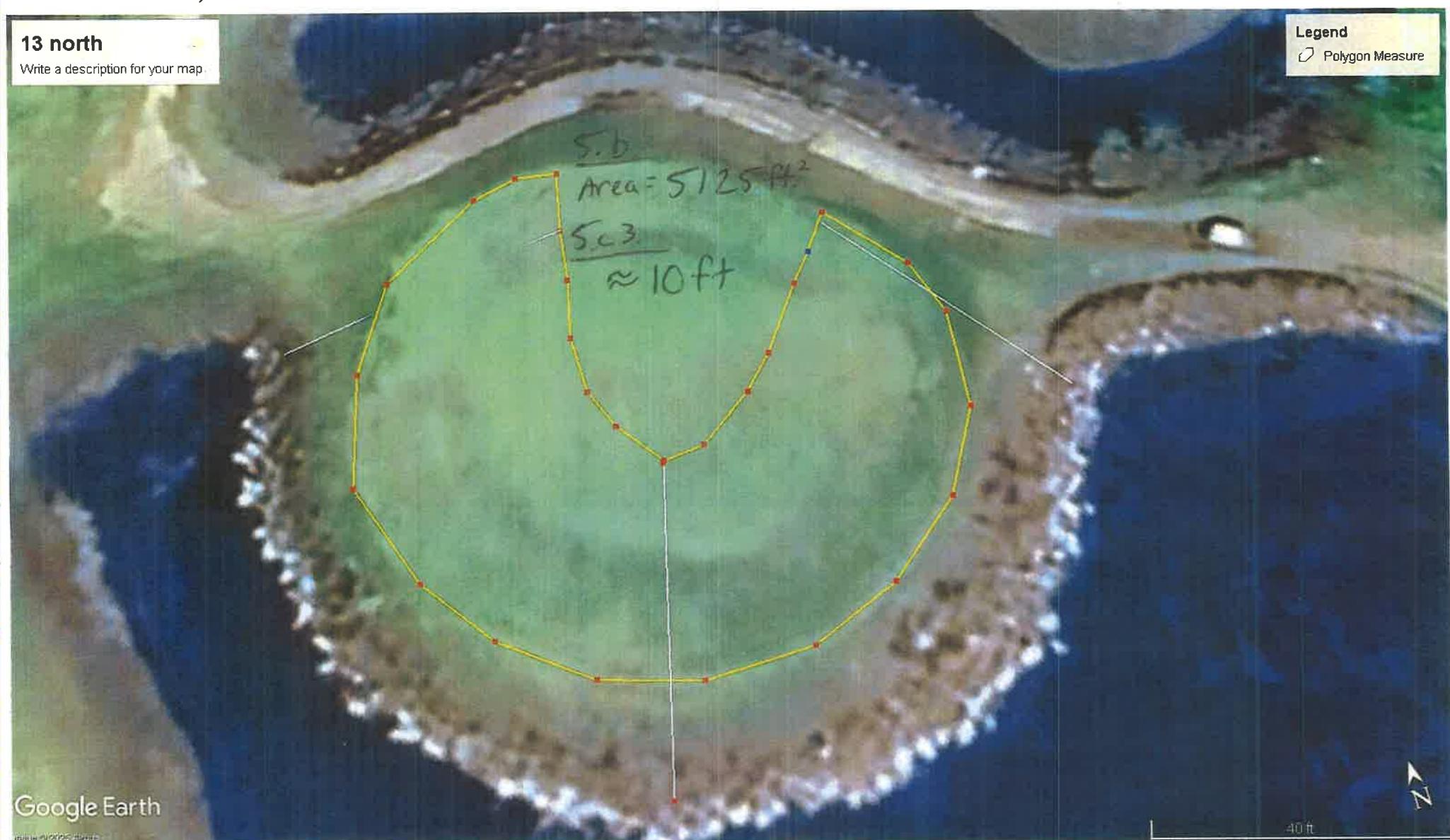
October 20 (Not always necessary depending on disease pressure)

November 15 (Snow mold application)

