



CONSERVATION COMMISSION

AGENDA

Monday, August 15, 2022

4:30 PM

**Room 22, Parks & Recreation
Center**

Commission Members

Alexander Von Plinsky, IV, Chair
Councilor Andrew Madison, Vice Chair
Kenneth Bergman
Art Walker
Eloise Clark

Councilor Robert Williams
Brian Reilly, Alternate
Thomas P. Haynes, Alternate
Steven Bill, Alternate
John Therriault, Alternate

**SITE VISIT OF 0 ROUTE 9 PROPERTY (TMP# 215-007-000-000-000) AT 3:30 PM.
Commission members should meet at the Parks and Recreation Facility at 3:15 PM to carpool.**

1. Call to Order
2. Approval of Meeting Minutes – July 18, 2022
3. Applications:
 - a) Planning Board referral – Earth Excavation Permit Application – 0 Rt 9 (TMP# 215-007-000-000-000)
4. Correspondence
 - a) Complaint – East Surry Road
 - b) Dredge and Fill Permit – Wilson Pond Dam
5. Report- outs
 - a) Greater Goose Pond Forest Stewardship Subcommittee
 - b) Outreach
 - c) Invasive Species
6. Discussion Items:
 - a) Ordinance O-2022-09 – Proposed changes to Rural District and Conservation Residential Development (CRD) Subdivision Regulations
 - b) Conservation Commission speaking events
 - c) Airport proposed wildlife control fence
 - d) Budget Planning
7. New or Other Business
8. Adjourn – Next meeting date: **Monday, September 19, 2022**

1 City of Keene
2 New Hampshire

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5 CONSERVATION COMMISSION
6 MEETING MINUTES
7

Monday, July 18, 2022

4:30 PM

Room 22,
Recreation Center

Members Present:

Councilor Andrew Madison, Vice Chair
Eloise Clark
Councilor Robert Williams
Art Walker
Ken Bergman
Thomas Haynes, Alternate
John Therriault, Alternate (via Zoom)

Staff Present:

Mari Brunner, Senior Planner

Members Not Present:

Alexander Von Plinsky, IV, Chair
Brian Reilly, Alternate
Steven Bill, Alternate

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10 **1) Call to Order**

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12 Vice Chair Madison called the meeting to order at 4:33 PM. The Vice Chair recognized Mr. Therriault
13 participating remotely and there were no objections. Mr. Therriault was alone at his location.
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15 **2) Approval of Meeting Minutes - June 20, 2022**

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17 Revisions: line 186, change "Cadadie" to "Casadei."
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19 A motion by Mr. Walker to adopt the June 20, 2022 minutes as amended was duly seconded by Ms.
20 Clark. The motion passed on a unanimous roll call vote.
21

22 **3) Report-Outs**

23 **A) Greater Goose Pond Forest Stewardship Committee**
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25 Mr. Haynes said the group had not met this month. He reported that Saturday July 9 was the second
26 trails maintenance workshop addressing water issues; there were a few participants. The group
27 installed three water bar-type apparatuses at the access trail coming from the north trailhead. He thinks
28 it would be good to have an active list of people interested in this type of work; Commissioners should
29 forward suggestions to Mr. Haynes. Lew Shelley, who led the workshop, suggested addressing two

30 areas that stay wet and muddy by dropping and peeling a nearby hemlock tree to create a walkway.
31 Mr. Bohannon agreed, and they might do that work on July 23. They also discussed a fall workshop on
32 bridges. They walked the lower Drummer Hill Road trail and identified some spots Mr. Shelley thinks
33 could be improved. They will work with the New England Mountain Bike Association's large pool of
34 volunteers.

35
36 Mr. Haynes was contacted by Chris Casadei, requesting to meet with the Subcommittee and walk the
37 Goose Pond lands together, to perhaps combine some of his logging with what is in the Stewardship
38 Plan. Mr. Haynes replied that the Commission is not able to do any logging at this point so walking the
39 land together was moot.

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41 Mr. Haynes moved to pay Lew Shelley of Snowhawk, LLC., in Walpole, NH, \$300 for the
42 Commission's half of the July 9 trails workshop. Mr. Walker seconded the motion.

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44 Mr. Haynes continued that this was to contribute as much as the Commission did for the June
45 workshop and partner with Parks & Recreation again. He thought this was planned in advance but
46 recognized that it might not have been communicated well. Mr. Bergman recalled that the
47 Commission's budget was increased to \$2,000. Vice Chair Madison asked how long ago the July
48 workshop was planned; Mr. Haynes replied in the spring/March and the initial plan was for the
49 Commission to pay half.

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51 The motion carried on a unanimous roll call vote.

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53 Mr. Bergman clarified that the purpose of felling the hemlock was not because it is in the way, but
54 because it could provide materials for subsequent trail improvements. Mr. Haynes agreed. This is the
55 easiest and most cost-effective way. Mr. Bergman wondered where the logging recommended in the
56 Greater Goose Pond Forest Stewardship Plan stood at this point. Mr. Haynes replied that the
57 Stewardship Plan outlines a prescribed logging operation with a consulting logger, but the
58 Subcommittee had not spoken of being ready to do any forest management. Mr. Bergman asked, if
59 logging occurred, would the recommended schedule be compressed, or the years pushed back. Mr.
60 Haynes said it was unknown and the Subcommittee is getting oriented with this recreation piece. If
61 there were logging, Councilor Williams reminded that there would need to be a public process with a
62 request for proposals to avoid the appearance of directing to one logging company. The Vice Chair
63 shared concern about walking the forest with one specific company. Mr. Haynes said the
64 Subcommittee was aware, especially after how aggressive Mr. Casadei was in wanting to work with
65 them; they saw the need to cool that down.

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67 **B) Outreach**

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69 Nothing new to report.

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72 **C) ARM Fund**

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Nothing new to report.

D) Invasive Species

Councilor Williams reported that there had been two events since the last meeting, which was the same day as a Japanese knotweed pull. He said there is still a lot remaining in the area, but it is growing back weaker with this treatment. Eventually, the goal is to plant native species there. He thinks it is a good start. On July 16, there was an event at the Airport, with fewer people than planned. The group found the watercress in good condition after last year's work, so they will plan to go back in a future year. Thus, they addressed some other patches in the area—some purple loosestrife and white sweet clover, the latter of which some people consider a native species while it is invasive elsewhere in the nation. The Councilor felt good removing it from this showcase wetland. Mr. Therriault replied that clover is not listed as invasive in NH and that it does provide nitrogen to the soil and he thought it should be left in place. Vice Chair Madison asked how vast the infestation was and Councilor Williams compared it to the size of the meeting table, and he could tell the natives were trying to fight against it in the disturbed area it had claimed. Ms. Clark confirmed that it was the tall white clover and Councilor Williams agreed. Mr. Bergman asked where the loosestrife was, and Councilor Williams said approximately 30' down across the road from the stream crossing at an old logging area. Mr. Bergman added that there is some further in the marsh that is difficult to access. Ms. Clark added that one invasive threatening wetlands is phragmites and she suggested that a crew go after it. Councilor Williams had seen it treated with fire, which is past this Commission's abilities. Everyone was appreciative of Councilor Williams' efforts.

Vice Chair Madison asked if they were documenting the removal activities. Councilor Williams has tried but it has been difficult in some instances. The Vice Chair said it would be nice to document the effect of this mechanical removal on these species where in many instances, chemicals are considered to be the only remedy; it could be a good case study to influence other communities. Councilor Williams said it would vary species-to-species; for example, the garlic mustard had been very successful but other species less so. Councilor Williams added that the new Senate bill would make resources available for municipalities to address some of these invasives and the better the City's history is documented, the more likely success obtaining those grants.

Mr. Bergman recalled that the new solar establishment at the Airport is highly disturbed land that would be a prime invasives site if pollinator friendly cover is not introduced to the soil. Vice Chair Madison would pass that information to the Public Works Director. Ms. Brunner said the array is owned by Revision Energy on City Land, and Revision agrees to sell the energy to the City. The array land is not leased from Swanzy. She was unsure who maintains the ground under the array. Mr. Bergman confirmed that most of the energy will be used at the Wastewater Treatment Plant. Mr. Therriault said he was assured that the ground would be reseeded with a pollinator blend and the Vice Chair would follow-up with the Public Works Director to confirm. Once seeded, Councilor Williams said the Commission should be keeping an eye on it. Vice Chair Madison said it might be struggling with the drought conditions.

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4) Discussion Items

A) Conservation Commission Speaking Events

Nothing new to report.

B) Airport Proposed Wildlife Control Fence

Vice Chair Madison said the Airport Director, David Hickling, discussed this at the previous week's Finance, Organization, and Personnel (FOP) Committee meeting. As a part of this project, the Airport Director has two meetings scheduled with the Commission, but he was unsure when. Mr. Bergman was curious about the pace of the plan development and funding. Vice Chair Madison said the Director was at the FOP meeting seeking this funding for the fence planning phase, which would go to Council on July 21. Ms. Brunner received an email from Mr. Bergman that she forwarded to the Airport Director, who told her that the fence would be running along the runway, not through the wetland, but that installation would have some wetlands impacts; if in the fall/winter the Vice Chair said those impacts should be minimized. The FOP authorized the City Manager to accept a grant for this, but the Airport Director did not think it would be awarded until November. The design grant is for \$181,900; it would be much more expensive for the actual installation Mr. Bergman found this interesting as the Federal Aviation Administration was not favorable to this design initially. Mr. Bergman gets the sense that the Airport Director is committed to the wetland.

C) Budget Update

This year, the Commission has \$2,000 in its budget, \$300 of which was spent already. Unfortunately, the donation made to the Ashuelot River Local Advisory Committee (ARLAC) at the last meeting for \$95.95 was unable to be processed as it was too late for the carryover request this year. Thus, that donation was returned to the General Fund. She said that the Chairman thought it good to still meet that obligation from this year's budget. The Commission agreed to wait to make such a donation until later in the year as ARLAC was unaware of the donation. The Commission agreed to review this year's budget at the next meeting.

D) Update: 0 Washington St. Ext. Property (TMP# 229-006-000)

Ms. Brunner and the Chairman were unsure whether to put this on the agenda, but they wanted to notify the Commission of the NH Department of Transportation (DOT) permit and the access created, visible in a photo. They placed the access where they said they would, and logging was underway. Mr. Haynes said that now we will see if they cut where they said they would. He recalled that Mr. Casadei's company was not interested in keeping the parcel after logging and he wondered if the Commission should follow-up with him to see if that is still the case. Vice Chair Madison did not see the harm in that and hoped to hear from the City Manager on the issue before the next meeting. Mr. Bergman noted that the aerial photo's legend was illegible. Vice Chair Madison said that was created by the foresters and not the City for a NH DOT issued permit. This was informational.

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160 **5) New or Other Business**
161 **A) Planning Board referral – Earth Excavation Permit Application – 0 Rt 9 (TMP#**
162 **215-007-000-000-000) – Delayed by applicant request to August 15, 2022**
163 **Conservation Commission meeting**
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165 The site visit was delayed until next month. The property owner is Cooper Gordon of G2 Holdings,
166 LLC., which hired the TF Moran engineering firm to work on the State and local permits. This was the
167 owner’s first time doing anything like this and they were unaware they needed permission to excavate
168 for personal use, which they have been doing since late spring 2021 and the engineering firm just
169 became aware of. The Community Development Department and the Assessor’s Office reviewed the
170 site and found that the applicants had encroached into the 75’ surface water buffer and Staff were
171 working with the owners on remediation that will need to occur. There are also jurisdictional wetlands
172 on the site and logging by a previous owner. The owners had to contact the NH Department of
173 Environmental Services for a retroactive permit. They are currently going through the Planning Board
174 process. There is a delay because they plan to fix what they have done and revise their plan. Ms.
175 Brunner continued on the Commission’s role in this excavation project. She would send them the
176 exact regulations, but said the City of Keene has regulations in Article 24 of the Land Development
177 Code. At the State level, there is RSA 155-E. The overall project is to create a gravel pit for
178 commercial sales. Mr. Bergman recalled that the applicants are altering terrain and asked whether they
179 are obligated to restore vegetation. Vice Chair Madison said it depends on the permit restrictions but
180 speculated that some site restoration and remediation would be required. Ms. Brunner said the
181 Alteration of Terrain permit is focused on whether the applicant is stabilizing the site. The City has its
182 own standards for reclamation that are more stringent than the State’s. The City has asked for a short-
183 term remediation plan for what they impacted already and a long-term plan for post-excavation. Ms.
184 Clark asked if they would be crushing stone and Ms. Brunner said they would crush boulders but not
185 blast any ledge; they could apply for the latter in a future phase.

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187 Ms. Clark asked for an update about the garden by the cemetery. Mr. Therriault would check and bring
188 pictures to the next meeting. Ms. Clark asked who is weeding it and Mr. Therriault said that ideally,
189 being wildflowers, no one should need to, but he could ask Mr. Bohannon.

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191 **6) Adjournment**
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193 There being no further business, Chair Von Plinsky adjourned the meeting at 5:20 PM.
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195 Respectfully submitted by,
196 Katryna Kibler, Minute Taker
197 July 25, 2022
198

199 Reviewed and edited by,
200 Mari Brunner, Senior Planner

CITY OF KEENE
NEW HAMPSHIRE

M E M O R A N D U M

TO: Conservation Commission

FROM: Mari Brunner, Senior Planner

DATE: August 9, 2022

SUBJECT: **EXP-01-22 & CUHP-01-22 – Earth Excavation Permit & Hillside Protection Conditional Use Permit – 0 Rt 9** – Applicant TFMoran Inc., on behalf of owner G2 Holdings LLC, proposes to operate a gravel pit on the undeveloped property located at 0 Rt 9 (TMP# 215-007-000-000-000). A Hillside Protection Conditional Use Permit is requested for impacts to steep slopes. Waivers are requested from the following sections of Article 24 of the Land Development Code: 24.3.1.A (200' public ROW setback), 24.3.1.C (150' access driveway setback), 24.3.1.D (surface water resource setbacks), 24.3.4 & 24.3.5 (Groundwater Quantity & Quality Baseline Measurements), 24.3.13 (Maximum Excavation Area), and 24.3.15.D (Annual Noise Monitoring). The site is 84.71 acres in size and is located in the Rural District.

Recommendation:

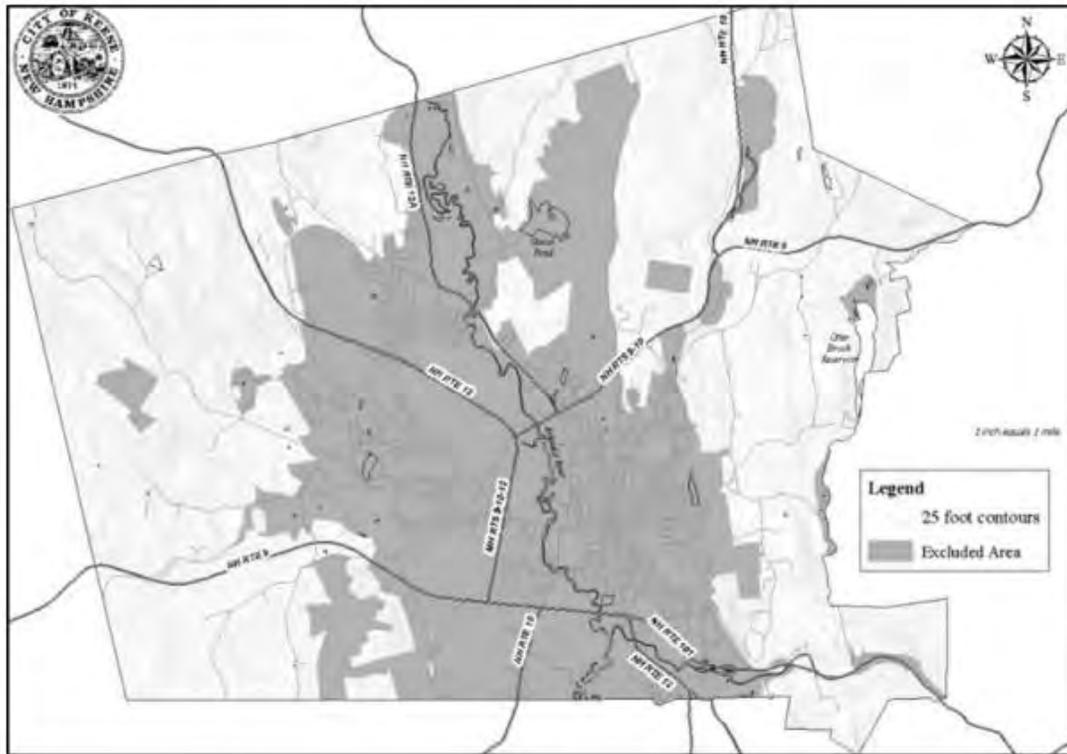
That the Conservation Commission review the proposed Earth Excavation Permit application and provide any comments in writing to the Planning Board prior to the public hearing scheduled for Monday, August 22, 2022 at 6:30 pm.

Background:

The excavation of earthen material for commercial sale (“gravel pits”) is regulated by RSA 155-E at the state level. Enacted in 1979, RSA 155-E grants municipalities the authority to regulate earth excavation operations within their communities. The statute also enables municipalities to enact more stringent standards than those in RSA 155-E itself. The City of Keene regulates Earth Excavation activities under Articles 24 and Article 25, Section 25.19 of the Land Development Code.

Section 24 of the Land Development Code defines its purpose to *“Provide reasonable opportunities for the excavation of earth materials from land situated within the City; Minimize safety hazards created by excavation activities; Safeguard the public health and welfare; Preserve and protect natural resources and the aesthetic quality of areas located near excavation sites; Prevent land, air, and water pollution; and, Promote soil stabilization.”* The Section identifies areas of the City in which a Gravel Pit is permitted in Figure 24-1 (see next page).

Figure 24-1 Earth Excavation Excluded Areas and Access Routes



At their meeting on June 27, the Planning Board made a determination to find that the Earth Excavation application for the property located at 0 Route 9 (EXP-01-22) to be “Complete.” The public hearing for this application was opened on Monday, July 25 and was continued to August 22, 2022 at 6:30 pm in the Council Chambers on the second floor of City Hall.

The City’s regulations specify that *“Upon finding a determination of completeness, the application and any associated materials shall be forwarded to the City of Keene Conservation Commission for review and comment. The Conservation Commission may provide written comment to the Planning Board prior to the closing of the public hearing on the application.”*

The following permit application materials are included as attachments to this memo:

1. Earth Excavation Permit Application form
2. Application narrative & written waiver requests
3. Proposed Plan Set
4. Photographs of the site
5. Soils Report
6. Phase 1 Threatened and Endangered Wildlife and Habitat Assessment
7. Impact Control and Monitoring Report
8. Reclamation Report
9. Traffic Analysis
10. Stormwater Management Report
11. Earth Excavation Regulations (Article 24 and 25.19 of the LDC)

City of Keene, NH

Earth Excavation Permit Application



If you have questions about how to complete this form, please call: (603) 352-5440 or email: communitydevelopment@keenenh.gov

SECTION 1: PROJECT INFORMATION

PROJECT NAME: Proposed Gravel Pit

PROJECT ADDRESS(ES): 0 Route 9

SECTION 2: CONTACT INFORMATION

OWNER		APPLICANT	
NAME/COMPANY: G2 Holdings LLC	NAME/COMPANY: SAME AS OWNER		
MAILING ADDRESS: 250 North Street, Jaffrey, NH 03452	MAILING ADDRESS:		
PHONE: (603) 532-7397	PHONE:		
EMAIL: gordonservices@ymail.com	EMAIL:		
SIGNATURE: 	SIGNATURE:		
PRINTED NAME: Cody Gordon	PRINTED NAME:		
AUTHORIZED AGENT (if different than Owner/Applicant)		FOR OFFICE USE ONLY:	
NAME/COMPANY: TFMoran, Inc. - Jeff Kevan	TAX MAP PARCEL #(s): 215 007000 000 000		
MAILING ADDRESS: 48 Constitution Drive, Bedford, NH 03110			
PHONE: (603) 472-4488	PARCEL SIZE: 84.71ac	DATE STAMP: 	
EMAIL: jkevan@tfmoran.com	ZONING DISTRICT: Rural		
SIGNATURE: 			
PRINTED NAME: JEFFREY KEVAN	PROJECT #: EXP 01-223 CUTP-01-22		

SECTION 3: APPLICATION SUBMISSION REQUIREMENTS

A COMPLETE APPLICATION MUST INCLUDE THE FOLLOWING ITEMS AND MUST BE SUBMITTED BY ONE OF THE OPTIONS BELOW:

- **Email:** communitydevelopment@keeneh.gov, with "Planning Board Application" in the subject line
- **Mail / Hand Deliver:** Community Development (4th Floor), Keene City Hall, 3 Washington St, Keene, NH 03431

The submittal requirements for Earth Excavation Permit applications are outlined further in **Article 24** and **Article 25.19** of the [Land Development Code \(LDC\)](#). You may request an exemption from providing any of the items below, except the application fee, notice list, narrative, and mailing labels. The Community Development Director may grant an exemption, if it is determined that the scope of the project does not warrant the submittal.

Note: Additional information may be requested by the respective decision-making authority during the review process.

GENERAL SUBMITTAL REQUIREMENTS

CERTIFIED NOTICE LIST (See **Attachment A** for more information.)

2 SETS OF MAILING LABELS (See **Attachment A** for more information.)

PROJECT NARRATIVE (See **Attachment B** for more information.)

FEES: Fill in the information below to calculate the total fee.

\$50 base fee + \$62 legal ad fee + (_____ current USPS certified mailing rate x _____ abutters) = _____ (Total Fee)

NOTE: Please call the Community Development Department for the current certified mailing rate. Checks should be made payable to the *City of Keene*. Credit card payments are accepted in-person or by calling 603-352-5440.

WAIVERS & EXCEPTIONS (See **Attachment C** for additional information.)

WAIVER(S) / EXCEPTION(S) REQUESTED

NO WAIVER(S) / EXCEPTION(S) REQUESTED

THE NAME & CONTACT INFORMATION OF THE PERSON OR ENTITY THAT WILL BE PERFORMING THE EXCAVATION.

PHOTOGRAPHS OF THE EXCAVATION SITE (See **Attachment D** for more information.)

PLAN SETS (See Attachment D for additional information.)	SUBMITTED	EXEMPTION REQUESTED
LOCUS MAP	X	
PHASING PLAN	X	
CONTEXT MAP	X	
EXISTING CONDITIONS MAP	X	
EXCAVATION SITE MAP	X	
EROSION CONTROL, SEDIMENTATION, AND DRAINAGE MANAGEMENT PLAN SET	X	
IMPACT CONTROL & MONITORING PLAN	X	
RECLAMATION PLAN	X	
TECHNICAL REPORTS (See Attachment D for additional information.)	SUBMITTED	EXEMPTION REQUESTED
SOILS ANALYSIS	X	
HYDROLOGIC / GEOLOGIC ANALYSIS	N/A	
TRAFFIC ANALYSIS	X	
VIEW PRESERVATION ANALYSIS	N/A	
ANALYSIS OF IMPORTANT HABITAT	X	
MISCELLANEOUS INFORMATION	X	

CONSULTANT FEE

Per **Article 25.19.7.A** of the [LDC](#), upon receipt of an Earth Excavation Permit application, the Planning Board shall retain a consultant, at the expense of the applicant, for the purpose of reviewing the application for completeness and compliance with NH RSA 155-E and the Earth Excavation Regulations in Article 24 of the LDC. This consultant shall review all aspects of the submittal. **Failure to comply with submitting application materials, including payment for the hiring of a consultant, will deem an application incomplete.**



Civil Engineers
 Structural Engineers
 Traffic Engineers
 Land Surveyors
 Landscape Architects
 Scientists

REVISED June 13, 2022
 REVISED June 6, 2022
 March 18, 2022

Keene Planning Board
 City Hall, 4th Floor
 Keene, NH 03431

**Re: Proposed Gravel Pit
 Route 9, Keene, NH
 Application for Excavation Permit & Hillside Protection CUP**

Dear Members of the Board,

Enclosed you will find an Excavation Permit application for a proposed gravel pit prepared on behalf of our client, G2 Holdings, LLC. Due to slopes on the property, a Hillside Protection Conditional Use Permit is also sought. This document constitutes both a waiver request and project narrative statement.

Introduction:

The subject property is located on Route 9, on Map 215 Lot 7. The parcel is 84.71± acres in size. The property currently has a gravel access road with some existing cleared areas and trails. The applicant proposes to expand gravel pit operations to an 8± acre portion of the parcel. The proposed gravel pit expansion is located in an area of minimal flood hazard, per FIRM panel 33005C0280E.

The property slopes generally upward from Route 9 to the northern property boundary and is mostly wooded. The existing access point, a gravel drive off Route 9, will be improved for use in the proposed expanded gravel pit operations. Natural vegetation will be preserved to the maximum extent possible between the proposed expanded gravel pit and Route 9. As illustrated by the enclosed photographs from the public right of way, the vegetation and upward slope in this area provide a substantial buffer.

Waiver Requests

The applicant respectfully requests the following waivers and exceptions, in accordance with the process outlined in Article 25.19.13:

1. Which requirement:

Article 24.3.1A - 200' Setback to Public Right of Way (ROW) – The excavation perimeter shall be at least 200 feet from any public right of way, unless such excavation is a highway excavation.

Why the waiver/exemption is needed:

The proposed bottom of the excavation area is 54 feet higher than Route 9 at the access drive intersection, so the vertical separation increases the effect of the horizontal setback provided. The

existing forested buffer between the access drive and the ROW is steeply sloped. Part of the 200' buffer was previously cleared of trees as part of the sites previous logging history. Also the ROW is approximately 78-feet back from the Route 9 edge of pavement line, because Route 9 has a 160' wide (wider than normal) ROW along most of the project's frontage, which pushes the 200' buffer further back into the site. Also the best soils and deepest soils above the seasonal highwater table on-site are located near that 200' ROW setback line. Not excavating into the 200' ROW setback would result in a tall soil berm being left in between the ROW and the excavation area, which would be deleterious to future reuse of the property following reclamation.

Alternative Standard:

The proposed excavation limits (not counting the access drive) are set 135'+ back from the ROW line.

Not in violation:

Granting of this waiver/exemption shall not cause a violation of NH RSA 155-E. The closest requirement to the 150' ROW setback is found in 155.E:4-a.I which states that "No excavation shall be permitted below road level within 50 feet of the right of way of any public highway." This project complies with this State requirement. Granting of this waiver/exemption shall not cause a violation of the spirit and intent of Article 24 as demonstrated above.

Adverse Impacts:

This will not increase potential adverse impacts because the proposed excavation limits (not counting the access drive) are setback 135'+ horizontally from the ROW line, and 210' horizontally and 50 feet vertically from the Route 9 edge of pavement line. Much of the existing forested buffer along the Route 9 frontage is maintained.

Purpose and Intent:

This request is consistent with the purpose and intent of Article 24 in that reusing the existing driveway and improving it in place, tree clearing and earthwork within the 200' ROW setback are minimized.

Not Unduly Injurious:

By lowering and flattening the bottom of the excavation area, its redevelopment potential is improved, thereby increasing the value of the property, and potentially increasing its taxation value for the public welfare. Granting this request will not be unduly injurious to environmental welfare because much of the existing forested buffer along the Route 9 frontage is maintained.

Unique Site Characteristics:

The unique site characteristics such as its remote location, higher elevation above the highway, large forested buffers to the east and west of the excavation area, and wider than normal ROW width help mitigate any impacts of the reduced ROW setback.

2. *Which requirement:*

Article 24.3.1C – 150’ Access Driveway Setback – The access driveway shall be at least 150’ from the boundary line of any public ROW, except where the driveway intersects the public ROW.

Why the waiver/exemption is needed:

The existing driveway is being improved in place, within the 150’ buffer. Improvements included widening by 2 to 4 feet and addition of a 14 foot wide armored riprap swale on the uphill side to convey any stormwater runoff downhill, minimizing erosion. The proposed bottom of the excavation area is 54 feet higher than Route 9 at the access drive intersection. The existing forested buffer between the access drive and the ROW is steeply sloped, varying from 3:1 to 1.5:1. An access drive that did not angle across the steeply sloped and forested frontage of the property would require a vast excavation and mass of new tree clearing to construct, which in turn would impact the groundwater table of the site.

Alternative Standard:

The improved driveway angles away from the ROW line, varying from 0’ at the intersection to 120’ at the upper end where it turns into the excavation area.

Not in violation:

Granting of this waiver/exemption shall not cause a violation of NH RSA 155-E. The closest requirement to the 150’ ROW setback is found in 155.E:4-a.I which states that “No excavation shall be permitted below road level within 50 feet of the right of way of any public highway.” This project complies with this State requirement. Granting of this waiver/exemption shall not cause a violation of the spirit and intent of Article 24 as demonstrated above.

Adverse Impacts:

By granting this waiver to reuse and improve the existing driveway, tree clearing in the 150’ frontage buffer, and associated adverse impacts are minimized. Trees help reduce flooding by absorbing stormwater in the leaves and roots. Trees help reduce erosion and sedimentation by locking soil in place with their root systems. Minimizing tree clearing minimizes adverse impacts.

Purpose and Intent:

This request is consistent with the purpose and intent of Article 24 in that reusing the existing driveway and improving it in place, tree clearing and earthwork within the 150’ frontage buffer are minimized.

Not Unduly Injurious:

Granting this waiver will not be unduly injurious to public interest or because the existing driveway has been safely used for logging operations in the past, and this waiver maintains this demonstrated history of safe use. Minimization of tree clearing obviously is good for environmental welfare, as well as public view-scape interests.

Unique Site Characteristics:

The unique site characteristics such as the steeply sloping front buffer area and steeply sloping water table make the angle/location of the existing driveway inevitable. Also the existing driveway thread between 2 existing wetlands on either side. Also the ROW is approximately 78-foot back the Route 9 edge of pavement line, because Route 9 has a wider than normal ROW, which pushes the 150' buffer further back into the site. The combination of these site characteristics mean that the existing driveway is in the best location any driveway could be to access this site, from the perspective of minimizing earthwork and associated forested buffer maintenance.

3. *Which requirement:*

Article 24.3.1.D –Surface Water Resource Setback – The excavation perimeter shall be setback at least 250 feet, and the access drive shall be setback at least 150 feet from any surface water resource.

Why the waiver/exemption is needed:

There is an existing wetland water resource in the Route 9 ROW, between the driveway and Route 9. There is a second existing wetland tracing down the hillside just above the existing drive intersection with Route 9. The two wetlands are 363 feet apart at their closest proximity. The existing access road must pass thru the 150' buffers of these two wetlands to reach the excavation area. The existing access drive needs to be improved by widening and resurfacing for trucking safety and by adding an armored ditch to convey channelized stormwater basin overflows down the hill without causing erosion. These improvements slightly further encroach into surface water resource setbacks.

There is an existing forested wetland 127.7 feet east of the exaction perimeter. There is another hillside wetland 75' west of the excavation perimeter. These two wetlands are 801 feet apart at their closest proximity. The 250' setbacks from these 2 wetland areas represents an unwarranted taking of a huge portion of the excavatable material located here. The Keene ZBA on March 7, 2022 approved the earth excavation use at this location, in full knowledge of these setback encroachments.

Alternative Standard:

The improved access road is over 115.6 feet from the Route 9 wetland and 47.8 feet (measuring from the retaining wall) to the hillside wetland. As discussed above, construction of a different access drive would require substantial new earthwork, tree clearing and new impacts to the 150' buffers.

The proposed earth excavation area is 127.7 feet from the forested low-lying wetland to the east. A 2- to 11-foot-high earthen berm is proposed to separate the excavation area from this wetland. The proposed earth excavation area is 75+ feet from the forested wetland tracing down the hillside to the west. An existing 8 to 16 foot high (on the wetland side) existing earthen berm/ridge is proposed to be maintained to separate the existing wetland from the proposed excavation area. After reclamation, this berm/ridge will be 30 to 35 feet high on its excavation side.

Not in violation:

Granting of this waiver shall not cause a violation of NH RSA 155-E because the State regulation does not establish a buffer for forested wetlands less than 5 acres, and this site's wetlands are smaller than 2 acres. Granting of this waiver/exemption shall not cause a violation to the intent of Keene's Article 24 as demonstrated herein.

Adverse Impacts:

Reduction of the access drive setback will not increase potential adverse impacts because the access drive is existing and being improved in place. The majority of the slope impacts stemming from improvement of the access drive are for construction of the armored swale adjacent to the driveway. The purpose of the armored swale is to protect downstream wetland resources by minimizing erosion and reduce any potential transport of sedimentation downstream.

Reduction of the excavation area setback will not cause adverse impacts because both wetland to the east and west of the excavation area are separated from the excavation by existing/proposed earthen berms and perimeter erosion controls. Much of the wetland to the west of the excavation area is higher than the excavation.

Potential adverse impacts of the project are further mitigated thru the use a cutoff swale above (north of) the excavation area, which keeps 'clean' runoff from the forested slope uphill of the proposed excavation area flowing toward the wetland to the east, as in the existing conditions.

Purpose and Intent:

This request is consistent with the purpose and intent of Article 24 in that reusing the existing driveway minimizes earthwork and tree clearing, thus protecting wetlands from erosion and sedimentation that would otherwise be risked from new construction.

Not Unduly Injurious:

Granting this request will not be unduly injurious to public or environmental welfare because protection to wetlands is maximized by minimizing earthwork and tree clearing within the 150 buffer. Construction of the armored swale alongside the access road further protects wetlands as noted.

Unique Site Characteristics:

The unique site characteristics, such as having only 363 feet between existing wetlands located near the road frontage, plus adjacent steep slopes mean the existing driveway is in the best location any conceivable access to the site could be located.

The unique site characteristics, such as having only 801 feet between existing wetlands located east and west of the excavation area, plus adjacent steep slopes in the ROW setback area south of the excavation area, and shallow groundwater table (1.5' below ground at monitoring well SLR-12) on the north side of the excavation area mean the proposed excavation area is in the best location it could be.

4. *Which requirement:*

Article 24.3.4 - Groundwater Quantity Baseline Measurement – Baseline water depth or elevation for all public and private wells within ½ miles of the site, and all surface water bodies, and wetlands within 300-ft of the excavation perimeter. Over the life of the excavation permit and any renewal thereof, the applicant shall monitor ground water levels and surface water levels on a monthly basis.

Why the waiver/exemption is needed:

Article 24.3.4 clearly states “When the applicant proposes excavation below the seasonal high ground water table, the applicant shall complete a hydro-geologic analysis to demonstrate that the excavation activities will not affect ground water levels so as to adversely impact public or private wells, surface water levels, or wetlands. This analysis shall include pre-excavation ground water level measurements, a constant discharge pump test, and ongoing ground water level monitoring.” Since this project does not propose to excavate below the seasonal high water table we shouldn’t need this waiver/exception. However, in case the City decides to use a different definition of ‘seasonal high water table’ other than the definition establish for the project by the SLR Limited Hydrogeologic Report dated 3/25/2022, we are requesting this waiver as a safeguard to prevent any permitting delays related to re-advertising the public hearing.

The project as proposed uses all appropriate measures to protect groundwater and wetlands, including but not limited to armored cutoff swales, separation berms, buffer setbacks, stormwater basin with infiltration sump, and sedimentation ponds.

Alternative Standard:

No monitoring of well water surface elevations. No monitoring of surface waterbody elevations.

Not in violation:

Granting of this waiver shall not cause a violation of NH RSA 155-E because it does not have any similar groundwater or surface water monitoring requirements. Granting of this waiver shall not cause a violation of Keene's Article 24 because the project intends to be compliance with Article 24 by not excavating lower than 6-feet above the seasonal highwater table.

Adverse Impacts:

This waiver will not increase potential adverse impacts because the proposed gravel pit maintains existing runoff patterns to adjacent wetlands and employs BMP's including sedimentation traps and a stormwater basin with infiltration sump that will increase percolation of rain runoff into the groundwater table as demonstrated by the HydroCAD modeling in the project Stormwater Management Report.

Purpose and Intent:

This request is consistent with the purpose and intent of Article 24 in that excavating lower than 6-feet above the seasonal highwater table is not proposed, therefore there is no reasonable expectation of impact to groundwater resources, so monitoring requirements are not called for.

Not Unduly Injurious:

Granting this request will not be unduly injurious to public or environmental welfare because intruding on the privacy of residences within ½ miles of the excavation area to conduct well testing is not warranted.

Unique Site Characteristics:

The unique site characteristics make such as the proposed stormwater basin with infiltration sump, which helps mitigate impacts.

5. *Which requirement:*

Article 24.3.5 - Groundwater Quality Baseline Measurement – Baseline water depth or elevation for all public and private wells within ½ miles of the excavation perimeter. Ongoing monitoring shall be conducted semi-annually throughout the term of the permit and any renewal thereof, and for a period of not less than 2-years following the cessation of excavation activities and reclamation of the excavation site.

Why the waiver/exemption is needed:

Article 24.3.4 clearly states “When the proposed operation includes the excavation of bedrock materials, the applicant shall collect and analyze pre- and post-excavation water quality data, as

set forth below...” Since this project no longer proposes to excavate into bedrock we shouldn’t need this waiver/exception. We are requesting this waiver as a safeguard to prevent any permitting delays related to re-advertising the public hearing. If the Board concurs that this waiver is not needed, then this request can be disregarded.

The project as proposed uses all appropriate measures to protect groundwater and wetlands, including but not limited to armored cutoff swales, separation berms, buffer setbacks, stormwater basin with infiltration sump, and sedimentation ponds.

Alternative Standard:

No monitoring of nearby well water quality.

Not in violation:

Granting of this waiver shall not cause a violation of NH RSA 155-E because it does not have any similar groundwater quality monitoring requirements. Granting of this waiver shall not cause a violation of Keene’s Article 24 because the project intends to be compliance with Article 24 by not blasting or excavating into ledge by other means.

Adverse Impacts:

This will not increase potential adverse impacts because the proposed gravel pit maintains existing runoff patterns to adjacent wetlands and employs an infiltration basin BMP that will increase percolation of rain runoff into the groundwater table as demonstrated by the HydroCAD modeling in the project Stormwater Management Report.

Purpose and Intent:

This request is consistent with the purpose and intent of Article 24 in that excavating lower than 6-feet above the seasonal highwater table is not proposed, therefore there is no reasonable expectation of impact to groundwater resources, so monitoring requirements are not called for.

Not Unduly Injurious:

Granting this request will not be unduly injurious to public or environmental welfare because intruding on the privacy of residences within ½ miles of the excavation area to conduct well testing is not warranted. It should be noted that the 2 wells closest to the excavation area (as shown on plans) are on Lot 215-8 which is now owned by the applicant, and at US Army Corp of Engineers Otter Brook Lake recreational area, which has public day use recreational and sanitary facilities.

Unique Site Characteristics:

The unique site characteristics make such as the proposed stormwater basin with infiltration sump, which helps mitigate impacts.

6. *Which requirement:*

Article 24.3.13 - Maximum Excavation Area – The total combination of any unreclaimed, inactive and active excavation area shall not exceed 5-acres at any time.

Why the waiver/exemption is needed:

It is the applicant intent to minimize open excavation area at all times, in order to minimize maintenance work for dust control and perimeter erosion controls. However, a 5-acre limit is not practical at all times for the site because of the need to have access areas for truck maneuvering and equipment placement, stockpiles, the steep slopes in parts of the site enlarge the excavation area due to chasing the slope uphill. It takes time to prepare an area for reclamation, since hydroseed subcontractors are not located on on-site. Sediment traps and swales, and basins take up significant land area within the excavation, and often cannot be stabilized immediately due to wet weather conditions (need 2 weeks of sunshine to dry out area, spread loam, hydroseed) in order to stabilize. Multiple stockpiles on site each require significant open land area; stockpile of loam for reclamation purposes, the need to stockpile excavated product for export, the need to stockpile boulders for process where on a site like this the mobile crusher will only be in use for a maximum of 1 day per week.

Alternative Standard:

We recommend a maximum of 7.0 acres of unreclaimed, inactive and active excavation area at any time.