# 14 North , Ashuelot



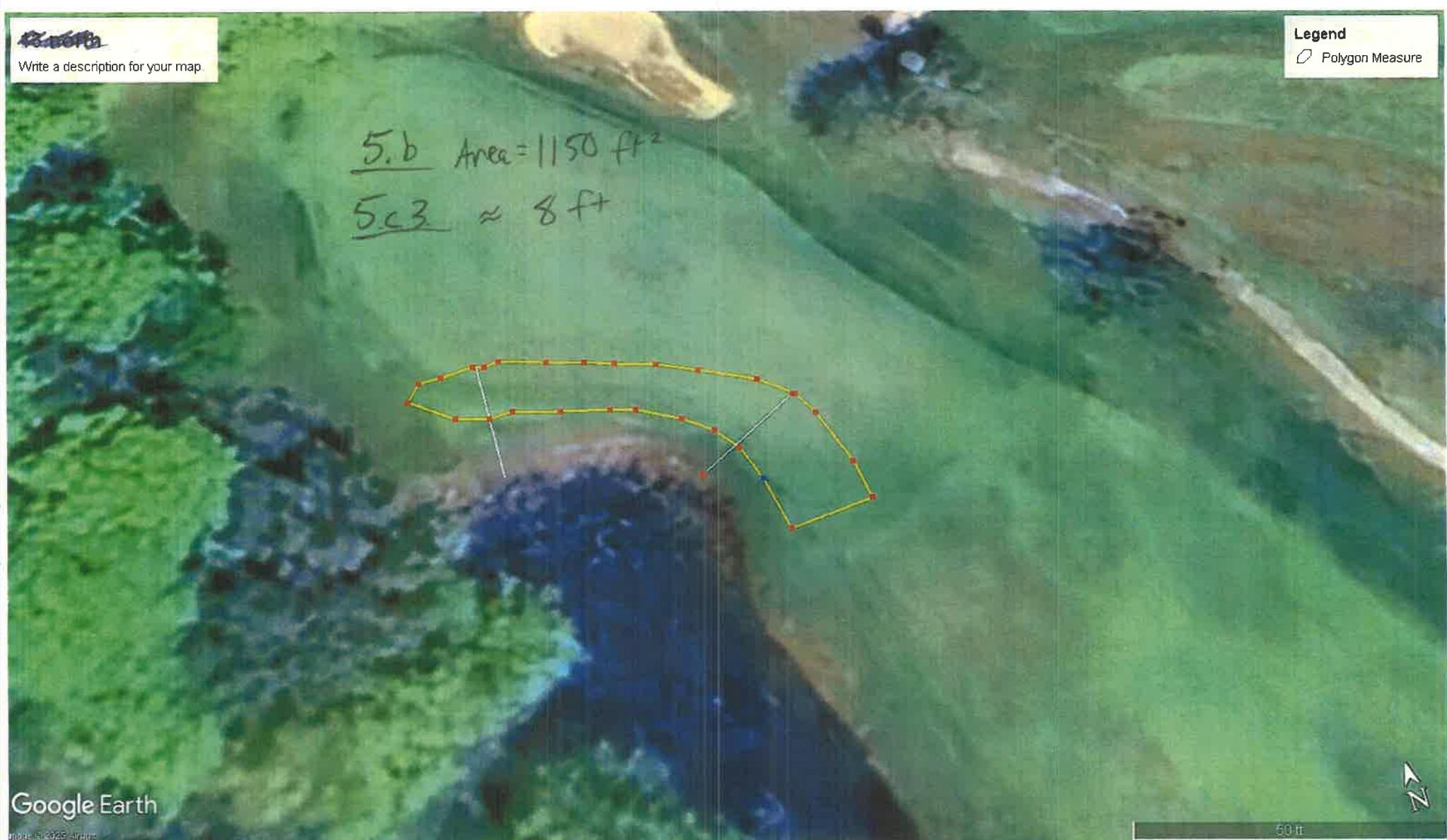
# 13 North, Ashuelot/Pond adjacent



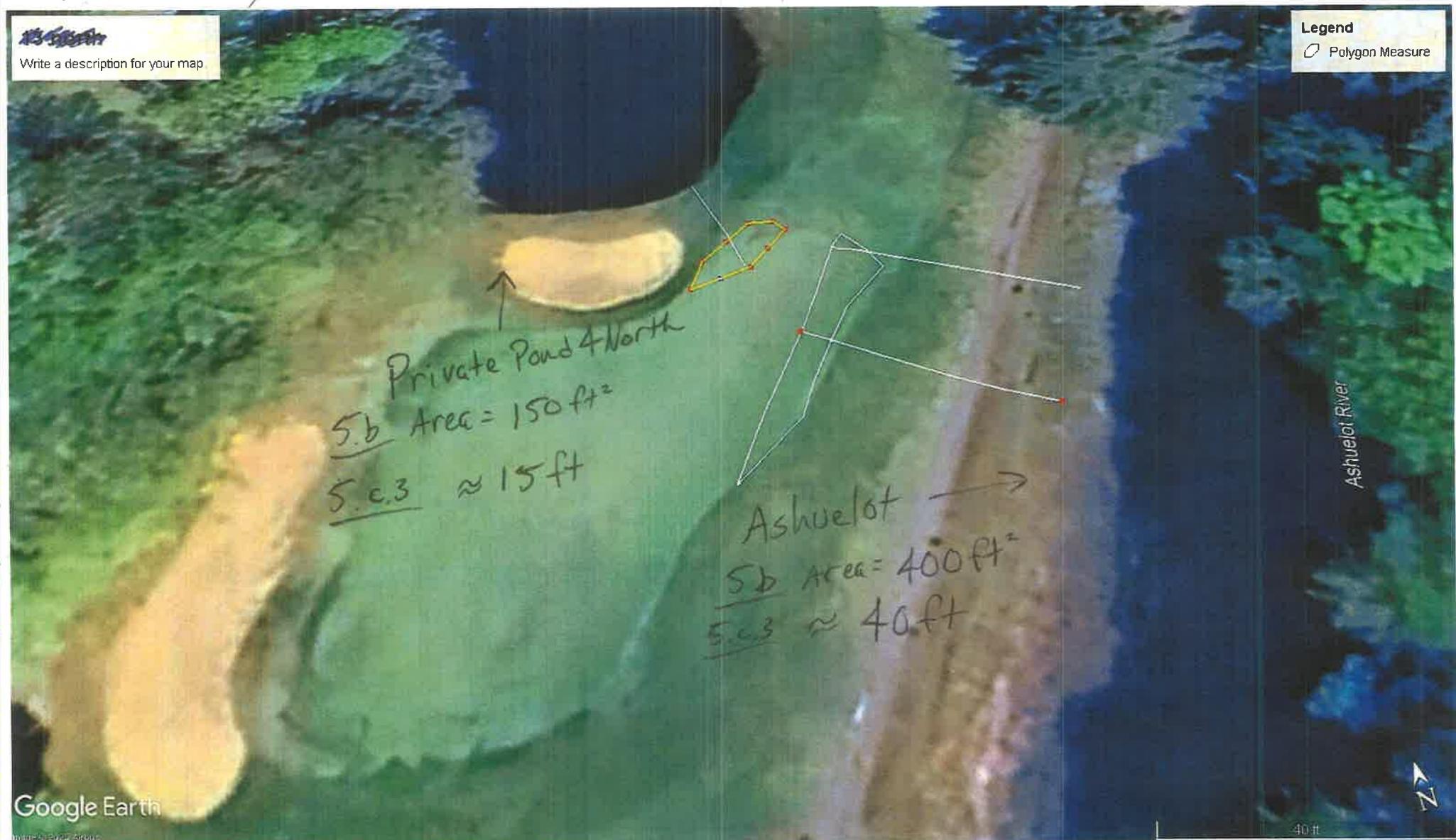
# 11 North , Ashuelot



10 North, Private Pond 10North



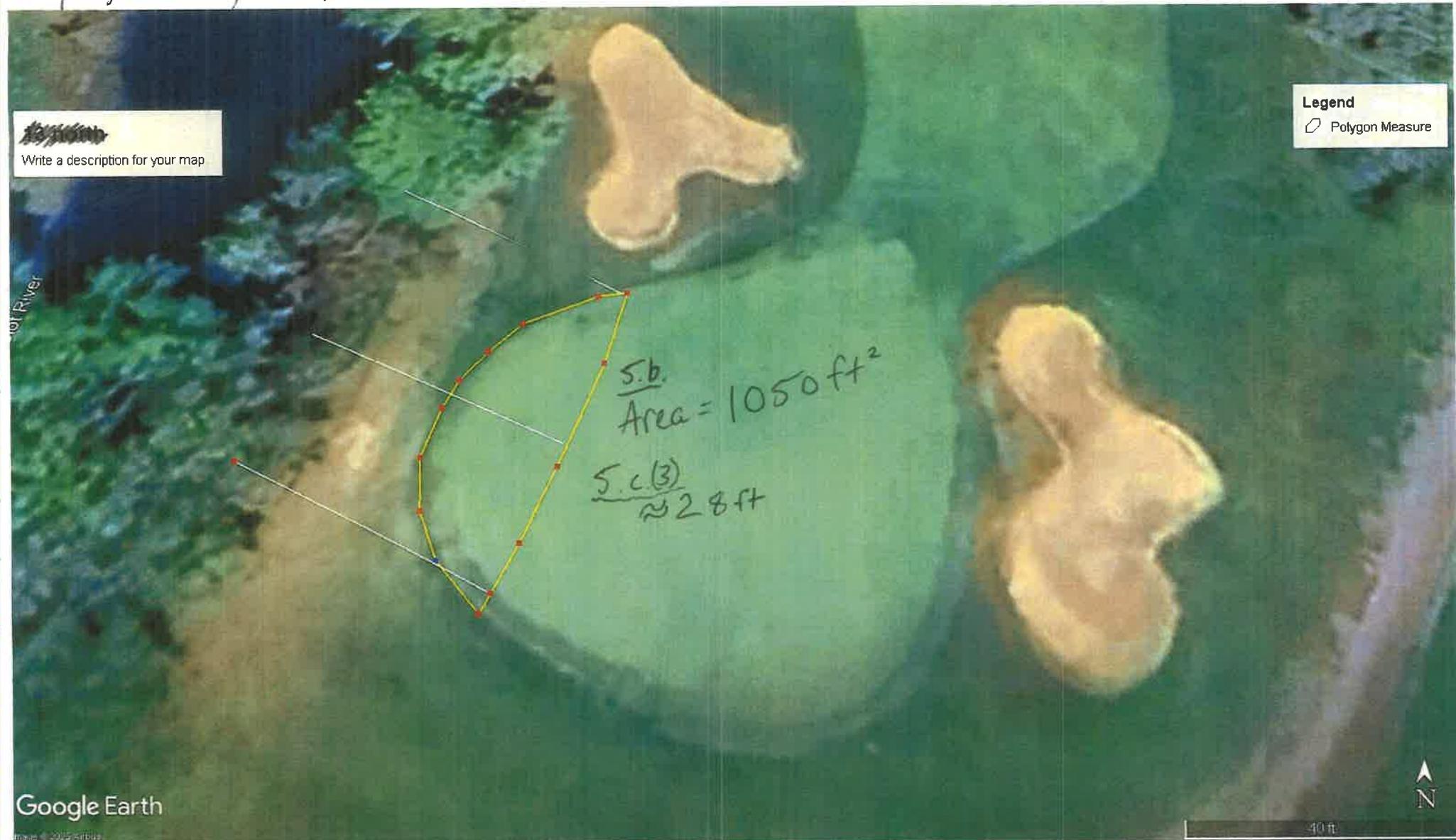
# 4 North, Ashuelot and Private Pond 4 North



# 3 North , Ashuelot



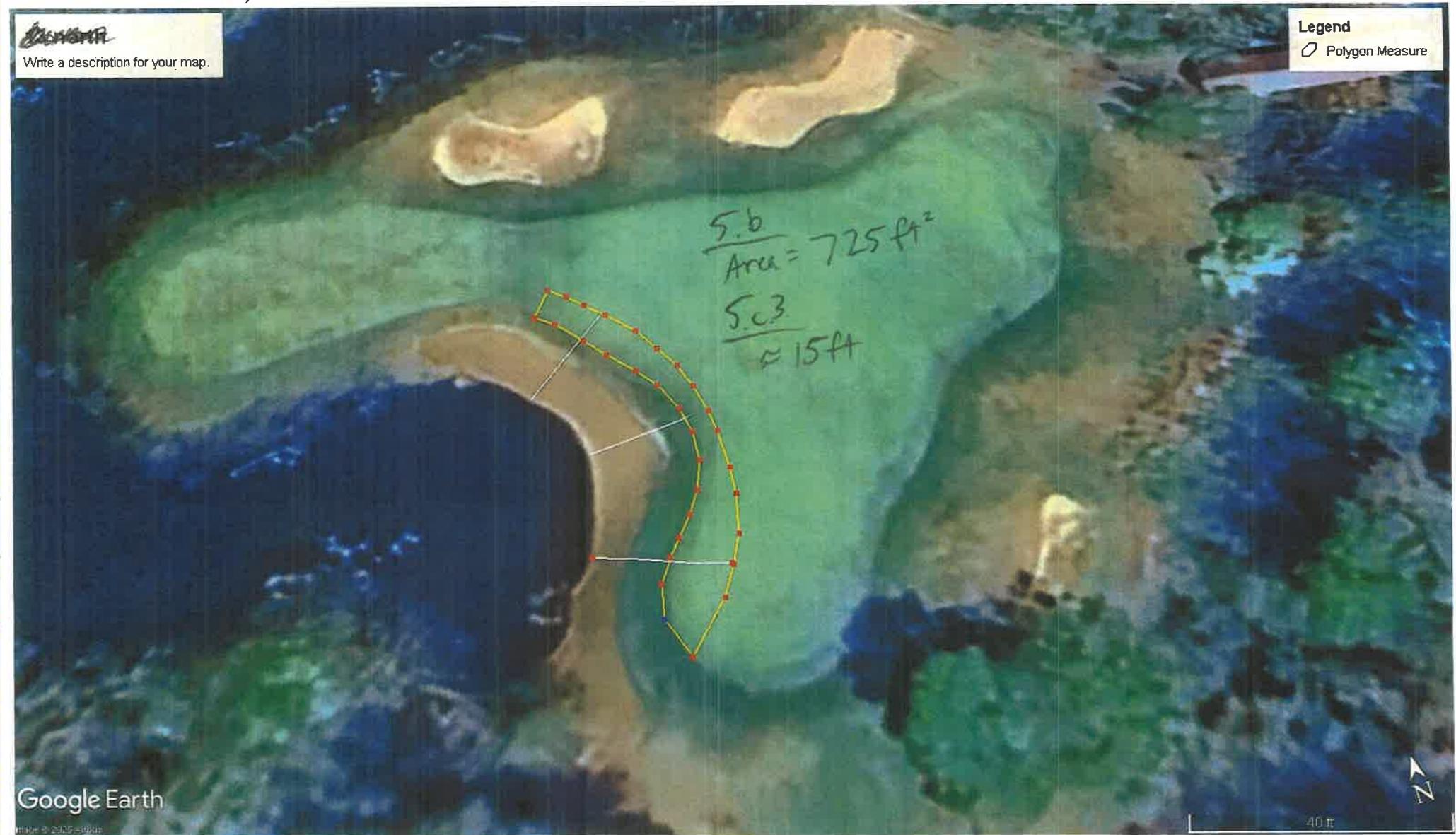
North, Ashuelot



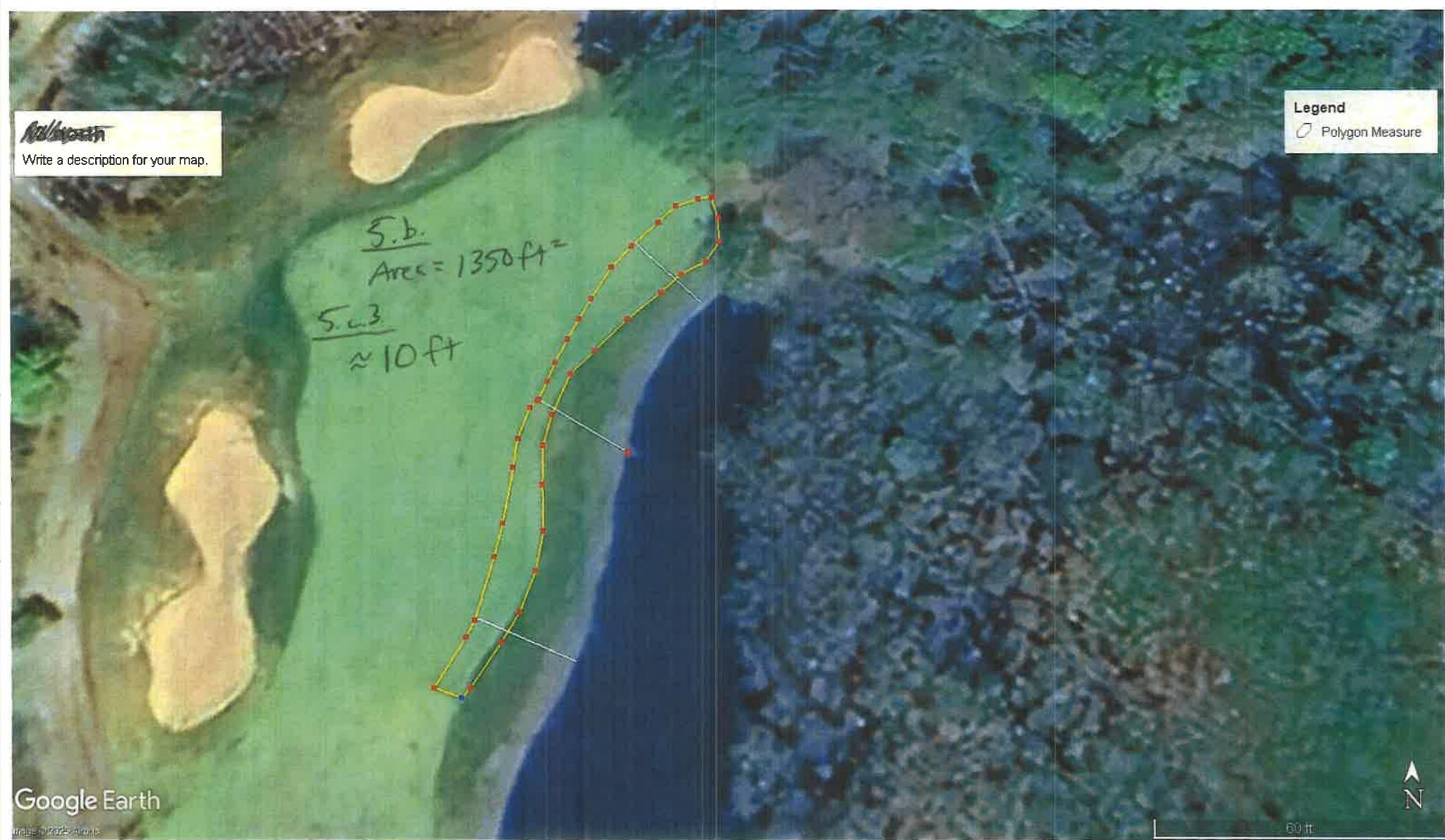
17 South , Ashuelot



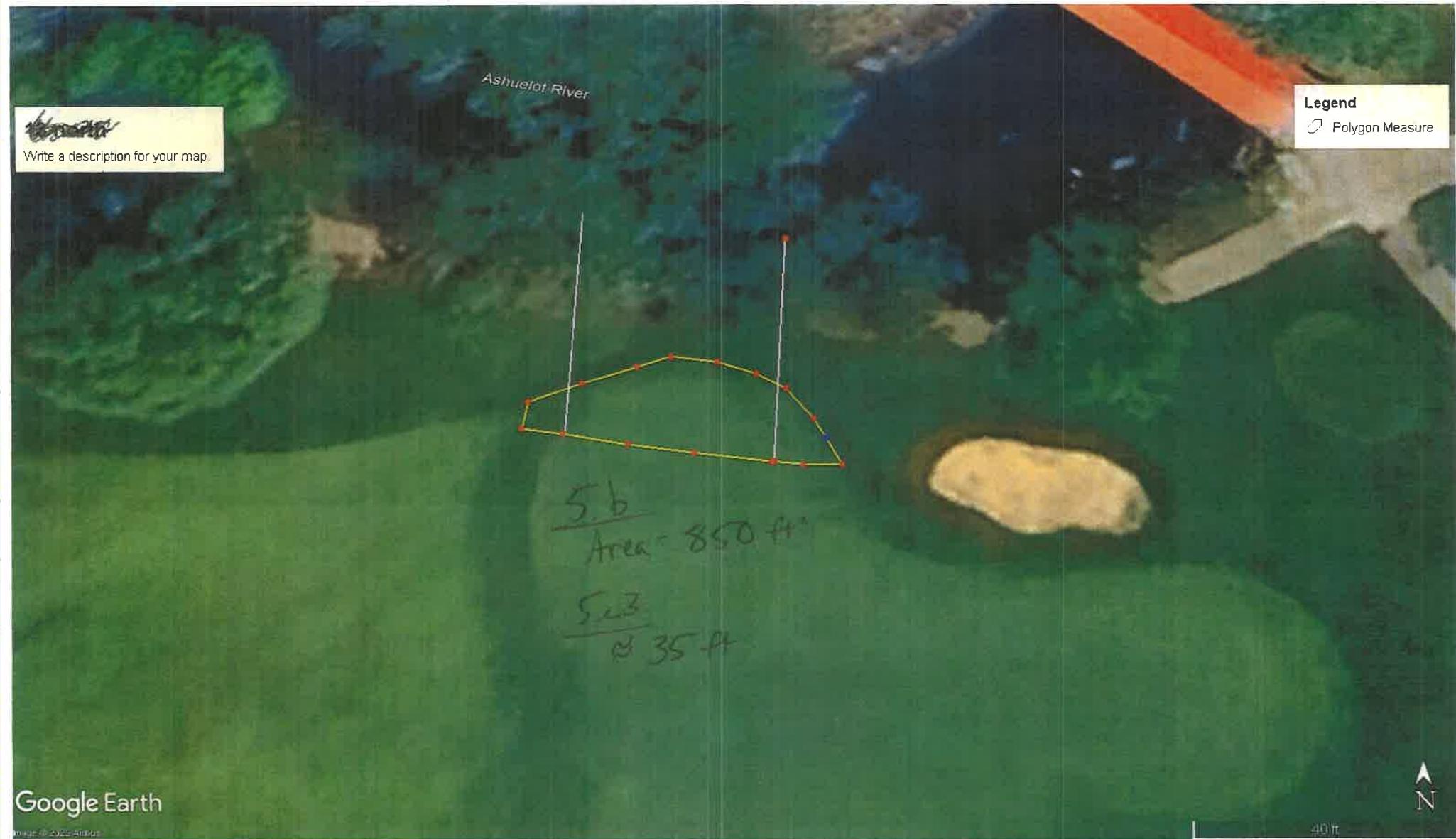
# 16 South, Private Pond 16South



15 South , Private Pond 15South



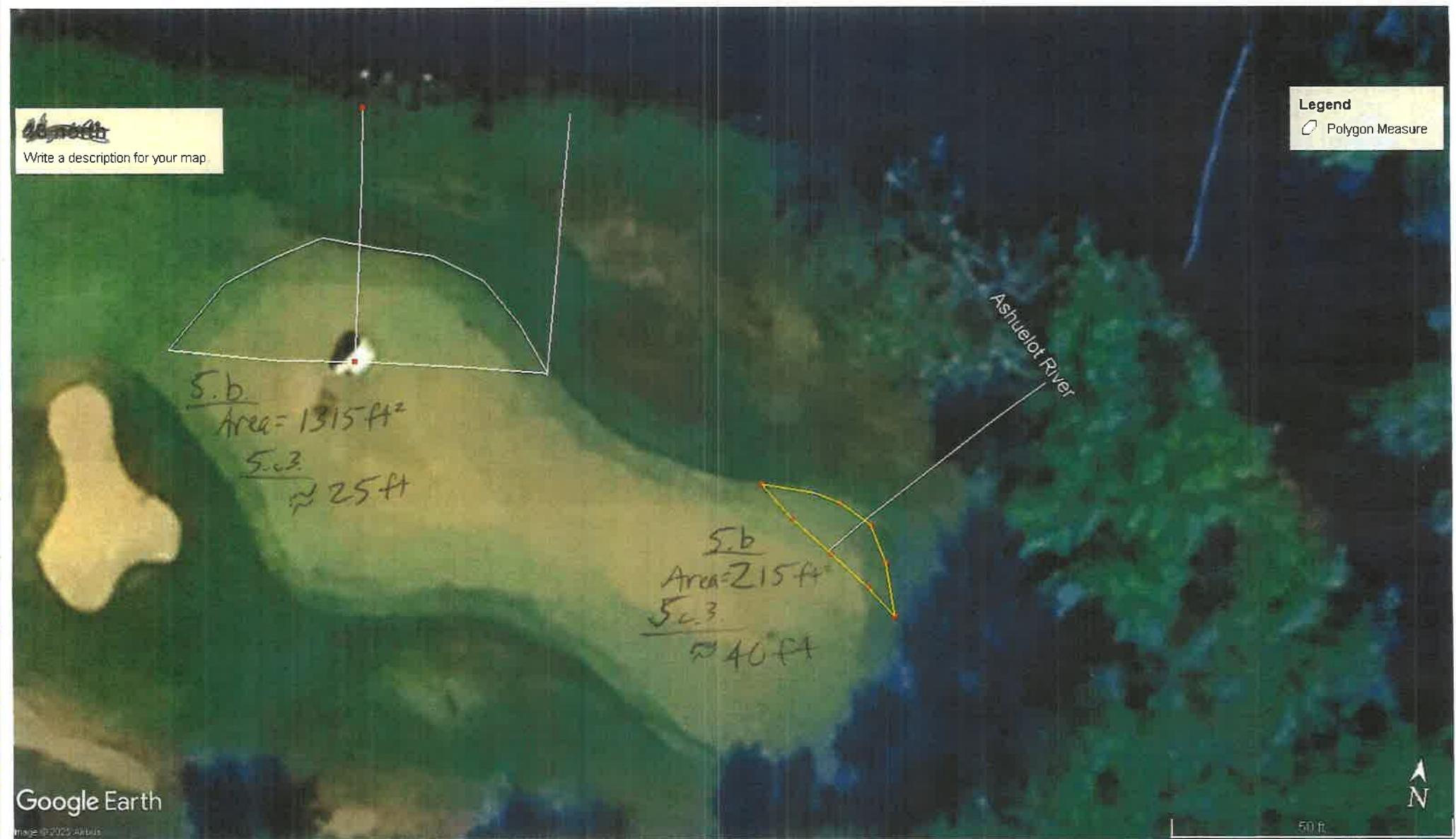
14 South, Ashuelot



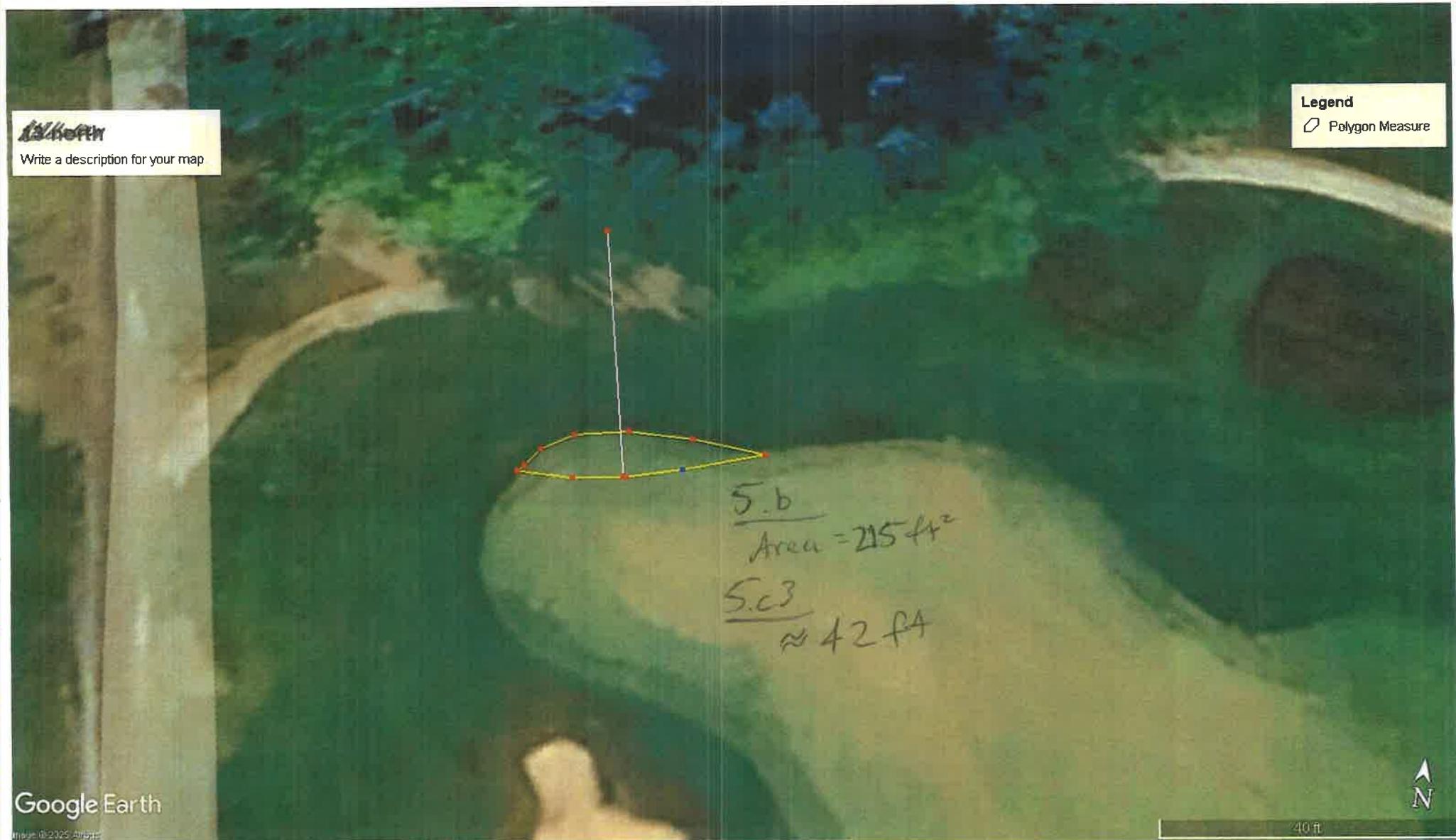
12 South , Private Pond 125outh



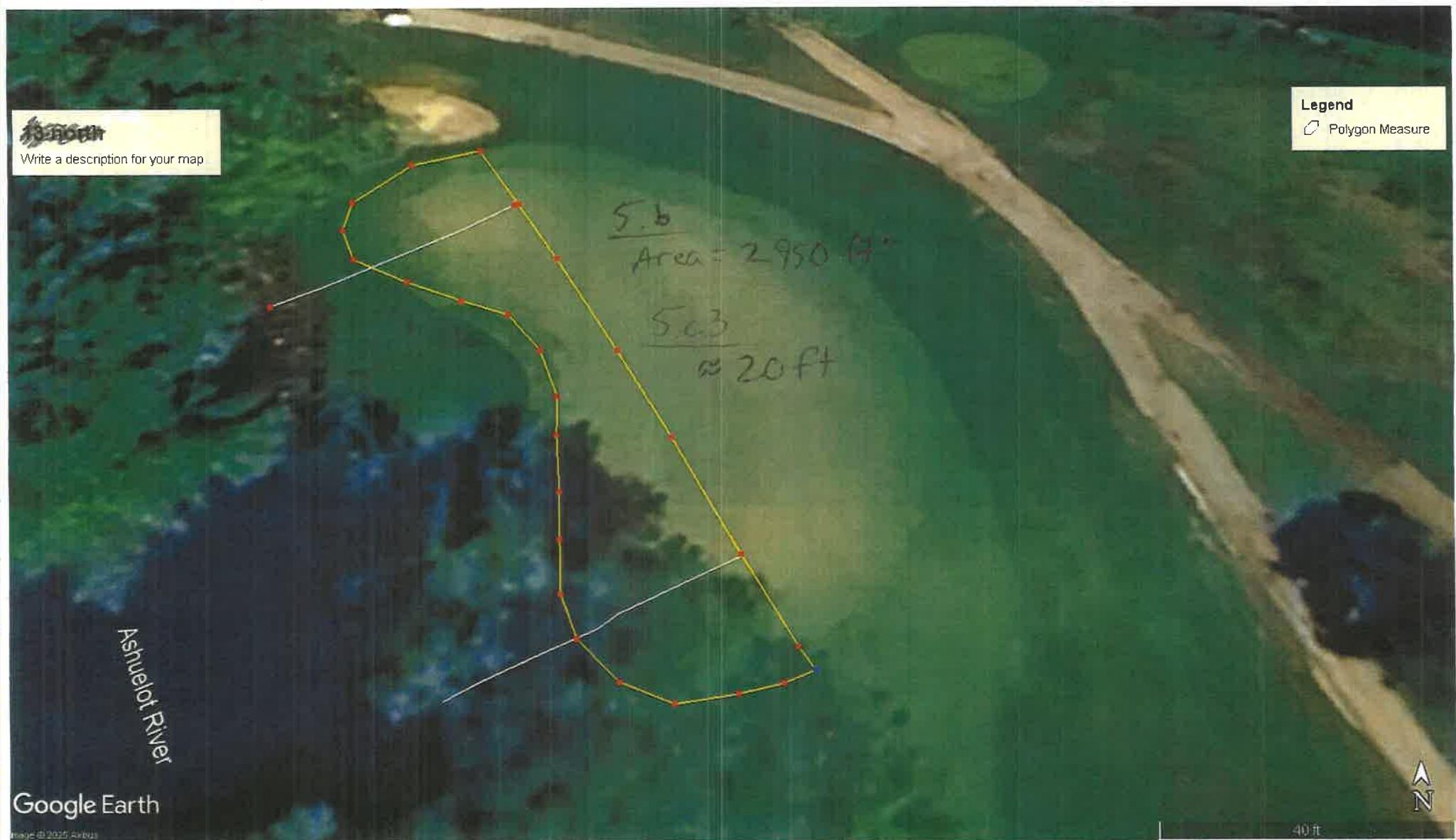
# II South, Ashuelot



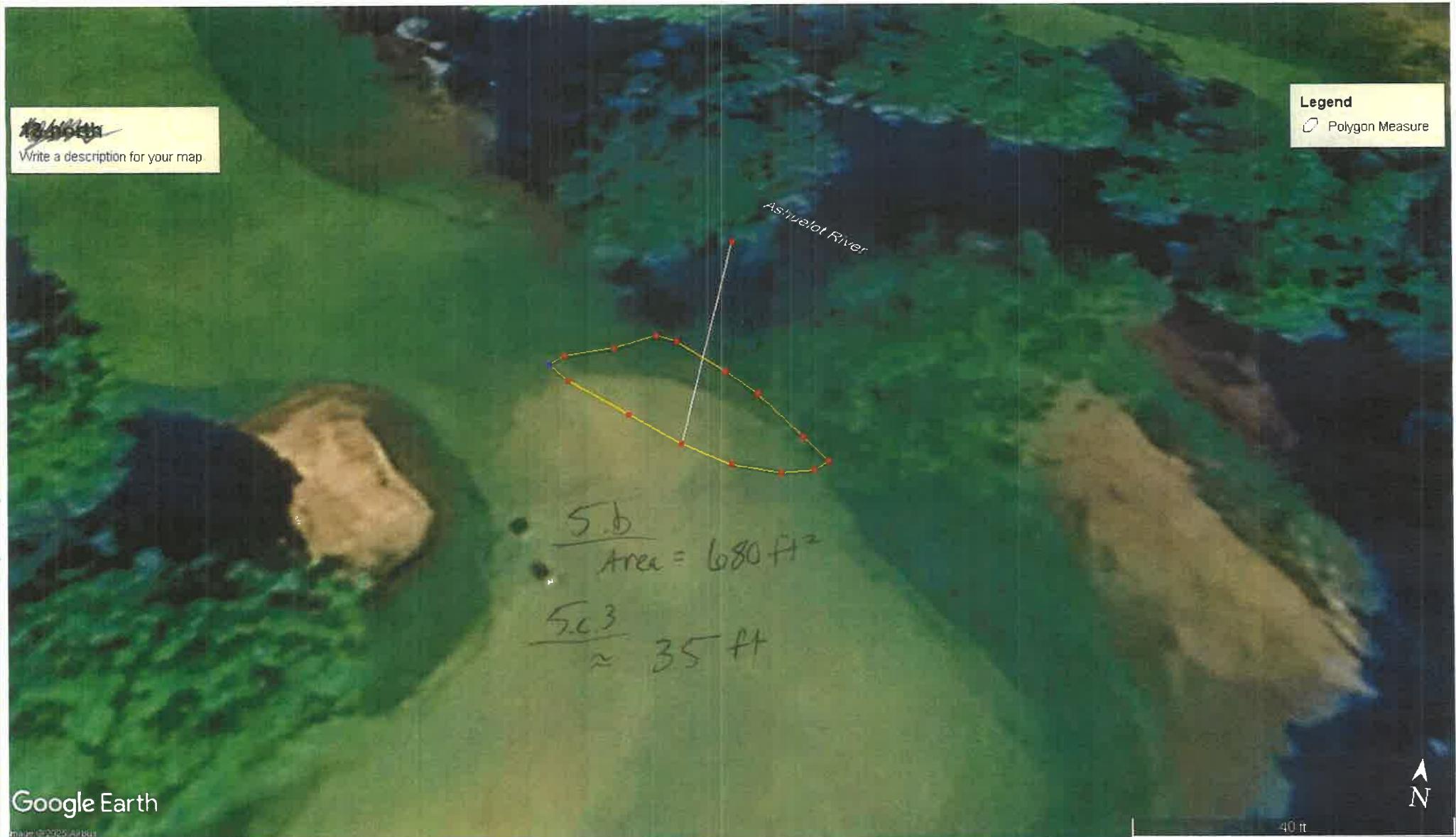
10 South , Ashuelot



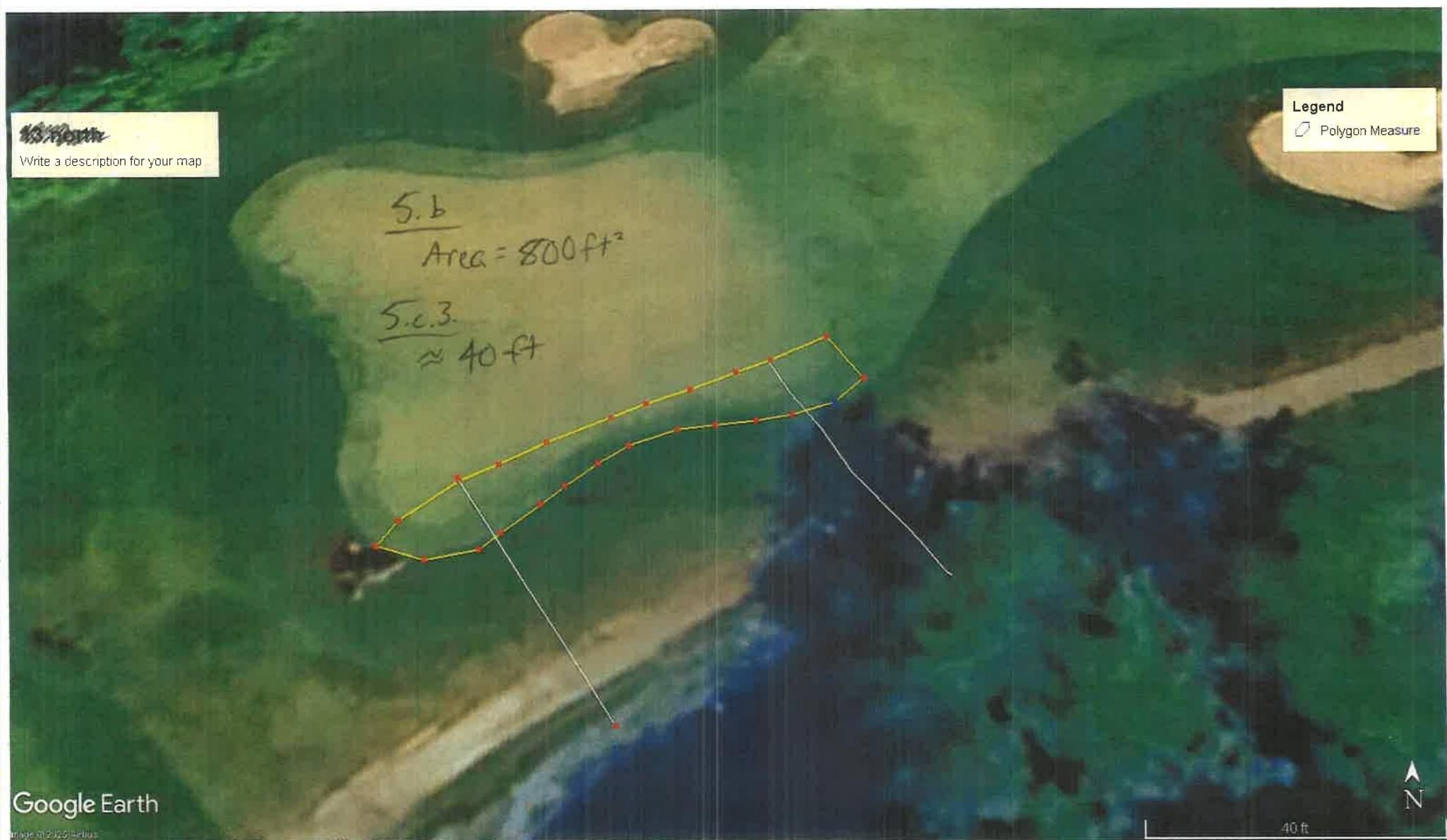
7 South, Ashuelot



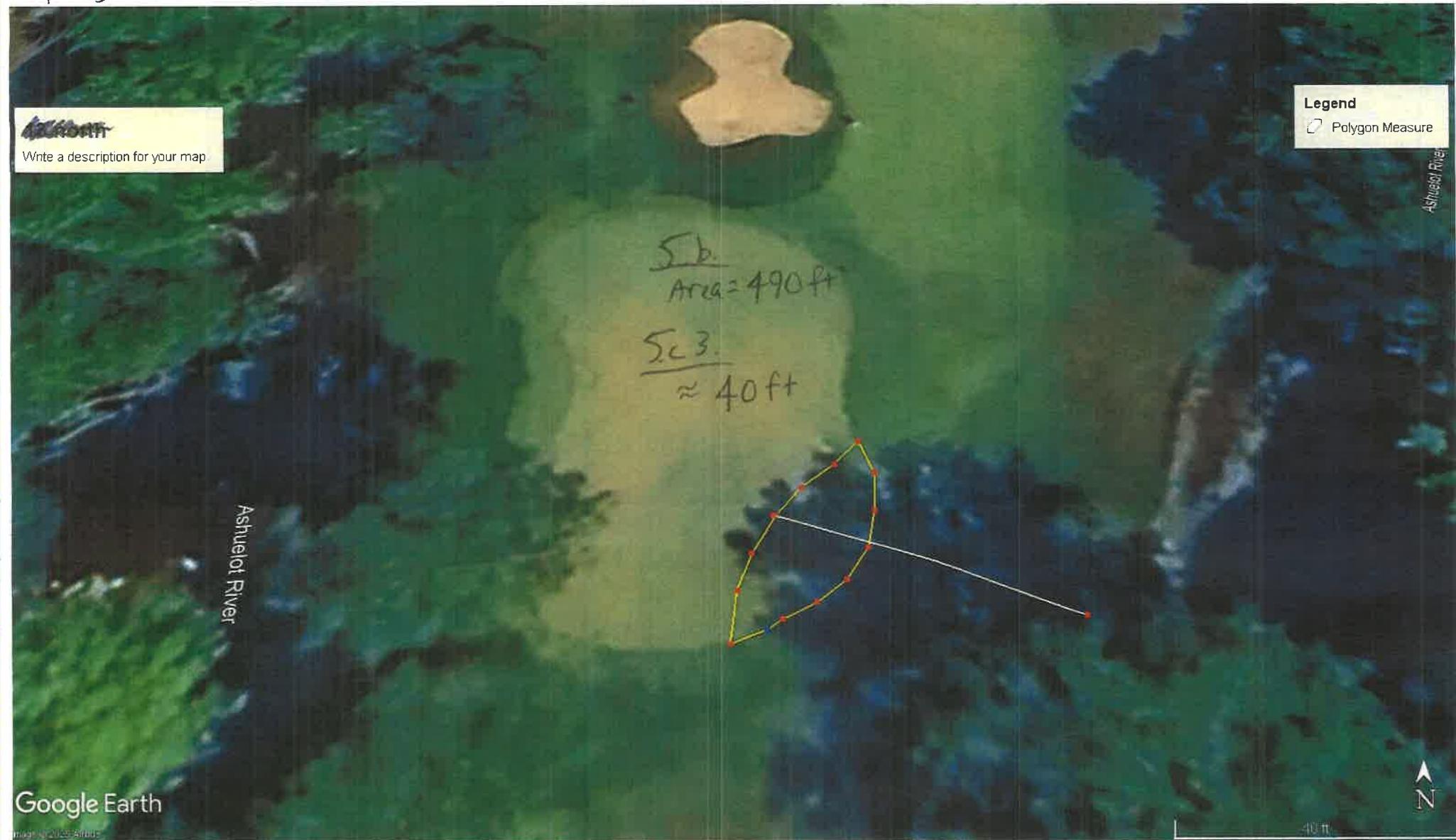
6 South , Ashuelot



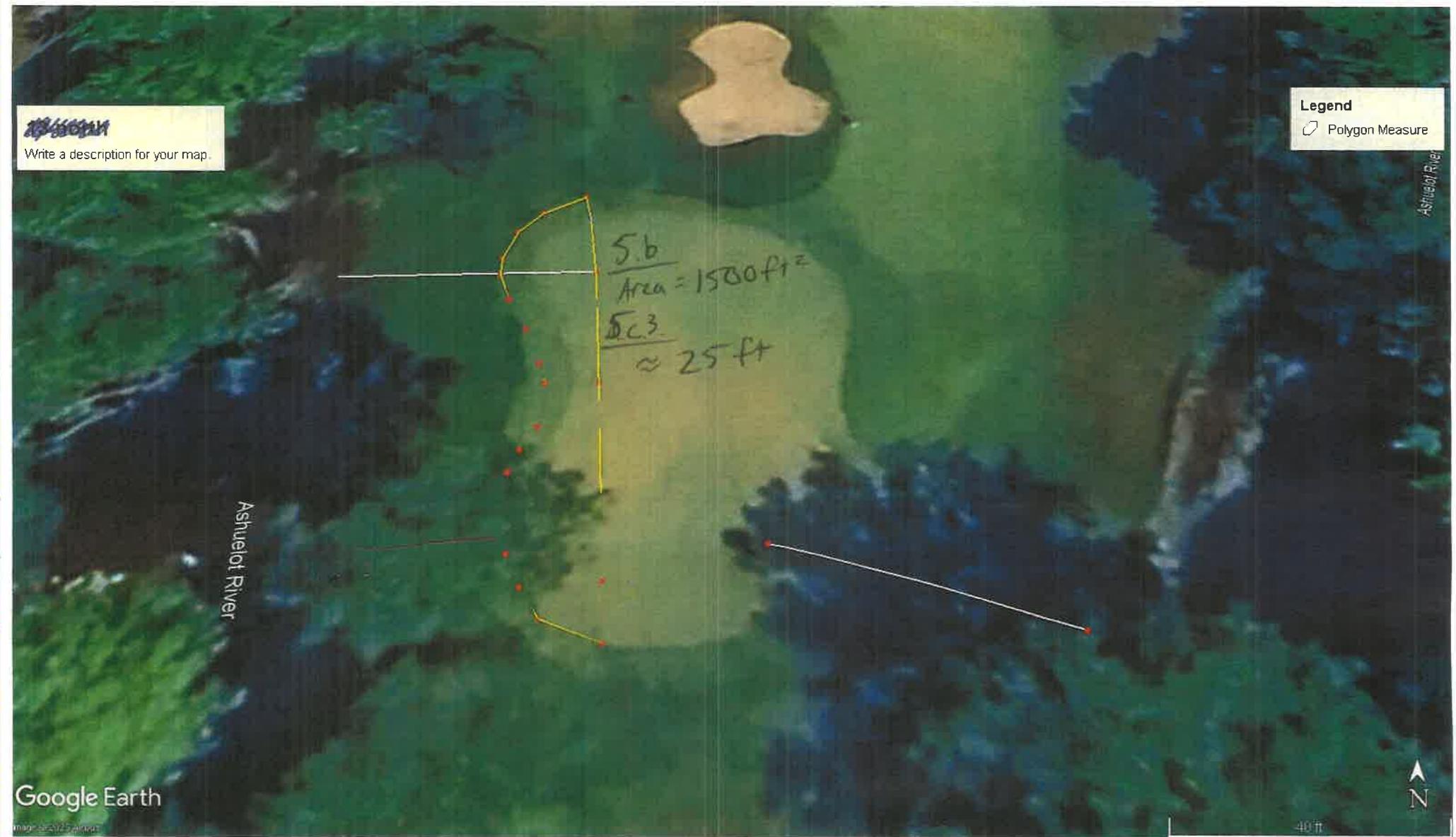
5 South , Ashuelot



4 South , Ashuelot



4 South , Ashuelot



**From:** [Ilissa Sargent](#)  
**To:** [Carrah FiskHennessey](#)  
**Cc:** [Amanda Palmeira](#); [Mari Brunner](#)  
**Subject:** RE: Keene NH: Dinsmoor Woods  
**Date:** Tuesday, January 27, 2026 4:31:46 PM  
**Attachments:** [image002.png](#)  
[image003.png](#)