Not in violation:

RSA 155-E:5-a requires Incremental Reclamation stating “Except for excavation sites of operating stationary manufacturing plants, any excavated area of 5 contiguous acres or more, which is depleted of commercial earth materials, excluding bedrock, or any excavation from which earth materials of sufficient weight or volume to be commercially useful have not been removed for a 2-year period, shall be reclaimed in accordance with RSA 155-E:5” So the State regulation varies slightly from Keene’s ordinance, by not including active excavation area within the 5 acre limitation. If the project stays under 7 acres including active excavation area, it will easily stay under 5 acres not including active excavation area. Therefore, granting this waiver will not cause violation of RSA 155-E. Granting of this waiver shall not cause a violation of Keene’s Article 24 as indicated above.

Adverse Impacts:

This waiver will not increase potential adverse impacts because the BMP’s onsite are designed to handle flow from the entire 8-acre excavation area.

Purpose and Intent:

This request is consistent with the purpose and intent of Article 24 because the BMP’s onsite are designed to handle flow from the entire 8-acre excavation area.

Not Unduly Injurious:

Granting this request will not be unduly injurious to public or environmental welfare because impacts because the BMP's onsite are designed to handle flow from the entire 8-acre excavation area.

Unique Site Characteristics:

As noted above, the unique site characteristics such as steep slopes and number of stockpiles needed, make this request necessary. The high percolation rate of the existing site soils help make sediment traps and the proposed stormwater basin more effective, thus helping mitigate impacts.

7. *Which requirement:*

Article 24.3.15.D – Annual Noise Monitoring – The applicant proposes to complete a single 20-day noise study as soon as possible after commencement of full operations on-site, in compliance with 24.3.15.A to C. The applicant requests a waiver of subsequent annual 20-day studies.

Why the waiver/exemption is needed:

Continuous noise monitoring for the life of the project is not needed because there are basically no neighbors within 1800' of the excavation area. The closest residence to the excavation is approximately 3800 feet northwest on Sullivan Road, on the other side of the hill. The closest residence within Otter Brook Valley is 4300 feet east on Houghton Ledge Road. The closest commercial building is 720' from the excavation and is owned by the applicant. The next closest commercial use is Granite Gorge ski Area, which is closed – the closest ski trail is 2000 feet from the excavation area. The entrance to Otter Brook recreation area is 660 sf away, but the picnic grounds are the closest amenity within the park at over 1800 feet from the excavation area.

The project has eliminated blasting from the proposal, so the loudest sound producer has been eliminated. The second loudest sound producer at a gravel pit is typically the stone crusher. This project only plans to run the crusher 1 day per week, at most.

Alternative Standard:

We recommend the Board require a single 20-day noise study as soon as possible after commencement of full operations on-site, in compliance with 24.3.15.A to C. We request a waiver of the requirement for an ongoing annual 20-day noise/sound monitoring study as required by 24.3.15.D, unless the City receives significant noise complaints. Background noise levels and typical operating noise levels can be established with the initial 20-day sound study. There is no need to repeat the sound study annually for the life of the project, given the dearth of immediate and residential neighbors and the elimination of blasting from the project.

Preliminary noise monitoring locations and standards are shown on the Impact Monitoring Plan (Sheet 6) subject to final review by the project sound sub-consultant and Keene Community Development Staff.

Not in violation:

Granting of this waiver shall not cause a violation of NH RSA 155-E because the State Regulation does not include a requirement for sound monitoring. Granting of this waiver shall not cause a violation of Article 24 because it is within the Boards discretion to waive the requirements of Article 24, given the reduced noise levels on site and the dearth of close residential neighbors.

Adverse Impacts:

The waiver request does not increase the risk of adverse impacts because noise complaints can still be lodged with the City, and dealt with using the process outlined in Article 24.3.13.D

Purpose and Intent:

This request is consistent with the purpose and intent of Article 24 since a single 20-day sound study gives the City the tools needed to deal with noise complaints, if any.

Not Unduly Injurious:

Granting this request will not be unduly injurious to public or environmental welfare because A single 20-day sound study gives the City the tools needed to deal with noise complaints, if any. Given the reduced noise levels on site and the dearth of close residential neighbors, annual re-study

Unique Site Characteristics:

The unique site characteristics make such as its remote location, dearth of residential neighbors as described above, and the substantial forest buffers help mitigate impacts. Also, the hill to the north is expected to block sound traveling in that direction.

Earth Removal Development Standards

Per the application requirements for the Earth Excavation Permit, below are brief narrative descriptions of how each development standard in Article 25.19.4.B of the Land Development Code has been addressed:

1. The location, boundaries and zoning district

Portions of the 84.7 acres subject parcel are located in the Towns Sullivan and Roxbury and the City of Keene. The subject parcel is in Cheshire County. The project is entirely located in Keene, including the access drive, within the Rural zoning district.

2. Types of materials to be excavated and means

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Excavation methods will generally consist of removing topsoil, and excavating overburden gravels, and crushing any boulders encountered to generate mixed gravels on site. Blasting for ledge excavation has been eliminated from the proposal due to City of Keene requirements to stay 6 feet above the groundwater table. Mobile screeners will be used onsite to process bank run and crushed gravels, sand, and loams for export/sale via over-road trucking.

3. Project duration and phasing

The entire excavation project is expected to span 2-4 years of operation in a single phase. When operations are permanently ceased at this location, the applicant proposes to utilize the stabilized, reclaimed site as a solar field.

4. The number of acres impacted in the current permit phase

8 Acres+/-

5. Volume of earth material to be removed per year

The entire excavation project is expected to span 2-4 years of operation, with approximately 115,000 cubic yards of excavated material (15,000 c.y. to 29,000 c.y. per year). The enclosed plan set includes grading and drainage sheets a single phase of excavation.

6. Description of maximum breadth depth, and slope

The excavation area is roughly 800 x 500 feet at maximum. The finish grades proposed in the enclosed plan set create a 1% slope the lower elevation of the excavation area. The perimeter is then graded upwards at a rate between 2:1 and 4:1 to reach the existing upland elevations. The only 2:1 proposed slope contains a 10' wide bench area at mid-slope.

7. The location of the access and perimeter visual barriers

The existing site access drive will be improved in place. Perimeter mature forested visual buffers will be maintained in place, as shown on plans.

No glare or odor impacts are expected to result from the gravel pit use. Mitigation plans will be in place during gravel pit operations to prevent noise and vibrations from adversely impacting the surrounding area. Both naturally occurring and proposed constructed earth berms will contribute to noise mitigation. The project is located in a remote area with significant distance to any occupied buildings, with the majority of that distance being woodlands. The gravel pit area itself observes appropriate setbacks from lot lines. The nearest property lines of parcels not owned by the applicant are located at the following approximate distances:

- North: 2,350 l.f.
- South: 300 l.f.
- East: 1,650 l.f.
- West: 600 l.f.

Note that the closest property to the south (300 l.f. across Route 9) is dominated by Otter Brook alongside Route 9, so its another 180'+/- (480' in total) to undeveloped land south of Otter Brook that might be consider buildable.

8. Elevation of estimated highest annual average groundwater table

Measurements of the estimated seasonal high groundwater table are enclosed within the stormwater management showing results several subsurface investigations:

- The SLR Limited Hydrogeologic Report dated 3/25/2022
- The TFS (Thomas Sokoloski) Site Specific Soil Report dated 3/5/2022
- The TFM Test Pit Report dated 9/10/2020
- Milone & MacBroom Proposed Gravel Pit Initial Explorations dated October 7, 2020
- NCRS soil report.

Seasonal high water table has been estimated using the method outlined in the Limited Geohydrologic Investigation by SLR International Corporation, dated March 25, 2022 which incorporates the surrounding topography/hydrologic features with observed water in strategically placed monitoring wells. The investigation identifies seasonal high water table at three borings because those were the locations of the monitoring wells. This method was recommended by the geotechnical engineer, who chose the location of the monitoring wells.

The applicant proposes excavation 6' above the seasonal high groundwater table only. Observation wells have been placed on site and the complete results are provided. In general, the groundwater surface slopes down towards route 9 and varies from above elevation 885 to below 820 within the excavation area, as shown on the plans. Based on existing topography and borings, proposed excavation is planned to range between 5 and 30 feet below the existing ground surface and ranging from 6 feet to 35 feet above the ground table surface.

The project complies with Article 24.3.3 which states that “Excavation shall not be permitted lower than 6-feet above the seasonal highwater table, as indicated by borings or test pits, without the issuance of an exception.” The project establishes the seasonal high ground water elevation thru use of monitoring wells (# SLR10 to SLR12). Numerous test pits on site have also been performed and detailed results have been provided to the City of Keene in the Stormwater Management Report, as noted above. Seasonal highwater estimates from test pits are often based on redoximorphic features such as mottling, and not on the actual presence of water in the test hole. All of the Milone and MacBroom test pits (Test pits 1 thru 16) recorded “No Groundwater encountered” but 5 of those 16 testpits noted redoximorphic mottling features at varying elevations. All of the 11 TFMoran test pits recorded a lack of groundwater “Seeps: None Observed” but all 11 also recorded redoximorphic concentrations at depths varying from 20 inches to 6 feet. These redoximorphic features are believed to represent either locally perched groundwater pockets, or relics of bygone geological conditions, and have been disregarded. The

project complies with Article 24.3.3 by staying more than 6’ above the actual groundwater table, as identified by the SLR Limited Hydrogeologic Report dated 3/25/2022.

9. Proposed methods of disposal of boulders stumps, vegetation and other debris.

Legal disposal methods will be utilized for any boulders, stumps, vegetation and debris. On Sheet 11 of the plans, Earth Excavation note 11 prohibits storage and disposal of such material within forested buffers on-site. Boulders will typically be stored, crushed, and processed on site into marketable construction material. Stumps, vegetation, and leaf debris will be stored, ground and processed into mulch for use in perimeter erosion control measures, or surface composted on site for use in enriching loam for site reclamation.

10. Proposed methods for controlling storm water, drainage, erosion, and sedimentation

Drainage and erosion control improvements will be constructed. These will include terraced grading along the outer edges of the proposed pit area, stormwater swales, and a stormwater pond. Drainage calculations to support the sizing of the stormwater pond and culverts are enclosed. Silt sock and silt fence are also proposed as perimeter control methods. The site will include a stabilized construction entrance and paved driveway apron to minimize material tracking into the public roadway.

The gravel pit area has been graded to drain towards a stormwater pond, which outlets to a riprap swale along the access drive. A pipe culvert is proposed at the base of the driveway to allow water to discharge to the wet area adjacent to the roadway, to match the existing drainage pattern. A cut-off swale has been added to ensure that runoff from the forested area uphill of the proposed excavation area will not surface flow into the excavation and will continue to flow to the wetland east of the project, as in the existing condition. Enclosed calculations show that the flow and volume of stormwater to each discharge point is the same or reduced between the pre-development and post-development conditions. Stormwater discharges from the proposed excavation operations will not adversely affect any abutting properties.

The proposed excavation area has been designed to control stormwater and capture sedimentation in runoff through a system of swales and a stormwater pond. An existing natural earthen berm to the west and proposed constructed earthen berm to the east provide a barrier between excavation operations and adjacent wetlands.

11. Means to avoid and/or mitigate adverse impacts caused by dust, noise, and traffic

The proposed operations are not expected to negatively impact air quality. Dust control measures will be applied as necessary. The excavation area is roughly 50 feet+ higher than Route 9 and screened by substantial existing forest vegetation (to remain) on site provide substantial screening from the public right of way. The existing driveway will be utilized, and vegetation preserved to the maximum extent possible between the driveway and Route 9. The enclosed photo sheets illustrate the visibility into the site from the road is minimal. The side and rear lot lines are all forested. Over-Winter site stabilization methods are detailed on Sheet 9 of the plans including stone mulch, hay mulch, erosion blankets, and seeding as needed.

Per dust control notes on Sheet 6 of the plans:

- a. Stabilization with loam and seed, erosion control blankets, and riprap shall be used to minimize erosion and dust on site.
- b. Dust control will be accomplished using a truck-mounted water tank and spray system as needed.

Per sound monitoring notes on Sheet 6 of the plans:

- a. Vegetated buffers as shown on the plan are to be maintained as visual and sound buffers.
- b. Per the requirements of section 24.3.15 of the Keene land development code, ambient sound levels shall be measured prior to commencement of excavation operations, by a consultant hired by the planning board at the expense of the applicant. The monitoring locations shall be selected by the community development director or their designee. Proposed locations are shown on the plan
- c. After the commencement of excavation operations, the applicant shall monitor noise levels and document such monitoring per the requirements of section 24.3.15 of the Keene Land Development Code.
- d. Noise levels from the excavation activities shall not exceed the background ambient "a" weighted sound pressure level, exceeded 90% of the time during the sound level sampling period, by more than 10 db(a) and in any event shall not exceed 55 db(a).
- e. Complaints regarding the level of noise generated from excavation operations shall be resolved per the procedures outlined in section 24.3.15 of the Keene Land Development Code.

Traffic; An onsite speed limit of 15 mph has been established via signage. A stop sign has been added at the exit from the site, onto Route 9. As established in the TFMoran Traffic Memorandum submitted to the City of Keene on 2/18/2022, the proposed excavation is located on a State Highway operations are not expected to negatively impact traffic conditions – 40 trucks per day represents less than a 1% increase compared to the 2019 AADT of 9,707 vehicles.

12. Precautions to be taken by the applicant to protect the safety and welfare of persons on site

The excavation work will be conducted by trained personnel, in accordance with OSHA work site safety standards. A gate on the access drive is proposed to secure the site, after business hours.

13. The proposed method for handling, transporting, and disposing of fuel and/or chemicals on the site

Spill Response, Good House Keeping Practices, Specific Hazardous Material Practices, and Spill Control measures are detailed on sheets 6 and 7 of the plans, too voluminous to reproduce here.

14. The means by which earth materials are proposed to be transported from the excavation site, and the proposed load limits and maximum number of vehicle trips per day

Earth material shall be removed from the site via commercial trucking, in conformance with State standards and subject to State of NH maximum load limits. Typically, tri-axle dump truck will be used. As established in the TFMoan Traffic Memorandum submitted to the City of Keene on 2/18/2022, the maximum peak traffic load is expected to be 40 truck per day.

15. Extent of blasting and the name and classification of any explosives

Blasting has been eliminated from the proposal.

16. Any other descriptive information

See above and below.

Per the application requirements for the Hillside Protection Conditional Use Permit, below are brief narrative descriptions of how each development standard in Article 20 of the Land Development Code has been addressed:

1. Drainage & Stormwater Management

The gravel pit area has been graded to drain towards a stormwater pond, which outlets to a riprap swale along the access drive. A pipe culvert is proposed at the base of the driveway to allow water to discharge to the wet area adjacent to the roadway, to match the existing drainage pattern. A cut-off swale has been added to ensure that runoff from the forested area uphill of the proposed excavation area will not surface flow into the excavation, and will continue to flow to the wetland east of the project, as in the existing condition. Enclosed calculations show that the flow and volume of stormwater to each discharge point is the same or reduced between the pre-development and post-development conditions. Stormwater discharges from the proposed excavation operations will not adversely affect any abutting properties.

2. Sediment & Erosion Control

The proposed excavation area has been designed to control stormwater and capture sedimentation in runoff through a system of swales and a stormwater pond. An existing natural earthen berm to the west and proposed constructed earthen berm to the east provide a barrier between excavation operations and adjacent wetlands. Proposed silt fence and sock will be utilized as perimeter controls.

3. Snow Storage & Removal

There is ample area on site to store snow as needed. Location will vary according to excavation operations.

4. Landscaping

The Applicant plans to preserve naturally occurring vegetation wherever possible. Such vegetation provides ample screening between the excavation site and the public way. When excavation operations conclude, the site will be stabilized with loam and seed.

5. Screening

The elevations and vegetation on site provide substantial screening from the public right of way. The existing driveway will be utilized, and vegetation preserved to the maximum extent possible between the driveway and Route 9. The enclosed photo sheets illustrate the visibility into the site from the road is minimal. The side and rear lot lines are all forested.

6. Lighting

No site lighting is proposed.

7. Sewer & Water

No utility connections are proposed.

8. Traffic & Access Management

The proposed excavation has direct access to Route 9, in an area with minimal traffic. Operations are not expected to negatively impact traffic conditions. The proposed excavation will utilize an existing gravel driveway, which will be improved to support excavation operations and gated outside hours of operation to prevent unauthorized access. The Applicant has provided a traffic analysis to illustrate the minimal impacts.

9. Filling & Excavation

The applicant will pursue an Excavation Permit for this project; please see enclosed materials pertaining to the Excavation Permit application.

10. Surface Waters & Wetlands

Wetlands have been delineated by a Certified Wetlands Scientist whose flags have been survey located. The project layout has incorporated wetlands setbacks for excavation. As part of this application the applicant is requesting a waiver to reduce wetlands setback in one area of the site. Wetlands are well protected in all areas of the site, including with a reduced setback, owing to proposed silt fence and sock along the excavation perimeter, drainage swales, a stormwater pond, and both naturally occurring and proposed constructed earthen berms.

11. Hazardous & Toxic Materials

Hazardous and toxic materials used on site will be handled in a safe and legal manner. When not in use, any such materials will be secured in an appropriate container. Explosives used for blasting will be handled according to the blasting best management practices outlined in the enclosed plan set.

12. Noise

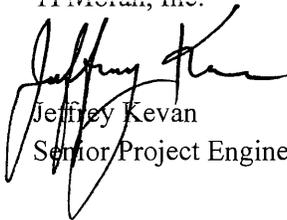
Given the distance from the excavation area to any inhabited structures, noise is not expected to create an impact. The proposed excavation layout incorporates significant vegetated buffers from each property line which will mitigate noise from the site.

13. Architecture & Visual Appearance

No buildings are proposed.

Please contact me at (603) 472-448 or jkevan@tfmoran.com should you require additional information.

Sincerely,
TFMoran, Inc.



Jeffrey Kevan
Senior Project Engineer

GENERAL INFORMATION

OWNER

MAP 215, PARCEL 7
G2 HOLDINGS LLC
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JAFFREY, NH 03452

OPERATOR

G2 HOLDINGS LLC
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RESOURCE LIST

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DEPARTMENT
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603-352-0133
MARI BRUNNER, SENIOR PLANNER

PUBLIC WORKS

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KURT BLOMQUIST, DIRECTOR

POLICE DEPARTMENT

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STEVEN RUSSO, CHIEF

FIRE DEPARTMENT

31 VERNON STREET
KEENE, NH 03431
603-357-9861
MARK F. HOWARD, CHIEF

ABUTTERS

KEENE, NH

215-6, 215-8, 215-9
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215-3

LOIS G. WOODBURY
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SULLIVAN, NH 03445
B. 837 P. 269

216-4

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KEENE, NH 03431
B. 654 P. 245

216-2

STATE OF NH
172 PEMBROKE RD.
CONCORD, NH 03301
B. 719 P. 455

216-1

GRANITE GORGE LLC
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SULLIVAN, NH

5-46, 5-46-1
G2 HOLDINGS LLC
250 NORTH ST.
JAFFREY, NH 03452

5-40

LOIS G. WOODBURY
C/O LEONARD WOODBURY
209 CENTRE STREET
SULLIVAN, NH 03445

ROXBURY, NH

401-17, 401-18, 401-19
GRANITE GORGE LLC
ATTN: FRED BAYBUTT
674 WEST STREET
KEENE, NH 03431-2148

EXCAVATION SITE

ROUTE 9 KEENE, SULLIVAN AND ROXBURY, NEW HAMPSHIRE

INDEX OF SHEETS

SHEET SHEET TITLE

1	COVER SHEET
2	EXISTING CONDITIONS
3	PARTIAL EXISTING CONDITIONS
4	CONTEXT PLAN WITH EXCAVATION OVERLAY
5	CURRENT CONDITIONS AS OF 6/23/22
6	RESTORATION OF DISTURBANCE OUTSIDE OF GRAVEL PIT
7	RESTORATION OF DISTURBANCE LANDSCAPE PLAN
8	IMPACT CONTROL & MONITORING PLAN
9	STORM WATER MANAGEMENT PLAN
10	RECLAMATION PLAN
11 - 15	DETAIL SHEETS

PERMITS / APPROVALS

	NUMBER	APPROVED	EXPIRES
NHDES ALT. OF TERRAIN - 155E			
NHDOT DRIVEWAY	04-237-0039	6/28/22	6/28/23
CITY SITE PLAN			
CITY ZBA	22-04	3/7/22	

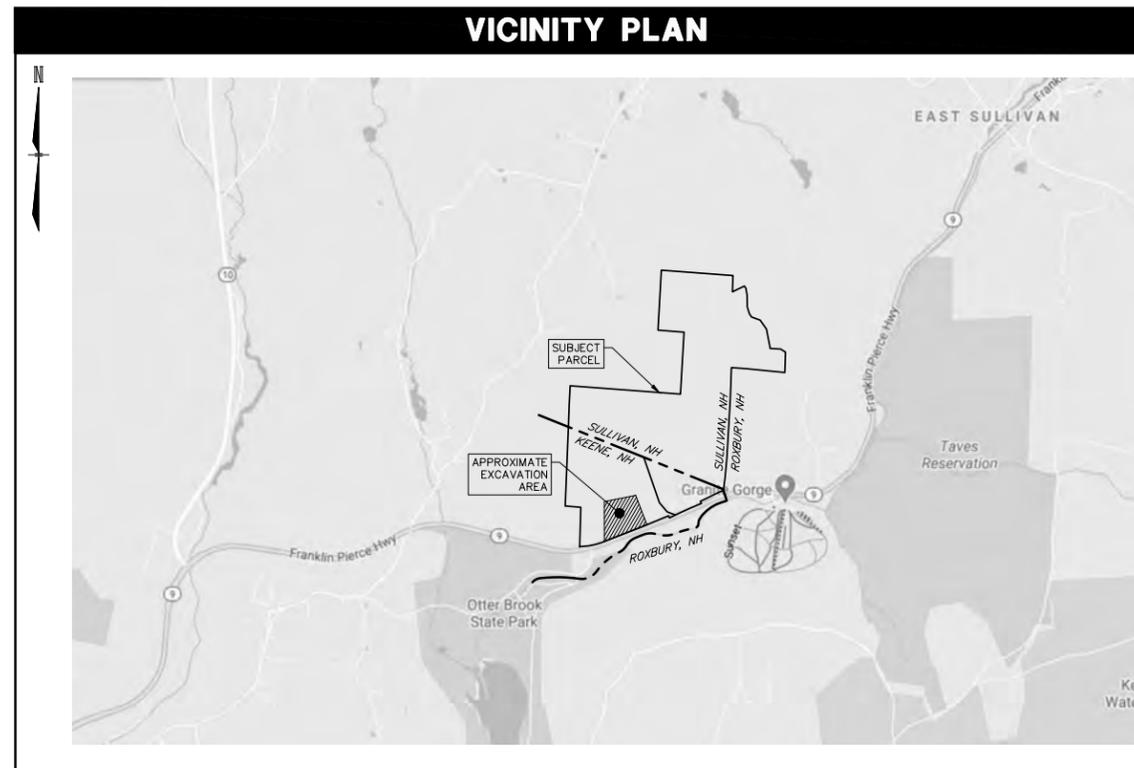
SPECIAL EXCEPTION

ON MARCH 7, 2022 THE KEENE ZONING BOARD OF ADJUSTMENT APPROVED A SPECIAL EXCEPTION TO ALLOW THE GRAVEL PIT USE (ZBA 22-04).

WAIVER

THE APPLICANT REQUESTS A WAIVER TO REDUCE THE WETLAND SETBACK FROM 250' TO 75' ON THE WESTERN SIDE OF THE PROPOSED EXCAVATION SITE.

VICINITY PLAN



Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

2000 1000 0 2000
SCALE: 1"=2000'

TAX MAP 215 LOT 7
COVER SHEET
EXCAVATION SITE
RTE. 9, KEENE/SULLIVAN/ROXBURY, NH
OWNED BY/PREPARED FOR
G2 HOLDINGS LLC

SCALE: AS SHOWN

MARCH 18, 2022

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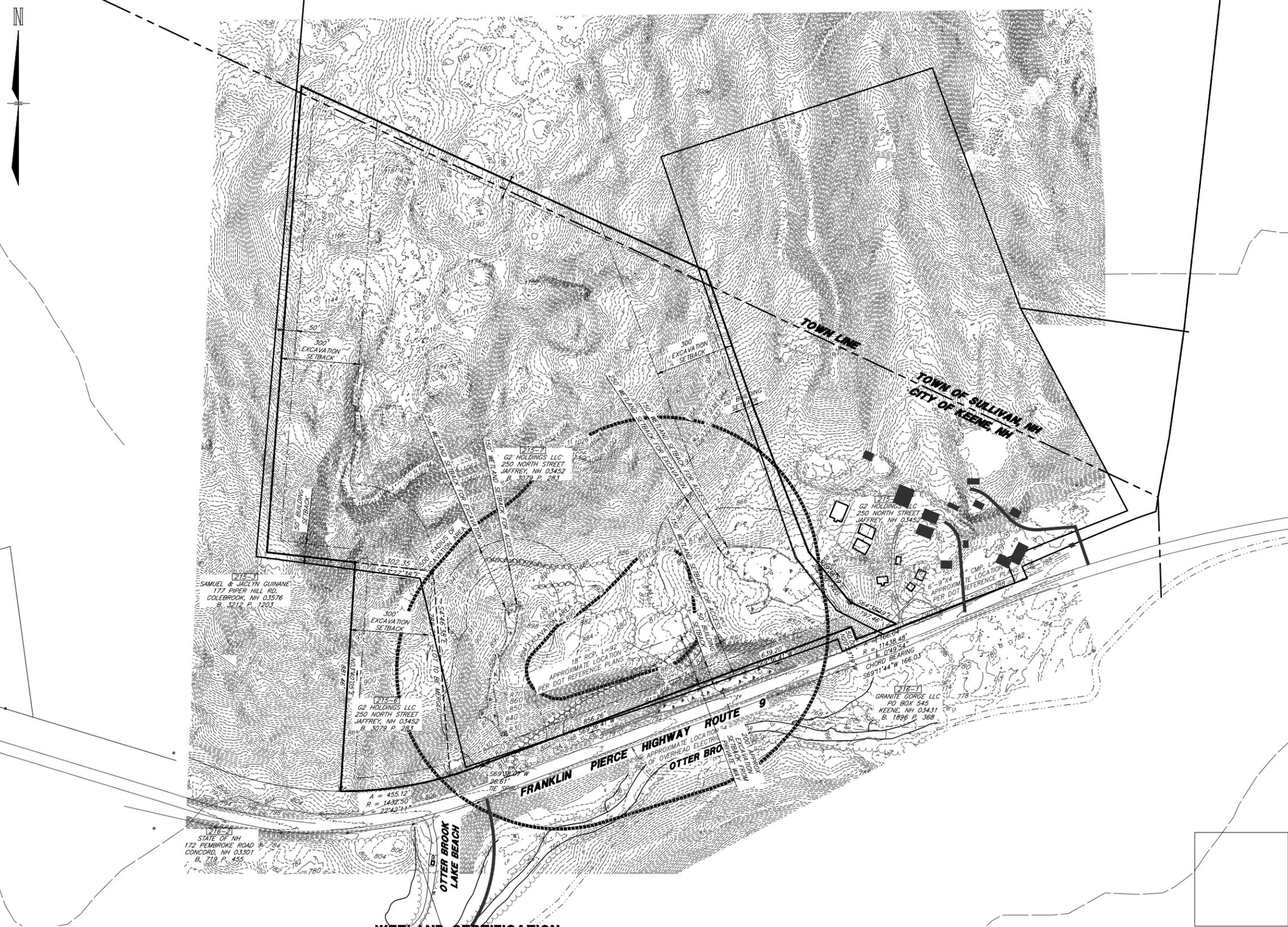


CONTACT US 24 HOURS A DAY, 7 DAYS A WEEK FOR EMERGENCY SERVICE

REV	DATE	DESCRIPTION	BY	CHK
5	8/1/2022	UPDATE PER COMPLETENESS COMMENTS	JD	JK
3	6/6/2022	UPDATE PER PEER REVIEW COMMENTS	JMR	JK
2	4/29/2022	UPDATE FOR AOT SUBMISSION	MCK	JK
1	4/8/2022	GENERAL DESIGN UPDATES	SRP	JK
			DR	CK

	Civil Engineers Structural Engineers Traffic Engineers Land Surveyors Landscape Architects Scientists	48 Constitution Drive Bedford, NH 03110 Phone (603) 472-4488 Fax (603) 472-9747 www.tfmoran.com
	82549.00	DR SRP FB CK JK CADFILE 82549-00 COVER-DETAILS

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REFERENCE PLANS

1. BOUNDARY SURVEY: LAND OF SEAFIELD PINES HOSPITAL CORPORATION; KEENE, SULLIVAN & ROXBURY, COUNTY OF CHESHIRE, STATE OF NEW HAMPSHIRE, DATED JUNE, 1989; SCALE 1" = 300'; PREPARED BY C.T. MALE ASSOCIATES, P.C.

NOTES

- OWNER OF RECORD OF MAP 215 LOT 7: G2 HOLDINGS, LLC., 250 NORTH ST., JAFFREY, NH 03452. DEED REFERENCE TO PARCEL IS BK. 3079 PG. 273. AREA OF PARCEL = 84.71 ACRES±.
- [215-7] INDICATES TAX MAP AND LOT NUMBER.
- THE PURPOSE OF THIS PLAN IS TO SHOW THE APPROXIMATE EXISTING CONDITIONS ON MAP 215, LOT 7.
- CURRENT ZONING IS RURAL.
 - MIN. LOT SIZE 5 ACRES
 - MIN. LOT FRONTAGE 50'
 - MIN. WIDTH 200' AT BUILDING LINE
 - MIN. BUILDING SETBACKS ARE 50' FRONT, 50' SIDE AND 50' REAR
- EXAMINATION OF THE FLOOD INSURANCE RATE MAP FOR CHESHIRE COUNTY, NEW HAMPSHIRE (ALL JURISDICTIONS), MAP NUMBER 33005, EFFECTIVE DATE 5/23/2006, INDICATES THAT THE SUBJECT PARCELS ARE NOT LOCATED WITHIN A FLOOD HAZARD AREA.
- TOPOGRAPHIC INFORMATION ON THIS PLAN WAS TAKEN FROM CITY OF KEENE, NH GIS PLANS, LIDAR TOPOGRAPHY FROM NH GRANIT. AND AN ON THE GROUND LIMITED BOUNDARY SURVEY BY THIS OFFICE. BOUNDARY INFORMATION SHOWN IS FROM A LIMITED FIELD SURVEY BY TFMORAN, INC. IN MARCH OF 2021.
- EASEMENTS, RIGHTS, AND RESTRICTIONS SHOWN OR IDENTIFIED ARE THOSE WHICH WERE FOUND DURING RESEARCH PERFORMED AT THE CHESHIRE COUNTY REGISTRY OF DEEDS. OTHER RIGHTS, EASEMENTS, OR RESTRICTIONS MAY EXIST WHICH A TITLE EXAMINATION OF SUBJECT PARCEL(S) WOULD DETERMINE.
- THE LOCATION OF ANY UNDERGROUND UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. TFMORAN INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UNDERGROUND UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE THE CONTRACTOR SHALL CONTACT DIG SAFE AT 811.
- THERE ARE NO KNOWN CEMETERIES, CELLAR HOLES, STONEWALLS ON SITE. THERE ARE NO BUILDINGS, STRUCTURES, POWER LINES, UTILITIES, WELLS, OR SEPTIC SYSTEMS ON MAP 215 LOT 7. THIS INFORMATION COMES FROM A LIMITED BOUNDARY SURVEY OF THE PARCEL PERFORMED BY THIS OFFICE AND RESEARCHING KEENE GIS AND NHDES ONESTOP DATA SEARCH.
- THE ENTIRETY OF THE SITE HAS HISTORICALLY BEEN SELECTIVELY LOGGED BY PREVIOUS OWNER/OWNERS. THE DATES AND RECORDS OF SUCH SELECTIVE CUTS ARE NOT KNOWN.

TAX MAP 215 LOT 7
EXISTING CONDITIONS
EXCAVATION SITE
RTE. 9, KEENE/SULLIVAN/ROXBURY, NH
 OWNED BY/PREPARED FOR
G2 HOLDINGS LLC

SCALE: 1" = 200' **MARCH 18, 2022**

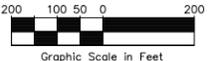
WETLAND CERTIFICATION

JURISDICTIONAL WETLANDS SHOWN ON THIS PLAN WERE DELINEATED ON FEBRUARY 8, 2021 BY CHRIS DANFORTH, CWS NO. 77. THE WETLANDS WERE DELINEATED ACCORDING TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL (1987) AND THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2, JANUARY 2012. DOMINANT HYDRIC SOILS WITHIN THE WETLAND(S) WERE IDENTIFIED USING "FIELD INDICATORS OF HYDRIC SOILS OF THE UNITED STATES" A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, NRCS, VERSION 8.1, 2017. DOMINANCE OF HYDROPHYTIC VEGETATION WAS DETERMINED USING THE USACE NATIONAL WETLAND PLANT LIST, NWPL 2016 VERSION 3.3 [HTTP://WETLAND_PLANTS.USACE.ARMY.MIL](http://wetland_plants.usace.army.mil).

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3	6/6/2022	UPDATE PER PEER REVIEW COMMENTS	JM	JK
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1	4/8/2022	GENERAL DESIGN UPDATES	SRP	JK
			DR	CK

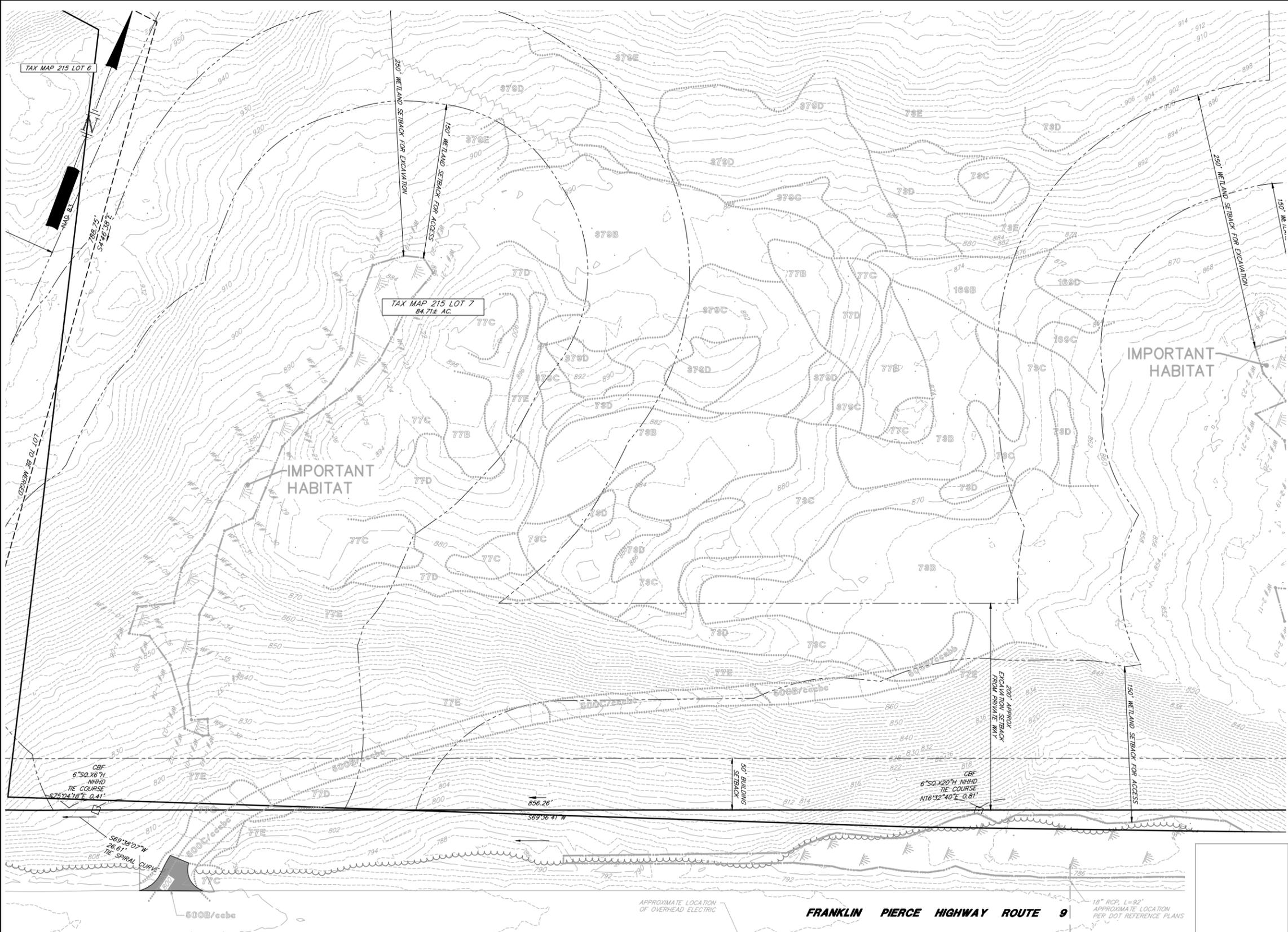
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SHEET 2 OF 15
 Page 20 of 156

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REFERENCE PLANS

BOUNDARY SURVEY: LAND OF SEAFIELD PINES HOSPITAL CORPORATION; KEENE, SULLIVAN & ROXBURY; COUNTY OF CHESHIRE, STATE OF NEW HAMPSHIRE; DATED JUNE, 1989; SCALE 1" = 300'; PREPARED BY C.T. MALE ASSOCIATES, P.C.

NOTES

- OWNER OF RECORD OF MAP 215 LOT 7: G2 HOLDINGS, LLC., 250 NORTH ST., JAFFREY, NH 03452. DEED REFERENCE TO PARCEL IS BK. 3079 PG. 273. AREA OF PARCEL = 84.71 ACRES±.
- 215-7 INDICATES TAX MAP AND LOT NUMBER.
- THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS ON MAP 215, LOT 7.
- CURRENT ZONING IS RURAL. MIN. LOT SIZE 5 ACRES. MIN. LOT FRONTAGE 50'. MIN. WIDTH 200' AT BUILDING LINE. MIN. BUILDING SETBACKS ARE 50' FRONT, 50' SIDE AND 50' REAR.
- SOILS SHOWN WERE DELINEATED BY THOMAS E SOKILOSKI, CERTIFIED SOIL SCIENTIST #063 OF TES ENVIRONMENTAL CONSULTANTS, LLC ON DECEMBER 2, 2021.
- EXAMINATION OF THE FLOOD INSURANCE RATE MAP FOR CHESHIRE COUNTY, NEW HAMPSHIRE (ALL JURISDICTIONS), MAP NUMBER 33005, EFFECTIVE DATE 5/23/2006, INDICATES THAT THE SUBJECT PARCELS ARE NOT LOCATED WITHIN A FLOOD HAZARD AREA.
- TOPOGRAPHIC INFORMATION ON THIS PLAN WAS TAKEN FROM CITY OF KEENE, NH GIS PLANS, LIDAR TOPOGRAPHY FROM NH GRANIT, AND AN ON THE GROUND LIMITED BOUNDARY SURVEY BY THIS OFFICE. BOUNDARY INFORMATION SHOWN IS FROM A LIMITED FIELD SURVEY BY TFMORAN, INC. IN MARCH OF 2021.
- WETLANDS SHOWN ON THIS PLAN WERE DELINEATED BY CHRIS DANFORTH, CWS #77 ON 2/8/2021.
- EASEMENTS, RIGHTS, AND RESTRICTIONS SHOWN OR IDENTIFIED ARE THOSE WHICH WERE FOUND DURING RESEARCH PERFORMED AT THE CHESHIRE COUNTY REGISTRY OF DEEDS. OTHER RIGHTS, EASEMENTS, OR RESTRICTIONS MAY EXIST WHICH A TITLE EXAMINATION OF SUBJECT PARCEL(S) WOULD DETERMINE.
- THE LOCATION OF ANY UNDERGROUND UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. TFMORAN INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UNDERGROUND UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE THE CONTRACTOR SHALL CONTACT DIG SAFE AT 811.
- THE WETLAND AREAS HAVE BEEN IDENTIFIED AS IMPORTANT HABITAT. PLEASE REFER TO SHEET 8 FOR ENDANGERED SPECIES INFORMATION.