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Good afternoon, Carrah,

Thank you for reaching out regarding the letter I sent in December. I appreciate the insight about the blowdowns we caught on aerial imagery and confirmation that this issue has been handled appropriately. I will be sure to note this in the file.

Also, thank you for letting me know about the Red Pine Scale issues you are experiencing on the Dinsmoor Woods and Wheelock Park properties. This is an aggressive and quick-moving infestation that often requires immediate attention, and I commend the town's quick action. Upon reviewing the easement deed, I agree with your interpretation that this harvest would align with that which is necessary "to preserve the forest growth thereon in the most healthy condition possible." I will be sure to note this correspondence as a notification regarding the impending harvest and further document that you have contracted Alex Barrett to draft the Forest Management Plan and oversee the operation. Once Mr. Barrett has completed the plan, could you please send us a copy so that we may include it in the file for this property?

Additionally, we understand that the Faulkner & Colony Manufacturing Shifting Executory Interest abuts the Dinsmoor Wood property to the northeast, and that both properties have a similar forest composition and share road frontage along Maple Street. Has Red Pine Scale been found on this property as well, and are you considering its inclusion in the Forest Management Plan being drafted for the Dinsmoor Woods property? It appears that this easement shares similar restrictions, and that it may be interpreted much the same way as the Dinsmoor Woods easement. If this is a concern for the property, I can also include this correspondence in the Faulkner & Colony Manufacturing Shifting Executory Interest file as a notice of impending harvest.

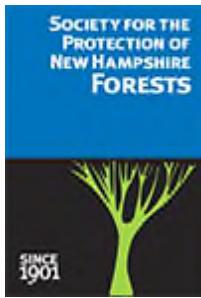
We appreciate the transparency regarding the management of these properties and look forward to working with you as you address this issue.

Best,

Ilissa

**Ilissa Sargent** (she/her)

**SW Regional Stewardship Manager**  
[Society for the Protection of NH Forests](#)



54 Portsmouth Street  
Concord, NH 03301  
Office: 603-224-9945 ext. 381  
Cell: 603-931-2386  
[isargent@forestsoociety.org](mailto:isargent@forestsoociety.org)

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**From:** Carrah FiskHennessey <[cfiskhennessey@keenennh.gov](mailto:cfiskhennessey@keenennh.gov)>  
**Sent:** Monday, January 26, 2026 1:17 PM  
**To:** Ilissa Sargent <[isargent@forestsoociety.org](mailto:isargent@forestsoociety.org)>  
**Cc:** Amanda Palmeira <[apalmeira@keenennh.gov](mailto:apalmeira@keenennh.gov)>; Mari Brunner <[mbrunner@keenennh.gov](mailto:mbrunner@keenennh.gov)>  
**Subject:** Keene NH: Dinsmoor Woods

You don't often get email from [cfiskhennessey@keenennh.gov](mailto:cfiskhennessey@keenennh.gov). [Learn why this is important](#)

Good afternoon Ms. Sargent,

The Conservation Commission shared your December letter with me in consideration of the Dinsmoor Woods park designation. Thank you for following up on the satellite imagery monitoring questions regarding the Faulkner & Colony and Dinsmoor Shifting Executory Interests. The "tree removal" noted by that imagery is appropriately attributed to significant blowdown from the July 2024 windstorm that left many property owners/managers with significant damage. Any tree that blew down during that windstorm - or posed a health and safety risk (bent/broken trunks) and was cut - were left onsite.

I am thankful to have your contact information because we have a relatively new threat in this area: Red Pine Scale. Red Pine Scale was detected in the Spring of 2025 in two of our park spaces - Wheelock Park on Park Avenue and Dinsmoor Woods on Maple Avenue. We are aware of the easements on the Dinsmoor Woods property and, in reviewing the easement specifics on these parcels, would like to notify the Society for the Protection of New Hampshire Forests that a harvesting plan is being developed to ensure the health and safety of our community members and the woods. The harvest falls in line with the easement language regarding tree health and disease.