SITE SPECIFIC SOILS LEGEND

SYMBOL	MAP UNIT	SLOPE	DRAINAGE	HSG
73B	BERKSHIRE FINE SANDY LOAM, V. STONY	0-8%	WELL	B
73C	BERKSHIRE FINE SANDY LOAM, V. STONY	8-15%	WELL	B
73D	BERKSHIRE FINE SANDY LOAM, V. STONY	15-25%	WELL	B
73E	BERKSHIRE FINE SANDY LOAM, V. STONY	25+%	WELL	B
77B	BERKSHIRE FINE SANDY LOAM, V. STONY	0-8%	WELL	C
77C	BERKSHIRE FINE SANDY LOAM, V. STONY	8-15%	WELL	C
77D	BERKSHIRE FINE SANDY LOAM, V. STONY	15-25%	WELL	C
77E	BERKSHIRE FINE SANDY LOAM, V. STONY	25+%	WELL	C
169B	SUNAPEE FINE SANDY LOAM, V. STONY	0-8%	MOD. WELL	B
169C	SUNAPEE FINE SANDY LOAM, V. STONY	8-15%	MOD. WELL	B
169D	SUNAPEE FINE SANDY LOAM, V. STONY	15-25%	MOD. WELL	B
379B	DIXFIELD FINE SANDY LOAM, V. STONY	0-8%	MOD. WELL	C
379C	DIXFIELD FINE SANDY LOAM, V. STONY	8-15%	MOD. WELL	C
379D	DIXFIELD FINE SANDY LOAM, V. STONY	15-25%	MOD. WELL	C
500B/ccabb	UDORTHENTS, LOAMY	0-8%	WELL	B
500B/ccabb	UDORTHENTS, LOAMY	0-8%	WELL	C
500B/ccabb	URBAN LAND	8-15%	WELL	C

WETLAND CERTIFICATION

JURISDICTIONAL WETLANDS SHOWN ON THIS PLAN WERE DELINEATED ON FEBRUARY 8, 2021 BY CHRIS DANFORTH, CWS NO. 77. THE WETLANDS WERE DELINEATED ACCORDING TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL (1987) AND THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2, JANUARY 2012. DOMINANT HYDRIC SOILS WITHIN THE WETLAND(S) WERE IDENTIFIED USING "FIELD INDICATORS OF HYDRIC SOILS OF THE UNITED STATES" A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, NRCS, VERSION 8.1, 2017. DOMINANCE OF HYDROPHYTIC VEGETATION WAS DETERMINED USING THE USACE NATIONAL WETLAND PLANT LIST, NWPL 2016 VERSION 3.3 HTTP://WETLAND_PLANTS.USACE.ARMY.MIL.

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4	6/30/2022	UPDATE PER AOT COMMENTS	JMR	JK
3	6/6/2022	UPDATE PER PEER REVIEW COMMENTS	JMR	JK
2	4/29/2022	UPDATE FOR AOT SUBMISSION	MCK	JK
1	4/8/2022	GENERAL DESIGN UPDATES	SRP	JK

TAX MAP 215 LOT 7
PARTIAL EXISTING CONDITIONS PLAN
EXCAVATION SITE
RTE. 9, KEENE/SULLIVAN/ROXBURY, NH
 OWNED BY/PREPARED FOR
G2 HOLDINGS LLC

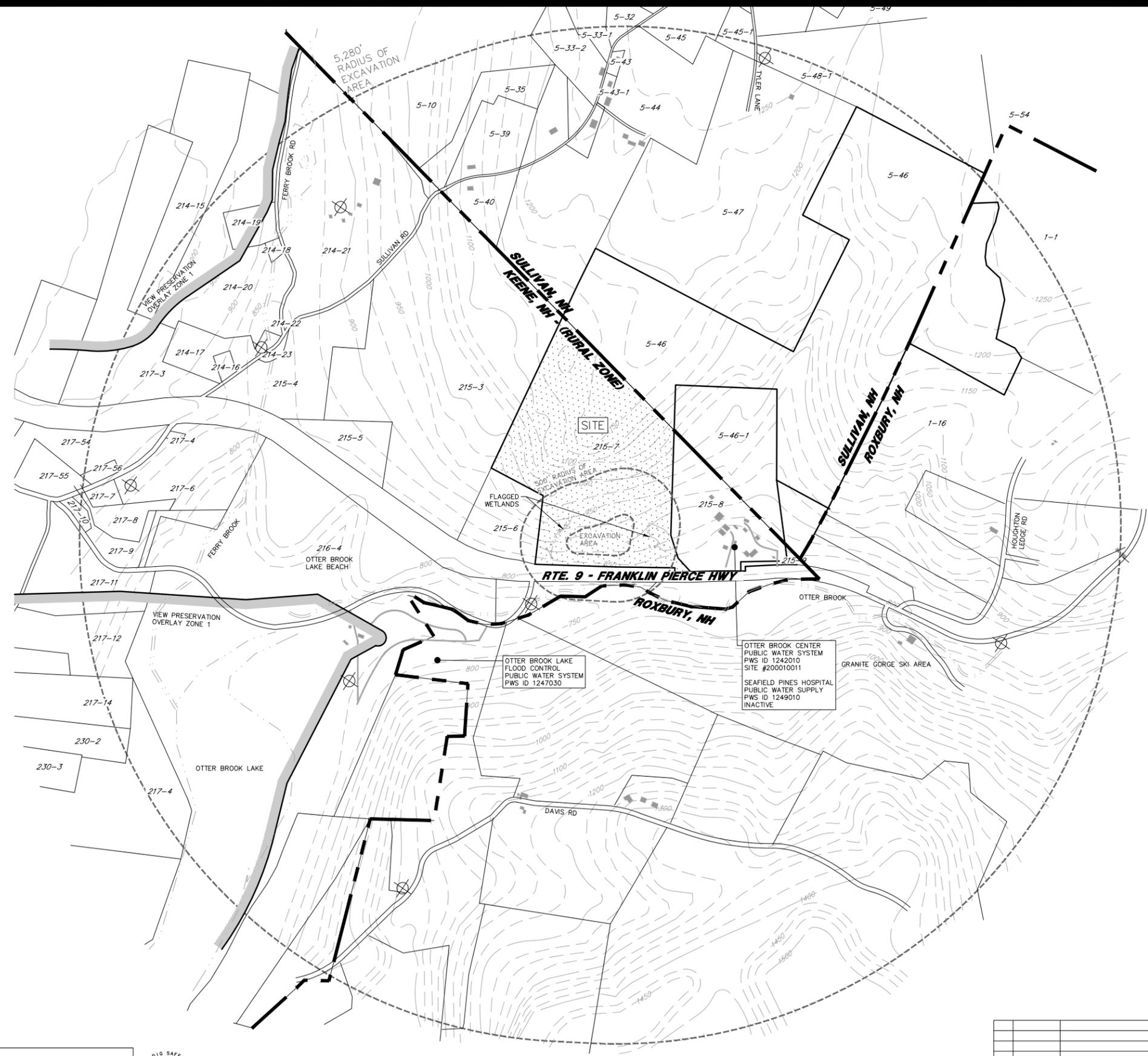
SCALE: 1" = 50' **MARCH 18, 2022**

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 Structural Engineers
 Traffic Engineers
 Land Surveyors
 Landscape Architects
 Scientists

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 CK JK CADFILE 82549-00 SITE SHEET 3 OF 15

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- ### NOTES
- 500' AND 5,280' (1 MILE) RADII OF THE EXCAVATION AREA ARE SHOWN.
 - THE APPROXIMATE LOCATION OF THE 25-FT CONTOURS ARE SHOWN WITHIN A 1 MILE RADIUS OF THE EXCAVATION SITE. THE TOPOGRAPHICAL INFORMATION SHOWN IS FROM GOOGLE EARTH.
 - THE APPROXIMATE LOCATION OF ALL BUILDINGS ARE SHOWN. THIS INFORMATION IS FROM GOOGLE EARTH AND KEENE TAX MAP INFORMATION.
 - THE APPROXIMATE LOCATION OF ROUTE 9 IS SHOWN. THIS INFORMATION IS FROM KEENE TAX MAPS.
 - THE APPROXIMATE LOCATION OF ALL PROPERTY LINES ARE SHOWN IN KEENE, ROXBURY, AND SULLIVAN WITHIN A 1-MILE RADIUS OF THE EXCAVATION SITE. THIS INFORMATION COMES FROM KEENE GIS AND TAX MAP INFORMATION FROM NEIGHBORING ROXBURY AND SULLIVAN.
 - THE ZONE LINE ALONG THE TOWN LINES ARE SHOWN. THE ENTIRETY OF THE 1-MILE RADIUS IS WITHIN THE RURAL ZONE.
 - THE LOCATION AND ASSOCIATED INFORMATION FOR ALL PUBLIC WATER SUPPLIES ARE SHOWN WITHIN A 1-MILE RADIUS OF THE EXCAVATION SITE. THIS INFORMATION WAS OBTAINED THROUGH NHDES ONESTOP DATA RESEARCH.
 - THERE ARE NO WELLHEAD PROTECTION AREAS WITHIN A 1-MILE RADIUS OF THE EXCAVATION SITE. THIS INFORMATION COMES FROM A DATA CHECK USING NHDES ONESTOP DATA SEARCH.
 - THERE ARE NO KNOWN FUTURE MUNICIPAL WATER SUPPLY SITES WITHIN A 1-MILE RADIUS OF THE EXCAVATION SITE.
 - ALL SURFACE WATERS ARE SHOWN WITHIN A 1-MILE RADIUS OF THE EXCAVATION SITE. THIS INFORMATION COMES FROM KEENE GIS AND NHDES ONESTOP DATA RESEARCH.
 - THE APPROXIMATE LOCATIONS OF ALL PUBLICLY RECORDED PRIVATE WELLS ARE SHOWN WITHIN A 1-MILE RADIUS OF THE EXCAVATION SITE. THIS INFORMATION COMES FROM KEENE GIS AND NHDES ONE-STOP DATA RESEARCH.
 - ALL OTHER PRIVATE WELL ESTIMATION IS AN APPROXIMATION.

= APPROXIMATE LOCATION OF PRIVATE WELLS CONFIRMED BY NHDES ONESTOP DATA SEARCH

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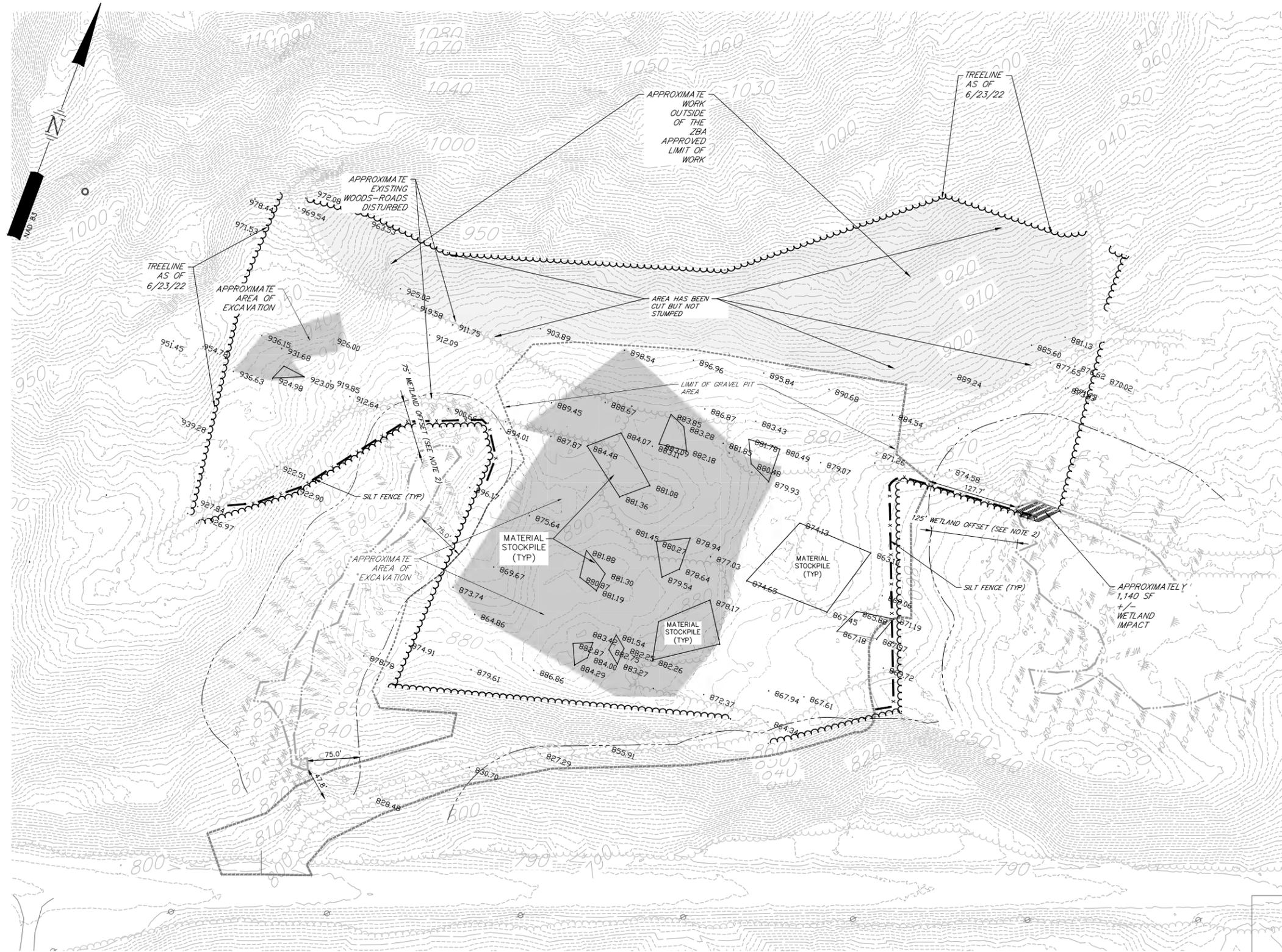
TAX MAP 215 LOT 7
CONTEXT PLAN
EXCAVATION SITE
RTE. 9, KEENE/SULLIVAN/ROXBURY, NH
 OWNED BY/PREPARED FOR
G2 HOLDINGS LLC

SCALE: 1" = 600' **MARCH 18, 2022**

	Civil Engineers Structural Engineers Traffic Engineers Land Surveyors Landscape Architects Scientists	48 Constitution Drive Bedford, NH 03110 Phone (603) 472-4488 Fax (603) 472-9747 www.tfmoran.com
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SHEET 4 OF 15

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NOTES

1. THE PURPOSE OF THIS PLAN IS TO SHOW THE LIMITS OF CLEARING OF THE SUBJECT PARCEL AS OF 6/23/2022 RELATIVE TO THE LIMIT OF WORK LINE APPROVED BY THE KEENE ZONING BOARD OF ADJUSTMENT ON MARCH 7 2022 (MOTION ZBA-22-04)
2. MOTION ZBA-22-04, WAS APPROVED BY THE KEENE ZONING BOARD OF ADJUSTMENTS ON MARCH 7, 2022.
3. A FIELD SURVEY WAS PERFORMED BY THIS OFFICE ON 6/23/22.

TAX MAP 215 LOT 7
CURRENT CONDITIONS AS OF 6/23/22
EXCAVATION SITE
RTE. 9, KEENE/SULLIVAN/ROXBURY, NH
 OWNED BY/PREPARED FOR
G2 HOLDINGS LLC

SCALE: 1" = 80' **JULY 8, 2022**

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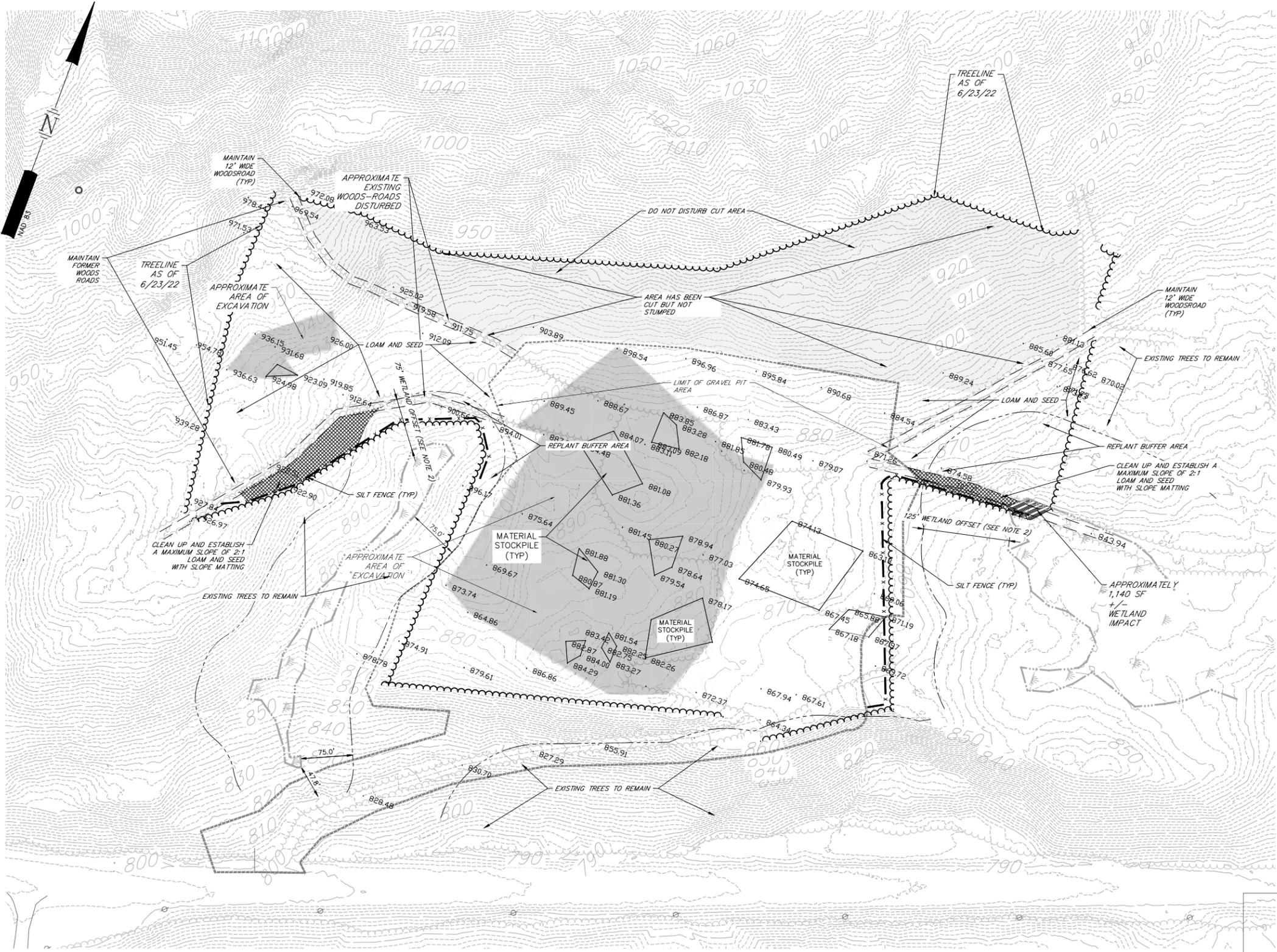
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2. MOTION ZBA-22-04, WAS APPROVED BY THE KEENE ZONING BOARD OF ADJUSTMENTS ON MARCH 7, 2022.
3. A FIELD SURVEY WAS PERFORMED BY THIS OFFICE ON 6/23/22.

TAX MAP 215 LOT 7
**RESTORATION OF DISTURBANCE
 OUTSIDE OF GRAVEL PIT
 EXCAVATION SITE**
RTE. 9, KEENE/SULLIVAN/ROXBURY, NH
 OWNED BY/PREPARED FOR
G2 HOLDINGS LLC

SCALE: 1" = 80' **JULY 8, 2022**

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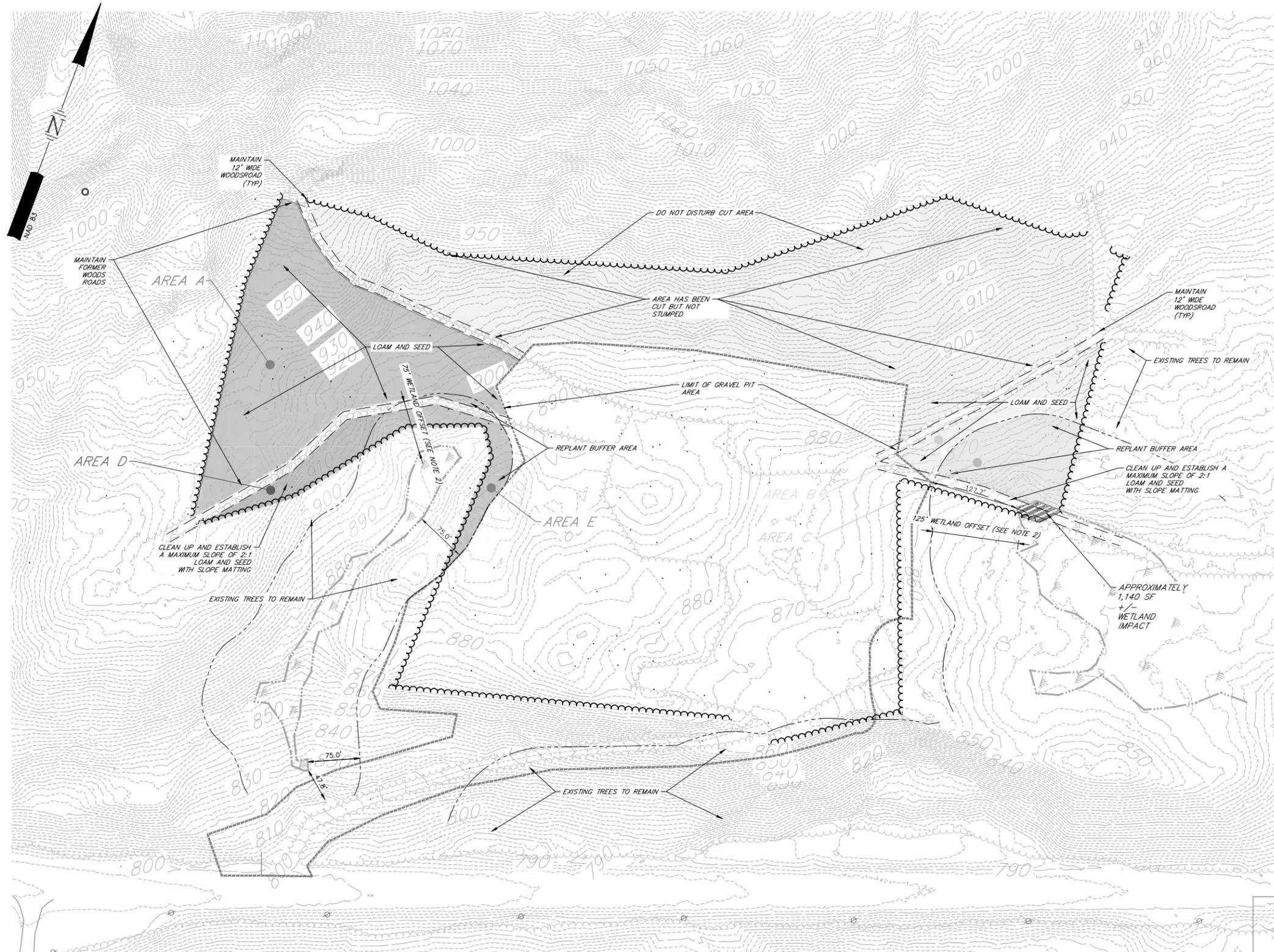
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	CK	JK	CADFILE	82549-00 LOW 7-7-22	SHEET 6 OF 11				

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NOTES

1. THE PURPOSE OF THIS PLAN IS TO SHOW AREAS TO BE RECLAIMED PRIOR TO COMMENCEMENT OF EXCAVATION ACTIVITIES.

LANDSCAPE LEGEND

AREA	SIZE	SEED MIX AND RATIO	SEED MIX AMOUNT
A	81,234 SF	NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DRY SITES 35LBS/ACRE	65 LB
B	16,070 SF	NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DRY SITES 35LBS/ACRE	13 LB
C	18,777 SF	NEW ENGLAND ROADSIDE MATRIX UPLAND 35LBS/ACRE	15 LB
D	8,633 SF	NEW ENGLAND ROADSIDE MATRIX UPLAND 35LBS/ACRE	7 LB
E	13,418 SF	NEW ENGLAND ROADSIDE MATRIX UPLAND 35LBS/ACRE	11 LB

AREA	SIZE	TREE SPECIES	TOTAL TREES
E	13,418 SF	PINUS STROBUS, WHITE PINE 18"-24" CONT. (1 @ 30' O.C)	17 TREES
		BETULA POPULIFOLIA, GREY BIRCH 18"-24" CONT. (1 @ 30' O.C)	17 TREES

TAX MAP 215 LOT 7
RESTORATION OF DISTURBANCE LANDSCAPE PLAN
EXCAVATION SITE
RTE. 9, KEENE/SULLIVAN/ROXBURY, NH
 OWNED BY/PREPARED FOR
G2 HOLDINGS LLC

SCALE: 1" = 80'

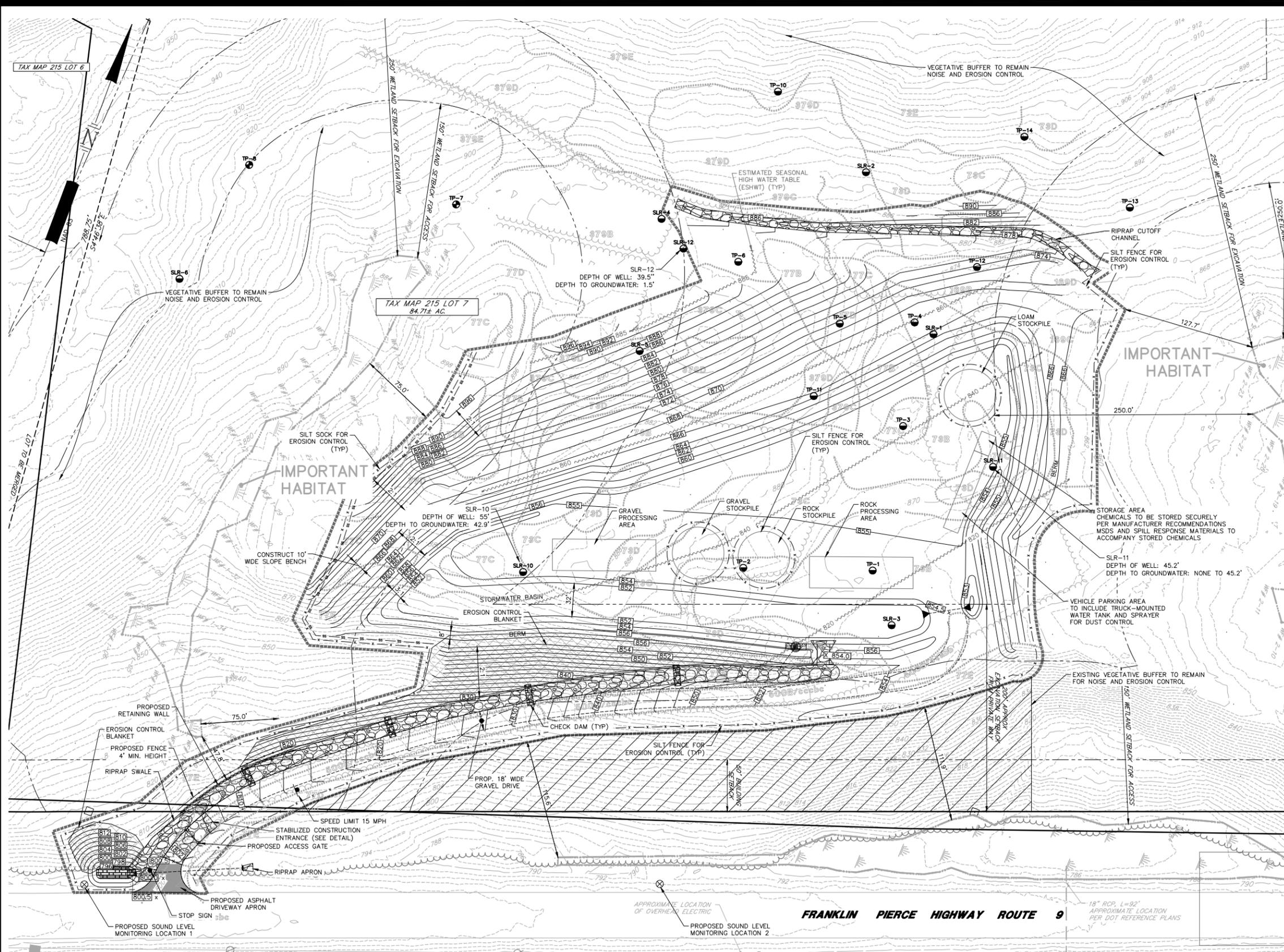
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REV	DATE	DESCRIPTION	DR	CK

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	PROJECT: 82549.00 DRAWN BY: DR CHECKED BY: CK CADFILE: 82549-00 LOW 7-7-22	SHEET 7 OF 11 Page 25 of 156



SOUND MONITORING NOTES

1. VEGETATED BUFFERS AS SHOWN ON THE PLAN ARE TO BE MAINTAINED AS VISUAL AND SOUND BUFFERS.
2. PER THE REQUIREMENTS OF SECTION 24.3.15 OF THE KEENE LAND DEVELOPMENT CODE, AMBIENT SOUND LEVELS SHALL BE MEASURED PRIOR TO COMMENCEMENT OF EXCAVATION OPERATIONS, BY A CONSULTANT HIRED BY THE PLANNING BOARD AT THE EXPENSE OF THE APPLICANT. THE MONITORING LOCATIONS SHALL BE SELECTED BY THE COMMUNITY DEVELOPMENT DIRECTOR OR THEIR DESIGNEE. PROPOSED LOCATIONS ARE SHOWN ON THE PLAN
3. AFTER THE COMMENCEMENT OF EXCAVATION OPERATIONS, THE APPLICANT SHALL MONITOR NOISE LEVELS AND DOCUMENT SUCH MONITORING PER THE REQUIREMENTS OF SECTION 24.3.15 OF THE KEENE LAND DEVELOPMENT CODE.
4. NOISE LEVELS FROM THE EXCAVATION ACTIVITIES SHALL NOT EXCEED THE BACKGROUND AMBIENT "A" WEIGHTED SOUND PRESSURE LEVEL, EXCEEDED 90% OF THE TIME DURING THE SOUND LEVEL SAMPLING PERIOD, BY MORE THAN 10 DB(A) AND IN ANY EVENT SHALL NOT EXCEED 55 DB(A).
5. COMPLAINTS REGARDING THE LEVEL OF NOISE GENERATED FROM EXCAVATION OPERATIONS SHALL BE RESOLVED PER THE PROCEDURES OUTLINED IN SECTION 24.3.15 OF THE KEENE LAND DEVELOPMENT CODE.

DUST CONTROL NOTES

1. STABILIZATION WITH LOAM AND SEED, EROSION CONTROL BLANKETS, AND RIPRAP SHALL BE USED TO MINIMIZE EROSION AND DUST ON SITE.
2. DUST CONTROL WILL BE ACCOMPLISHED USING A TRUCK-MOUNTED WATER TANK AND SPRAY SYSTEM AS NEEDED.
3. VEHICLES SHALL BE CLEARED OF MUD, DEBRIS, AND DUST BEFORE LEAVING THE SITE.
4. THE INSPECTION AND MAINTENANCE MANUAL, LOCATED WITHIN THE STORMWATER MANAGEMENT REPORT, SHALL BE USED FOR INSTRUCTIONS OF HOW TO INSPECT AND MAINTAIN EROSION AND SEDIMENT CONTROL PRACTICES.

GROUNDWATER MONITORING NOTES

1. LOCATION, DEPTH, AND DEPTH TO GROUNDWATER AT THREE MONITORING WELLS ARE SHOWN ON THE PLAN AND IN THE LIMITED HYDROGEOLOGIC INVESTIGATION REPORT BY SLR INTERNATIONAL CORPORATION, DATED MARCH 25, 2022.
2. APPROXIMATE SEASONAL HIGH GROUNDWATER CONTOURS ARE SHOWN ON THE PLAN PER THE LIMITED HYDROGEOLOGIC INVESTIGATION REPORT BY SLR INTERNATIONAL CORPORATION, DATED MARCH 25, 2022.
3. THE INTENT OF THE APPLICANT IS TO NOT EXCAVATE BELOW SEASONAL HIGH GROUNDWATER LEVEL.

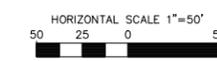
SPILL RESPONSE NOTES

1. CHEMICALS USED ON SITE WILL VARY THROUGHOUT THE EXCAVATION OPERATION AND MAINLY CONSIST OF PETROLEUM BASED OILS & LUBRICANTS AND GASOLINE BASED FUELS, SUCH SUBSTANCES SHALL BE STORED SECURELY PER MANUFACTURER RECOMMENDATIONS AND ACCOMPANIED BY MATERIAL SAFETY DATA SHEETS AS WELL AS SPILL RESPONSE MATERIALS.
2. CARE SHALL BE TAKEN WHEN FUELING EQUIPMENT ON SITE TO AVOID SPILLS AND OVER-FILLING.
3. SPILL CONTROL PRACTICES ARE DETAILED ON THE STORMWATER MANAGEMENT PLAN (SHEET 8) OF THIS PLAN SET.

TAX MAP 215 LOT 7
IMPACT CONTROL & MONITORING PLAN
EXCAVATION SITE
RTE. 9, KEENE/SULLIVAN/ROXBURY, NH
 OWNED BY/PREPARED FOR
G2 HOLDINGS LLC

SCALE: 1" = 50' MARCH 18, 2022

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REV	DATE	DESCRIPTION	DR	CK
5	8/1/2022	UPDATE PER COMPLETENESS COMMENTS	JD	JK
4	6/30/2022	UPDATE PER AOT COMMENTS	JMR	JK
3	6/6/2022	UPDATE PER PEER REVIEW COMMENTS	JMR	JK
2	4/29/2022	UPDATE FOR AOT SUBMISSION	MCK	JK
1	4/8/2022	GENERAL DESIGN UPDATES	SRP	JK

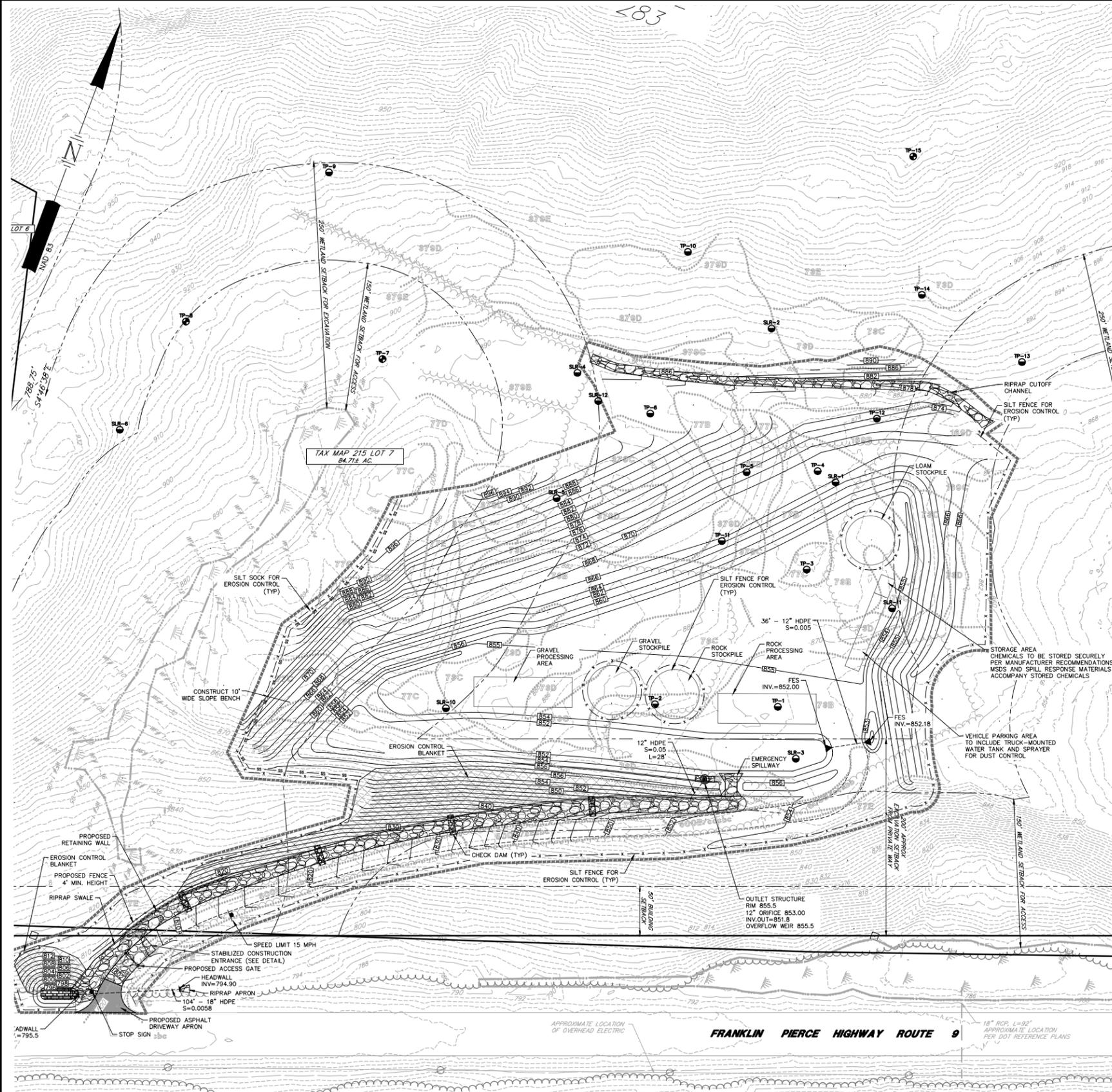

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 Structural Engineers
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 Landscape Architects
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 CK JK CADFILE 82549-00 SITE SHEET 9 OF 15
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CONSTRUCTION GENERAL PERMIT

- THE OWNER, IN CONJUNCTION WITH THE CONTRACTOR (OPERATORS), MUST OBTAIN A CONSTRUCTION GENERAL PERMIT (CGP) FOR LARGE CONSTRUCTION ACTIVITIES (FIVE OR MORE ACRES) OR SMALL CONSTRUCTION ACTIVITIES (GREATER THAN ONE ACRE BUT LESS THAN FIVE ACRES) FROM THE ENVIRONMENTAL PROTECTION AGENCY (EPA), AS PART OF THE CGP, A STORMWATER NOTICE OF INTENT (NOI) MUST BE SUBMITTED TO THE EPA AT LEAST 7 DAYS PRIOR TO COMMENCING CONSTRUCTION. THE NOI MUST BE SUBMITTED TO STORM WATER NOTICE OF INTENT (4203M), USEPA, 1200 PENNSYLVANIA AVE. NW, WASHINGTON, DC 20460.
- THE CGP OUTLINES A SET OF PROVISIONS MANDATING THE OWNER AND CONTRACTOR TO COMPLY WITH THE REQUIREMENTS OF THE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER REGULATIONS, INCLUDING, BUT NOT LIMITED TO, STORM WATER POLLUTION PREVENTION PLANS (SWPPP'S), IMPLEMENTATION OF EROSION AND SEDIMENTATION CONTROLS, EQUIPMENT MAINTENANCE GUIDELINES, ETC. PLEASE CONTACT USEPA OFFICE OF WASTEWATER MANAGEMENT AT 202-564-9545 OR AT WWW.EPA.GOV/NPDES/STORMWATER FOR ADDITIONAL INFORMATION. FOR FURTHER ASSISTANCE, CONTACT ABBY SWAINE OF NEW ENGLAND'S EPA REGION 1 AT 617-918-1841.

NOTES

- IT IS BEING PROPOSED TO EXCAVATE GRAVEL ON THE SITE
- TOTAL SITE AREA: 84.71± AC
TOTAL AREA OF DISTURBANCE: 9.7± AC
- SOILS SHOWN ARE FROM THE SOIL SURVEY OF CHESHIRE COUNTY, NH, EASTERN PART, PREPARED BY USDA-NRCS CONSERVATION SERVICES:
73C BERKSHIRE FINE SANDY LOAM, 8-15% SLOPES, VERY STONY
73D BERKSHIRE FINE SANDY LOAM, 15-25% SLOPES, VERY STONY
77E MARLOW FINE SANDY LOAM, 25-50% SLOPES, VERY STONY
- STORM WATER DRAINAGE SYSTEM IS SHOWN ON THE PLAN. SEE GRADING & DRAINAGE PLAN FOR RIM, INVERT, PIPE LENGTH, AND SLOPE INFORMATION.
POST-CONSTRUCTION RUNOFF COEFFICIENT: C=0.32
IMPERVIOUS SURFACE AREA: 1.2± AC
- STABILIZATION PRACTICES FOR EROSION AND SEDIMENTATION CONTROLS:

TEMPORARY STABILIZATION - DISTURBED SLOPES STEEPER THAN 6:1 SHALL BE PROTECTED DAILY AS NEEDED USING VEGETATION SEEDS.
TO REDUCE RUNOFF VELOCITIES, IN ACCORDANCE WITH NHDOT GUIDELINES FOR TEMPORARY EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT, PAGE 19, TOPSOIL STOCKPILES AND DISTURBED AREAS OF THE SITE THAT WILL NOT BE REDISTURBED FOR 14 DAYS OR MORE MUST BE STABILIZED BY THE 14TH DAY AFTER THE LAST DISTURBANCE. THE TEMPORARY SEED SHALL BE ANNUAL RYE APPLIED AT THE RATE OF 1.1 LBS PER 1,000 SF PRIOR TO SEEDING, A MINIMUM OF 2 TONS PER ACRE OF AGRICULTURAL LIMESTONE AND 500 LBS PER ACRE OF 10-20-20 FERTILIZER SHALL BE APPLIED. AFTER SEEDING, EACH AREA SHALL BE MULCHED WITH 1.5 TONS PER ACRE OF HAY MULCH. MULCH TO BE ANCHORED IN PLACE WHERE NECESSARY. CALCIUM CHLORIDE SHALL BE USED FOR DUST CONTROL IF NEEDED.

PERMANENT STABILIZATION - DISTURBED PORTIONS OF THE SITE WHERE EARTH REMOVAL OPERATIONS REACH THE PROPOSED FINISHED GRADES SHOWN (OR OTHERWISE PERMANENTLY CEASE, SHALL BE STABILIZED WITH PERMANENT SEED NO LATER THAN 3 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE. THE PERMANENT SEED MIX SHALL BE AS SPECIFIED BY THE LANDSCAPE PLAN NOTES OR MAY OTHERWISE CONSIST OF 0.45 LBS/1,000 SF TALL FESCUE, 0.20 LBS/1,000 SF CREEPING RED FESCUE, AND 0.20 LBS/1,000 SF BIRDSFOOT TREFLOIL. PRIOR TO SEEDING, A MINIMUM OF 2 TONS PER ACRE OF AGRICULTURAL LIMESTONE AND 500 LBS PER ACRE IF 10-20-20 FERTILIZER SHALL BE APPLIED. AFTER SEEDING, EACH AREA SHALL BE MULCHED WITH 1.5 TONS PER ACRE OF HAY MULCH. MULCH TO BE ANCHORED IN PLACE WHERE NECESSARY.

STRUCTURAL PRACTICES FOR EROSION AND SEDIMENTATION CONTROL
SILT FENCE - WILL BE CONSTRUCTED AROUND THE PERIMETER OF THE DISTURBED AREAS AND AS DELINEATE THE LIMITS OF WORK. THE SILT FENCE WILL BE INSTALLED BY STRETCHING REINFORCED FILTER FABRIC BETWEEN POSTS WITH AT LEAST 8" OF THE FABRIC BURIED BELOW THE GROUND SURFACE TO PREVENT GAPS FROM FORMING NEAR THE GROUND SURFACE. RUNOFF WILL FLOW THROUGH THE OPENINGS IN THE FILTER FABRIC WHILE RETAINING THE SEDIMENT WITHIN THE CONSTRUCTION AREA.

SILT SOCK - WILL BE CONSTRUCTED AS A SECOND LAYER OF EROSION CONTROL ADJACENT TO WETLAND AREAS AS SHOWN ON THE PLANS. POSTS SHALL BE USED WITH AT LEAST 6" OF THE POST BURIED BELOW THE GROUND SURFACE TO PREVENT THE SILT SOCK FROM FORMING GAPS NEAR THE GROUND SURFACE. RUNOFF WILL FLOW THROUGH THE OPENINGS IN THE SILT SOCK WHILE RETAINING THE SEDIMENT WITHIN THE CONSTRUCTION AREA.

STABILIZED CONSTRUCTION ENTRANCE - WILL BE INSTALLED IN ACCORDANCE WITH THE DETAIL AT THE ENTRANCE TO THE SITE TO HELP REDUCE TRACKING OF SEDIMENTS OFF THE SITE. THE STABILIZED ENTRANCE WILL BE 20'-WIDE AND FLARE AT THE ENTRANCE TO THE PAVED ROAD AND HAVE A DEPTH OF 12" OF STONE. THE STABILIZED ENTRANCE SHALL BE MAINTAINED UNTIL EXCAVATION OPERATIONS HAVE PERMANENTLY CEASED AND SITE RECLAMATION IS COMPLETE. THE PAVED STREET ADJACENT TO THE SITE SHALL BE SWEEPED ON A WEEKLY BASIS TO REMOVE EXCESS MUD AND DIRT FROM BEING TRACKED FROM THE SITE. TRUCKS HAULING MATERIAL TO AND/OR FROM THE SITE SHALL BE COVERED WITH A TARP/AULIN.

BLANKET SLOPE PROTECTION - SHALL BE INSTALLED ON ALL 2:1 SLOPES OR STEEPER ON SITE. ANCHOR THE TOP OF THE BLANKET BY ANCHORING THE BLANKET IN A 6" DEEP TRENCH, BACKFILL AND COMPACT TRENCH AFTER STAPLING. ROLL THE BLANKET IN THE DIRECTION OF STORM WATER FLOW. WHERE 2 OR MORE STRIPS OF BLANKET ARE REQUIRED, A MINIMUM OF 4" OF OVERLAP SHALL BE PROVIDED.

STONE CHECK DAMS - WILL BE INSTALLED IN EXISTING AND PROPOSED SWALES TO REDUCE THE VELOCITY OF CONCENTRATED STORM WATER FLOWS AND PREVENT EROSION OF THE SWALE.

STORM WATER MANAGEMENT
STORM WATER RUNOFF FROM THE EXCAVATION AREA WILL BE COLLECTED IN AN OPEN DRAINAGE SYSTEM AND DIRECTED TO A STORMWATER POND BY SWALES. APPROXIMATELY 74 ACRES OF THE 84.71± ACRE LOT WILL REMAIN UNTOUCHED AND IN ITS NATURAL STATE. SWALES AND PIPE OUTLETS ON SITE WILL BE STABILIZED BY RIP RAP.

ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURE DUMPSTERS OR APPROVED ENCLOSURE AND REMOVED FROM THE SITE ON A WEEKLY BASIS. NO CONSTRUCTION WASTE SHALL BE BURIED ON SITE. PORTABLE TOILET SANITARY WASTE FACILITIES WILL BE PROVIDED DURING CONSTRUCTION AND MAINTAINED/DISPOSED OF ON A REGULAR BASIS IN ACCORDANCE WITH TOWN AND STATE REGULATIONS.
A LIST OF CONSTRUCTION ITEMS AND OTHER PRODUCTS USED ON THIS PROJECT SHALL BE KEPT ON RECORD WITH THIS PLAN ONSITE. ALL CHEMICALS, PETROLEUM PRODUCTS AND OTHER MATERIALS USED DURING CONSTRUCTION SHALL BE STORED IN A SECURE AREA, AND PRECAUTIONS USED TO PREVENT POTENTIAL SOURCES OF CONTAMINATION OR POLLUTION. ANY SPILL OF THESE TYPES OF SUBSTANCES SHALL BE CLEANED UP AND DISPOSED OF IN A

LEGAL MANNER AS SPECIFIED BY STATE REGULATIONS AND THE MANUFACTURER. ANY SPILL IN AMOUNTS EQUAL TO OR EXCEEDING REPORTABLE QUANTITY AS DEFINED BY THE EPA SHALL TAKE THE FOLLOWING STEPS:

- NOTIFY THE NATIONAL RESPONSE CENTER IMMEDIATELY AT (888) 424-8802; IN WASHINGTON, D.C., CALL (202) 426-2675.
- WITHIN 14 DAYS, SUBMIT A WRITTEN DESCRIPTION OF THE RELEASE TO THE EPA REGIONAL OFFICE PROVIDING THE DATE AND CIRCUMSTANCES OF THE RELEASE AND THE STEPS TO BE TAKEN TO PREVENT ANOTHER RELEASE.
- MODIFY THE POLLUTION PREVENTION PLAN TO INCLUDE THE INFORMATION LISTED ABOVE.

GOOD HOUSEKEEPING:

- THE FOLLOWING GOOD HOUSEKEEPING PRACTICES WILL BE FOLLOWED ONSITE DURING THE CONSTRUCTION PROJECT.
- AN EFFORT WILL BE MADE TO STORE ONLY ENOUGH PRODUCT REQUIRED TO DO THE JOB.
- ALL MATERIALS STORED ONSITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE.
- PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL.
- SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
- WHENEVER POSSIBLE, ALL OF A PRODUCT WILL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
- MANUFACTURERS' RECOMMENDATIONS FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED.
- TRASH DUMPSTERS SHALL BE GASKETED OR HAVE A SECURE WATERTIGHT LID AND BE PLACED AWAY FROM STORMWATER CONVEYANCES AND DRAINS.
- THE SITE SUPERINTENDENT WILL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ONSITE.

HAZARDOUS PRODUCTS:

- THESE PRACTICES ARE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS.
- PRODUCTS WILL BE KEPT IN ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE.
- ORIGINAL LABELS AND MATERIAL SAFETY DATA WILL BE RETAINED; THEY CONTAIN IMPORTANT PRODUCT INFORMATION.
- IF SURPLUS PRODUCT MUST BE DISPOSED OF, MANUFACTURER'S OR LOCAL AND STATE RECOMMENDED METHODS FOR PROPER DISPOSAL WILL BE FOLLOWED.

PRODUCT SPECIFIC PRACTICES:

THE FOLLOWING PRODUCT SPECIFIC PRACTICES WILL BE FOLLOWED ON SITE:
PETROLEUM PRODUCTS:
ALL ONSITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTATIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT SUBSTANCES USED ONSITE WILL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

FERTILIZERS:
FERTILIZERS USED WILL BE APPLIED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY THE MANUFACTURER. ONCE APPLIED, FERTILIZER WILL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORM WATER. STORAGE WILL BE IN A COVERED SHED. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER WILL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.

PAINTS:
ALL CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM SEWER BUT WILL BE PROPERLY DISPOSING OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.

CONCRETE TRUCKS:
EXCESS CONCRETE SHALL BE USED IN AREAS DESIGNATED BY THE SITE CONTRACTOR. WASH WATER SHALL BE DISPOSED OF USING BEST MANAGEMENT PRACTICES. BUILDING CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL DRUM WASH WATER ASSOCIATED WITH CONCRETE FOR THE BUILDING PAD. SITE CONTRACTOR TO COORDINATE AND PROVIDE BUILDING CONTRACTOR WITH AN AREA FOR DRUM WASH WATER.

SPILL CONTROL PRACTICES:

- IN ADDITION TO THE GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTIONS OF THIS PLAN, THE FOLLOWING PRACTICES WILL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
- MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND SITE PERSONNEL WILL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.
- MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREA ONSITE. EQUIPMENT AND MATERIALS WILL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUST PANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST, AND PLASTIC AND METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE.
- ALL SPILLS WILL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY.
- THE SPILL AREA WILL BE KEPT WELL VENTILATED AND PERSONNEL WILL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE.
- SPILLS OF TOXIC OR HAZARDOUS MATERIAL WILL BE REPORTED TO THE APPROPRIATE STATE OR LOCAL GOVERNMENT AGENCY, REGARDLESS OF SIZE.
- THE SPILL PREVENTION PLAN WILL BE ADJUSTED TO INCLUDE MEASURES TO PREVENT THIS TYPE OF SPILL FROM REOCCURRING AND HOW TO CLEAN UP THE SPILL IF THERE IS ANOTHER ONE. A DESCRIPTION OF THE SPILL, WHAT CAUSED IT, AND THE CLEANUP MEASURES WILL ALSO BE INCLUDED.
- THE SITE SUPERINTENDENT RESPONSIBLE FOR THE DAY-TO-DAY SITE OPERATIONS, WILL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR. THEY WILL DESIGNATE AT LEAST THREE OTHER SITE PERSONNEL WHO WILL EACH RECEIVE SPILL PREVENTION AND CLEANUP TRAINING. THESE INDIVIDUALS WILL EACH BECOME RESPONSIBLE FOR A PARTICULAR PHASE OF PREVENTION AND CLEANUP. THE NAMES OF RESPONSIBLE SPILL PERSONNEL WILL BE POSTED IN THE MATERIAL STORAGE AREA AND IN THE OFFICE TRAILER ONSITE.

11. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN RECORDS OF CONSTRUCTION ACTIVITIES, INCLUDING DATES OF MAJOR GRADING ACTIVITIES, DATES WHEN CONSTRUCTION ACTIVITIES HAVE TEMPORARILY CEASED ON A PORTION OF THE SITE, DATES WHEN WORK IS COMPLETED ON A PORTION OF THE SITE, AND DATES WHEN STABILIZATION MEASURES ARE INITIATED ONSITE.

12. THE CONTRACTOR SHALL PERFORM INSPECTIONS OR HAVE A CONSULTING ENGINEER PERFORM INSPECTIONS EVERY SEVEN (7) DAYS AND WITHIN 24 HOURS AFTER A STORM OF 0.25" OR GREATER. INSPECTION REPORTS ARE TO BE KEPT ON FILE AT THE SITE WITH THIS PLAN. MAINTENANCE OR MODIFICATION SHALL BE IMPLEMENTED AND ADDED TO THE PLAN AS RECOMMENDED BY THE QUALIFIED INSPECTOR.

TAX MAP 215 LOT 7
STORMWATER MANAGEMENT PLAN
EXCAVATION SITE
RTE. 9, KEENE/SULLIVAN/ROXBURY, NH
OWNED BY/PREPARED FOR
G2 HOLDINGS LLC

SCALE: 1" = 60' MARCH 18, 2022



Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

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CONTACT US 12 HOURS PRIOR TO CONSTRUCTION





RECLAMATION NOTES

1. ANY EXCAVATED AREA OF 5 CONTIGUOUS ACRES OR MORE THAT IS DEPLETED OF COMMERCIAL EARTH MATERIALS (EXCLUDING BEDROCK) OR ANY EXCAVATION FROM WHICH EARTH MATERIALS GREATER THAN 1,000 CUBIC YARDS HAVE NOT BEEN REMOVED FOR A 2-YEAR PERIOD, SHALL BE RECLAIMED WITHIN 12 MONTHS FOLLOWING SUCH DEPLETION OR NON-USE.
2. AT THE TIME OF RECLAMATION ALL LANDS THAT ARE NO LONGER BEING USED FOR EXCAVATION ACTIVITIES, INCLUDING EXCAVATION AREAS, PROCESSING AREAS, STOCKPILING AREAS, AND STORMWATER MANAGEMENT AREAS, EXCEPT FOR EXPOSED LEDGE, SHALL BE RECLAIMED.
3. AREAS TO BE RECLAIMED SHALL BE GRADED TO A NATURAL REPOSE FOR THE TYPE OF SOIL OF WHICH THEY ARE COMPOSED.
4. ONCE RECLAIMED, CHANGES OF SLOPE, EXCEPT FOR EXPOSED LEDGE, SHALL BE SMOOTH AND GRADUATED.
5. WATER DRAINING FROM THE SITE SHALL LEAVE THE PROPERTY AT THE ORIGINAL NATURAL DRAINAGE POINTS AND IN THE NATURAL PROPORTIONS OF FLOW.
6. EXCEPT FOR EXPOSED ROCK LEDGE, ALL AREAS TO BE RECLAIMED SHALL BE SPREAD WITH NATIVE TOPSOIL TO A DEPTH OF NOT LESS THAN 4" AND SEED APPLIED. SEE EROSION CONTROL NOTES ON SHEET 10 FOR SEED MIX.
7. TOPSOIL OF AT LEAST THE MINIMUM AMOUNT NEEDED TO RESTORE THE SITE SHALL BE STOCKPILED ON THE SITE UNTIL RECLAMATION.
8. TOPSOIL AND OVERBURDEN STOCKPILING AREAS SHALL BE STABILIZED.
9. ALL EXCAVATION SITES WHERE RECLAMATION HAS BEEN COMPLETED SHALL BE MONITORED ANNUALLY OVER A PERIOD OF TWO YEARS FOLLOWING THE COMPLETION DATE TO ENSURE EFFECTIVENESS AND SURVIVAL OF PLANTED VEGETATION. VEGETATION THAT HAS NOT SURVIVED DURING THIS PERIOD SHALL BE REPLACED.
10. THE PROPERTY OWNER SHALL USE BEST EFFORTS TO REMOVE NON-NATIVE AND INVASIVE SPECIES, AS DEFINED BY THE NH DEPARTMENT OF ENVIRONMENTAL SERVICES, THAT BECOME ESTABLISHED DURING THE MONITORING PERIOD IN THE RECLAIMED AREAS.
11. STORMWATER MANAGEMENT FEATURES SHALL REMAIN IN PLACE FOLLOWING RECLAMATION.
12. APPROXIMATE COST ESTIMATE:
 MOBILIZATION: \$5,000
 MONITORING: \$5,000
 45,555 SY 4" LOAM AND SEED + MULCH AT \$4/SY = \$182,220
 3,500 LF SILT FENCE AT \$3/LF = \$10,500

PROTECTED SPECIES INFORMATION



WOOD TURTLE (GLYPTEMYS INSCULPTA)
 NH CONSERVATION STATUS: SPECIES OF SPECIAL CONCERN, WILDLIFE ACTION PLAN SPECIES IN GREATEST NEED OF CONSERVATION. LEGALLY PROTECTED IN NEW HAMPSHIRE: POSSESSION, SALE, IMPORT, AND TAKE (HARM, HARASS, INJURING, KILLING) IS ILLEGAL.
 STATE RANK STATUS: VULNERABLE TO EXTIRPATION AND EXTINCTION.
 DISTRIBUTION: THROUGHOUT NH EXCEPT REGIONS OF HIGH ELEVATION.
 DESCRIPTION: A 5-8 INCH TURTLE CHARACTERIZED BY ITS HIGHLY SCULPTURED SHELL WHERE EACH LARGE SCUTE TAKES AN IRREGULAR PYRAMIDAL SHAPE. THE NECK AND FORELIMBS ARE ORANGE.
 COMMONLY CONFUSED SPECIES: JUVENILE SNAPPING TURTLES.
 HABITAT: FOUND IN SLOW-MOVING STREAMS AND CHANNELS WITH SANDY BOTTOMS. EXTENSIVE USE OF TERRESTRIAL HABITATS DURING SUMMER, INCLUDING FLOODPLAINS, MEADOWS, WOODLANDS, FIELDS, AS WELL AS WETLANDS.
 LIFE HISTORY: LAY 4-12 EGGS IN SHALLOW DEPRESSIONS IN SANDY, WELL-DRAINED SOILS. NEST SITES ARE USUALLY NEAR STREAMS BUT MAY ALSO BE IN CLEARINGS, AGRICULTURAL FIELDS, OR OTHER DISTURBED AREAS. HIBERNATE IN SLOW-MOVING STREAMS AND RIVERS UNDER RIVERBANKS, ROOT MASSES, OR WOODY DEBRIS.
 CONSERVATION THREATS: ROAD MORTALITY, HABITAT LOSS AND FRAGMENTATION, STREAM ALTERATION, HUMAN COLLECTION, AND INCREASED ABUNDANCE OF SUBSIDIZED PREDATORS.
 SOURCE: NEW HAMPSHIRE FISH AND GAME DEPARTMENT © [HTTPS://WILDLIFE.STATE.NH.US/WILDLIFE/PROFILES/WOOD-TURTLE.HTML](https://wildlife.state.nh.us/wildlife/profiles/wood-turtle.html)

PLASTRON (LOWER SHELL) OF WOOD TURTLE. PLASTRON MARKINGS ARE SIMILAR FOR SPOTTED AND BLANDING'S TURTLES. PHOTO © ETHAN NEDEAU



ORANGE ON THE NECK AND LIMBS IS USUALLY QUITE OBVIOUS. PHOTO © MIKE MARCHAND



WOOD TURTLE LAYING LOW IN THE VEGETATION AFTER SOME RAIN. PHOTO © ETHAN NEDEAU



WOOD TURTLES HAVE A SCULPTURED SHELL. © MIKE MARCHAND PHOTO

WILDLIFE PROTECTION NOTES

- ALL OBSERVATIONS OF THREATENED OR ENDANGERED SPECIES SHALL BE REPORTED IMMEDIATELY TO THE NEW HAMPSHIRE FISH AND GAME DEPARTMENT NONGAME AND ENDANGERED WILDLIFE ENVIRONMENTAL REVIEW PROGRAM BY PHONE AT 603-271-2461 AND BY EMAIL AT NHGREVIEW@WILDLIFE.NH.GOV. EMAIL SUBJECT LINE: NHB21-0316, KEENE SAND AND GRAVEL, WILDLIFE SPECIES OBSERVATION.
- PHOTOGRAPHS OF THE OBSERVED SPECIES AND NEARBY ELEMENTS OF HABITAT OR AREAS OF LAND DISTURBANCE SHALL BE PROVIDED TO NHF&G IN DIGITAL FORMAT AT THE ABOVE EMAIL ADDRESS FOR VERIFICATION AS FEASIBLE.
- 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 NHF&G AND IMPLEMENTATION OF CORRECTIVE ACTIONS RECOMMENDED BY NHF&G, IF ANY, TO ASSURE THE PROJECT DOES NOT APPRECIABLY JEOPARDIZE THE CONTINUED EXISTENCE OF THREATENED AND ENDANGERED SPECIES AS DEFINED IN FIS 1002.04.
- THE NHF&G, INCLUDING ITS EMPLOYEES AND AUTHORIZED AGENTS, SHALL HAVE ACCESS TO THE PROPERTY DURING THE TERM OF THE PERMIT.



REV	DATE	DESCRIPTION	DR	CK
6	8/1/2022	UPDATE PER COMPLETENESS COMMENTS	JD	JK
5	6/29/2022	UPDATE RECLAMATION AREA	JM	JK
4	6/30/2022	UPDATE PER AOT COMMENTS	JMR	JK
3	6/6/2022	UPDATE PER PEER REVIEW COMMENTS	JMR	JK
2	4/29/2022	UPDATE FOR AOT SUBMISSION	MCK	JK
1	4/8/2022	GENERAL DESIGN UPDATES	SRP	JK

TAX MAP 215 LOT 7
RECLAMATION PLAN
EXCAVATION SITE
 RTE. 9, KEENE/SULLIVAN/ROXBURY, NH
 OWNED BY/PREPARED FOR
G2 HOLDINGS LLC

SCALE: 1" = 50' MARCH 18, 2022

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TFM Civil Engineers
 Structural Engineers
 Traffic Engineers
 Land Surveyors
 Landscape Architects
 Scientists

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82549.00 DR SRP FB
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CONSTRUCTION SEQUENCE NOTES

- CUT AND CLEAR TREES WITHIN AREA OF DISTURBANCE UNLESS OTHERWISE NOTED.
- CONSTRUCT TEMPORARY AND PERMANENT EROSION CONTROL FACILITIES PRIOR TO ANY EARTH MOVING OPERATION.
- TEMPORARY WATER DIVERSION (SWALES, BASINS, SEDIMENT TRAPS, ETC.) SHALL BE USED AS NECESSARY UNTIL AREAS ARE STABILIZED. PONDS AND SWALES SHALL BE INSTALLED BEFORE EARTH REMOVAL OPERATIONS BEGIN IN THAT PORTION OF THE SITE.
- ROUGH GRADE SITE OR PHASED WORK AREA. DISTURBED PORTIONS OF THE SITE WHERE EARTH REMOVAL OPERATIONS REACH THE PROPOSED FINISHED GRADES SHOWN, OR OTHERWISE PERMANENTLY CEASE, SHALL BE STABILIZED WITH PERMANENT SEED NO LATER THAN 72 HOURS AFTER THE LAST CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE. ALL DISTURBED AREAS SHALL BE MULCHED OR STABILIZED NO LATER THAN 72 HOURS IF EARTH REMOVAL OPERATIONS ACTIVITY CEASE SEASONALLY, OR PERMANENTLY. IF EARTHWORK TEMPORARILY CEASES ON A PORTION OF OR THE ENTIRE SITE, AND WILL NOT RESUME WITHIN 21 DAYS, THE AREA SHALL BE STABILIZED.
- THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL EXCEED 5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
- AN AREA SHALL BE CONSIDERED STABILIZED IF:
 - A MINIMUM OF 85% VEGETATED GROWTH (TEMPORARY OR PERMANENT) HAS BEEN ESTABLISHED;
 - A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED; OR
 - EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
- THE CONTRACTOR SHALL INSTALL STONE CHECK DAMS OR STABILIZE ALL DRAINAGE DITCHES, AND SWALES PRIOR TO DIRECTING FLOW TO THEM.
- INSPECT AND MAINTAIN ALL EROSION AND SEDIMENTATION CONTROL MEASURES WEEKLY AND AFTER EVERY HALF-INCH OR GREATER RAINFALL EVENT.
- COMPLETE PERMANENT SEEDING AND LANDSCAPING.
- REMOVE TEMPORARY EROSION CONTROL MEASURES ONCE ALL AREAS ARE RECLAIMED WITH A SUITABLE STAND OF VEGETATION.

GENERAL NOTES

- THE OPERATOR SHALL MAINTAIN EMERGENCY ACCESS TO THE WORK ZONE WHENEVER WORKERS ARE PRESENT AT THE SITE.
- ALL EXCAVATIONS SHALL BE THOROUGHLY SECURED ON A DAILY BASIS BY THE CONTRACTOR AT THE COMPLETION OF CONSTRUCTION OPERATIONS IN THE IMMEDIATE AREA.
- EROSION CONTROL SYSTEMS SHALL BE INSTALLED AND MAINTAINED FOR THE DURATION OF THE PROJECT IN ACCORDANCE WITH APPLICABLE NHDES STANDARDS. THESE DETAILS SERVE AS A GUIDE ONLY.
- REFER TO THE CITY STANDARD DETAILS, LATEST REVISION, FOR ADDITIONAL INFORMATION AND CRITERIA.

EROSION CONTROL NOTES

DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS FOLLOWS:

- INSTALLATION OF SILTATION FENCES AND OTHER EROSION CONTROL MEASURES SHALL BE COMPLETED PRIOR TO THE START OF SITE WORK IN ANY GIVEN AREA. PREFABRICATED SILTATION FENCES SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
- SILTATION FENCES AND OTHER EROSION CONTROL MEASURES SHALL BE KEPT CLEAN DURING CONSTRUCTION AND REMOVED WHEN ALL SLOPES HAVE A VEGETATIVE COVER OF GREATER THAN 85%. EROSION CONTROL MEASURES SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EVERY RAINFALL.
- EXISTING VEGETATION IS TO REMAIN UNDISTURBED WHEREVER POSSIBLE.
- THE AREA OF LAND EXPOSED AND THE TIME OF EXPOSURE SHALL BE MINIMIZED. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 72 HOURS AFTER FINAL GRADING.
- ALL DISTURBED AREAS SHALL HAVE A MINIMUM OF 4" OF LOAM. ACCEPTABLE SEED MIXES ARE AS FOLLOWS:

TYPICAL LAWN MIX (MIN. 200 LBS/ACRE):
 33% CREEPING RED FESCUE (MIN. 66 LBS/ACRE)
 42% PERENNIAL RYEGRASS (MIN. 84 LBS/ACRE)
 21% KENTUCKY BLUEGRASS (MIN. 42 LBS/ACRE)
 4% REDTOP (MIN. 8 LBS/ACRE)

TEMPORARY LAWN MIX (MIN. 47 LBS/ACRE):
 100% ANNUAL RYE

GENERAL SLOPE (NHDDOT TYPE 44) MIX 3:1 OR GREATER SLOPES (MIN. 160 LBS/ACRE):
 44% CREEPING RED FESCUE (MIN. 70 LBS/ACRE)
 38% PERENNIAL RYEGRASS (MIN. 60 LBS/ACRE)
 6% REDTOP (MIN. 10 LBS/ACRE)
 6% ALSIKE CLOVER (MIN. 10 LBS/ACRE)
 6% BIRDSFOOT TREFLOIL (MIN. 10 LBS/ACRE)

- PLACING LOAM ON SITE
 - ALL SUBGRADE ELEVATIONS SHOULD BE UNIFORMLY GRADED TO RECEIVE LOAM AND SHALL BE INSPECTED AND APPROVED BY THE GENERAL CONTRACTOR PRIOR TO PLACEMENT OF LOAM.
 - PLACE LOAM TO FORM A MINIMUM DEPTH OF 4" WHEN ROLLED, UNLESS OTHERWISE INDICATED.
 - ALL DEPRESSIONS EXPOSED DURING THE ROLLING SHALL BE FILLED WITH ADDITIONAL LOAM.
- SEED BED PREPARATION
 - AFTER FINISH GRADING AND JUST BEFORE SEEDING, THE AREAS TO BE SEEDED SHALL BE LOOSENEED TO PROVIDE A ROUGH, FIRM BUT FINELY PULVERIZED SEEDBED. THE INTENT IS A TEXTURE CAPABLE OF RETAINING WATER, SEED AND FERTILIZER WHILE REMAINING STABLE AND ALLOWING SEED TIME TO GERMINATE. SEED SHALL BE APPLIED TO THE CONDITIONED SEEDBED NOT MORE THAN 48 HOURS AFTER THE SEEDBED HAS BEEN PREPARED.

LIME AND FERTILIZER SHALL BE INCORPORATED INTO THE SOIL PRIOR TO OR AT THE TIME OF AT THE TIME OF SEEDING. A MINIMUM OF 2 TONS PER ACRE OF AGRICULTURAL LIMESTONE AND 500 LBS. PER ACRE OF 10-20-20 FERTILIZER SHALL BE APPLIED. SEEDING PRACTICES SHALL COMPLY WITH LOCAL USDA SOIL CONSERVATION SERVICES RECOMMENDATIONS.

HAY MULCH OR JUTE MATTING SHALL BE USED WHERE INDICATED ON THE PLANS. A MINIMUM OF 1.5 TONS OF MULCH PER ACRE SHALL BE APPLIED. MULCH SHALL BE ANCHORED IN PLACE WHERE NECESSARY. JUTE MATTING SHALL BE LAID IN THE DIRECTION OF RUNOFF FLOW AND APPLIED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

PERMANENT OR TEMPORARY COVER MUST BE IN PLACE BEFORE THE GROWING SEASON ENDS. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 15 TO SEPTEMBER 15. NO DISTURBED AREA SHALL BE LEFT EXPOSED DURING WINTER MONTHS.

WATER SHALL BE USED FOR DUST CONTROL IN APPROPRIATE AREAS.

WINTER CONSTRUCTION

IN ADDITION TO THE OTHER NOTES CONTAINED ON THIS PLAN, THE FOLLOWING MUST BE IMPLEMENTED:

- WINTER EXCAVATION AND EARTHWORK SHALL BE COMPLETED AS SUCH THAT NO MORE THAN 5 ACRES OF THE SITE IS UNRECLAIMED IN ACCORDANCE WITH NOTES 1 AND 2 ON SHEET 8.
- AREAS THAT HAVE BEEN BROUGHT TO FINAL GRADE MUST BE PERMANENTLY MULCHED WITHIN ONE DAY.
- TEMPORARY MULCH MUST BE APPLIED WITHIN 7 DAYS OF SOIL EXPOSURE OR PRIOR TO ANY STORM EVENT.

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WINTER CONSTRUCTION (CONT.)

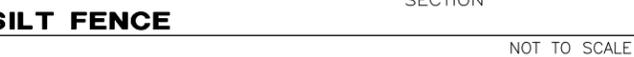
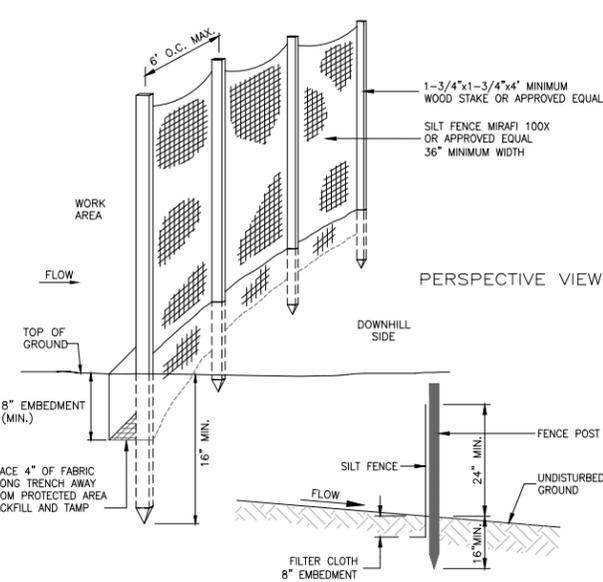
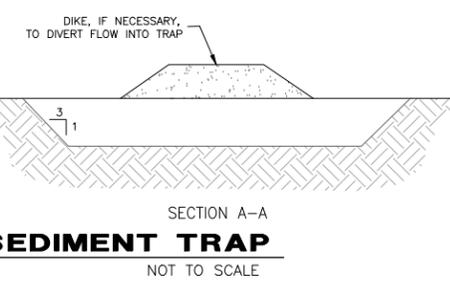
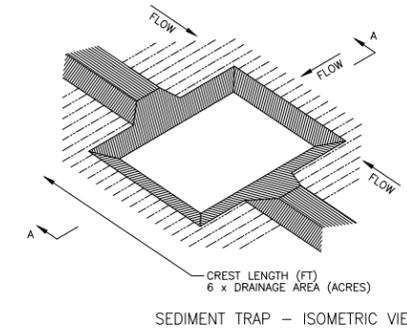
- IN THE EVENT OF A SNOWFALL GREATER THAN 1 INCH (FRESH OR CUMULATIVE), THE SNOW SHALL BE REMOVED FROM THE AREAS DUE TO BE SEEDED AND MULCHED.
- LOAM SHALL BE FREE OF FROZEN CLUMPS BEFORE IT IS APPLIED.
- A DITCH THAT WILL BE CONSTRUCTED DURING THE WINTER MUST BE STABILIZED WITH RIPRAP.

OVERWINTER STABILIZATION

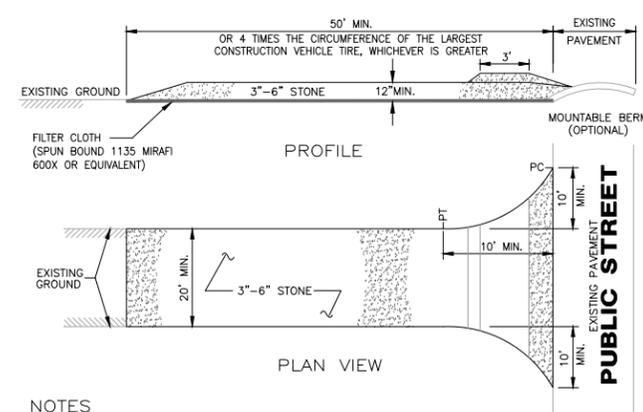
- PERMANENT STABILIZATION CONSISTS OF AT LEAST 85% VEGETATION, PAVEMENT/GRAVEL BASE OR RIPRAP.
- ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE, THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
- ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
- AFTER OCTOBER 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 NHDDOT ITEM 304.3, OR TEMPORARY ANNUAL RYE GRASS SEED MIXTURE.
- DO NOT EXPOSE SLOPES OR LEAVE SLOPES EXPOSED OVER THE WINTER OR FOR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS FULLY PROTECTED WITH MULCH ITEM 304.3, OR TEMPORARY ANNUAL RYE GRASS SEED MIXTURE.
- APPLY HAY MULCH AT TWICE THE STANDARD RATE (150 LBS. PER 1,000 SF). THE MULCH MUST BE THICK ENOUGH SUCH THAT THE GROUND SURFACE WILL NOT BE VISIBLE AND MUST BE ANCHORED.
- USE MULCH AND MULCH NETTING OR AN EROSION CONTROL MULCH BLANKET OR MIX FOR ALL SLOPES GREATER THAN 8% OR OTHER AREAS EXPOSED TO DIRECT WIND.
- INSTALL AN EROSION CONTROL BLANKET IN ALL DRAINAGE WAYS (BOTTOM AND SIDES) WITH A SLOPE GREATER THAN 3%.
- SEE THE VEGETATION MEASURES FOR MORE INFORMATION ON SEEDING DATES AND TYPES.

NOTES

- SEDIMENT TRAP TO BE USED AS NECESSARY TO CONTAIN RUNOFF UNTIL BASINS/PONDS ARE STABILIZED. IF IT IS DETERMINED THAT CONSTRUCTION OF A SEDIMENT TRAP IS WARRANTED, CONSULT WITH ENGINEER TO DETERMINE APPROPRIATE NUMBER AND DIMENSIONS.



SILT FENCE



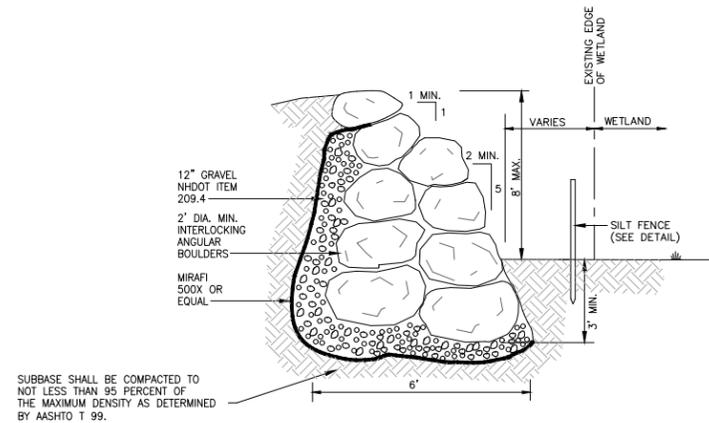
NOTES

- FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE SURFACE.
- WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN STORM EVENT.