The City has contracted the services of Long View Forest to develop a scope of work under the guidance of Forester Alex Barrett. I have copied our City Attorney Amanda Palmeira and our Conservation Commission Staff Liaison Mari Brunner to this email and look forward to continued conversation.

Thank you,  
Carrah



54 Portsmouth Street  
Concord, NH 03301

Tel. 603.224.9945  
Fax 603.228.0423  
info@forestssociety.org  
www.forestsincity.org

December 30, 2025

Conservation Commission  
City of Keene  
3 Washington Street  
Keene, NH 03431

Dear Commissioners:

This letter serves as our annual communication regarding your City's conservation properties, including any Shifting Executory Interest Properties.

As you may know, the Forest Society is a land conservation organization founded in 1901 with a dual mission of land conservation and responsible forest management. We hold conservation easements and conservation deed restrictions on over 750 properties protecting more than 130,000 acres in New Hampshire. As part of our Easement Stewardship program, we monitor our conservation easements annually from satellite and on the ground every few years. We include shifting executory interests in our monitoring activities because we hold a "backup" interest conveyed from the Grantor to the Grantee with certain deed restrictions. If the Grantee fails to meet the restrictions, ownership shifts to the Executory Interest Holder.

As a regional stewardship manager, I serve as your link to the Forest Society regarding the conservation easements and deed restrictions. My role is to answer any questions about the easements or restrictions you may have and work with you to ensure any plans for the properties meet the terms of the easements or deed restrictions.

The following are the City-owned Properties in which the Forest Society holds a Conservation Easement or Shifting Executory Interest:

**Keene, City of Conservation Easement**  
**Faulkner & Colony Manufacturing Shifting Executory Interest**  
**Dinsmoor Shifting Executory Interest**

Abraham Ames monitored the City of Keene Conservation Easement this year using satellite imagery. No issues were observed in the imagery. The Dinsmoor Shifting Executory Interest and Faulkner & Colony Manufacturing Shifting Executory Interest were also monitored by Josh Abbott using satellite imagery. On both interests, tree removal has been noted within the easement boundaries. An email was sent to Amanda Palmeira to inquire about any activity planned or permitted on these properties. Please be sure to contact us with any information you have regarding this activity.

To assist us in our easement administration and stewardship efforts, we ask that you take a moment to notify us of any management changes or plans to exercise of any reserved rights permitted by the easement or deed restrictions. Please be sure to review your properties' conservation easement or deed restrictions before planning any new management activities.

Please feel free to contact me at [isargent@forestssociety.org](mailto:isargent@forestssociety.org) or (603) 931-2386 with any questions or concerns you may have.

Sincerely,  
*Ilissa Sargent*

Ilissa Sargent  
Regional Stewardship Manager

cc: City Council



**Carrah Fisk-Hennessey, M.Ed.**

City of Keene  
New Hampshire

***Conservation Commission***

**Conservation Commission Rules of Order**

**Section 1: Meetings** Meeting times and dates to be determined by members of the Commission. All meetings are open to the public and meeting times will be posted at least 24 hours before the time of the meeting.

**Section 2: Quorum** The majority of the Conservation Commission members appointed shall constitute a quorum.

**Section 3: Elections** At the first meeting of the new calendar year the Conservation Commission shall elect, by simple majority, a Chairperson and a Vice-Chairperson.

**Section 4: Presiding Officer** The Chair of the Conservation Commission shall preside over the meeting and call the members to order. The presiding officer shall vote on Conservation Commission matters unless otherwise disqualified pursuant to Section 15 of these Rules of Order.

**Section 5: Vice Chair** In case of absence of the presiding officer, if a quorum is found to be present, the Commission shall proceed with the Vice-Chair acting as the presiding officer. The Vice-Chair, unless acting as presiding officer, shall vote on Conservation Commission matters.

**Section 6: Temporary Chair** In the event of the Chairperson and Vice-Chairperson absence, if a quorum is found to be present, the Commission shall proceed to elect a Commission member, by majority vote of those present, as Chair of the meeting until the presiding officer appears.

**Section 7: Right of Floor** When recognized by the Chair, a member of the Commission or general public shall respectfully address the members of the Commission and shall confine themselves to the question under debate, avoid personalities, and refrain from impugning the motives of any other member's argument or vote.

**Section 8: Order of Business** The business of all regular meetings shall be transacted in the following order:

1. Call to order.
2. Roll call of attendance.
3. Acceptance of minutes of preceding meeting.
4. Commission business on meeting agenda.
5. Adjournment

**Section 9: Meeting Agenda** Items to be placed on the meeting agenda must be received a minimum of five (5) business days prior to the scheduled meeting.

Section 10: **Communication** Communications to be introduced to the Commission must be signed by the person introducing the same and must give his or her residential address, mailing address, if different, at which he or she can be reached to be notified of meetings, etc. Communications not containing all of the above will not be accepted by the Staff Liaison and will not be placed on the agenda of the Commission. Communications addressed to a Commission member of a personal or argumentative nature shall not be introduced in the Commission.

Section 11: **Order of business-Out of Order** The presiding office may permit any item of business to be taken up out of the regular order as set by the agenda unless there is an objection by a Commission member in which case a majority of the Commission may vote to take the item out of order.

Section 12: **Conservation Commission Reports** When required, the Conservation Commission shall issue a Majority Report as Informational or as a Recommendation to the City Council based on the findings of the Commission. A simple majority shall constitute a majority.

Section 13: **Tie Vote** In the case of a tie vote on any motion or recommendation, said motion or recommendation shall be deemed defeated.

Section 14: **Reconsideration** After the decision of any question, any member who voted with the prevailing side may move for reconsideration for that action at the next regular meeting of the Commission. For the purposes of this Rule, the next regular meeting of the Commission shall be the next regularly scheduled meeting of the Conservation Commission which is at least ten (10) days after the meeting of the Commission at which the decision to be reconsidered occurred. The Commission member shall submit a written notice and the question shall be placed on the agenda in accordance with these rules. A motion to reconsider shall require a majority vote of the Commission members present. After a motion for reconsideration has once been acted on, no other motion for reconsideration thereof shall be made. If the original vote is sustained at the next regular meeting as defined here, the Commission shall have no further right of reconsideration on the question.

Section 15: **Conflict of Interest** Every member present when a question is put shall vote thereon, except when the member has a conflict of interest in the matter as defined by Section 0600.0, Conflict of Interest and Section 25, Communications, of the Charter of the City of Keene. A conflict may exist when a Commission member's spouse, parent, child or other member of the Commission member's immediate family has a conflict. A conflict exists when a business or individual has a matter before the Commission and the Commission member is employed by the business, or is otherwise a party in interest. If the conflict becomes known prior to a Commission meeting, the Commission member shall file with the Staff Liaison the written particulars of the conflict of interest for inclusion on the Commission agenda. If the conflict becomes known to the Commission members during a meeting, the Commission member should immediately disclose the particulars of the conflict of interest. The question of whether or not a conflict exists will then be decided by a majority vote of Commission members present. The Commission member claimed to have such a conflict of interest shall not vote. When such a conflict exists, the member having the conflict shall be prohibited from participating in the discussion and voting unless permitted to participate in the discussion on the Commission floor, no Commission member having a conflict of interest may discuss the issue in which they have a conflict with any other Commission member in any other place or any other time.

Any Commission member having reasonable grounds to believe that another Commission member has a conflict of interest may raise the issue on their own motion. The question will then be decided as set forth above.

**Section 16: Non Public Session** A two thirds (2/3) majority of members present at a Conservation Commission meeting may vote to go into non-public session when dealing with land matters and litigation. No action or decision with respect to such matters shall be taken or adopted in non-public session, but only in open meeting. All persons present shall leave the meeting, unless specifically requested to remain.

**Section 17: Suspension of Rules** Any provision of these rules not governed by the Charter, Statute, Or Ordinance, may be temporarily suspended at any meeting of the Commission, by a two-thirds (2/3) vote of all members present. The vote on any such suspension shall be taken by roll call and entered upon the records.

**Section 18: To Amend Rules** These Rules may be amended or new rules adopted by a two-thirds (2/3) vote of all members appointed. Any such alterations or amendments shall be submitted in writing at the preceding regular meeting and shall be referred to a sub-committee to be appointed by the Chair. This requirement shall be waived only by unanimous consent, with a recorded vote of all members appointed. Changes shall become effective upon passage.

**Section 19: Rules of Order** "Roberts Rules of Order" shall govern points of order not covered herein.

***Amendments***

Sections 4 and 13 of the Conservation Commission Rules of Order amended on April 21, 2003