USDA - SCS STABILIZED CONSTRUCTION ENTRANCE

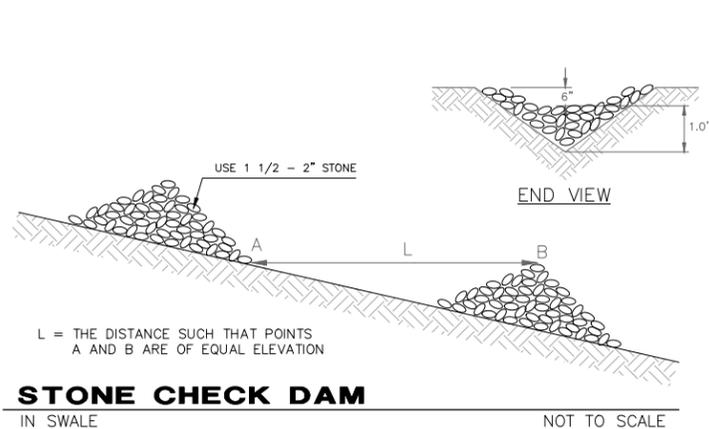
SEE PLAN FOR PROPOSED LOCATION

NOT TO SCALE



STONE CHECK DAM

IN SWALE

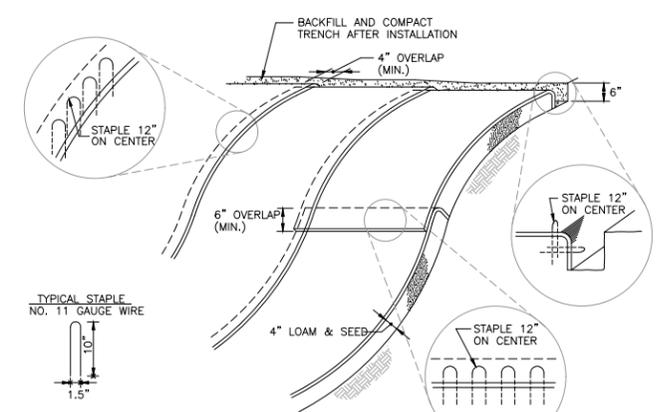


L = THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION

STONE CHECK DAM

IN SWALE

NOT TO SCALE



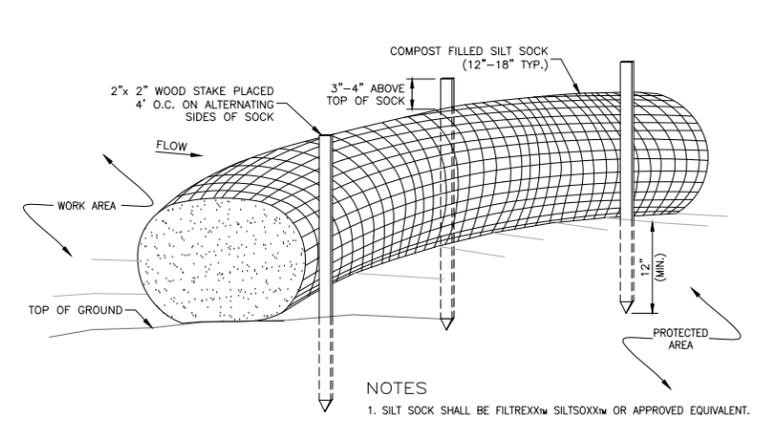
NOTES

- BEGIN AT THE TOP OF BLANKET INSTALLATION AREA BY ANCHORING BLANKET IN A 6" DEEP TRENCH. BACKFILL AND COMPACT TRENCH AFTER STAPLING.
- ROLL THE BLANKET DOWN THE SWALE IN THE DIRECTION OF THE WATER FLOW.
- THE EDGES OF BLANKETS MUST BE STAPLED WITH APPROX. 4 INCH OVERLAP WHERE 2 OR MORE STRIP WIDTHS ARE REQUIRED.
- WHEN BLANKETS MUST BE SPLICED DOWN THE SWALE, PLACE BLANKET END OVER END WITH 6 INCH (MIN.) OVERLAP AND ANCHOR DOWN SLOPE BLANKET IN A 6 INCH DEEP TRENCH.
- BLANKET SHALL BE NORTH AMERICAN GREEN C125BN, EAST COAST EROSION CONTROL ECC-2B, AMERICAN EXCELSIOR COMPANY CURLEX III FIBRENET, ROLANKA GEONATURAL EROSION & SEDIMENT CONTROL MATTE JUTEMAT OR BIOD-OCF 30, OR APPROVED EQUAL.

BLANKET SLOPE PROTECTION

FOR EROSION CONTROL

NOT TO SCALE



NOTES

- SILT SOCK SHALL BE FILTERXXX SILTSXXX OR APPROVED EQUIVALENT.
- SEE SPECIFICATIONS FOR SOCK SIZE AND COMPOST FILL REQUIREMENTS.
- SILT SOCK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS, AND REPAIR OR REPLACEMENT SHALL BE PERFORMED AS NEEDED.
- COMPOST MATERIAL SHALL BE DISPERSED ON SITE, AS DETERMINED BY THE ENGINEER.

SILT SOCK

NOT TO SCALE

TAX MAP 215 LOT 7
DETAIL SHEET
EXCAVATION SITE
RTE. 9, KEENE/SULLIVAN/ROXBURY, NH
 OWNED BY/PREPARED FOR
G2 HOLDINGS LLC

SCALE: **MARCH 18, 2022**

TFM Civil Engineers
 Structural Engineers
 Traffic Engineers
 Land Surveyors
 Landscape Architects
 Scientists

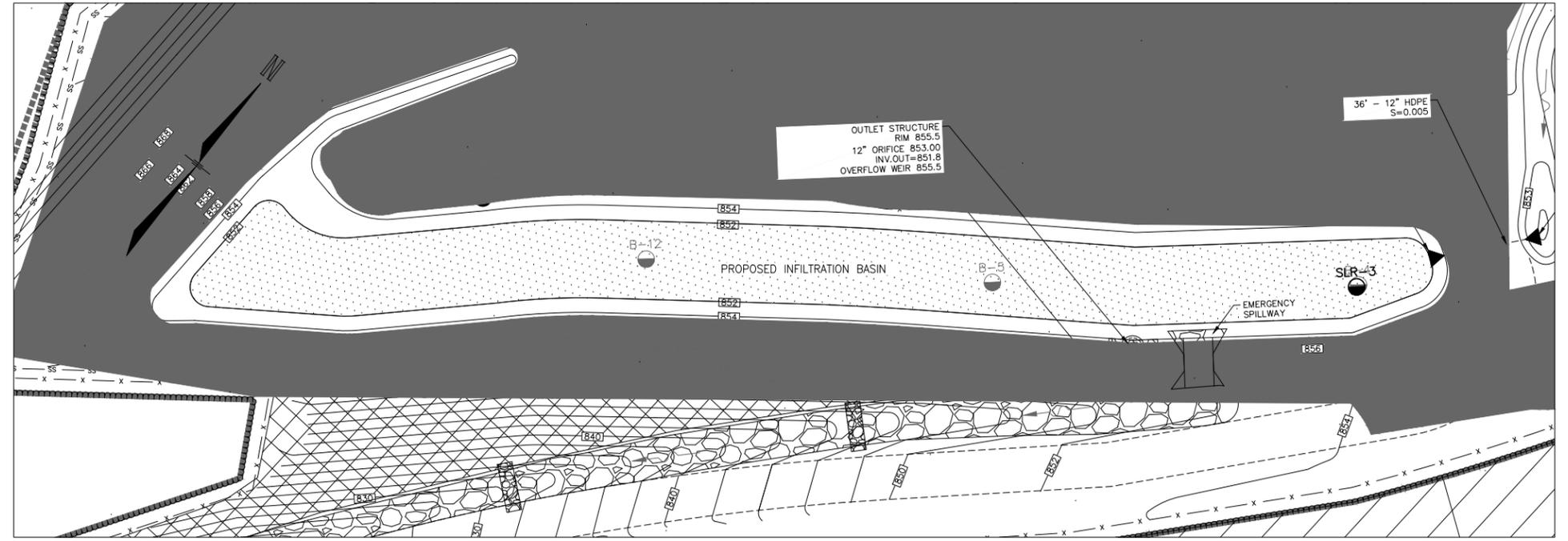
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BLASTING BMP's

- IDENTIFY DRINKING WATER WELLS LOCATED WITHIN 2000 FEET OF THE PROPOSED BLASTING ACTIVITIES. DEVELOP A GROUNDWATER QUALITY SAMPLING PROGRAM TO MONITOR FOR NITRATE AND NITRITE EITHER IN THE DRINKING WATER SUPPLY WELLS OR IN OTHER WELLS THAT ARE REPRESENTATIVE OF THE DRINKING WATER SUPPLY WELLS IN THE AREA. THE PLAN MUST INCLUDE PRE AND POST BLAST WATER QUALITY MONITORING AND BE APPROVED BY NHDES PRIOR TO INITIATING BLASTING. THE GROUNDWATER SAMPLING PROGRAM MUST BE IMPLEMENTED ONCE APPROVED BY NHDES.
- THE FOLLOWING BEST MANAGEMENT PROCEDURES FOR BLASTING SHALL BE COMPLIED WITH:
 - LOADING PRACTICES. THE FOLLOWING BLASTHOLE LOADING PRACTICES TO MINIMIZE ENVIRONMENTAL EFFECTS SHALL BE FOLLOWED:
 - DRILLING LOGS SHALL BE MAINTAINED BY THE DRILLER AND COMMUNICATED DIRECTLY TO THE BLASTER. THE LOGS SHALL INDICATE DEPTHS AND LENGTHS OF VOIDS, CAVITIES, AND FAULT ZONES OR OTHER WEAK ZONES ENCOUNTERED AS WELL AS GROUNDWATER CONDITIONS.
 - EXPLOSIVE PRODUCTS SHALL BE MANAGED ON-SITE SO THAT THEY ARE EITHER USED IN THE BOREHOLE, RETURNED TO THE DELIVERY VEHICLE, OR PLACED IN SECURE CONTAINERS FOR OFF-SITE DISPOSAL.
 - SPILLAGE AROUND THE BOREHOLE SHALL EITHER BE PLACED IN THE BOREHOLE OR CLEANED UP AND RETURNED TO AN APPROPRIATE VEHICLE FOR HANDLING OR PLACEMENT IN SECURED CONTAINERS FOR OFF-SITE DISPOSAL.
 - LOADED EXPLOSIVES SHALL BE DETONATED AS SOON AS POSSIBLE AND SHALL NOT BE LEFT IN THE BLASTHOLES OVERNIGHT, UNLESS WEATHER OR OTHER SAFETY CONCERNS REASONABLY DICTATE THAT DETONATION SHOULD BE POSTPONED.
 - LOADING EQUIPMENT SHALL BE CLEANED IN AN AREA WHERE WASTEWATER CAN BE PROPERLY CONTAINED AND HANDLED IN A MANNER THAT PREVENTS RELEASE OF CONTAMINANTS TO THE ENVIRONMENT.
 - EXPLOSIVES SHALL BE LOADED TO MAINTAIN GOOD CONTINUITY IN THE COLUMN LOAD TO PROMOTE COMPLETE DETONATION. INDUSTRY ACCEPTED LOADING PRACTICES FOR PRIMING, STEMMING, DECKING AND COLUMN RISE NEED TO BE ATTENDED TO.
- EXPLOSIVE SELECTION. THE FOLLOWING BMP'S SHALL BE FOLLOWED TO REDUCE THE POTENTIAL FOR GROUNDWATER CONTAMINATION WHEN EXPLOSIVES ARE USED:
 - EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT ARE APPROPRIATE FOR SITE CONDITIONS AND SAFE BLAST EXECUTION.
 - EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT HAVE THE APPROPRIATE WATER RESISTANCE FOR THE SITE CONDITIONS PRESENT TO MINIMIZE THE POTENTIAL FOR HAZARDOUS EFFECT OF THE PRODUCT UPON GROUNDWATER.
- PREVENTION OF MISFIRES. APPROPRIATE PRACTICES SHALL BE DEVELOPED AND IMPLEMENTED TO PREVENT MISFIRES.
- MUCK PILE MANAGEMENT. MUCK PILES (THE BLASTED PIECES OF ROCK) AND ROCK PILES SHALL BE MANAGED IN A MANNER TO REDUCE THE POTENTIAL FOR CONTAMINATION BY IMPLEMENTING THE FOLLOWING MEASURES:
 - REMOVE THE MUCK PILE FROM THE BLAST AREA AS SOON AS REASONABLY POSSIBLE.
 - MANAGE THE INTERACTION OF BLASTED ROCK PILES AND STORMWATER TO PREVENT CONTAMINATION OF WATER SUPPLY WELLS OR SURFACE WATER.
- SPILL PREVENTION MEASURES AND SPILL MITIGATION. SPILL PREVENTION AND SPILL MITIGATION MEASURES SHALL BE IMPLEMENTED TO PREVENT THE RELEASE OF FUEL AND OTHER RELATED SUBSTANCES TO THE ENVIRONMENT. THE MEASURES SHALL INCLUDE AT A MINIMUM:
 - THE FUEL STORAGE REQUIREMENTS SHALL INCLUDE:
 - STORAGE OF REGULATED SUBSTANCES ON AN IMPERVIOUS SURFACE;
 - SECURE STORAGE AREAS AGAINST UNAUTHORIZED ENTRY;
 - LABEL REGULATED CONTAINERS CLEARLY AND VISIBLY;
 - INSPECT STORAGE AREAS WEEKLY;
 - COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS;
 - WHEREVER POSSIBLE, KEEP REGULATED CONTAINERS THAT ARE STORED OUTSIDE MORE THAN 50 FEET FROM SURFACE WATER AND STORM DRAINS, 75 FEET FROM PRIVATE WELLS, AND 400 FEET FROM PUBLIC WELLS; AND
 - SECONDARY CONTAINMENT IS REQUIRED FOR CONTAINERS CONTAINING REGULATED SUBSTANCES STORED OUTSIDE, EXCEPT FOR ON PREMISE USE HEATING FUEL TANKS, OR ABOVEGROUND OR UNDERGROUND STORAGE TANKS OTHERWISE REGULATED.
 - THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:
 - EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED;
 - PLACE DRIP PANS UNDER SPOIGTS, VALVES, AND PUMPS;
 - HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK AREAS;
 - USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES; AND
 - PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.
 - THE TRAINING OF ON-SITE EMPLOYEES AND THE ON-SITE POSTING OF RELEASE RESPONSE INFORMATION DESCRIBING WHAT TO DO IN THE EVENT OF A SPILL OF REGULATED SUBSTANCES.
 - FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT WILL COMPLY WITH THE REGULATIONS OF THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NOTE THESE REQUIREMENTS ARE SUMMARIZED IN WD-DWGB-22-6 BEST MANAGEMENT PRACTICES FOR FUELING AND MAINTENANCE OF EXCAVATION AND EARTHMOVING EQUIPMENT" OR ITS SUCCESSOR DOCUMENT. (SEE [HTTP://DES.NH.GOV/ORGANIZATION/COMMISSIONER/PIP/FACTSHEETS/DWGB/DOCUMENTS/DWGB-22-6.PDF](http://des.nh.gov/organization/commissioner/PIP/FACTSHEETS/DWGB/DOCUMENTS/DWGB-22-6.PDF))



INFILTRATION BASIN

HORIZONTAL SCALE 1"=30'

- THE FUEL STORAGE REQUIREMENTS SHALL INCLUDE:
 - STORAGE OF REGULATED SUBSTANCES ON AN IMPERVIOUS SURFACE;
 - SECURE STORAGE AREAS AGAINST UNAUTHORIZED ENTRY;
 - LABEL REGULATED CONTAINERS CLEARLY AND VISIBLY;
 - INSPECT STORAGE AREAS WEEKLY;
 - COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS;
 - WHEREVER POSSIBLE, KEEP REGULATED CONTAINERS THAT ARE STORED OUTSIDE MORE THAN 50 FEET FROM SURFACE WATER AND STORM DRAINS, 75 FEET FROM PRIVATE WELLS, AND 400 FEET FROM PUBLIC WELLS; AND
 - SECONDARY CONTAINMENT IS REQUIRED FOR CONTAINERS CONTAINING REGULATED SUBSTANCES STORED OUTSIDE, EXCEPT FOR ON PREMISE USE HEATING FUEL TANKS, OR ABOVEGROUND OR UNDERGROUND STORAGE TANKS OTHERWISE REGULATED.
- THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:
 - EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED;
 - PLACE DRIP PANS UNDER SPOIGTS, VALVES, AND PUMPS;
 - HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK AREAS;
 - USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES; AND
 - PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.
- THE TRAINING OF ON-SITE EMPLOYEES AND THE ON-SITE POSTING OF RELEASE RESPONSE INFORMATION DESCRIBING WHAT TO DO IN THE EVENT OF A SPILL OF REGULATED SUBSTANCES.
- FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT WILL COMPLY WITH THE REGULATIONS OF THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NOTE THESE REQUIREMENTS ARE SUMMARIZED IN WD-DWGB-22-6 BEST MANAGEMENT PRACTICES FOR FUELING AND MAINTENANCE OF EXCAVATION AND EARTHMOVING EQUIPMENT" OR ITS SUCCESSOR DOCUMENT. (SEE [HTTP://DES.NH.GOV/ORGANIZATION/COMMISSIONER/PIP/FACTSHEETS/DWGB/DOCUMENTS/DWGB-22-6.PDF](http://des.nh.gov/organization/commissioner/PIP/FACTSHEETS/DWGB/DOCUMENTS/DWGB-22-6.PDF))

CONSTRUCTION SPECIFICATIONS

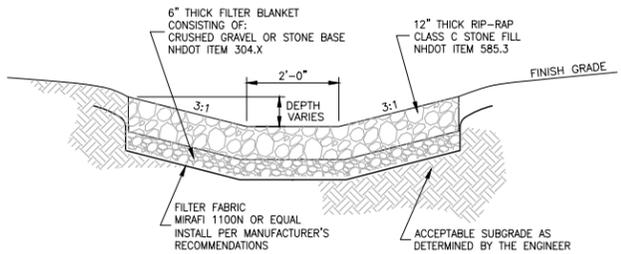
- THE SUBGRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC OR RIP-RAP SHALL BE CLEARED AND GRIEBED TO REMOVE ALL ROOTS, VEGETATION, AND DEBRIS AND PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
- GEOTEXTILE FABRICS SHALL BE PROTECTED FROM ROCK RIP-RAP BY PLACING A CUSHION OF SAND AND GRAVEL OVER THE FABRIC. PUNCTURE OR TEARING DURING PLACEMENT OF THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF THE FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING FABRIC SHALL BE A MINIMUM OF 12 INCHES.
- RIP-RAP MAY BE PLACED BY EQUIPMENT TO THE FULL LAYER THICKNESS IN ONE OPERATION IF HANDLED IN SUCH A MANNER AS TO PREVENT DISPLACEMENT OF THE UNDERLYING MATERIALS. HAND PLACEMENT MAY BE REQUIRED WHERE NECESSARY TO PREVENT DAMAGE TO ANY PERMANENT STRUCTURES OR UNDERLYING MATERIALS.
- STONES FOR RIP-RAP SHALL BE ANGULAR OR SUBANGULAR. THE STONES SHOULD BE SHAPED SO THAT THE LEAST DIMENSION OF THE STONE FRAGMENT SHALL BE NOT LESS THAN ONE-THIRD OF THE GREATEST DIMENSION OF THE FRAGMENT. FLAT ROCKS SHALL NOT BE USED AS RIP-RAP.
- VOIDS IN THE ROCK RIP-RAP SHALL BE FILLED WITH SPALLS AND SMALLER ROCKS MEETING SPECIFIED GRADATION.

Earth Excavation Notes

- BUFFER MANAGEMENT STANDARDS: BUFFERS AROUND THE EXCAVATION PERIMETER SHALL BE SUFFICIENTLY VEGETATED TO PROVIDE FULL, OPAQUE, AND YEAR ROUND SCREENING OF THE EXCAVATION PERIMETER FROM ADJACENT RIGHTS OF WAY OR ADJUTING PROPERTIES. THE INTENT OF THIS STANDARD IS TO AVOID ADVERSE VISUAL AND NOISE IMPACTS FROM EXCAVATION OPERATIONS.
- IF BUFFERS ARE NOT SUFFICIENTLY VEGETATED TO PROVIDE ADEQUATE VISUAL AND NOISE SCREENING, THE APPLICANT SHALL PROVIDE ADEQUATE SCREENING BY OTHER MEANS, INCLUDING PLANTING ADDITIONAL VEGETATION AND/OR CONSTRUCTING A BERM. TO THE EXTENT THAT A BERM IS CONSTRUCTED, SAID BERM SHALL BE LOCATED WITHIN THE EXCAVATION PERIMETER.
 - ALL BUFFER AREAS CREATED BY SETBACK STANDARDS SHALL REMAIN IN A NATURAL VEGETATED CONDITION, EXCEPT WHEN ADDITIONAL PLANTINGS ARE APPROVED AS PART OF THE APPLICATION. NO CUTTING OR REMOVAL OF LIVING VEGETATION SHALL BE PERMITTED OVER THE LIFE OF THE OPERATION, EXCEPT FOR CONTROL AND MANAGEMENT OF NON-NATIVE AND INVASIVE SPECIES FOLLOWING BEST MANAGEMENT PRACTICES AS DEFINED BY NHDES.
 - THE BOUNDARY BETWEEN THE EXCAVATION PERIMETER AND THE BUFFER AREAS SHALL BE CLEARLY MARKED ON THE SITE TO AVOID ENCRoACHMENT INTO THE BUFFER. THE BOUNDARY OF APPROVED SETBACKS FROM WATER RESOURCES WITHIN THE EXCAVATION PERIMETER SHALL ALSO BE CLEARLY MARKED ON THE SITE TO AVOID ENCRoACHMENT.
 - BUFFER AREAS SHALL NOT BE USED FOR STORAGE OR DISPOSAL OF STUMPS, BOULDERS, EARTH MATERIALS, AND/OR OTHER DEBRIS INCLUDING, BUT NOT LIMITED TO CARELESSLY DISCARDED RUBBISH, REFUSE, TRASH, GARBAGE, DEAD ANIMALS AND/OR OTHER DISCARDED MATERIALS OF EVERY KIND AND DESCRIPTION. EXCAVATION BELOW WATER TABLE: EXCAVATION SHALL NOT BE PERMITTED LOWER THAN SIX (6) FEET ABOVE THE SEASONAL HIGH WATER TABLE, AS INDICATED BY BORINGS OR TEST PITS, WITHOUT THE ISSUANCE OF AN EXCEPTION.

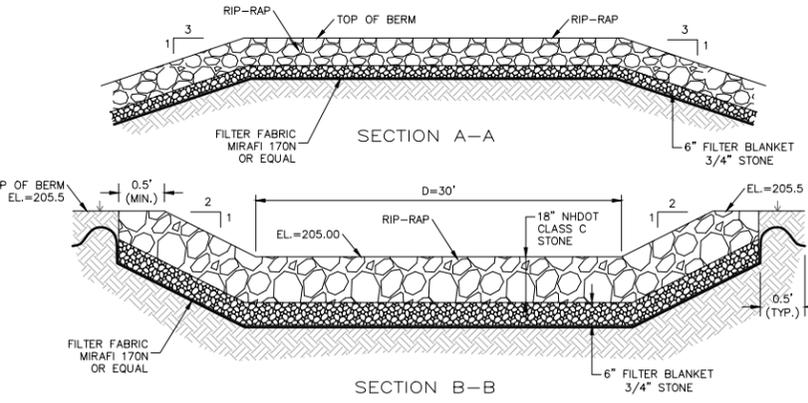
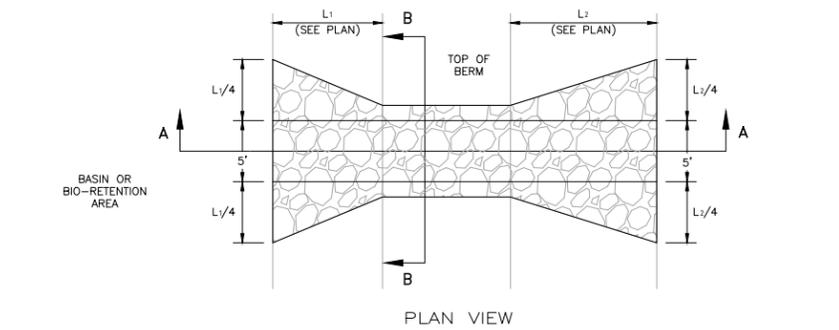
MAINTENANCE

- ROCK RIP-RAP SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM TO SEE IF THE RIP-RAP HAS BEEN DISPLACED, UNDERMINED OR DAMAGED.
- WOODY VEGETATION SHOULD BE REMOVED FROM THE ROCK RIP-RAP ANNUALLY.
- IF THE RIP-RAP IS ON A CHANNEL BANK, THE STREAM SHOULD BE KEPT CLEAR OF OBSTRUCTIONS.
- REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE RIP-RAP.



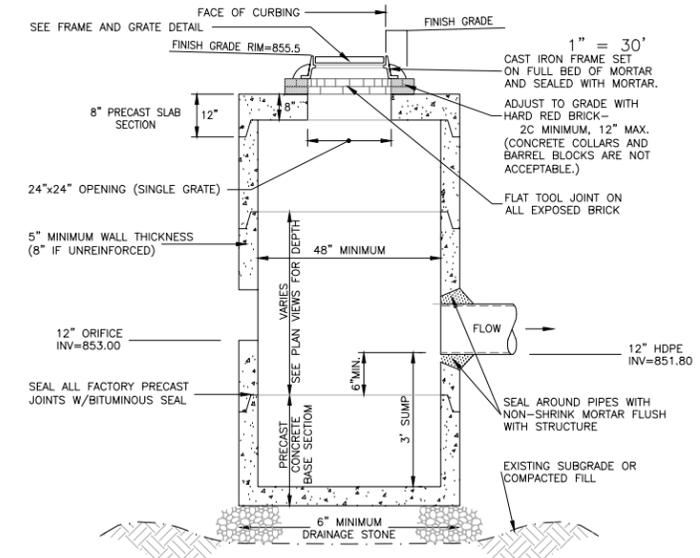
CUTOFF SWALE

NOT TO SCALE



EMERGENCY SPILLWAY

NOT TO SCALE



NOTE: ALL PRECAST SECTIONS SHALL CONFORM TO ASTM C-478

OUTLET STRUCTURE

NOT TO SCALE

TAX MAP 215 LOT 7
DETAIL SHEET
EXCAVATION SITE
RTE. 9, KEENE/SULLIVAN/ROXBURY, NH
 OWNED BY/PREPARED FOR
G2 HOLDINGS LLC

SCALE: AS SHOWN MARCH 18, 2022

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5	8/1/2022	UPDATE PER COMPLETENESS COMMENTS	JD	JK
3	6/6/2022	UPDATE PER PEER REVIEW COMMENTS	JMR	JK
2	4/29/2022	UPDATE FOR AOT SUBMISSION	MCK	JK
1	4/8/2022	GENERAL DESIGN UPDATES	SRP	JK
			DR	CK

82549.00 DR SRP FB
 CK JK CADFILE 82549-00 COVER-DETAILS

SHEET 14 OF 15

82549.00 DR SRP FB
 CK JK CADFILE 82549-00 COVER-DETAILS

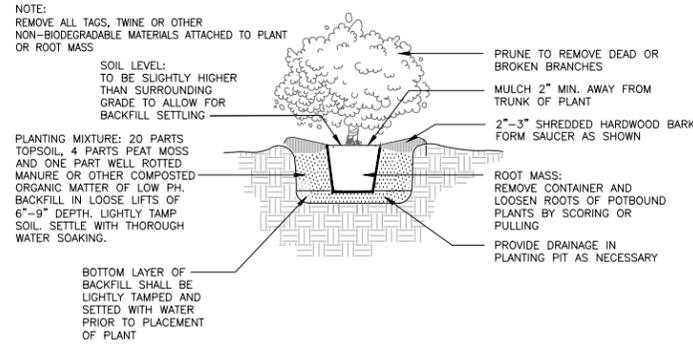
Scale: AS SHOWN

DATE: MARCH 18, 2022

LANDSCAPE SPECIFICATIONS

SITE AND SOIL PREPARATION

- WHEN CONDITIONS DETRIMENTAL TO PLANT GROWTH ARE ENCOUNTERED, SUCH AS RUBBLE FILL, ADVERSE DRAINAGE CONDITIONS, OR LEDGE, NOTIFY LANDSCAPE ARCHITECT/ENGINEER BEFORE PLANTING.
- ALL DISTURBED AREAS & PLANTING AREAS, INCLUDING AREAS TO BE SODDED, SHALL RECEIVE THE FOLLOWING SOIL PREPARATION PRIOR TO PLANTING: A MINIMUM OF 4 INCHES OF LIGHTLY COMPACTED TOPSOIL SHALL BE INSTALLED OVER THE SUBSOIL IF TOPSOIL HAS BEEN REMOVED OR IS NOT PRESENT.
- LOAM SHALL CONSIST OF LOOSE FRIABLE TOPSOIL WITH NO ADMIXTURE OF REFUSE OR MATERIAL TOXIC TO PLANT GROWTH. LOAM SHALL BE FREE FROM STONES, LUMPS, STUMPS, OR SIMILAR OBJECTS LARGER THAN TWO INCHES (2") IN GREATEST DIAMETER, SUBSOIL, ROOTS, AND WEEDS. THE MINIMUM AND MAXIMUM PH VALUE SHALL BE FROM 5.5 TO 7.6. LOAM SHALL CONTAIN A MINIMUM OF THREE PERCENT (3%) AND A MAXIMUM OF TWENTY PERCENT (20%) ORGANIC MATTER AS DETERMINED BY LOSS BY IGNITION. NOT MORE THAN SIXTY-FIVE PERCENT (65%) SHALL PASS A NO. 200 SIEVE AS DETERMINED BY THE WASH TEST IN ACCORDANCE WITH ASTM D1140. IN NO INSTANCE SHALL MORE THAN 20% OF THAT MATERIAL PASSING THE #4 SIEVE CONSIST OF CLAY SIZE PARTICLES.
- NATURAL TOPSOIL NOT CONFORMING TO THE PARAGRAPH ABOVE OR CONTAINING EXCESSIVE AMOUNTS OF CLAY OR SAND SHALL BE TREATED BY THE CONTRACTOR TO MEET THOSE REQUIREMENTS.
- SUBMIT TEST RESULTS OBTAINED FROM SOURCE TO ENGINEER/LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL, PRIOR TO SPREADING OPERATIONS.
- APPROVAL BY THE ENGINEER/LANDSCAPE ARCHITECT TO USE THE TOPSOIL WILL DEPEND UPON THE RESULTS OF THE SOIL TESTS.
- THE BURDEN OF PROOF OF SOIL AMENDMENT INSTALLATION RESTS WITH THE CONTRACTOR. SOIL TESTS MAY BE REQUIRED AT THE CONTRACTOR'S EXPENSE IN ORDER TO CONFIRM AMENDMENT INSTALLATION.



CONTAINER PLANTING

NOT TO SCALE

SEEDING

- ROUGH GRADING SHALL BE COMPLETED PRIOR TO THE START OF PLANTING IN ANY GIVEN AREA OF THE PROJECT SITE.
- SEEDING SHALL BE DONE BETWEEN APRIL 1 TO JUNE 15 OR AUGUST 15 TO OCTOBER 15, EXCEPT FOR RESEEDING OF BARE SPOTS AND MAINTENANCE. ALL DISTURBED AREAS NOT COVERED BY BUILDINGS, PAVING OR AREAS THAT HAVE NOT BEEN OTHERWISE DEVELOPED SHALL BE SEED OR SODDED. SLOPES GREATER THAN 3:1 SHALL BE PROTECTED WITH AN EROSION CONTROL BLANKET. AFTER OCTOBER 15 DISTURBED SOILS SHALL BE PROTECTED IN ACCORDANCE WITH THE WINTER CONSTRUCTION NOTES.

ACCEPTABLE SEED MIXES ARE AS FOLLOWS:

TYPICAL LAWN MIX (MIN. 200 LBS/ACRE):

- 33% CREEPING RED FESCUE (MIN. 66 LBS/ACRE)
- 42% PERENNIAL RYEGRASS (MIN. 84 LBS/ACRE)
- 21% KENTUCKY BLUEGRASS (MIN. 42 LBS/ACRE)
- 4% REDTOP (MIN. 8 LBS/ACRE)

GENERAL SLOPE (NH00T TYPE 44) MIX 3:1 OR GREATER SLOPES (MIN. 160 LBS/ACRE):

- 44% CREEPING RED FESCUE (MIN. 70 LBS/ACRE)
- 38% PERENNIAL RYEGRASS (MIN. 60 LBS/ACRE)
- 6% REDTOP (MIN. 10 LBS/ACRE)
- 6% ALSIKE CLOVER (MIN. 10 LBS/ACRE)
- 6% BIRDSFOOT TREFLOIL (MIN. 10 LBS/ACRE)

NEW ENGLAND WETLAND PLANTS, INC

820 WEST STREET, AMHERST, MA 01002

PHONE: 413-548-8000 FAX 413-549-4000

EMAIL: INFO@NEWP.COM WEB ADDRESS: WWW.NEWP.COM

New England Erosion Control/Restoration Mix for Dry Sites

Botanical Name	Common Name	Indicator
<i>Elymus canadensis</i>	Canada Wild Rye	FACU+
<i>Festuca rubra</i>	Red Fescue	FACU
<i>Lolium multiflorum</i>	Annual Ryegrass	
<i>Lolium perenne</i>	Perennial Ryegrass	
<i>Schizachyrium scoparium</i>	Little Bluestem	FACU
<i>Panicum virgatum</i>	Switch Grass	FAC
<i>Sorghastrum nutans</i>	Indian Grass	UPL

PRICE PER LB. \$18.00 MIN. QUANTITY 5 LBS. TOTAL: \$90.00 APPLY: 35 LBS/ACRE :1250 sq ft/lb

The New England Erosion Control/Restoration Mix For Dry Sites provides an appropriate selection of native and naturalized grasses to ensure that dry and recently disturbed sites will be quickly revegetated and the soil surface stabilized. It is an appropriate seed mix for road cuts, pipelines, steeper slopes, and areas requiring quick cover during the ecological restoration process. The mix may be applied by hydro-seeding, by mechanical spreader, or on small sites it can be spread by hand. Lightly rake, or roll to ensure proper soil-seed contact. Best results are obtained with a Spring or late Summer seeding. Late Spring through Mid-Summer seeding will benefit from a light mulching of weed-free straw to conserve moisture. If conditions are drier than usual, watering will be required. Fertilization is not required unless the soils are particularly infertile. Preparation of a clean weed free seed bed is necessary for optimal results.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is \$/bulk pound, FOB warehouse, Plus SH and applicable taxes.

NEW ENGLAND WETLAND PLANTS, INC

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New England Roadside Matrix Upland Seed Mix

Botanical Name	Common Name	Indicator
<i>Elymus virginicus</i>	Virginia Wild Rye	FACW-
<i>Desmodium paniculatum</i>	Panicledleaf Tick Trefoil	
<i>Schizachyrium scoparium</i>	Little Bluestem	FACU
<i>Andropogon gerardii</i>	Big Bluestem	FAC
<i>Festuca rubra</i>	Red Fescue	FACU
<i>Sorghastrum nutans</i>	Indian Grass	UPL
<i>Panicum virgatum</i>	Switch Grass	FAC
<i>Rhus typhina</i>	Staghorn Sumac	
<i>Cornus racemosa</i>	Grey Dogwood	FAC
<i>Cornus amomum</i>	Silky Dogwood	FACW
<i>Oenothera biennis</i>	Evening Primrose	FACU-
<i>Asclepias tuberosa</i>	Butterfly Milkweed	NI
<i>Rudbeckia hirta</i>	Black Eyed Susan	FACU-
<i>Chamaecrista fasciculata</i>	Partridge Pea	FACU
<i>Eupatorium fistulosum (Eutrochium fistulosum)</i>	Hollow-Stem Joe Pye Weed	FACW

PRICE PER LB. \$69.00 MIN. QUANTITY 1 LBS. TOTAL: \$69.00 APPLY: 35 LBS/ACRE :1250 sq ft/lb

The New England Roadside Matrix Mixes are designed for use along roads and highways. These mixes are unusual in that they contain native grasses, wildflowers, and shrubs that are blended together as a native matrix seed mix. In areas that receive frequent mowing, the cold season grasses will dominate, such as those areas closest to the roadway shoulder. In areas farther from the road, which may be mown only once each year, or in hard to mow areas, such as around sign posts, the wildflower component will become dominant. Along cuts and side slopes which may never be mown, the shrub component will add diversity and beauty to the roadside plantings. It is a particularly appropriate seed mix for roadsides, industrial sites, or cut and fill slopes. These mixes may be applied by hydroseeding, or by mechanical spreader. Always apply on a clean, weed-free seed bed. After sowing, lightly rake or roll the site to improve seed-to-soil contact. Best results are obtained with a mid-late spring seeding. Summer seeding will benefit from a light mulching of clean, weed-free straw to conserve soil moisture.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is \$/bulk pound, FOB warehouse, Plus SH and applicable taxes.

TAX MAP 215 LOT 7
LANDSCAPING DETAILS
EXCAVATION SITE
RTE. 9, KEENE/SULLIVAN/ROXBURY, NH
 OWNED BY/PREPARED FOR
G2 HOLDINGS LLC

SCALE: AS SHOWN

MARCH 18, 2022

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			DR	CK

TFM Civil Engineers
 Structural Engineers
 Traffic Engineers
 Land Surveyors
 Landscape Architects
 Scientists

48 Constitution Drive
 Bedford, NH 03110
 Phone (603) 472-4488
 Fax (603) 472-9747
 www.tfmoran.com

82549.00 DR SRP FB
 CK JK CADFILE 82549-00 COVER-DETAILS SHEET 15 OF 15



Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

PHOTOSHEET

Proposed Gravel Pit – Route 9, Keene, NH



Photo 1. Looking towards Route 9.



Photo 2. Looking down Route 9.

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170 Commerce Way – Suite 102, Portsmouth, NH 03801
T(603) 431-2222 F(603) 431-0910 www.msceengineers.com



Photo 3. Looking roughly west on existing path – proposed uses in the area include excavation, processing, and stockpiling.



Photo 4. Looking roughly west on existing path – proposed uses in the area include excavation, processing, and stockpiling.

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Photos from right of way obtained via Google Steet View:



Photo 5. Existing entrance drive.



Photo 6. Approximately 1,000 feet west of entrance drive (site to the right in photograph).



Photo 7. Approximately 500 feet west on entrance drive (site to right in photograph).

TES ENVIRONMENTAL CONSULTANTS, L.L.C.

*Environmental Planning and Permitting
Soil and Wetlands Investigation*

SITE-SPECIFIC
SOIL SURVEY REPORT

performed at

Gordon Excavation Site
Tax Map 215, Lot 7
Route 9, Keene, NH

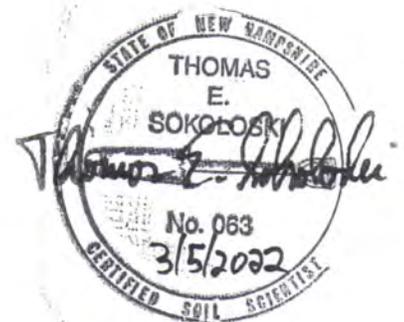
prepared for

T.F. Moran, Inc.
48 Constitution Drive
Bedford, NH 03110

TES Project # 21-0094

1494 Route 3A, Unit 1
Bow, NH 03304
(603) 856-8925

tom@tesenviro.comcastbiz.net



March 5, 2022

Ms. Maureen Kelly, Civil Project Engineer
T.F. Moran, Inc.
48 Constitution Drive
Bedford, NH 03110

RE: Site Specific Soil Map
Gordon Excavation Site; Tax Map 215, Lot 7; Route 9, Keene, NH

Dear Ms. Kelly:

On December 7, 2021 I performed field work on the above-referenced property on Route 9 in Keene, New Hampshire for a Site Specific Soil Survey as you requested. The Soil Survey encompassed approximately 9 acres of the overall 84.7-acre property, within a roughly square area depicted on a base Boring and Test Pit Plan dated October 14, 2021 that was provided by your office. This plan had a scale of 1" = 50', with a 2-foot contour interval, and depicted undisturbed conditions on the site.

Prior to my site investigation, essentially the entire mapping area was altered by excavation and regrading, with piles of soil and stone material scattered across the site (Figure 1). After discussing the disturbed site conditions with you, it was decided that this soil mapping effort should be an attempt to depict the undisturbed, pre-existing conditions on the site, since those conditions would serve as the baseline for developing a stormwater management plan. In that way, this soil mapping effort, prepared to support an after-the-fact New Hampshire Alteration of Terrain permit application, differs from Site Specific Soil Mapping Standards for New Hampshire and Vermont, Version 7.0, March 2021 (SSSNNE Special Publication No. 3), but is otherwise similar to the typical product prepared to those standards. The soil legend used for this soil map conforms to the New Hampshire State-Wide Numerical Soils Legend, Issue #10, January 2011 established and maintained by the Natural Resources Conservation Service.

Field work for this survey included traversing the site and examining undisturbed adjacent soils and cuts (Figure 2) via hand dug test pits and auger borings. Logs from eleven (11) test pits witnessed by a representative from your office on September 10, 2020 within and nearby the soil mapping area were reviewed for information on the soils that existed prior to site alteration. Also, a report dated October 29, 2020 that was prepared by a geotechnical engineer from Milone and McBroom was also reviewed. This report did not include actual test pit descriptions, rather it was a general report on soils observed within 3 test pits along with laboratory soil gradation (particle size analysis in laboratory tests) analyses of soil samples taken from three (3) test pits. The report mentions that probable bedrock was encountered within each of the three test pits, but does not indicate the depths at which the probable bedrock was encountered.

The NRCS Soil Survey of Cheshire County, New Hampshire, was also reviewed via Web Soil Survey for reference. This NRCS mapping indicates that site soils originally consisted mostly of Berkshire fine sandy loam, very stony (73C and 73D), with an area of Marlow fine sandy loam, very stony (77E) along the Route 9 frontage. Inclusions of moderately well drained catena

associates of these soils may be expected within such well drained soil map units, as TF Moran test pit data and my field observations indicate.

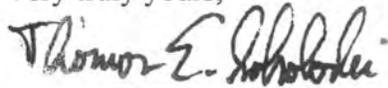
No New Hampshire Wetlands Bureau jurisdictional wetlands were found within the soil mapping area by your firm's certified wetland scientist who performed a wetland site investigation prior to the site alteration. I observed one area in the northeast quadrant of the mapping area that appeared to have been excavated that had surface water on December 9, 2021. I mapped this area as a moderately well drained soil (169, Sunapee fine sandy loam, very stony) since the excavation appeared to have not been more than 40 inches below adjacent undisturbed soils.

Ground control for this soil survey consisted of tree cut lines, a gravel access road, flagged wetland boundaries located outside but adjacent to the soil mapping area, and adjacent topographic features. Mapped soil slopes reflect former topography as depicted on the base map.

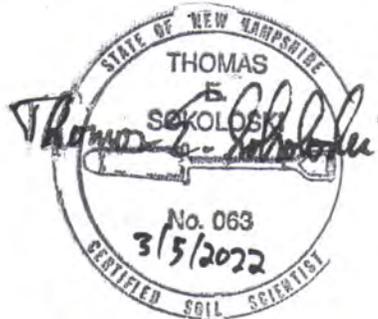
The following sections of this report include a Site Specific Soil Map Key with Hydrologic Soil Groups, attached soil map unit descriptions, and soil profile descriptions from the TF Moran test pit investigation. The general soil conditions on the site consisted of moderately to steeply sloping soils formed in loose and dense glacial till deposits.

If you have any questions regarding the soils on this site and the accompanying report, please contact our office.

Very truly yours,



Thomas E. Sokoloski
Certified Soil Scientist #063



TEST PIT REPORT

for
Gordon Services

Route 9
Keene, NH

PREPARED FOR

Cody Gordon
82549.00

PREPARED BY

TFMoran, Inc.
48 Constitution Drive
Bedford, NH 03110

September 10, 2020



Test Pit #1 9/10/2020

0-5' Fill Sandy Loam, Massive, Friable
5-15' Fine Sandy Loam, Cobbles/angular rock Fragments
 Compact till-hardpan, Coarse, Platy, Firm

ESHWT: Obs @ 6' 7.5YR 5/8 Redox Concentrations
 Few, Distinct

Seeps: None observed at 15'
No Refusal @ 15' Restrictive, compact till

Test Pit #2 9/10/2020

0-6' Sandy Loam, gravelly, Granular, Friable
6-15' Fine Sandy Loam, Cobbles/angular rock Fragments
 Compact till-hardpan, Coarse, Platy, Firm

ESHWT: Obs @ 6' 7.5YR 5/8 Redox Concentrations
 Few, Distinct

Seeps: None observed at 15'
No Refusal @ 15' Restrictive, compact till

Test Pit #3 9/10/2020

0-3' Sandy Loam, Gravelly, Granular, Friable
3-5' Fine Sandy Loam, Cobbles/angular rock Fragments
 Fine, Platy, Firm
5-14' Fine Sandy Loam, Coarse Platy, Firm, Hardpan

ESHWT: Obs @ 5' 7.5YR 5/8 Redox Concentrations
 Common, Distinct

Seeps: None observed at 14'
No Refusal @ 14' Restrictive, compact till

Test Pit #4 9/10/2020

0-4' Sandy Loam, Massive, Friable
4-15' Fine Sandy Loam, Cobbles/angular rock Fragments
 Compact till-hardpan, Coarse, Platy, Firm with small inclusion
 Medium sand, single grain loose.

ESHWT: Obs @ 4' 7.5YR 5/8 Redox Concentrations
 common, Distinct

Seeps: None observed at 13'

No Refusal @ 15' Restrictive, compact till

Test Pit #5 9/10/2020

0-3' Sandy Loam, Massive, Friable
3-13' Fine Sandy Loam, Cobbles/angular rock Fragments
 Compact till-hardpan, Coarse, Platy, Firm

ESHWT: Obs @ 4' 7.5YR 5/8 Redox Concentrations
 common, Distinct

Seeps: None observed at 13'

No Refusal @ 13' Restrictive, compact till

Test Pit #6 9/10/2020

0-3' Sandy Loam, gravelly, Friable
3-14' Fine Sandy Loam, Cobbles/angular rock Fragments
 Compact till-hardpan, Coarse, Platy, Firm

ESHWT: Obs @ 3' 7.5YR 5/8 Redox Concentrations
 common, Distinct

Seeps: None observed at 14'

No Refusal @ 14' Restrictive, compact till

Phase 1: Threatened and Endangered Wildlife and Habitat Assessment

Keene Gravel Excavation

Route 9
Keene, NH

Prepared for:
TF Moran, Inc.
48 Constitution Drive
Bedford, NH 03101

Prepared by:
Pond View Wetland Consultants, L.L.C.
237 Beauty Hill Road
Center Barnstead, NH 03225

June 21, 2021

PHASE I THREATENED AND ENDANGERED WILDLIFE AND HABITAT ASSESSMENT

PART 1: SUMMARY AND FINDINGS

Jim Fougere	NHB21-0316
Pond View Wetland Consultants LLC	Keene Sand and Gravel
237 Beauty Hill Rd, Ctr Barnstead NH	Keene, NH
jimfougere@gmail.com	TF Moran
603-520-6120	

PROPOSED PROJECT:

The Keene Excavation project refers to a gravel excavation operation off Route 9 in Keene, just west of the Roxbury town line and south of the Sullivan town line. This excavation is planned in the southwest corner of the property. This project location is illustrated on the Existing Conditions Plan included in Part 2 of this report.

Most of the excavation site was previously logged and cleared prior to the site visit for this report. Significant areas of undeveloped Hemlock-hardwood-pine forest occurs to the north and east of this property. Two small wetland areas occur in the footprint of the excavation site; however, a 250-foot excavation setback occurs at each of these sites. No wetland impacts are associated with this project.

Surrounding land use is limited to a multibuilding facility, immediately to the east. Other development is generally limited in the area to scattered residential properties. The west-flowing Otter Brook is also an important land feature in the surrounding area with a US Army Corps of Engineers recreation site and Otter Brook State Park, located at Otter Brook Lake, southwest of the gravel pit area across Route 9. Granite Gorge Ski Area is located about a ½ mile to the southeast as well. Access to the excavation site is off Route 9.

The forested component of the parcel would be described as a Hemlock-hardwood-pine forest with Eastern hemlock (*Tsuga canadensis*), white pine (*Pinus strobus*), black birch (*Betula pennsylvanica*), sugar maple (*Acer saccharum*) and beech (*Fagus grandifolia*) and oaks (*Quercus* spp.). The understory is dominated by similar species but also includes bracken fern (*Pteridium aquilinum*).

PHASE 1: Threatened and Endangered Wildlife Assessment Findings

Check One

- X No threatened and endangered wildlife and habitat present, no threatened or endangered wildlife, habitat, or wildlife corridors likely to be impacted by project activities.

Threatened and endangered wildlife habitat present; HOWEVER NO threatened or endangered wildlife, habitat, or wildlife corridors likely to be impacted by project activities. No conservation measures are proposed.

Threatened and endangered wildlife and habitat present or wildlife corridors present. Proposed actions have the potential for impacts. Conservation measures incorporated into the proposed project or project design.

THREATENED AND ENDANGERED WILDLIFE AND HABITAT

- **NHB21-0316**

Threatened or Endangered Species identified in the NHB Datacheck report include:

Spotted Turtle (*Clemmys guttata*) – State threatened

Wood Turtle (*Glyptemys insculpta*) – NH Species of Concern

Northern long-eared bat (*Myotis septentrionalis*) – State endangered, Federal threatened
Not listed on NHB report but typically on US Fish and Wildlife Service, IPac

On-site Habitats

The habitats associated with the Keene Excavation project include:

- The dominant upland forest associated with the excavation area is Hemlock-hardwood-pine forest. This upland habitat includes hemlock, sugar maple, white pine, and beech.
- The understory is composed of similar species plus bracken fern and several other upland plants.
- The excavation area is generally cleared of trees and other woody vegetation.
- As a gravel pit, the property has numerous areas of ongoing disturbance including stockpiles and access roads.
- Otter Brook, a high-quality stream occurs on the south side of Route 9. Flowing from east to west, the stream flows into the large Otter Brook Lake, within the Otter Brook State Park.
- Several small wetlands occur adjacent to the excavation parcel with one occurring in the southeast corner of the site plus a second, west of the western edge of the excavation area. All proposed excavation areas occur at least 250-feet from these wetlands.
- Neither of these sites appeared to be capable of providing vernal pool habitat, although the timing of the site visit was not ideal for this determination.
- Large areas of woodlands and limited development occur on the east side of the Keene, as well as, to the north and south of the Excavation site.
- Based on the presence of moose scat and deer tracks, it is likely the area is currently used by a variety of wildlife to access other habitats, most likely outside normal operating hours for the excavation site.

Potential Endangered and Threatened Species

The excavation pit has potential habitat values in the form of accessing offsite habitats including the off-site Otter Brook which combine to provide potential habitat values for some species in

the form of a travel corridor along the stream as well as in the adjacent riparian areas. This corridor could potentially provide habitat to:

Spotted turtles are consistently reported to prefer large intact landscapes with a diversity of wetlands, but they only tolerate limited development. The Keene gravel excavation site is clearly a well-developed area of intense industrial activity, namely mineral extraction, with the associated trucking activity. The Otter Brook habitat is a diverse community which could encourage species such as the spotted turtle to travel along the stream corridor to the various ponds up and downstream areas. Otter Brook is also dammed below the site as part of a U.S. Army Corps of Engineers project and Otter Brook State Park. There is a little significant wetland habitat located in the vicinity of the excavation project which could provide a suitable habitat for spotted turtles.

Northern long-eared bat and other bats species may utilize forested habitats on the site, on a seasonal basis. Extensive areas of this forested habitat are located outside the footprint of this project. The excavation site was logged and cleared previously so minimal tree clearing is expected to be necessary for the excavation project. Any additional tree clearing should be conducted outside the pup-rearing season, April through August.

Other Species of Special Concern or SGCN: The NH Wildlife Action Plan identifies Species of Concern that may occur in Keene. Of these species, the following are identified in the NHB Datacheck Report for the Keene gravel excavation parcel.

Wood turtles (*Glyptemys insculpta*) also cover a lot of territory in their travels. They reportedly need a mosaic of rivers and streams, plus forests and dense shrubs and bare sandy substrate. Most activity is reported to be within 300 meters of streams and rivers. DeGraff (1986) reports special habitat requirements of wood turtles to include wooded riverbanks and open sandy nesting areas. The disturbed condition of the excavation area could potentially be used by wood turtles for nesting due to its proximity to the brook; however, the limited on-site wetlands and general site disturbance is likely to limit overall values of the site.

As noted, **Moose** (*Alces alces*) scat was noted on the excavation site. Most likely, they were crossing the site to access habitat to the north or south.

PROPOSED CONSERVATION MEASURES

The proposed conservation measures for the Keene gravel excavation site primarily focus on the avoidance of impacts to the on-site wetlands and their excavation setback, as well as any adjacent boundary setbacks. Long-term, the excavation area may be reclaimed which could potentially provide areas of additional habitat.

Measures incorporated in the project design that are intended to minimize impacts to these species and other potential species utilizing the site, include the following, which is typically referenced by NH Fish and Game and include:

- Avoid the use of welded plastic or “biodegradable plastic” netting or thread in erosion control matting, due to issues with snakes and wildlife being trapped and killed.

- The use of erosion control berm, white Filtrexx Degradable Woven Silt Sock, or several “wildlife friendly” options such as woven organic material (e.g., coco or jute matting such as North American green SC150BN or equivalent) are considered suitable alternatives.
- Drainage at this site is strictly surface flow, limiting potential impacts to species in the form of drainage structures, and curbing.

PART 1: SUMMARY AND FINDINGS

Jim Fougere

6/21/2021

NAME

DATE

James Fougere

SIGNATURE

Check Applicable Requested Action

Request for NHFG Concurrence with Findings in compliance with Env. Wq. 1503.19(h)(1)a

- X Request for NHFG Concurrence with Findings and Proposed Conservation Measures in compliance with Env. Wq. 1503.19(h)(1)b***

Requests further coordination with NHFG to discuss proposed conservation measures and/or, potential focused survey needs (Phase II)*

***New Hampshire Fish and Game’s review and recommendations are based on the information provided in the assessment. Changes to project scope may affect NHFG and/or NHDES determination on potential impacts and whether conservation measures and project design modifications proposed are still applicable or sufficient.**



Civil Engineers
 Structural Engineers
 Traffic Engineers
 Land Surveyors
 Landscape Architects
 Scientists

June 30th, 2022

Impact Control and Monitoring Report

Excavation Site

Route 9

Keene, Sullivan, and Roxbury New Hampshire

Introduction

This Report should be utilized in conjunction with the “Impact Control and Monitoring Plan”, Sheet 6, in the Excavation Site Plan prepared for G2 Holdings by TFMoran, Inc. The purpose of this report is to outline and define how the project will comply with and display the Earth Excavation Permit Requirements Section 25.19.4.D.7 of the Keene, NH Land Development Code. The project activities, impact control, site work, and reclamation have all been designed and thoroughly planned to be in the spirit and intent of the Code.

Project Description

The subject property is located on Route 9, on Map 215 Lot 7. The parcel is 84.71± acres in size. The property currently has a gravel access road with some existing cleared areas and trails. The applicant proposes to expand gravel pit operations to an 8± acre portion of the parcel. The proposed gravel pit expansion is located in an area of minimal flood hazard, per FIRM panel 33005C0280E.

The property slopes generally upward from Route 9 to the northern property boundary and is mostly wooded. The existing access point, a gravel drive off Route 9, will be improved for use in the proposed expanded gravel pit operations. Natural vegetation will be preserved to the maximum extent possible between the proposed expanded gravel pit and Route 9. As illustrated by the enclosed photographs from the public right of way, the vegetation and upward slope in this area provide a substantial buffer.

Analysis of Compliance of Earth Excavation Permit Requirements, Section 25.19.4.D.7, “Impact and Monitoring Plan”

The “Impact and Monitoring Plan” encompasses all the subsections of this code onto a single, organized and complete plan to be used by the Applicant during project activities. Below please find the cited Code accompanied by summaries of how the Plan meets the criteria.

TFMoran, Inc.

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 170 Commerce Way–Suite 102, Portsmouth, NH 03801
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TFMoran, Inc. Seacoast Division

T(603) 431-2222
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7. *“A detailed impact control and monitoring plan for avoiding, identifying, and responding to adverse impacts associated with the excavation operations. This plan shall propose structures, devices, and processes for avoiding potential adverse impacts. The plan shall also provide protocols to be used for documenting baseline conditions, conducting monitoring for adverse impacts, responding to and/or correcting adverse impacts when they occur, and how the adverse impacts were corrected. Potential impacts to be addressed in this plan shall include noise, dust, reduction of groundwater quantity and quality, spills of toxic or hazardous materials, blasting and pollution of surface and ground water.”*
- a. A noise impact control and monitoring plan, which shall include, at a minimum, the following.*
 - i. The location and design of structures, devices, and processes to be installed on the site to avoid, control, and minimize adverse noise levels from leaving the excavation site.*
 - ii. A protocol for conducting monitoring of sound levels and complying with the earth excavation regulations in Article 24 of this LDC. Said protocol shall include at least: proposed locations for measuring background ambient sound levels and for monitoring sound levels once the excavation operation has commenced; proposed dates for measuring ambient sound levels; proposed annual time periods when sound monitoring will be conducted; and, specifications for sound measurement equipment to be used.*
 - iii. A protocol for responding to noise complaints, complying with the earth excavation regulations in Article 24 of this LDC.*

(Keene, NH, Keene, NH Land Development Code | May 2021, Application Procedures, 25-70)

7.a.i: All locations of the structures, devices and processes are shown on the plan. Specifically, the design uses a combination of physical barriers and distance to mitigate the possible effects of noise. The mitigation is achieved by utilizing the natural noise cancelling features of the site. The plan displays two main features which cancel noise: topographic contours and mature wooded forests. The contours show how the area of disturbance is located 100 vertical feet below the top of the page and if analyzed with the existing conditions plan the site sits about 300 ft below the ridge line of the mountain. This great change in elevation does not allow sound to travel, rather it redirects the sound up and dissipates the noise pollution.

The plan shows the site surrounded by a mature wooded forest. Again, this is a physical barrier the cancels sound. As noise from operations is generated it will travel out until hitting the physical trees, branches and shrubbery and begin to be disrupted and dissipated. Keeping in the spirit of the plan and Code the noise mitigation design uses the natural features of the site instead of using more impactful manufactured barriers.

7.a.ii: Depicted on the plan are two locations of noise monitoring stations. Please refer to the lower portion of the plan along Route 9 where you will find two symbols with text explain the location of the monitoring stations. Please use the Sound Monitoring Notes on the upper right hand corner of the plan which outline the sound level regulations for excavation per Article 24 of the LDC.

The proposed dates for monitoring are undefinable because the Permit and Application have not been approved; however, the monitoring shall occur during normal operating hours and when the machinery would be operating. Let it be known that the ambient sound will incorporate typical noise pollution from NH Route 9. The annual time periods for monitoring will be during the Spring.

The sound measurement equipment shall be to the standards specified in ANSI S1.4 and be Type 0 or Type 1.

7.a.iii: The protocol for responding to noise complaints is called out for on the plan. The call out is to LDC Section 24.3.15.E and is as follows:

- E. Complaints.** If complaints are received regarding the level of noise generated from the operation, the applicant/operator shall, upon notification by the Community Development Department of the complaint, take measurements at the location where the complaint originates, if permission for entry is granted by the complainant, and at the designated monitoring locations.
1. The date, time, and location of the complaint shall be recorded in the noise monitoring log. Monitoring device readings for the location of the complaint (if permission to monitor is provided) and for the designated monitoring locations shall be recorded for a duration of not less than 5-minutes at each location with the dB(A) L(90) and the L(max) levels calculated for those time periods. All such measurements shall be documented in the noise monitoring log.
 2. These measurements shall be compared to the noise level standards set forth in this Article to determine whether the L(max) noise level standard or the dB(A) L(90) limit above the ambient background level established for the operation are being exceeded. The measurements at the complaint location shall use the higher of the ambient background levels determined for the designated monitoring locations.
 3. If the measurements taken on the complainant's property or at the designated monitoring locations exceed the noise standards set forth in this Article, the applicant shall take corrective action as specified in the this Article to bring the operation into compliance.
 4. If, at the location of the complaint, the limit above the ambient background level standard is being exceeded, the operator shall record continuous measurements for a period of not less than 60-minutes to recalculate the dB(A) L(90) for the measurement period. If after this re-measurement the dB(A) L(90) standard is exceeded, the operator shall take whatever actions are necessary to bring the operation into compliance.
 - a. Any corrective action taken shall be clearly described in the noise monitoring log along with a record of the noise levels measured.
 5. At the applicant/operator's expense, and with the landowners consent, the operator may be permitted to establish the complaint location as an additional designated monitoring site. As such, background ambient noise levels would be established in accordance with the protocol set forth in this Article.

(Keene, NH, Keene, NH Land Development Code | May 2021, Earth Excavation Regulations, 24-12)

- b. *A dust control and monitoring plan, which shall include at least the following.*
 - i. *The location and design of structures, devices and processes to be installed, maintained and/or implemented to control air borne dust, and/or transportation of dirt and mud by vehicles exiting the site.*
 - ii. *A protocol for inspecting structures, devices, and processes to determine if maintenance is necessary and/or to determine if and when control and abatement processes should be implemented.*

(Keene, NH, Keene, NH Land Development Code | May 2021, Application Procedures, 25-70)

7.b.i: All locations of the structures, devices and processes for dust control are shown on the plan. Specifically, the design uses a combination of loam and seeding disturbed areas, parking and implementation of a water mounted dust control vehicle, sediment traps, check dams, vegetative buffers, preservation of mature wooded areas, and erosion control blankets to control dust.

7.b.ii: The protocol is outline on the plan. Please refer to the Dust Control Notes on the upper right hand of the sheet which refers the reader to the Inspection and Maintenance Plan in the Stormwater Management Report delineating the protocol for inspecting structures, devices, and processes for maintaining dust and erosion control measures.

- c. *A groundwater level monitoring plan, which shall include at least the following.*
 - i. *The location and depth of all ground water monitoring wells and the seasonal high groundwater depth at each well.*
 - ii. *A protocol for monitoring the effect of the excavation operations on ground water levels to prevent dewatering of surface waters, wetlands, public and private wells or water supplies, and groundwater aquifers, including bedrock aquifers. Such a plan is only required for those projects proposing to excavate below the overburden seasonal high groundwater level.*
 - iii. *A response plan for providing an immediate replacement water supply for any public or private water supplies that are disrupted as a result of the excavation operations.*

(Keene, NH, Keene, NH Land Development Code | May 2021, Application Procedures, 25-70)

7.c.i: The location and depth of all groundwater monitoring wells and the location of seasonal high groundwater depth at each well are depicted and denoted on the plan. Please refer to the blue “zig-zag” lines across the plan which represent the contours for the estimated seasonal high-water table. Please refer to the three monitoring wells on the page, SLR-10, SLR-11, and SLR 12 which accompanied by the data of each well.

7.c.ii: Because this plan does not call for excavation below the overburden seasonal high ground water level, this section does not apply to the project.

7.c.iii: The response plan is to immediately coordinate with the local water provider of well service to remedy any potential disruptions to supply.

- d. *A hazardous and toxic spill response plan, which shall include at least the following.*
- i. *A list of all hazardous and toxic substances to be used or stored on the site.*
 - ii. *A protocol for containing and abating spills when they occur and for remediating and restoring areas impacted by spills.*

(Keene, NH, Keene, NH Land Development Code | May 2021, Application Procedures, 25-70)

7.d.i: The chemicals or substances proposed on site that are toxic and hazardous to human, animal and plant life include petroleum-based oils & lubricants and gasoline-based fuels.

7.d.ii: Please refer to the upper right-hand corner of the sheet for the Spill and Response Notes where safe storage, spill prevention and spill kits are outlined. Additionally, there are Spill Control Practices outlined on sheet 7 which the notes refer the reader to.

- e. *A plan for monitoring and remediating adverse impacts to surface or ground water quality caused by the excavation operation.*

(Keene, NH, Keene, NH Land Development Code | May 2021, Application Procedures, 25-70)

7.e: Sampling at the monitoring wells previously summarized in this report will be used to monitor any effects to groundwater quality. The site does not impact any surface waters. A Remediation Plan can not be defined or outlined until the type of impact to the ground water is present. If after sampling of groundwater reveals a change in quality, a remediation plan will be submitted to the Town and State.

Conclusion

The “Impact Control and Monitoring Plan” satisfactorily addresses the regulations outlined above. Because the project does not propose blasting bedrock, impacting ground water, impacting surface water, or impacting water supplies, some of the criteria in this section do not apply. The site activities shall be carried out in accordance with the “Impact Control and Monitoring Plan” and the Report and aim to be as least impactful to the natural and surrounding features.



Civil Engineers
 Structural Engineers
 Traffic Engineers
 Land Surveyors
 Landscape Architects
 Scientists

June 30th, 2022

Reclamation Report

Excavation Site

Route 9

Keene, Sullivan, and Roxbury New Hampshire

Introduction

This Report should be utilized in conjunction with the “Reclamation Plan”, Sheet 8 of 11, in the Excavation Site Plan prepared for G2 Holdings by TFMoran, Inc. The purpose of this Report is to outline and define how the project will comply with and display the Earth Excavation Permit Requirements Section 25.19.4.D.8 of the Keene, NH Land Development Code. The project activities, impact control, site work, and reclamation have all been designed and thoroughly planned to be in the spirit and intent of the Code.

Project Description

The subject property is located on Route 9, on Map 215 Lot 7. The parcel is 84.71± acres in size. The property currently has a gravel access road with some existing cleared areas and trails. The applicant proposes to expand gravel pit operations to an 8± acre portion of the parcel. The proposed gravel pit expansion is located in an area of minimal flood hazard, per FIRM panel 33005C0280E.

The property slopes generally upward from Route 9 to the northern property boundary and is mostly wooded. The existing access point, a gravel drive off Route 9, will be improved for use in the proposed expanded gravel pit operations. Natural vegetation will be preserved to the maximum extent possible between the proposed expanded gravel pit and Route 9. As illustrated by the enclosed photographs from the public right of way, the vegetation and upward slope in this area provide a substantial buffer.

Analysis of Compliance of Earth Excavation Permit Requirements, Section 25.19.4.D.8, “Reclamation Plan”

The “Reclamation Plan” encompasses all the subsections of this code onto a single, organized and complete plan to be used by the Applicant during project activities. Below please find the cited Code accompanied by summaries of how the Plan meets the criteria.

TFMoran, Inc.

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Page 6 of 6

8. *This section deals with the requirements of a reclamation plan providing an overview of the long-term reclamation objectives for the excavation project and a detailed reclamation plan for the current excavation phase. Said plans shall contain the following information.*
 - a. *A description, if known or anticipated, of proposed future land use on the excavation site after completion of the excavation project. In this description, the applicant shall demonstrate that the proposed future land use is consistent with the Zoning Regulations (Articles 2 through 18 of this LDC) and the City's Comprehensive Master Plan. If no future land use is known or anticipated at the time of application, the reclamation plan shall reflect a return to natural vegetated condition similar to the pre-excavation condition.*

(Keene, NH, Keene, NH Land Development Code | May 2021, Application Procedures, 25-71)

8.a: The plan shows the proposed grading and stabilization (loam and seed) for how the site will be reclaimed. The proposed grading provides good access into the site, a large flatter area with drainage practices to be left in place, a minimum of six (6) feet of soil (overburden) left above ledge for reasonable septic and drainage practices for future use. There is no known future land use proposed; however, the site will be re-claimed in a manner that would not pose an adverse impact to future development. The applicant has noted that if and when a future land use is known they will abide to the Zoning Regulations and complete a formal application process with the City of Keene prior to any development.

- b. *A detailed narrative description of the process and schedule for reclamation, including specifications of proposed soil conditioning, seeding and mulching methods, and the quantities, sizes, and types of plant materials to be used in reclaiming the site.*

(Keene, NH, Keene, NH Land Development Code | May 2021, Application Procedures, 25-71)

8.b: A detailed narrative of the process and schedule for reclamation is noted on the plan. Please refer to the upper right-hand corner of sheet 8 of 11 where a reclamation schedule, process, planting, and soils reclamation plan is outlined. Please see figure 1 which is an excerpt from the plan.

Figure 1.

RECLAMATION NOTES

1. ANY EXCAVATED AREA OF 5 CONTIGUOUS ACRES OR MORE THAT IS DEPLETED OF COMMERCIAL EARTH MATERIALS (EXCLUDING BEDROCK) OR ANY EXCAVATION FROM WHICH EARTH MATERIALS GREATER THAN 1,000 CUBIC YARDS HAVE NOT BEEN REMOVED FOR A 2-YEAR PERIOD, SHALL BE RECLAIMED WITHIN 12 MONTHS FOLLOWING SUCH DEPLETION OR NON-USE.
2. AT THE TIME OF RECLAMATION ALL LANDS THAT ARE NO LONGER BEING USED FOR EXCAVATION ACTIVITIES, INCLUDING EXCAVATION AREAS, PROCESSING AREAS, STOCKPILING AREAS, AND STORMWATER MANAGEMENT AREAS, EXCEPT FOR EXPOSED LEDGE, SHALL BE RECLAIMED.
3. AREAS TO BE RECLAIMED SHALL BE GRADED TO A NATURAL REPOSE FOR THE TYPE OF SOIL OF WHICH THEY ARE COMPOSED.
4. ONCE RECLAIMED, CHANGES OF SLOPE, EXCEPT FOR EXPOSED LEDGE, SHALL BE SMOOTH AND GRADUATED.
5. WATER DRAINING FROM THE SITE SHALL LEAVE THE PROPERTY AT THE ORIGINAL NATURAL DRAINAGE POINTS AND IN THE NATURAL PROPORTIONS OF FLOW.
6. EXCEPT FOR EXPOSED ROCK LEDGE, ALL AREAS TO BE RECLAIMED SHALL BE SPREAD WITH NATIVE TOPSOIL TO A DEPTH OF NOT LESS THAN 4" AND SEED APPLIED. SEE EROSION CONTROL NOTES ON SHEET 10 FOR SEED MIX.
7. TOPSOIL OF AT LEAST THE MINIMUM AMOUNT NEEDED TO RESTORE THE SITE SHALL BE STOCKPILED ON THE SITE UNTIL RECLAMATION.
8. TOPSOIL AND OVERBURDEN STOCKPILING AREAS SHALL BE STABILIZED.
9. ALL EXCAVATION SITES WHERE RECLAMATION HAS BEEN COMPLETED SHALL BE MONITORED ANNUALLY OVER A PERIOD OF TWO YEARS FOLLOWING THE COMPLETION DATE TO ENSURE EFFECTIVENESS AND SURVIVAL OF PLANTED VEGETATION. VEGETATION THAT HAS NOT SURVIVED DURING THIS PERIOD SHALL BE REPLACED.
10. THE PROPERTY OWNER SHALL USE BEST EFFORTS TO REMOVE NON-NATIVE AND INVASIVE SPECIES, AS DEFINED BY THE NH DEPARTMENT OF ENVIRONMENTAL SERVICES, THAT BECOME ESTABLISHED DURING THE MONITORING PERIOD IN THE RECLAIMED AREAS.
11. STORMWATER MANAGEMENT FEATURES SHALL REMAIN IN PLACE FOLLOWING RECLAMATION.
12. APPROXIMATE COST ESTIMATE:
 MOBILIZATION: \$5,000
 MONITORING: \$5,000
 45,555 SY 4" LOAM AND SEED + MULCH AT \$4/SY = \$182,220
 3,500 LF SILT FENCE AT \$3/LF = \$10,500

"Reclamation Notes" from EXCAVATION SITE PLAN, Sheet 8. TFMoran, Inc.

- c. *A detailed description of the means by which the applicant intends to remediate the adverse impacts to soils, drainage systems, surface water, ground water, vegetation, overburden, topography, and fill materials.*

(Keene, NH, Keene, NH Land Development Code | May 2021, Application Procedures, 25-71)

8.c There are no adverse impacts to surface water or ground water.

Item	Means of Remediation
Soils	Areas to be reclaimed shall be graded to a natural repose for the type of soil for which they are composed of. This will be done with grading machinery.
Drainage Systems	There are no existing drainage structures in the pre-development conditions. In the post development conditions, the drainage design directs all runoff from the gravel operation to a stormwater recharge basin on the south side of the site through several swales. Runoff is recharged and discharge to pre-development flow paths. There will be no adverse impacts to groundwater recharge or downstream water bodies or wetlands.
Vegetation	Areas of remediation will be remediated with loam and seed to allow for natural succession. This will be done with a mechanical spreader and leveler. This also allows for development to be ready shall the site be prepared for a new use. Natural forested areas will be preserved to maximum extent possible.
Overburden	In accordance with City, we are maintaining a minimum of six (6) feet of natural materials above ledge, with no proposed blasting, and establishing stable grades during and after project activities. There are no impacts to remaining overburden.
Topography	The proposed grading for the remediation mimics the existing hillside grade and will support the naturally occurring vegetation. This will be done with a dozer and grader.

Fill Materials	There is no fill proposed and there for will not need remediation.
----------------	---

- d. *A map of the excavation perimeter drawn at a scale of 1-in = 50-ft, or other scale as the Community Development Director may reasonably deem necessary, depicting the following information.*
- i. *Boundaries of the area to be reclaimed.*
 - ii. *Final topography of the reclaimed area showing at most 2-ft contour intervals.*
 - iii. *Final surface drainage pattern including the location and physical characteristics of all existing, modified and/or constructed drainage structures.*
 - iv. *Locations of buildings, structures, and/or fences, proposed to remain on the site after reclamation.*
 - v. *Locations, types and sizes of all proposed landscaping to be planted as part of the reclamation plan.*

(Keene, NH, Keene, NH Land Development Code | May 2021, Application Procedures, 25-71)

8.d.i: Boundaries for the limit of reclamation are noted in the plan as the limit of work area. All areas of the site that are to be disturbed, except for access to the site, will be reclaimed.

8.d.ii: The final topography is shown on the plan. The contour interval was typically 5 ft with the intended slope denoted on the contours; some contour intervals are 1 ft. Two-foot contours are now displayed on the Plan

8.d.iii: The plan denotes drainage flow arrows pointed in the direction of flow for the areas or reclamation. The drainage structures to remain are shown on the plan. The stormwater management practices are to remain during and after reclamation.

8.d.iv: There are no building incorporated with the project. The only structures to remain are the retaining wall near the entrance and all stormwater management practices. All the structures to remain are denoted on the plans in the locations where they are.

8.d.v. All areas of reclamation on site will be loamed and seeded with natural topsoil per the “Reclamation Plan Notes” found in the upper right-hand corner of the sheet. The loam and seem will allow for natural succession or if the site is to be developed than replanting will not have to be removed creating impact.

Reclamation Estimate

Item:	Cost	Amount	Estimate
Reclamation Mobilization	\$5,000.00	N/A	\$5,000.00
Monitoring and Maintenance	\$5,000.00	Undetermined	\$5,000.00
Loam and Seed + Mulch	\$4.00/SY	45,555 SY	\$182,220.00
Silt Fence	\$3.00/LF	3,500 LF	\$10,500.00
Total Reclamation Estimate		\$202,720.00	
Total Reclamation Estimate with 15% Contingencies		\$233,128.00	

Conclusion

The Reclamation Plan displays, denotes, and outlines all reclamation criteria per the above code. The site shall be reclaimed in accordance with the Plan and this report.



Civil Engineers
 Structural Engineers
 Traffic Engineers
 Land Surveyors
 Landscape Architects
 Scientists

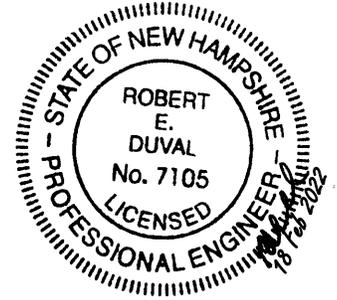
TRAFFIC MEMORANDUM

Date: February 18, 2022

To: City of Keene
 3 Washington Street
 Keene, NH 03431

From: Robert Duval, PE

Re: **Proposed Gravel Pit**
Route 9, Keene, NH
 TFM Project No. 82549-00



INTRODUCTION

TFMoran has prepared this traffic memo on behalf of G2 Holdings, LLC to describe trip generation and the existing roadway network associated with a proposed gravel pit in Keene, NH. The site (Map 215 Lot 7) is located within the Rural Zoning District on the north side of Franklin Pierce Highway (NH 9).

The parcel currently has a gravel access drive into a small clearing. G2 Holdings, LLC is currently using the clearing as a laydown area for their landscape and sitework business. The remaining site consists of woods, steep slopes, and wetlands.

PROPOSAL

G2 Holdings, LLC is proposing to construct and operate a 10 +/- acre gravel pit located on The initial phase of the operation will be approximately 5 acres. The gravel driveway will be widened and brush trimmed as necessary to accommodate two-way traffic with adequate sight distance in both directions to support the operation.

DESCRIPTION OF ROADWAYS AND INTERSECTIONS

Franklin Pierce Highway (NH 9)

- Classification. Franklin Pierce Highway is a State-maintained principal arterial that provides east-west travel across the state from Vermont to Maine.
- Lane widths and usage. In the project vicinity, the roadway provides one 12' travel lane in each direction, with 7-8' paved shoulders.
- Pedestrian facilities. There are no sidewalks in the study area.
- Signage and markings. The posted speed limit is 55 mph. Adjacent to the existing driveway is an intersection warning sign. The road has white shoulder markings on both sides. An

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eastbound passing zone begins about 300' to the west and extends about 600' east of the driveway, followed by a two-way passing zone.

- Lighting. No roadway lighting is provided in the study area.
- Sight Distance: The existing driveway is located on a straight segment of Franklin Pierce Highway with a gentle curve right approximately 250' west of the site and remains straight approximately 2,000' to the east. The alignment is relatively flat and provides sufficient sight distance in both directions.
- Road conditions. The roadway has moderate grade change, open drainage, and normal crown. The pavement is in good condition with minimal to no cracking, little or no ruts, soft spots, potholes, or other structural defects evident.
- There are minimal other developments in the area. Adjacent uses and driveways consist of:
 - Approximately 350' to the west on the opposite side of the road is the entrance to Otter Brook Beach State Park. No other driveways are present until Sullivan Road, approximately 4,350' from the existing site driveway.
 - Approximately 2100' to the east is a driveway to small commercial home/office development. Another 1500' east of the office development is the entrance to Granite Gorge Ski Area.
- There are no other intersections in the study area.

TRIP GENERATION

Trip generation was calculated based on the applicant's anticipated pit operation schedule. Site operations will be 7am-5pm Monday through Friday, with Saturday operations 7am-12pm. The site will be occupied by 3 employees. All employees will arrive prior to AM peak hours (7-9am) and leave during PM peak hours (4-6pm).

Trucking operations are expected at 40 trucks per day or less, with arrivals on average at fifteen minute intervals. While one truck is arriving, the previous will be leaving. The last load out will typically leave around 330pm (1130am on Saturday). Employees will leave after site cleanup and equipment shutdown.

Employee & Truck Schedule

Time	Employee In	Employee Out	Truck In	Truck Out	Total Trips
Before 7 AM	3				3
7 AM – 8 AM			4	3	7
8 AM – 9:AM			4	4	8
9 AM – 10 AM			4	4	8
10 AM – 11 AM			4	4	8
11 AM – 12 PM			4	4	8
12 PM – 1 PM			4	4	8
1 PM – 2 PM			4	4	8
2 PM – 3 PM			4	4	8
3 PM – 4 PM			2	3	5
After 4 PM		3			3
Total Peak Hour Trips (Adjacent Street)			Trips In	Trips Out	Total Trips
Weekday AM (7-9am)			4	4	8
Weekday PM (4-6pm)			0	3	3
SAT (11am-1pm)			2	3	5

CONCLUSION

Based on the minimal scale of operations described above, traffic impacts associated with the project will be negligible. The traffic from this development will add 8 trips or less during all peak hours. Total weekday trips are expected to be on the order of 80 to 90 trips per day (40 - 50 on a Saturday). Most of these trips occur outside peak travel times.

The AADT of NH 9 in 2019 was 9,707 vehicles. Thus the percentage increase is less than 1%, with typically 15 minutes between successive arrivals and departures. The roadway alignment and wide shoulders will facilitate safe access and egress from the site.

We therefore find the traffic associated with this proposal can be safely accommodated by the adjacent roadway without need for improvements. Please let me know if you have any questions in regard to these items.

TFMORAN, INC.



Robert Duval, PE
Chief Engineer

Stormwater Management Report

Excavation Site

**Tax Map 215 Lot 7
0 Route 9
Keene, NH**

Date:
April 8, 2022
Rev. 2: 6/6/22

Prepared for:
**G2 Holdings LLC
c/o Cody Gordon**
250 North Street
Jaffrey, NH 03452

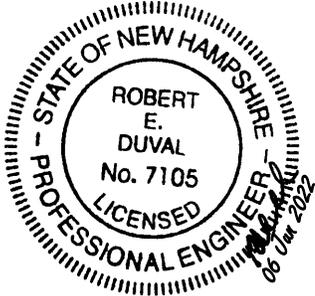
TFM #: 82549-00

Prepared by:



Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
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Executive Summary

- The Applicant proposes to operate a gravel pit on a 10± acre portion of the 84± acre parcel on Route 9 in Keene, NH.
- The excavation area stormwater runoff will be directed to a stormwater pond, which outlets to a riprap swale along the access drive and discharges to an existing discharge point along the southern lot line.
- Significant vegetated buffers and earthen berms, in addition to installed erosion and sedimentation controls, will serve to protect natural resources and prevent adverse impacts to abutters. The site is in a rural and sparsely developed area.
- The Applicant proposes excavation only above the seasonal high water table. Ongoing geohydrological investigation will inform excavation planning.
- Upon completion of the excavation project, the site will be stabilized and reclaimed.

Description of Project

G2 Holdings LLC proposes to operate a gravel pit on 10± acres of the 84± acre parcel. The excavation plan includes cutoff swales to direct stormwater runoff into a drainage pond on the southern end of the excavation area. The drainage pond outlets to a swale that runs along the access drive, and eventually outlets at an existing discharge point along the southern property line by Route 9.

Storm Water Methodology

Pre-Development Conditions

The existing site is primarily wooded, with a gravel access drive and some trails throughout the property. The terrain is hilly and there are some wetland areas to the west, east, and south of the project area. The ground elevation generally climbs upwards towards the north of the property.

Natural vegetated and earthen screening exists between the public right of way and the majority of the access drive. There is also an existing earthen berm to the west of the project area. To the west, north, and east, the site is surrounded by significant woodland buffers. This site is located in a rural, remote area with minimal development on the adjacent properties. Multiple abutting properties are owned by the Applicant.

Existing discharge points are A) wetland area east of the project site, and B) wetland area along the southern lot line adjacent to Route 9. There are currently no drainage improvements on the site.

Rainfall Intensity

The NHDES AoT program requires applicants to obtain rainfall data from the Northeast Regional Climate Center (NRCC). The below table lists the rainfall data used to model storms in HydroCAD.

24-Hour Rainfall Intensity

	Northeast Regional Climate Center
2-year	2.76 inches
10-year	4.02 inches
25-year	4.98 inches
50-year	5.86 inches

Post-Development Conditions

The Applicant proposes to operate a gravel pit on 10± acres of the 84± acre property. The excavation area is proposed to be located in one of the naturally least sloped areas of the lot. The existing access drive will be improved to support the excavation operations and drainage improvements will be installed to manage stormwater runoff.

Proposed cutoff swales will intercept stormwater runoff from uphill of the excavation area and prevent it from entering the excavation area and provide an alternate stabilized flow path to reach the same wetland at discharge point (A) where it currently flows. The drainage pond (HydroCAD pond node P1) will outlet to a swale (Reach R2) that runs along the access drive. A small riprap sedimentation basin (Pond P2)) node west of the access drive combines site runoff with flow from the route 9 ditchline. From there, runoff flows thru a proposed culvert under the access drive, into an existing roadside ditch (Reach R3) and discharges into the existing wetland (modeled as Discharge Point B) along the southern lot line at Route 9. The remaining wooded areas will discharge in the same manner as in the pre-development condition, with one discharge point (A) just east of the access drive and the other (B) at the wetland east of the project area.

The main drainage pond is an infiltration basin which serves to improve groundwater table recharge in-site and minimize stormwater runoff volumes from the site.

All three discharge points have been analyzed in both pre- and post-development conditions. The final stormwater management design will produce no increase in flow to any discharge point and will have no adverse impact on abutters.

Erosion Control Measures

Erosion Control Measures are found on the Storm Water Management Plan within the plan set. The erosion control notes and construction sequence notes on the Detail Sheets contain specifications for stabilizing disturbed areas and limiting the length of time these areas are exposed.

Temporary Erosion Control Measures

- Silt Fence
- Silt Sock
- Double rows of erosion control adjacent to wetlands

Permanent Erosion Control Measures

- Rip rap at pipe outlets
- Rip rap along swales as needed for slope and velocity
- Stabilized vegetative growth along mildly sloped/low-velocity swales.

Flood Protection

Examination of the following Flood Insurance Rate Map indicates that no portion of the project area is located within a flood hazard area:

- FIRM, Cheshire County, New Hampshire (All Jurisdictions), Map Number 33005, Effective Date May 23, 2006.

Conclusion

Peak Rate Flows

The peak rates of runoff will be mitigated at locations where stormwater leaves the project area in post-development conditions to not create an adverse drainage impact on existing off-site infrastructure and natural drainage conveyances.

Discharge Point	Pre-development cfs				Post-development cfs			
	2-yr	10-yr	25-yr	50-yr	2-yr	10-yr	25-yr	50-yr
A	1.3	5.9	10.7	15.7	1.1	5.0	9.1	13.4
B	4.4	14.2	23.5	33.0	3.1	10.1	15.9	21.9

Runoff Volumes

The 2 year design storm runoff volumes will be reduced at locations where stormwater leaves the project area in post-development conditions, to ensure an improvement to groundwater recharge.

Discharge Point	Pre-development cf	Post-development cfs
	2-yr	2-yr
A	13,159	10,931
B	35,057	26,343

ARTICLE 24. EARTH EXCAVATION REGULATIONS

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24.1 GENERAL

24.1.1 Purpose

The purpose of these Earth Excavation Regulations is to:

1. Provide reasonable opportunities for the excavation of earth materials from land situated within the City;
2. Minimize safety hazards created by excavation activities;
3. Safeguard the public health and welfare;
4. Preserve and protect natural resources and the aesthetic quality of areas located near excavation sites;
5. Prevent land, air, and water pollution; and,
6. Promote soil stabilization.

24.1.2 Applicability

- A. The regulations in this Article apply to excavation activity, excavation operations, processing activities, and all other activities associated with the commercial taking of earth, production and processing of construction aggregate, transportation of earth and site restoration. Associated excavation and processing activities also include, but are not limited to, digging, drilling, blasting, bulldozing, crushing, washing, screening, sorting, scaling, weighing, stockpiling, loading, and transporting earth.
- B. These regulations apply only to portions of land located in the Industrial, Industrial Park, Corporate Park, Agriculture, and Rural zoning districts. Earth excavation activities shall not be permitted within any other zoning districts.
- C. These regulations shall not include any portion of land located within, over, or covering the areas identified as "Excluded Area" on Figure 24-1 "Earth Excavation Excluded Areas and Access Routes". These excluded areas include the following.
 1. Lands identified as overlaying a stratified drift aquifer in the City.

2. Delineated primary and secondary wellhead protection areas in the City as well as existing and proposed maintained municipal well sites.
 3. Land areas identified as Zone 1 or Zone 2 in the View Preservation Overlay (Figure 13-1) in Article 13 of this LDC, unless the applicant can demonstrate to the satisfaction of the Planning Board that the proposed operation will not be visible from vistas and public rights-of-way in the City.
- D. For the purposes of this Article, the term existing excavation shall mean any excavation which lawfully existed as of August 24, 1979, and from which earth material greater than 1,000 cubic yards has been removed during the 2-year period before August 24, 1979. Said excavation shall not have expanded, without a permit issued pursuant to the City's Code of Ordinances, beyond the limits of the City in the area that on August 24, 1979, and at all times subsequent thereto, has been contiguous to and in common ownership with the excavation site as of that date. Moreover, said excavation shall have been appraised and inventoried for property tax purposes as a part of the same tract as the excavation site as of that date. The excavation site is any area of contiguous land in common ownership upon which excavation takes place.

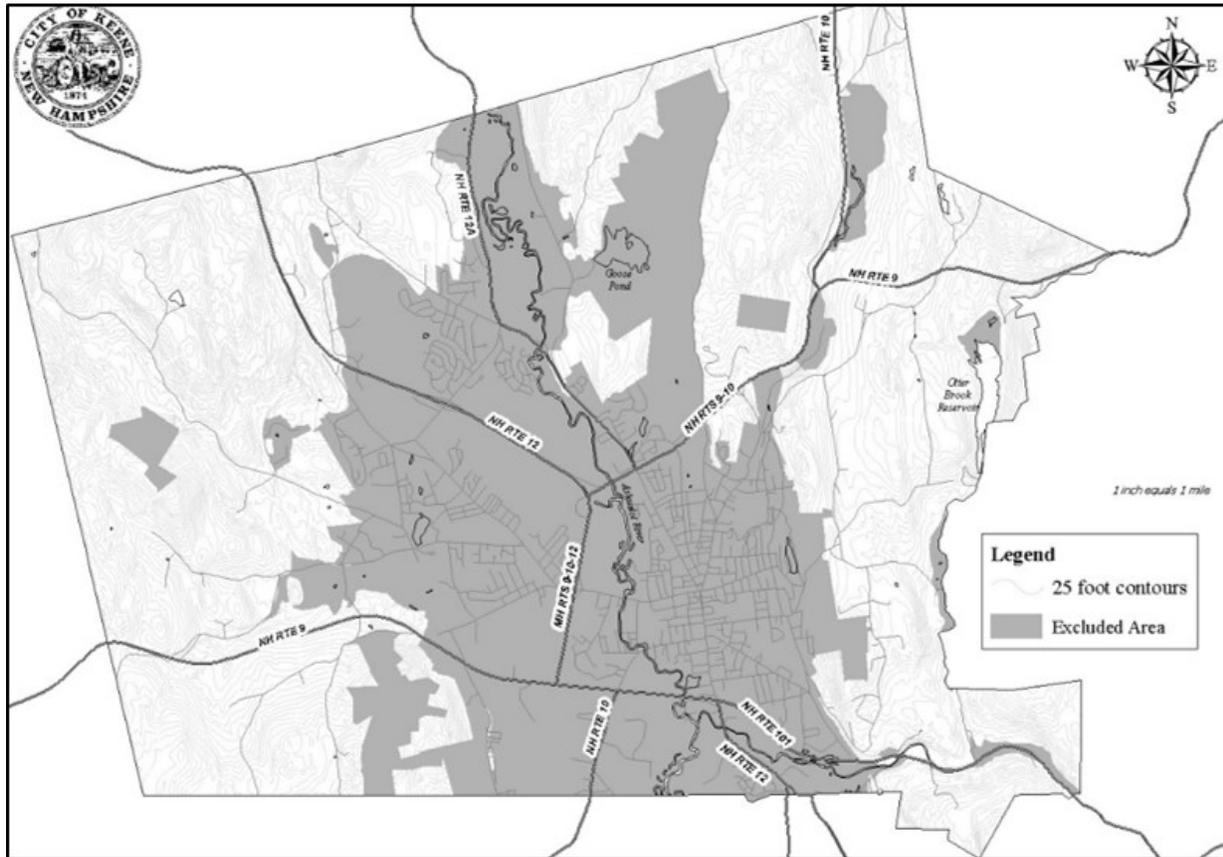
24.1.3 Earth Excavation Permit

- A. No property owner shall permit any excavation of earth on their property without first obtaining an earth excavation permit from the Planning Board in accordance with Section 25.19, unless said excavation is expressly excepted from the permit requirement as set forth in Section 24.1.4, or in accordance with NH RSA 155-E.

24.1.4 Exceptions

In addition to the exceptions expressly set forth in NH RSA 155-E:2, the following types of excavations shall be excepted from the permit requirements of this Article. Such exceptions must still comply

Figure 24-1 Earth Excavation Excluded Areas and Access Routes



with the express operational standards of NH RSA 155-E:4-a, and the express reclamation standards of NH RSA 155-E:5.

- A. Any excavation where no more than 1,000 cubic yards of earth material are removed every 2-years, and is exclusively incidental to the lawful construction or alteration of a building or structure and parking lot or way, including a driveway on a portion of the premises where the removal of earth materials occurs. Removal of earth shall not commence until all required state and local permits have been issued by the authority having jurisdiction.
- B. Excavation incidental to agricultural or silvicultural activities, normal landscaping, and minor topographical adjustments.
 - 1. For purposes of this Article, "normal landscaping" shall mean the planting of

vegetation over a reasonably short period of time, with the sole purpose of enhancing or beautifying an existing developed condition, and not for the purpose of engaging in the commercial distribution of earth.

- 2. For purposes of this Article, "minor topographical adjustments" shall mean the sculpting of topography over a reasonably short period of time to directly support the intended function or effect of the agricultural, silvicultural or landscaping activity, and not for the purpose of engaging in the commercial distribution of earth.
- C. Excavation from a granite quarry for the purpose of producing dimension stone, if such excavation requires a permit under NH RSA 12-E.
- D. Any person owning land directly abutting a site that was taken by eminent domain or by any other governmental taking, upon which

construction is taking place, may stockpile earth taken from the construction site. Said abutter may remove the earth at a later date without a permit after such person provides written notification to the Community Development Department.

24.2 PROHIBITED PROJECTS

The Planning Board shall not grant approval for an earth excavation permit in the following instances.

- A. When the excavation is not permitted by these regulations, zoning or other applicable ordinance, code, regulation, or state or federal law.
- B. When all necessary local, state or federal permits have not been obtained.
- C. When the issuance of a permit would present a potential hazard to human health, safety and welfare, or to the environment caused by adverse impacts associated with an excavation project. Examples of such hazards include adverse impacts caused by noise, traffic, dust or fumes; adverse visual impacts; premature degradation of roadways; erosion, soil instability, and/or sedimentation; adverse impacts to surface and ground waters; loss of fragmentation of important habitat; air quality degradation; pollution of soils; or diminution of the value of abutter properties.
- D. When the excavation would violate the operational standards set forth in this Article and in NH RSA 155-E:4-a; or, when the applicant cannot comply with the reclamation standards set forth in this Article and in NH RSA 155-E:5 and NH RSA 155-E:5-a.
- E. When the existing visual barriers in the areas specified in NH RSA 155-E:3, III, would be removed, except to provide access to the excavation.
- F. When the excavation is proposed to be within 50-ft of the boundary of a disapproving abutter, or within 10-ft of the boundary of an approving

abutter, unless requested by said approving abutter from the Planning Board.

- G. When the excavation would substantially damage any known aquifers or existing or potential well sites or surface water supplies, so designated by the City of Keene Water Supply Master Plan, the City of Keene GIS database, or the U.S. Geological Survey.

24.3 SITE DESIGN & OPERATIONAL STANDARDS

All excavation projects requiring an earth excavation permit shall comply with the design and operational standards set forth in this Section, and the minimum and express operational standards of NH RSA 155-E:4-a.

24.3.1 Excavation Setback

All excavations shall comply with the setback requirements set forth in this Section to provide buffers to the proposed excavation operations. Buffer areas shall be managed in accordance with the buffer management standards set forth in Section 24.3.2.

- A. **Public Rights of Way.** The excavation perimeter shall be at least 200-ft from any public right-of-way, unless such excavation is a highway excavation.
- B. **Abutting Boundary Lines.** The excavation perimeter shall be at least 300-ft from the boundary line of any abutting property not owned by the applicant.
- C. **Access Driveway.** The access driveway shall be at least 150-ft from the boundary line of any abutting property not owned by the applicant, and at least 150-ft from any public right-of-way, except where the access driveway intersects the public right-of-way.
- D. **Surface Water Resources.** The excavation perimeter shall be set back at least 250-ft, and the access driveway shall be set back at least 150-ft, from any surface water resource.

1. If an applicant obtains a wetlands permit from the NH Department of Environmental Services to alter, fill, or otherwise disturb wetlands on the excavation site, the area covered by the wetlands permit shall be exempt from the setback requirement.

The use of an existing driveway for the primary excavation access, when said driveway is located within the setback to surface water resources, shall be permitted as long as said driveway complies with the Access Driveway Standards in Section 24.3.17 of this Article, and does not need to be widened or improved in such a way as to further encroach into the surface water resources setback.

24.3.2 Buffer Management Standards

Buffers around the excavation perimeter shall be sufficiently vegetated to provide full, opaque, and year round screening of the excavation perimeter from adjacent rights-of-way or abutting properties. The intent of this standard is to avoid adverse visual and noise impacts from excavation operations.

- A. If buffers are not sufficiently vegetated to provide adequate visual and noise screening, the applicant shall provide adequate screening by other means, including planting additional vegetation and/or constructing a berm. To the extent that a berm is constructed, said berm shall be located within the excavation perimeter.
- B. All buffer areas created by setback standards shall remain in a natural vegetated condition, except when additional plantings are approved as part of the application. No cutting or removal of living vegetation shall be permitted over the life of the excavation operation, except for the control and management of non-native and invasive species following best management practices as defined by the NH Department of Environmental Services.
- C. The boundary between the excavation perimeter and the buffer areas shall be clearly marked on the site to avoid encroachment into the buffer. The boundary of approved setbacks from surface water resources within the excavation perimeter shall also be clearly marked on the site to avoid encroachment.

- D. Buffer areas shall not be used for storage or disposal of stumps, boulders, earth materials, and/or other debris including, but not be limited to carelessly discarded rubbish, refuse, trash, garbage, dead animals and/or other discarded materials of every kind and description.

24.3.3 Excavation Below the Water Table

- A. Excavation shall not be permitted lower than 6-ft above the seasonal high water table, as indicated by borings or test pits, without the issuance of an exception.
- B. An exception to this standard shall be granted if the applicant demonstrates that such excavation will not adversely affect water quality or quantity, provided, however, that written notice of such exception shall be recorded in the County Registry of Deeds as part of the decision, and 1-copy filed with the NH Department of Environmental Services.

24.3.4 Ground Water Quantity

When the applicant proposes excavation below the seasonal high ground water table, the applicant shall complete a hydro-geologic analysis to demonstrate that the excavation activities will not affect ground water levels so as to adversely impact public or private wells, surface water levels, or wetlands. This analysis shall include pre-excavation ground water level measurements, a constant discharge pump test, and ongoing ground water level monitoring. The following procedures shall be used to perform the analysis and monitoring.

- A. **Water Table Elevation.** The applicant shall determine the seasonal high ground water table elevations in the excavation area for the overburden and for the bedrock (if bedrock is to be excavated), as determined by digging test pits, borings and/or installing monitoring wells.
 1. A sufficient number of test pits, borings and/or monitoring wells shall be analyzed to provide a reasonably accurate depiction of the ground water levels in and around the excavation area. The Community Development Director, in consultation with the Planning Board's consultant, shall make

a determination regarding the number of test pits, borings, and/or monitoring wells needed to meet this standard.

2. The applicant shall maintain a log of all test pits, borings and monitoring wells which shall include at least the location, depth, and profile description of the test pit, boring and/or well, as well as the elevation of the seasonal high ground water table at each location.

B. Baseline Measurements. The applicant shall identify the location of public and private wells within one half (½) mile of the proposed excavation area and the location of all surface water bodies and wetlands within 300-ft of the excavation perimeter.

1. The applicant shall notify all landowners with wells located within one half (½) mile of the excavation area of the permit requirement for ground water level monitoring. Said notifications shall be made in writing and shall indicate the procedures to be used for measuring ground water levels.
2. A baseline water depth or elevation for all public and private wells, surface water bodies and wetlands identified above shall be determined as follows.
 - a. To establish a baseline water elevation in the case of drinking water wells, water depths shall be measured at least once every 8-hours for a 7-day period.
 - b. To establish water elevations in surface waters, water elevations shall be measured at fixed stations at least once a day for a 7-day period.
3. The applicant shall conduct a 72-hour constant discharge pump test performed in accordance with the following procedure.
 - a. A well shall be installed within the excavation area to a depth 50-ft greater than the maximum proposed depth of the excavation.

b. A 72-hour constant discharge pump test shall be conducted at a rate great enough to draw the water elevation in the test well to a depth equal to or greater than the maximum proposed depth of the excavation. In the event that the bottom of the test well is above the ground water level existing at the time of the test, then the pump test shall not be required

c. After the constant discharge test has been pumping for 72-hours, and while the constant discharge pump continues to operate, the applicant shall record the depth of the water in the test well and all of the wells, and surface waters identified above.

4. The applicant shall compare the baseline measurements with the post pump test measurements to determine the extent of any adverse impacts. For the purposes of this Section, adverse impacts are defined as a reduction greater than 10% of total available head in any well; and/or any draw down in the surface waters.

C. Ongoing Monitoring. Over the life of the excavation permit and any renewal thereof, the applicant shall monitor ground water levels and surface water levels on a monthly basis to determine the extent to which there are any adverse impacts.

1. Ground water levels shall be monitored using monitoring wells established during the permitting process.
2. Surface water levels shall be monitored at the fixed stations established for surface water bodies during the permit process.
3. Levels shall be recorded in the ground water monitoring log.
4. Adverse impacts will be said to occur when the excavation operation causes any abrupt changes in water levels. Adverse impacts will also be said to occur when the excavation operation causes the dewatering of a well located within one half (½) mile of

the excavation area.

- a. The applicant shall notify the Community Development Department within 24-hours of any adverse impacts on ground water levels.
- b. The applicant shall implement the approved protocol for providing replacement water supplies for water supplies that are disrupted as a result of the excavation operations.

D. Exempt Wells. If a well owner denies the applicant permission to measure water levels, then the applicant shall provide written evidence of said denial to the Community Development Department and the well shall be exempted from the monitoring program.

1. A notice regarding such exemption shall be filed in the County Registry of Deeds and shall include information regarding the right of current and future owners to be reinstated into the monitoring program, and contact information for reinstatement.
2. A landowner previously opting out of the monitoring program may become reinstated in the monitoring program upon making a written request to the applicant; however, the landowner shall bear the cost of performing baseline water level measurements. The applicant's acknowledgement of the written request shall be filed in the County Registry of Deeds.

24.3.5 Ground Water Quality

When the proposed operation includes the excavation of bedrock materials, the applicant shall collect and analyze pre- and post-excavation water quality data, as set forth below, to demonstrate that groundwater quality in drinking water wells within one half (½) mile of the excavation perimeter are not adversely impacted.

A. Notification. The applicant shall notify all land-owners within one half (½) mile of the excavation perimeter of the permit requirement for pre- and post-excavation water quality

monitoring. Said notifications shall be made in writing and shall indicate the procedures to be used for collecting water samples.

B. Baseline Measurement. Pre-excavation monitoring is required to provide "background" drinking water quality data. Samples shall be taken from no more than 1 drinking water well on every parcel within one half (½) mile of the excavation perimeter:

1. Background data shall consist of two rounds of drinking water samples, collected at least 14 calendar days apart, each of which shall be analyzed for the presence of Volatile Organic Compounds (VOCs) according to EPA Method 524.1, and for nitrates. The results of pre-excavation monitoring shall be provided to the Community Development Department within 45 calendar days of sample collection.
2. All results of pre-excavation monitoring shall be recorded in a ground water quality monitoring log maintained by the applicant.

C. Ongoing Monitoring. Ongoing monitoring shall be conducted semi-annually throughout the term of the permit and any renewal thereof, and for a period of not less than 2-years following the cessation of excavation activities and reclamation of the excavation site.

1. One drinking water sample shall be collected by the applicant from the drinking water well of each consenting property owner located within one half (½) mile of the excavation perimeter. Each sample shall be analyzed as described above for the pre-excavation samples. The results of post-excavation monitoring will be provided to the Community Development Department within 45 calendar days of sample collection.
2. All results of post-excavation monitoring shall be recorded in a ground water quality monitoring log maintained by the applicant.

D. Adverse Impact. Drinking water quality will be said to have been adversely impacted if laboratory analysis by a certified laboratory

shows that in post-excavation monitoring, the NH Ambient Groundwater Quality Standards (AGQS) for nitrates and VOCs are exceeded. If the required post-excavation monitoring identifies an AGQS exceedance for nitrates or VOCs that did not exist prior to the issuance of said permit, then the applicant shall take the following actions.

1. Exceedances shall be reported to the NH Department of Environmental Services and the applicant will investigate and remediate the groundwater contamination as prescribed by the NH Department of Environmental Services.
 2. No further blasting using compounds identified in the water samples shall be allowed until the source of the identified contamination is found.
 3. If monitoring indicates that the excavation operation caused the identified contamination, then the applicant shall modify its excavation operation to ensure that future contamination is avoided and shall obtain any and all necessary approvals for such modified operations, including but not limited to an approval for an amendment to their earth excavation permit, if necessary.
- E. Exempt Wells.** If a well owner denies the applicant permission to sample any well, then the applicant shall provide written evidence of said denial and the well shall be exempted from the monitoring program.
1. A notice regarding such exemption shall be filed in the County Registry of Deeds and shall include information regarding the right of current and future owners to be reinstated into the monitoring program, and contact information for reinstatement.
 2. A landowner previously opting out of the monitoring program may become reinstated in the monitoring program upon making a written request to the applicant; however, the landowner shall bear the cost of performing baseline

water quality monitoring. The applicant's acknowledgement of the written request shall be filed in the County Registry of Deeds.

24.3.6 Toxic or Acid Forming Materials

When the proposed operation includes the excavation of bedrock materials, the applicant shall demonstrate that excavation activities will not adversely impact surface or ground water quality through the unearthing of toxic or acid forming elements or compounds resident in the bedrock or soils. Such demonstration shall be made by obtaining the opinion of a NH licensed engineer or professional geologist. Excavation of bedrock shall not be permitted where bedrock contains toxic or acid forming elements or compounds.

24.3.7 Stormwater Management

Excavation activities within the excavation perimeter and the access driveway shall not cause adverse impacts from stormwater runoff and/or groundwater drainage, including erosion, sediment transport, water quality degradation, and/or increases in volume or velocity of water leaving the site.

- A. Excavation operations shall not be located on slopes where adverse impacts from storm water runoff and groundwater drainage cannot be avoided or mitigated.
- B. Erosion control, sedimentation control, and drainage management devices shall be designed, constructed, inspected, and maintained according to Best Management Practices as set forth in "Storm water Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire," Rockingham County Conservation District, NH Department of Environmental Services, Soil Conservation Service (now the Natural Resources Conservation Service), August 1992, as amended, or as may be required by state or federal permits, which ever provides the highest level of protection.

1. Such devices shall include, but not be limited to, water detention ponds, sedimentation settlement areas, silt fences and other erosion control devices, flow dissipation measures, soil stabilization measures, water storage ponds used to support excavation operations, and/or any other measures necessary to avoid soil erosion and sedimentation of storm water or ground water discharge, and to promote soil stabilization.
- C. Erosion control, sedimentation control, and drainage management shall be installed before any site preparation and/or excavation work begins.
- D. Erosion control, sedimentation control, drainage management, and dust control devices shall be maintained in good working order during the excavation project.
- E. All disturbed soils and exposed excavation sidewalls shall be stabilized following best management practices referenced in Section 24.3.7.B to prevent erosion and sedimentation.
- F. Excavation areas from which no excavation has or will occur for a period of 30-days or longer shall be stabilized.
- G. Drainage shall be designed to prevent the accumulation of freestanding water, except as part of an approved stormwater management system designed to minimize surface water run-off or for use in processing operations and dust control.
- H. Any adverse impacts to off-site drainage systems and/or water resources degraded or damaged by pollution, erosion, and/or siltation from the excavation operation shall be restored and/or repaired by the applicant following best management practices, within a reasonable timeframe.
- I. The applicant shall maintain a log documenting all inspections, maintenance, and repairs made to these systems; all related adverse impacts caused by the excavation operation; all

remediation activities performed; and, all actions taken to prevent future adverse impacts.

24.3.8 Dust Control

Dust control activities and devices shall be incorporated into the excavation operation, on the site and on the access driveway, in a manner that minimizes generation of airborne dust or transportation of dust or mud off the site onto the adjacent roadways.

- A. Visual monitoring of airborne dust shall be done on an ongoing basis.
- B. Dust control measures such as applying water to access driveways and other areas within the excavation perimeter, washing dirt from truck tires, or other measures as may be deemed necessary, shall be employed to minimize the generation of airborne dust, and/or the transportation of dirt/mud off the site onto adjacent roadways.
- C. Inspection of access driveway stabilized construction entrances, designed to eliminate the deposit of dust or mud onto public streets, shall be conducted on a weekly basis to ensure proper functioning. Maintenance of these entrances shall be performed as necessary and any dirt or mud deposited on public streets shall be removed.
- D. The applicant shall maintain a log documenting dust control activities, inspection and maintenance of dust and dirt control structures and devices, and clean up of dirt deposited on roadways leading from the site.

24.3.9 Important Habitat

Excavation operations within the excavation perimeter and the access driveway shall not fragment, degrade, or adversely impact the quality and functioning of important wildlife habitat.

24.3.10 Historic Resources

Excavation operations within the excavation perimeter and the access driveway shall be located and designed to avoid removing, covering, altering or otherwise disturbing known important archeological sites as may be listed in the NH Division of Historical Resources databases, unless permitted by the state.

24.3.11 Cultural Resources

All operations shall be designed to avoid disturbing historically significant manmade features including, but not limited to, stonewalls, and cellar holes.

- A. If the disturbance of such features cannot be avoided, the applicant shall describe in detail the feature and shall prepare an accurate map locating the feature for historic documentation prior to disturbance or removal.
- B. Such documentation shall be submitted to the Community Development Department for inclusion in the City's GIS database. The intent of this standard is to preserve historic features on the landscape, or knowledge thereof.

24.3.12 Steep Slopes

- A. Where slopes in the excavation area exceed a 1:1 slope, a fence or other suitable barricade at least 4-ft in height shall be erected along the top and sides of the slope.
- B. Any fencing erected around the excavation area shall be placed along the outside edge of the active work area but not within the buffer area, so as to minimize the visibility of the fence from abutting properties and public rights-of-ways.

24.3.13 Maximum Excavation Area

The total combination of any unreclaimed, inactive and active excavation areas shall not exceed 5-acres at any time. The intent of this standard is to allow for reasonable opportunities for excavation while maintaining an operational scale that will minimize the magnitude of any unintended adverse impacts that might occur.

24.3.14 Hours of operation

- A. Excavation activities shall only occur between the hours of 7:00 am and 5:00 pm, Monday through Friday.
 - 1. The sale and loading of stockpiled materials may also occur from 8:00 am to 1:00 pm on Saturdays; however, no other excavation activities shall be permitted on this day.
- B. No excavation activities, including sale of stockpiled materials, shall be permitted on Sundays, legal holidays, or at times other than those indicated in Section 24.3.14, except when prior written consent to temporarily operate during other hours is provided by the Community Development Department due to a local or regional emergency.

24.3.15 Noise

Noise levels generated from excavation activities shall not exceed the background ambient "A" weighted sound pressure level exceeded 90% of the time during the sound level sampling period, (hereinafter 'dB(A) L(90)') by more than 10 dB(A) and in any event shall not exceed 55 dB(A) (hereinafter 'L(max)').

- A. **Monitoring Devices.** All sound level monitoring devices shall meet American National Standards Institute S 1.4 type 1 or 2 standards, with the device set to "Fast" response. Monitoring devices shall be properly calibrated and maintained in good working order. Monitoring devices shall include data recording capabilities that enable continuous documentation of sound levels during the operating day.
- B. **Monitoring Locations.** Sound levels shall be monitored from at least 2 locations as determined by the Community Development Director, or their designee, with the advice of other City staff and the Planning Board's consultant.
 - 1. The locations for noise monitoring shall include at least 1 location on the property boundary, either along the public right-of-way or at a point in direct line with the

closest dwelling on an abutting property, and at least 1 location on the property boundary or beyond, at whichever point is deemed by the Community Development Director or the Planning Board's consultant, as having the greatest likelihood for adverse impact considering the nature of the topography and vegetation, and the exposure of the abutting lands to the excavation operations.

2. If a monitoring location is selected at a point beyond the property boundary, written permission to use that location for monitoring shall be obtained from the property owner of the monitoring site.
3. As noise-generating equipment is relocated within the approved excavation perimeter, new monitoring locations may be selected to help ensure continued compliance with the noise standard.
4. The excavation operator shall maintain a log of all monitoring activities indicating the date, time period and location of the recorded measurements; the operations being performed on the site at the time of monitoring; the weather conditions at the time of the measurement, including temperature, wind direction, wind speed, cloud cover and precipitation; and the results of the monitoring, including a graph of the continuous monitoring record, the calculated A weighted sound pressure level exceeded 90% of the measurement time (hereinafter 'dB(A) L(90)') and the calculated maximum dB(A) sound level (hereinafter 'L(max)').

C. Ambient Sound Levels. At the selected locations, the background ambient sound levels shall be measured prior to the commencement of the initial operation.

1. The background sound levels shall be measured on the dB(A) scale, by recording continuous measurements during proposed operating hours over 5 consecutive business days prior to the commencement of site preparation activities, and calculating the

dB(A) L(90) for the entire monitoring period. Such measurements shall be performed by a consultant hired by the Planning Board at the applicant's expense.

2. The applicant/operator may request that the background sound level be re-measured. Such re-measurement shall be done at a time selected by the Community Development Director in consultation with the applicant and a consultant hired by the Planning Board to perform the measurement at the applicant's expense.

D. Ongoing Monitoring. To determine compliance with the noise standard after commencement of the operation, the applicant shall monitor at the selected monitoring locations the sound levels generated by the operation, as follows.

1. On an annual basis, at a time selected by the Community Development Director, in consultation with the applicant, sound levels shall be monitored and recorded continuously during operating hours for a period of not less than 20 consecutive operating days. Monitoring shall be made using the dB(A) scale and the dB(A) L(90) during the operating hours for each day and the L(max) sound level throughout each day shall be calculated and entered into a noise monitoring log maintained by the applicant.
2. At any time when new or additional noise generating equipment is placed into operation following the initial 20-day monitoring period, or when noise generating equipment is relocated within the approved excavation perimeter, sound levels shall also be monitored continuously and recorded during operating hours for a period of not less than 5 consecutive operating days. The dB(A) L(90) during the operating hours for each day and the L(max) sound level throughout each day shall be calculated and entered into a noise monitoring log maintained by the applicant.
3. When new or additional noise generating equipment or activities including but not limited to drilling or blasting activities were

not measured during the initial 20-day monitoring period and are to be used only for short durations ranging from a period of hours to several days, not exceeding 5 operating days, sound levels shall be monitored and recorded continuously for the duration of the activities.

4. In the event that the measurements exceed the noise standards in this Article, the applicant shall bring the operation into compliance by reducing the number of sound sources contributing to the sound level, by relocating equipment on the site, by adding noise attenuating structures around or attachments to the equipment, or by taking whatever other actions may be necessary to bring the operation into compliance.
 - a. Any corrective action taken shall be clearly described in the noise monitoring log along with a record of the noise level measurements before and after said correction.
 - b. Additional noise levels shall be monitored for no less than 5 consecutive days after the corrective action is taken.

E. Complaints. If complaints are received regarding the level of noise generated from the operation, the applicant/operator shall, upon notification by the Community Development Department of the complaint, take measurements at the location where the complaint originates, if permission for entry is granted by the complainant, and at the designated monitoring locations.

1. The date, time, and location of the complaint shall be recorded in the noise monitoring log. Monitoring device readings for the location of the complaint (if permission to monitor is provided) and for the designated monitoring locations shall be recorded for a duration of not less than 5-minutes at each location with the dB(A) L(90) and the L(max) levels calculated for those time periods. All such measurements shall be documented in

the noise monitoring log.

2. These measurements shall be compared to the noise level standards set forth in this Article to determine whether the L(max) noise level standard or the dB(A) L(90) limit above the ambient background level established for the operation are being exceeded. The measurements at the complaint location shall use the higher of the ambient background levels determined for the designated monitoring locations.
3. If the measurements taken on the complainant's property or at the designated monitoring locations exceed the noise standards set forth in this Article, the applicant shall take corrective action as specified in the this Article to bring the operation into compliance.
4. If, at the location of the complaint, the limit above the ambient background level standard is being exceeded, the operator shall record continuous measurements for a period of not less than 60-minutes to recalculate the dB(A) L(90) for the measurement period. If after this re-measurement the dB(A) L(90) standard is exceeded, the operator shall take whatever actions are necessary to bring the operation into compliance.
 - a. Any corrective action taken shall be clearly described in the noise monitoring log along with a record of the noise levels measured.
5. At the applicant/operator's expense, and with the landowners consent, the operator may be permitted to establish the complaint location as an additional designated monitoring site. As such, background ambient noise levels would be established in accordance with the protocol set forth in this Article.

24.3.16 Travel Routes & Site Access

- A. All vehicles and equipment used in excavation operations, except the personal vehicles of employees, agents, and representatives of the applicant or operator, shall travel upon streets

and highways designated for such use and shown on a plan approved by the Planning Board during the permitting process.

- B.** Access to an excavation site shall be accomplished directly from a state numbered highway. Direct access to the excavation site from a City street shall only be permitted when all of the following conditions are met.
 - 1.** The travel route along the City street from the excavation access driveway to the nearest state numbered highway is the shortest route to the state numbered highway.
 - 2.** The travel route along the City street, from the excavation access driveway to the nearest state numbered highway shall not pass any properties with residential dwellings.
 - 3.** The excavation access driveway at its intersection with the City street shall be no closer than 150-ft to the property boundary of any abutting property containing a residential dwelling.
- C.** No excavation shall occur below any road level within 50-ft of any highway right-of-way, unless such excavation is for the purpose of constructing or maintaining the highway at that location.

24.3.17 Access Driveway Standards

An excavation operation shall be permitted to have only one access driveway. The access driveway shall comply with the following design standards.

- A.** The access driveway layout shall be articulated so that the excavation area and any processing and stockpiling areas will not be visible from the entrance of the access driveway.
- B.** The access driveway shall accommodate safe passage of all vehicles.
- C.** The access driveway shall be designed and constructed with stabilized construction entrances to prevent dust and earth materials from being deposited on City streets or

highways by vehicles leaving the excavation site.

- D.** The access driveway shall be constructed so that stormwater from the driveway is treated according to best management practices (as referenced in Section 24.3.7.B) prior to leaving the site or entering any surface waterway, and does not cause erosion or sedimentation.
- E.** The access driveway shall be gated at the entrance to prevent unauthorized site access during non-operating hours.
- F.** The access driveway shall be posted in both directions with a speed limit, not to exceed 15 MPH, to minimize dust, noise, and vibration from truck traffic entering and leaving the site.

24.3.18 Traffic

- A.** Traffic associated with a proposed excavation operation shall not diminish the safety or capacity of City streets, bridges, or intersections.
- B.** If an applicant proposes to generate 100 or more vehicle trips per day, the applicant shall be required to provide technical studies to demonstrate compliance with this operational standard.
- C.** The applicant shall propose a maximum number of trips per day for trucks used to transport earth materials and shall demonstrate that this number and the respective weight loads do not diminish the safety or capacity of city streets, bridges, or intersections.
- D.** The excavation operation shall not exceed the proposed number of trips per day for trucks used to transport earth materials without first seeking to amend the earth excavation permit, unless prior written consent to temporarily exceed the number of trips is provided by the Community Development Department due to a local or regional emergency.

24.3.19 Roadway Degradation

- A. No excavation shall cause premature degradation of a City roadway. Premature degradation of a City roadway shall be determined based on a review of the roadway's existing condition at the time the earth excavation permit application is received and a review of the applicant's proposed traffic volume and load weights.
- A. Damage or premature degradation of a City roadway that is attributed in whole or in part to the excavation operation, as determined by the Public Works Director, shall be repaired by, and at the expense of, the permit holder to the satisfaction of the Public Works Director.

24.3.20 Scenic Impact

- A. Excavations proposed to be located within Zone 1 or Zone 2 of the View Preservation Overlay (Figure 13-1) in Article 13 of this LDC, shall not be permitted unless the applicant demonstrates that the excavation operation will not be visible from any public right-of-way, abutting property, or prominent overlook not located on the excavation site.
 - 1. For the purposes of this Article, a prominent overlook shall mean any tract of land or portion of a tract of land other than the excavation site, with an elevation higher than the excavation area, with an established view point or clearing, and a viewshed that includes the excavation perimeter and would allow direct viewing of excavation operations within the excavation perimeter from said view point or clearing. An established view point is a cleared or naturally created vantage point, either publicly or privately owned, that can be demonstrated as having been customarily used as a view point.

24.3.21 Explosive Management

- A. Applicants using explosives in an earth excavation operation shall obtain all necessary state and local permits.

- B. No explosive materials shall be stored on an excavation site.

24.3.22 Blasting Notification

No explosive substances shall be used for purposes of excavation without providing public notice of the proposed blasting.

- A. **Publication.** At the beginning of each blasting period, at least 10-days prior to the commencement of blasting, the applicant shall publish a blasting notification in a newspaper of general circulation in every city, town or incorporated place wherein the proposed excavation is to be located.
 - 1. Said notice shall include the address at which blasting will occur, the dates or range of dates during which blasting is likely to occur, the approximate number of blasting days during the period and an estimate of the average number of blasts per day. The notice shall also provide contact information for the applicant and excavation operator and shall offer to provide any interested parties with telephone notification on the morning of each day that blasting will occur. The notice shall indicate that requests for telephone notification must be made to the applicant in writing.
 - 2. Said telephone notification shall be made each morning of any day on which a blast is scheduled, at least 1-hour prior to the commencement of blasting.
- B. **Telephone.** At the beginning of each blasting period, at least 10-days prior to the commencement of blasting, the applicant shall provide the blast notification described in Section 24.3.22.A by certified mailed, to all property owners with property located in whole or in part, within one-half (½) mile of the excavation site.
 - 1. Said notification shall inform the property owner that the applicant will provide telephone notification each morning on days when a blast will be performed and that the property owner may opt out of the

telephone notification program by making such a request to the applicant in writing.

2. The applicant shall provide such telephone notification to all property owners with property located in whole or in part, within one half (½) mile of the excavation site each morning of any day on which a blast is scheduled, at least 1-hour prior to the commencement of blasting.
3. Property owners with property located in whole or in part, within one half (½) mile of the excavation site may choose to opt out of the telephone notification requirement by sending a written request to the operator to cancel telephone notification. Such a request shall not relieve the operator from providing written notification of the blasting schedule at the beginning of each blasting period.

- C. Changes.** Any changes or additions to the proposed blasting schedule during the year shall require the issuance and publication of a revised schedule.

24.3.23 Disposal

Boulders, stumps, vegetation and other debris shall be disposed of in a lawful manner on the excavation site, or shall be removed.

24.3.24 Hazardous Materials

- A. All fuels, lubricants and other toxic, polluting, or hazardous substances shall be used, stored, and disposed of in compliance with local and state laws pertaining to the storage of such materials.
- B. A list of all hazardous and toxic substances to be used or stored on the site and a list of agencies and officials to be notified in the event that a spill has occurred shall be maintained on the excavation site.

24.3.25 Record Keeping

All logs required to be maintained by the applicant/operator pursuant to this Article shall be retained by the applicant for a period of not less than 5-years and shall be made available for inspection by the Community Development Department, or its designated agent, upon request.

24.3.26 Other Permits

Applicants for an earth excavation permit shall provide to the Community Development Department, copies of all local, state and/or federal permits required by local, state and federal law.

24.4 RECLAMATION STANDARDS

All excavation projects requiring an earth excavation permit shall comply with the reclamation standards in this Section and the minimum and express reclamation standards set forth in NH RSA 155-E:5.

24.4.1 Incremental Reclamation

- A. Except for excavation sites of operating stationary manufacturing plants, any excavated area of 5 contiguous acres or more that is depleted of commercial earth materials (excluding bedrock), or any excavation from which earth materials greater than 1,000 cubic yards have not been removed for a 2-year period, shall be reclaimed in accordance with this Article and pursuant to NH RSA 155-E:5 within 12-months following such depletion or non-use, regardless of whether other excavation is occurring on adjacent land in contiguous ownership.
- A. Pursuant to state law, existing operations in use as of the effective date of this Article shall complete reclamation in compliance with NH RSA 155-E:5 within 1-year following the cessation of the excavation or any completed section thereof.
 1. Failure of the City to notify the owner of an existing operation shall not exempt an existing operation from its obligation to comply with the reclamation provisions of this Article.

24.4.2 Requirement

- A. At the time of reclamation, all lands that are no longer being used for excavation activities, including excavation areas, processing areas, stockpiling areas, and stormwater management areas, except for exposed ledge, shall be reclaimed.
- B. Areas to be reclaimed shall be graded to a natural repose for the type of soil of which they are composed so as to control erosion.
- C. Once reclaimed, changes of slope, except for exposed ledge, shall be smooth and graduated rather than sharp, sudden or abrupt.
- D. To assure adequate drainage and soil stabilization, and to prevent erosion and sedimentation, the topography of the land shall be left so that water draining from the site leaves the property at the original, natural drainage points and in the natural proportions of flow.

24.4.3 Topsoil

- A. Except for exposed rock ledge, all areas to be reclaimed shall be spread with native topsoil to a depth of not less than 4-in unless a waiver has been granted.
- B. Topsoil of at least the minimum amount needed to restore the site shall be stockpiled on the site until reclamation. The intent of this standard is to ensure that adequate native top soils are available on the site to complete reclamation, and to limit introduction of invasive species seed stocks that could be resident in non-native soils that might otherwise be introduced to the site.
- C. Topsoil and overburden stockpiling areas shall be stabilized to prevent erosion by and sedimentation of stormwater runoff following best management practices.
- D. Topsoil in excess of the minimum amount needed to restore the site, but in no case any volume of topsoil greater than 50-cubic yards, may be removed from the site without permit approval from the Planning Board. The intent of this standard is to ensure that all earth materials

removed from the site in commercial quantities are properly permitted.

24.4.4 Vegetation

- A. Except where ledge rock is exposed, all areas to be reclaimed as specified in a reclamation plan approved by the Planning Board shall have permanent cover vegetation established to assure soil stabilization and to prevent erosion and sedimentation, in accordance with best management practices and as set forth in an approved reclamation plan.
- B. Any portions of lands within the excavation perimeter that are visible from any public way, from which trees have been removed, shall be replanted with tree seedlings in accordance with acceptable horticultural practices.
- C. Reclamation activities that include planting of vegetation and/or cover crop shall provide adequate soil conditioning and mulching according to best management practices.
- D. Seed and plant species to be used in restoring the site shall be native species similar to those species typically found surrounding the site.

24.4.5 Monitoring

- A. All excavation sites where reclamation has been completed shall be monitored annually by the applicant over a period of 2-years following the completion date to ensure that reclamation measures have been effective in accordance with these standards and that all planted vegetation has survived.
- B. Any plantings shown on a reclamation plan approved by the Planning Board that do not survive within 2-years following completion of the reclamation process shall be replaced with similar sized plant species.
- C. The property owner shall use best efforts to remove non-native and invasive species, as defined by the NH Department of Environmental Services, that become established during the monitoring period in the reclaimed areas.

24.4.6 Remediation

Excavation operations that cause adverse impacts shall abate and/or remediate those impacts, restoring all affected areas to a pre-impact condition. Reclamation shall not be said to be complete until all adversely impacted areas have been successfully remediated.

24.5 ENFORCEMENT

- A.** After a duly noticed public hearing, the Planning Board may suspend or revoke the earth excavation permit of any person who has violated any provision of the permit, this Article, NH RSA 155-E, or of any person who made a material misstatement in the application upon which their permit was issued. Such suspension or revocation shall be subject to a motion for rehearing thereon and appeal in accordance with this article and NH RSA 677.
- B.** Any violation of the requirements of these regulations shall also be subject to the enforcement procedures detailed in NH RSA-676.

ARTICLE 25. APPLICATION PROCEDURES

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25.19 EARTH EXCAVATION PERMIT

25.19.1 Description

An earth excavation permit allows a process to facilitate safe and reasonable opportunities for the excavation of earth materials from land within the City in conformance with the Earth Excavation Regulations in Article 24 of this LDC and the requirements of NH RSA 155-E.

25.19.2 Initiation

The applicant for an earth excavation permit shall either own the fee simple interest in the property(s) that is the subject of the review or have written permission of the fee simple owner.

25.19.3 Authority

The Planning Board shall have the authority to review and decide on applications for an earth excavation permit.

25.19.4 Submittal Requirements

An applicant for an earth excavation permit shall submit a completed application on the appropriate form to the Community Development Department. A completed application for an earth excavation permit shall include all of the following information.

- A.** The name and contact information of the person or entity that will be performing the excavation.
- B.** A written narrative describing the type, scale, and nature of the proposed excavation site, including the following information:
 - 1.** The location, boundaries and zoning district(s) of the proposed excavation parcel(s) and site, including the municipalities and counties in which the project lies.
 - 2.** The type(s) of earth material to be excavated and the methods to be employed to excavate, process, and transport the earth materials.
 - 3.** The expected duration of the entire excavation project, and whether the excavation project will include more than

one non-contiguous excavation area, each of which would constitute an excavation phase.

- a.** A separate excavation permit application shall be required for each non-contiguous excavation area.
- 4.** The number of acres of the excavation area and the excavation perimeter under consideration for the earth excavation permit (hereinafter “current permit phase”).
- 5.** The volume of earth material to be removed per year from the excavation area during the current permit phase and the proposed time schedule for the current permit phase, including a timeframe for completing incremental reclamation.
- 6.** A description of the maximum breadth, depth, and slope of the excavation area for the current permit phase.
- 7.** The location of the access driveway for the current permit phase and a description of any existing visual barriers between the excavation perimeter and the public highway to be utilized to access the site.
- 8.** The elevation of the estimated highest annual average groundwater table within or adjacent to the proposed excavation area and an indication of whether the excavation will occur at depths below this level.
 - a.** If the applicant proposes to excavate bedrock, they shall provide the elevation of the estimated highest annual average groundwater table for both the overburden and the bedrock.
- 9.** Proposed methods of disposal of boulders, stumps, vegetation and other debris.
- 10.** Proposed methods for controlling storm water, drainage, erosion, and sedimentation during the excavation project.
- 11.** The means by which the applicant shall avoid and/or mitigate adverse impacts caused by dust, noise, and traffic at the site.
- 12.** Precautions to be taken by the applicant to protect the safety and welfare of persons on

the site.

- 13.** The proposed method for handling, transporting, and disposing of fuel and/or chemicals on the site.
 - 14.** The means by which earth materials are proposed to be transported from the excavation site, and the proposed load limits and maximum number of vehicle trips per day.
 - 15.** A general description of the extent to which blasting will be used to excavate earth materials and the name and classification of any explosive substances that may be used at the excavation site over the course of the excavation project.
 - 16.** Any other descriptive information that the Planning Board may reasonably deem necessary to determine compliance with NH RSA 155-E, the Earth Excavation Regulations in Article 24, and this LDC.
- C.** Photographs of the excavation site showing at least the following vantage points, each of which shall be indicated on the site plan map.
- 1.** The proposed excavation area(s).
 - 2.** Areas within the proposed excavation perimeter where processing and stockpiling of earth material will occur.
 - 3.** The area where the proposed access driveway will be located, including the point where the access driveway meets the public right-of-way.
 - 4.** At least 2 vantage points along public rights-of-way abutting the excavation parcel(s), to show the existing visual barriers, vegetation and screening of the excavation site.
- D.** A complete plan set signed and stamped by a NH licensed engineer or architect (7-copies on 22-in by 34-in paper or larger size; 1-copy on 11-in by 17-in paper; and, an electronic pdf file), which shall include the following materials.
- 1.** A locus map depicting the location of the proposed excavation site within the boundaries of the City and all state numbered highways in the City.
- 2.** A phasing plan at a scale of 1-in = 500-ft or other scale as the Community Development Director may reasonably deem necessary, showing an outline of the location of each excavation area and corresponding excavation perimeter for each phase of the excavation project.
 - a.** Notes shall be placed on the plan labeling the excavation area and corresponding excavation perimeter for each phase of the excavation project, indicating the approximate dates and duration of each phase, and the number of acres comprising the excavation area and the excavation perimeter for each phase, and the estimated volume of earth material to be excavated in each phase.
 - 3.** A context map of the excavation site, at a scale of 1-in = 500-ft or other scale as the Community Development Director may reasonably deem necessary, showing the proposed excavation area and excavation perimeter that will be used during the current permit phase, and depicting all of the following information within a 1-mile radius of the excavation perimeter, unless otherwise specified.
 - a.** Contours at 25-ft intervals, surface water resources, city streets (labeled), state highways, property lines (with parcels labeled to indicate primary land use), and all structures and buildings.
 - b.** Zoning district boundaries with each district clearly labeled.
 - c.** The location of any public water supplies, primary and secondary wellhead protection areas for municipal wells, groundwater aquifers, and potential future municipal wells and surface water resource areas identified in the City of Keene Water Resources Plan, and any updated water resource or aquifer information as shown on the

- e. Locations of proposed buildings, structures, accessory facilities/activities, safety fencing, processing areas, and material stockpiling areas within the excavation perimeter, including designated fuel storage, refueling, and equipment maintenance areas.
 - f. Proposed locations of and provisions for vehicular traffic, parking areas, access and service driveways, including design and materials to be used for constructing said areas and driveways, truck flow on site, and any proposed traffic controls for site entrances and exits.
 - g. The location of proposed topsoil stockpiling areas, with a note describing methods for stabilizing these soils and preventing erosion and sedimentation of runoff.
 - h. Location and types of proposed water storage areas for water to be used to support excavation operations, and drainage and storm water management structures and devices.
 - i. Location, height, type and materials of existing and proposed visual and sound barriers on the excavation site.
 - j. Location and nature of proposed dust control structures, devices and processes.
 - k. Any additional information that the Planning Board may reasonably deem necessary to determine compliance with NH RSA 155-E, the Earth Excavation Regulations in Article 24 and this LDC.
- 6.** A detailed erosion control, sedimentation and drainage management plan that will be implemented to control runoff volume, velocity and water quality during the current permit phase. This plan shall be drawn at a scale of 1-in = 50-ft or other scale as the Community Development Director may reasonably deem necessary, showing the following information within the proposed excavation perimeter to be used during the current permit phase.
- a. Contours of at most 2-ft intervals showing existing topography and drainage patterns.
 - b. Surface waters.
 - c. The location of the excavation area, the excavation perimeter, and the access driveway.
 - d. The location and type of all earth stockpile areas.
 - e. The proposed grading and drainage pattern within the excavation perimeter.
 - f. The location(s) and design details for all proposed erosion control, sediment control, and water and drainage management structures, devices, and processes including but not limited to:
 - i. Water detention ponds;
 - ii. Sediment settlement areas;
 - iii. Silt fences and other erosion control devices;
 - iv. Flow dissipation measures;
 - v. Soil stabilization measures;
 - vi. Water storage ponds to be used to support operations; and,
 - vii. Any other measures necessary to minimize erosion and sedimentation, and promote soil stabilization.
 - g. A note describing the procedures and timing for inspecting, maintaining, and repairing erosion control, sedimentation control, and water and drainage management structures, devices and processes.
 - h. A note indicating the requirement for documenting in a log all inspection and maintenance activities, all adverse

impacts identified during inspections, and actions taken to remediate the adverse impacts.

- 7.** A detailed impact control and monitoring plan for avoiding, identifying, and responding to adverse impacts associated with the excavation operations. This plan shall propose structures, devices, and processes for avoiding potential adverse impacts. The plan shall also provide protocols to be used for documenting baseline conditions, conducting monitoring for adverse impacts, responding to and/or correcting adverse impacts when they are identified, and for documenting monitoring activities, adverse impacts that occur, and how the adverse impacts were corrected. Potential impacts to be addressed in this plan shall include noise, dust, reduction of groundwater quantity and quality, spills of toxic or hazardous materials, blasting and pollution of surface and ground water.
 - a.** A noise impact control and monitoring plan, which shall include, at a minimum, the following.
 - i.** The location and design of structures, devices, and processes to be installed on the site to avoid, control, and minimize adverse noise levels from leaving the excavation site.
 - ii.** A protocol for conducting monitoring of sound levels and complying with the earth excavation regulations in Article 24 of this LDC. Said protocol shall include at least: proposed locations for measuring background ambient sound levels and for monitoring sound levels once the excavation operation has commenced; proposed dates for measuring ambient sound levels; proposed annual time periods when sound monitoring will be conducted; and, specifications for sound measurement equipment to be

used.

- iii.** A protocol for responding to noise complaints, complying with the earth excavation regulations in Article 24 of this LDC.
- b.** A dust control and monitoring plan, which shall include at least the following.
 - i.** The location and design of structures, devices and processes to be installed, maintained and/or implemented to control air borne dust, and/or transportation of dirt and mud by vehicles exiting the site.
 - ii.** A protocol for inspecting structures, devices, and processes to determine if maintenance is necessary and/or to determine if and when control and abatement processes should be implemented.
 - c.** A groundwater level monitoring plan, which shall include at least the following.
 - i.** The location and depth of all ground water monitoring wells and the seasonal high groundwater depth at each well.
 - ii.** A protocol for monitoring the effect of the excavation operations on ground water levels to prevent dewatering of surface waters, wetlands, public and private wells or water supplies, and groundwater aquifers, including bedrock aquifers. Such a plan is only required for those projects proposing to excavate below the overburden seasonal high groundwater level.
 - iii.** A response plan for providing an immediate replacement water supply for any public or private water supplies that are disrupted as a result of the excavation

pits and/or borings made on the site in preparing the earth excavation permit application.

- 2. Hydrologic/Geologic Analysis.** This analysis shall be required for all excavation projects that propose depths below the seasonal high ground water table in either the overburden or the bedrock. This analysis shall include at least the following.
 - a.** The seasonal high ground water table elevations in the proposed excavation area as determined by digging test pits and/or installing monitoring wells.
 - b.** The location of public and private wells within one-half (½) mile of the proposed excavation area.
 - c.** The location of all surface water bodies and wetlands within 300-ft of the excavation perimeter.
 - d.** A baseline water depth or elevation for all wells, and surface water bodies identified above.
 - e.** The results of a 72-hour constant discharge pump test.
- 3. Traffic Analysis.** This analysis shall be conducted by a NH licensed transportation engineer and shall identify the impacts on road safety and capacity as a result of the excavation operation. This analysis shall include at least the following information.
 - a.** A description of the proposed truck travel route along any City streets to be used between a State Numbered Highway and the excavation access driveway.
 - b.** The estimated annual, weekly, daily and peak hour vehicle trips to and from the excavation site for all trucks used for transporting earth materials and for all vehicles including, but not limited to, personal vehicles of employees, agents, representatives, and customers.
 - c.** The proposed maximum number of

vehicle trips per day for all vehicles accessing the site, and the proposed maximum number of trips per day for all trucks used for transporting earth materials and equipment.

- d.** In the event the estimated number of vehicle trips per day for all vehicles exceeds 100 vehicle trips, the applicant shall provide a complete traffic study, which shall include at least the following.
 - i.** Daily and peak hour traffic counts for all streets included along the proposed travel route.
 - ii.** An estimate of the volume distribution for vehicles entering and leaving the excavation site.
 - iii.** A level of service analysis for all intersections that may be impacted by the excavation operation.
 - iv.** An accident analysis for all road segments and intersections that may be impacted by the excavation operation.
- 4. View Preservation Analysis.** All applicants for an earth excavation permit who propose to locate the excavation site within Zone 1 or Zone 2 of the View Preservation Overlay as defined in Figure 13-1 in Article 13 of this LDC, shall submit a visual analysis demonstrating the extent to which the excavation operation will be visible from any public right-of-way, abutting property, or prominent overlook not located on the excavation site. This analysis may include a combination of photographs, elevations, and cross sections to demonstrate the extent of the visual impact.

5. Analysis of Important Habitat. All applicants for an earth excavation permit shall provide an environmental review of the excavation site obtained from the NH Natural Heritage Bureau, to determine if any lands within the excavation site are listed in the NH Natural Heritage Database as containing rare, endangered or threatened species, species of special concern, or exemplary natural communities.

- a.** If lands within the analysis area are included in the NH Natural Heritage Database, a natural resource inventory for both vegetation and wildlife shall be completed by a forest ecologist, wildlife biologist, or other qualified professional, to verify the presence and/or significance of the important habitat and to determine whether the excavation will cause an adverse impact, degradation, or fragmentation of said important habitat.

6. Miscellaneous Information. Applicants for an earth excavation permit shall provide to the Planning Board any and all additional information that the Board may reasonably deem necessary in order to complete a site-specific review of the excavation site and to determine whether the proposed excavation complies with NH RSA 155-E, and the Earth Excavation Regulations in Article 24 of this LDC.

25.19.5 Submittal Requirement Exemptions

An applicant for an Earth Excavation permit may request the Community Development Director, or their designee, to exempt their application from any of the submission requirements referenced in Section 25.19.

- A.** Requests for exemption shall be made to the Community Development Director in writing prior to the submission of a completed application and shall include an explanation of why the specified information is not relevant to the Planning Board's determination whether the applicant complies with NH RSA 155-E, the

Earth Excavation Regulations in Article 24 of this LDC.

- 7.** The Community Development Director, or their designee, may grant an exemption of the submittal requirements if they find that the information is not relevant to the Planning Board's determination of whether the applicant complies with NH RSA 155-E and the Earth Excavation Regulations in Article 24 of this LDC. Factors to consider in determining whether to grant an exemption include consideration of the size, scale, scope, and nature of the proposed excavation project.
- 8.** Any exemption granted by the Community Development Director, or their designee, must be confirmed by the Planning Board during its completeness review of the application. The Board may consult City staff and/or a consultant retained by the Board in accordance with Section 25.19.7, prior to confirmation. If the Planning Board deems the information relevant to its decision on the merits of the application, then the applicant shall provide said information prior to the Planning Board making a finding that the application is complete.

25.19.6 Application Submittal Deadline

A completed earth excavation permit application shall be submitted to the Community Development Director, or their designee, no later than 26 business days prior to the Planning Board meeting date at which the applicant desires the application to be reviewed.

25.19.7 Procedure

In addition to the common application and review procedures of this Article, the following review and approval procedures shall apply to applications for Earth Excavation Permits.

- A. Presubmission Meeting.** Applicants for earth excavation permits shall attend a presubmission meeting at least 2-weeks prior to the Planning Board submittal deadline.

- A. Hiring of Consultant.** Upon receipt of a completed Earth Excavation Permit application, the Planning Board shall retain a consultant, at the expense of the applicant, for the purpose of reviewing the application for completeness and compliance with NH RSA 155-E and the Earth Excavation Regulations in Article 24 of this LDC. This consultant shall review all aspects of the submittal.
- B. Joint Meeting.** A joint meeting may be held with the applicant, the consultant, and City staff to review and discuss the proposed excavation project and application materials. The applicant shall submit any revisions to the proposed excavation project that result from this meeting to the consultant for review.
- C. Consultant Recommendation.** Upon completion of its review, the consultant shall provide recommendations to the Planning Board including, but not limited to, the following.
 - 1. The extent to which the submitted information enables the Planning Board to find that the application is complete.
 - 2. A list of any additional information that the Planning Board should request from the applicant before finding the application complete.
 - 3. A list of any previously exempted information that the consultant deems necessary to determine compliance with NH RSA 155-E, and the Earth Excavation Regulations in Article 24 of this LDC.
 - 4. Whether the proposed project is a prohibited project as defined in the Earth Excavation Regulations in Article 24 of this LDC.
 - 5. The extent to which the proposed project complies with the operational standards and reclamation standards set forth in the Earth Excavation Regulations.
 - 6. The extent to which the proposed project complies with the permit standards set forth in Section 25.19 of this LDC.
 - 7. The extent to which any requested waivers or exceptions, and proposed alternative standards, meet the Planning Board's criteria for granting waivers and exceptions.
- 8.** A list of possible conditions of approval or modifications to the excavation project that would bring the project into compliance with NH RSA 155-E, and the Earth Excavation Regulations in Article 24 of this LDC.
- D. Compliance with Zoning.** Applications requiring approval from the Zoning Board of Adjustment shall not be noticed for public hearing until such approvals have been obtained.
- E. Board Determination of Application Completeness.** Upon receipt of the consultant's recommendations and upon receipt of any additional information or modifications made by the applicant, the Community Development Director, or their designee, shall forward an application for an earth excavation permit to the Planning Board for a determination of completeness, and shall provide published and mailed notice of this agenda item pursuant to NH RSA 675:7(l).
- F. Conservation Commission Review.** Upon finding a determination of completeness, the application and any associated materials shall be forwarded to the City of Keene Conservation Commission for review and comment. The Conservation Commission may provide written comment to the Planning Board prior to the closing of the public hearing on the application.
- G. Public Hearing.** Within 30 calendar days of a determination of completeness, the Planning Board shall hold a public hearing in accordance with NH RSA 155-E-7.
- H. Decision.** Within 20 calendar days following the closing of the public hearing, the Planning Board shall approve, approve with conditions, or disapprove of the application. Notice of the decision shall be provided to the applicant in writing.

25.19.8 Filing

- A. Earth excavation permits shall not be issued until approved plans have been signed by the Chair or Vice Chair of the Planning Board and all applicable fees have been paid by the applicant.
- B. Prior to the signature of the Chair or Vice Chair of the Planning Board on the approved plan, the applicant shall:
 - 1. Demonstrate to the satisfaction of the Community Development Director, or their designee, that all conditions of approval have been met as specified by the Planning Board; and,
 - 2. Provide complete copies of the approved plan set in a number and form as specified by the Community Development Department.

25.19.9 Modifications to an Issued Permit

- A. **Major Amendment to an Issued Permit.** When the scope of a permitted excavation project is proposed to be altered so as to affect the size or location of the excavation, the rate of removal or the plan for reclamation, the applicant shall submit an application for an amendment of the excavation permit. Such application shall be subject to approval by the Planning Board in the same manner as provided for with an excavation permit.
- B. **Minor Amendment to an Issued Permit.** When an applicant proposes to modify a permitted excavation project and the modification does not affect the size or location of the excavation, the rate of removal, or the plan for reclamation, the applicant shall submit a request for a minor amendment to the Community Development Director, who shall review the request to determine whether the amendment may be approved administratively or whether it should be referred to the Planning Board for its consideration.
 - 1. If the proposed amendment is consistent with any and all conditions of the previously approved permit and the modification will not increase any adverse impacts, then the

minor amendment may be approved by the Community Development Director if they find that the modification complies with NH RSA 155-E, and the Earth Excavation Regulations in Article 24 of this LDC.

- 2. If the Community Development Director finds that the modification is inconsistent with conditions of the previously approved permit and/or finds that the excavation may increase adverse impacts, then the minor amendment shall be placed on the Planning Board agenda for its consideration and determination.

25.19.10 Approval Standards

All applications for an earth excavation permit shall be evaluated for compliance with NH RSA 155-E and the Earth Excavation Regulations in Article 24 of this LDC.

25.19.11 Expirations

- A. Any failure to meet the deadlines in this Section shall result in automatic expiration of Planning Board approval. This Section shall not be waivable.
- B. **Conditional Approvals.** If an application is conditionally approved, the applicant has 180 calendar days (starting the day following the decision of the Planning Board on the application) to meet any conditions that shall be met prior to signature of the Chair or Vice Chair of the Planning Board on the plan, unless an extension of time is requested in writing by the applicant prior to the end of the 180-day period, and said request is granted by the Planning Board.
- C. In the event that substantial construction of the excavation operation has not commenced within 1-year of the issuance of the excavation permit, the excavation permit shall expire, unless an extension of time is requested in writing by the applicant prior to the end of the 1-year period, and said request is granted by the Planning Board.

25.19.12 Permit Renewal

If the applicant wishes to continue their excavation project after expiration of the approved permit period, and the applicant does not propose modifications to the size or location of the excavation, the rate of removal, or the plan for reclamation, then the applicant shall submit an application for permit renewal in accordance with the following procedures.

- A.** Renewal applications shall be submitted to the Community Development Department, on forms provided by the Department, at least 6-months prior to the expiration of the approved permit period.
- B.** An application for permit renewal may include proposed amendments, which shall be reviewed in accordance with Section 25.19.9.
 - 1.** When the approved permit period is set to expire and the applicant intends to continue the excavation use beyond the expiration date with a proposed modification to the size or location of the excavation, rate of removal or plan for reclamation, the permit holder shall submit an application to amend an issued permit as specified in Section 25.19.9.
 - a.** In addition to submittal requirements for the amended permit, the permit holder shall submit a statement of compliance with the application and shall be subject to a site inspection as outlined in Section 25.19.12.D.
- C.** A renewal application shall include at least the following information.
 - 1.** 3-copies of the previously approved plans with a description and diagram of the extent of the area that has been excavated, the volume of earth material removed, and the reclamation that has been completed, if any.
 - 2.** 7-copies of an updated plan set highlighting the following information.
 - a.** The area expected to be excavated during the permit renewal period, the total volume of earth material to be

removed, and the rate of removal.

- b.** Any areas to be reclaimed during the permit renewal period.
 - c.** Any proposed changes to the site design or the manner in which operating standards, permit standards, and/or permit conditions will be met during the subsequent permit period.
 - 3.** 4-copies of a Statement of Compliance summarizing the extent to which the excavation operation complies with NH RSA 155-E, the Earth Excavation Regulations in Article 24 of this LDC, and any conditions of approval associated with current permit period.
 - a.** This narrative shall include a discussion of any problems or violations that occurred on the excavation site during the current permit period, an indication of how the applicant remedied the problems or violations, and what actions the applicant proposes to take to avoid or mitigate these problems or violations during the renewal permit period.
 - 4.** All information relative to any proposed minor amendments included in the renewal application, to evaluate compliance with NH RSA 155-E, and the Earth Excavation Regulations in Article 24 of this LDC.
 - 5.** Any other information reasonably deemed necessary by the Community Development Director to determine continued compliance with NH RSA 155-E, and the Earth Excavation Regulations in Article 24 of this LDC.
- D.** Prior to the approval of a renewal application, the Building and Health Official, or their designee, shall conduct an inspection of the excavation site to determine whether any violations of NH RSA 155-E, the Earth Excavation Regulations in Article 24 of this LDC, and/or the permit conditions exist.
 - E.** When an excavation operation does not have

any existing unresolved permit violations, as determined during the inspection, the renewal application may be approved in accordance with these regulations, by the Community Development Director without a public hearing.

1. If the inspection identifies unresolved permit violations, the renewal application shall be reviewed by the Planning Board at a duly noticed public hearing.

25.19.13 Waivers and Exceptions

A. The Planning Board recognizes that the granting of waivers and exceptions may be appropriate and necessary for granting approval of an earth excavation permit application. The Planning Board shall consider the advice of its consultant and City staff in determining whether a requested waiver meets the intent of NH RSA 155-E, and the Earth Excavation Regulations in Article 24 of this LDC.

1. The Planning Board shall have the sole authority to grant a waiver of any specific requirement or standard in Article 24 and Section 25.19 of this LDC. The Planning Board shall also have the sole authority to grant an exception in writing to the standards contained in NH RSA 155-E:4-a (Minimum and Express Operational Standards), NH RSA 155-E:5 (Minimum and Express Reclamation Standards), and NH 155-E:5-a (Incremental Reclamation).

B. Requests for waivers from the regulations and exceptions to statutory standards shall be made in writing and shall be subject to a public hearing. Such waiver or exception requests shall:

1. State specifically which requirements or standards are requested to be waived/excepted;
2. Explain why there is a need for the waiver(s) and/or exceptions(s); and,
3. Propose alternative requirements or standards, and shall demonstrate how the alternative requirements or standards cause the proposed excavation operation to comply with the criteria for waivers/

exceptions in this Section and how said alternative requirements and standards meet the intents and purposes of the City of Keene Earth Excavation Master Plan, NH RSA 155-E, and the Earth Excavation Regulations in Article 24 of this LDC.

C. In no case shall a waiver or exception be granted such that it would cause the permit to be in violation of NH RSA 155-E, and the Earth Excavation Regulations in Article 24 of this LDC.

D. The Planning Board shall grant said requests for waivers or exceptions upon reaching a finding that the applicant has demonstrated the following, in addition to any additional criteria set forth below.

1. The granting of a waiver/exception will not increase the potential for adverse impacts.
2. The requested waiver/exception is consistent with the purpose and intent of the City of Keene Earth Excavation Master Plan, and the Earth Excavation Regulations in Article 24 of this LDC.
3. The granting of the requested waiver/exception will not be unduly injurious to public or environmental welfare.
4. The scale; volume; area; design features; siting of earth excavation operations; the nature of the proposed operation; the unique site characteristics including, but not limited, to topography, density of vegetation and/or surrounding land uses; and, the alternative conditions or standards, taken as a whole, will adequately avoid or mitigate the potential for adverse impacts.

E. For waivers and exceptions of setbacks to property boundaries and public rights-of-way, the following criteria shall apply in addition to any other applicable criteria listed in Section 25.19.13.

1. Waivers and exceptions of setbacks to property boundaries and public rights of way shall not be granted for operations that include blasting or crushing activities.
2. The Planning Board shall consider the

extent to which property owners abutting the affected setback have provided written consent to the proposed alternative setback.

- F.** For waivers and exceptions to surface water resource setbacks, the applicant shall demonstrate the following in addition to any other applicable criteria listed in Section 25.19.13.
- 1.** The proposed activity cannot be located in a manner that avoids an encroachment in the setback.
 - 2.** If the proposed activity cannot be located in a manner to avoid an encroachment in the setback, then all practicable measures have been taken to minimize the encroachment in the setback.
 - 3.** The area of encroachment does not adversely impact the functions and values associated with the setback or the surface water resource. Such demonstration shall include an evaluation of at least the following.
 - a.** The size, character and quality of the affected surface water resource.
 - b.** The nature of the functions and values served by the surface water resource.
 - c.** The nature of the topography, slopes, soils and vegetation in the area that encompasses the surface water resource and the setback.
 - d.** The location and connectivity of the surface water resource in relation to other surface water resources in the surrounding watershed.
 - e.** The use of the setback as wildlife habitat and/or as a wildlife travel corridor.
 - f.** The role of the setback in mitigating soil erosion, sediment and nutrient transport, groundwater recharge, flood storage and flow dispersion.
 - g.** The rate, timing and volume of

stormwater runoff and its potential to influence water quality associated with the affected surface water resource or any associated downstream surface water resources.

- h.** The sensitivity of the surface water resource and the setback to disruption from changes in the grading or vegetation structure in the setback.
- 4.** In cases where the Planning Board grants a waiver of setbacks to surface water resources, the applicant shall be required to document the preexisting character and quality of the water resource prior to initiating site development activities. Such documentation shall serve as baseline information to be used to assess the effectiveness of the approved alternative setback standard.
- G.** Decisions to grant waivers and/or exceptions shall be made in writing stating specifically what standards are to be waived/excepted and what alternative conditions or standards will be required of the applicant. Said decisions may be attached to or incorporated into the Planning Board decision on the earth excavation permit application.
- H.** Prior to ruling on a request for a waiver or exception, the Planning Board shall hold a public hearing in accordance with NH RSA 155-E:7 and the Earth Excavation Regulations in Article 24 of this LDC.
- I.** The Planning Board's decision on any request for such waiver or exception may be appealed in accordance with NH RSA 155-E:9.

25.19.14 Security

Prior to the issuance of any earth excavation permit or to the removal of topsoil or other overburden material from any land area that has not yet been excavated, the applicant shall submit security in a form and amount acceptable to the the City Engineer and the Community Development Director to be sufficient to guarantee compliance with the permit.

25.19.15 Inspections

- A.** Inspections shall be made for all excavation operations at a frequency not less than annually, including an inspection to be performed in conjunction with evaluating an application for a permit renewal.
 - 1.** Such inspections shall determine if the excavation operation complies with NH RSA 155-E, the Earth Excavation Regulations in Article 24 of this LDC, the approved plan, and any permit conditions.
- B.** The Building and Health Official, or their designee, may, at their discretion and at the expense of the applicant, contract with a third party agent to conduct inspections of permitted excavation operations.
 - 1.** The inspection shall include a review of all required monitoring logs.
- C.** The Building and Health Official, or its duly authorized agent, shall prepare a report detailing the results of the inspection and any problems or violations identified. Copies of this report shall be provided to the applicant and the Community Development Director, or their designee.



The State of New Hampshire
Department of Environmental Services



Robert R. Scott, Commissioner

July 20, 2022

Re: Notice of Complaint Received
Land Resources Management File Number: 2022-02068
Subject Property: 365 e Surry Rd, Keene, Tax Map #914, Lot #5

The New Hampshire Department of Environmental Services (NHDES) Land Resources Management Program received your complaint and supporting materials on **July 19, 2022** for the above-referenced property (Property). Please verify the Property information above is correct and notify us of any errors.

Your complaint form and supporting documents have been forwarded to the regional inspector, Sephera M. Michailides, for investigation. **Please note this is not confirmation that a violation has occurred.**

A letter is also being issued to the Property owner(s) notifying them of the nature of the complaint. The letter provides them an opportunity to comment in writing and informs them the case has been added to our inspection list. NHDES will conduct an investigation to determine if a violation has occurred, and if so, assess the degree of environmental harm. Complaints alleging an immediate or ongoing threat to water quality, an immediate or ongoing threat to public health, and/or an immediate or ongoing threat that has the potential for irreversible harm to the environment are assigned the highest priority. Complaints alleging a violation involving a lesser degree of environmental harm, such as docks, are assigned a lower priority. The priority ranking will dictate the expediency of our response to your complaint.

You will not be copied on correspondence and contents of the file. You may request information from the file, or request a file review electronically through our Public Records Center. The link to our Public Records Center can be found at: [https://nhdes.govqa.us/WEBAPP/_rs/\(S\(oid34paydmvicihv5t4kt0wg\)\)/SupportHome.aspx](https://nhdes.govqa.us/WEBAPP/_rs/(S(oid34paydmvicihv5t4kt0wg))/SupportHome.aspx).

Thank you for your interest and commitment in protecting the environment.

Sincerely,

Sephera M. Michailides
Compliance Specialist
Land Resources Management Program
Water Division



The State of New Hampshire
Department of Environmental Services



Robert R. Scott, Commissioner

July 21, 2022

Bretwood Golf Course Inc
365 East Surry Rd
Keene NH 03431
c/o Tom & Matt Barrett

Re: Reported Alleged Violation
Land Resources Management File Number: 2022-02068
Subject Property: 365 e Surry Rd, Keene, Tax Map #914, Lot #5

Dear Mr. Tom & Matt Barrett:

The New Hampshire Department of Environmental Services (NHDES) Land Resources Management Program has received a complaint of possible violations on your property. The complaint alleges that you, or your agent, have constructed an earthen dam in the Ashuelot River. This letter is to notify you of this complaint, and to provide you with an opportunity to respond.

We find no record of a permit being issued under your name for the work described above, however, NHDES would not permit this activity. As such, you are requested to voluntarily refrain from carrying out any additional work until NHDES further investigates this matter.

Pursuant to RSA 482-A, a wetlands permit is required from NHDES, and posted on site, prior to excavating, removing, dredging, filling, or constructing any structure in or on any bank, flat, marsh, bog, or swamp, in and adjacent to waters of the state or within 100 feet of a designated prime wetland where a 100-foot buffer was required at the time of designation.

If there is a violation, NHDES has the authority to take enforcement action. **Within 20 days of the date of this letter**, please provide your comments in writing; submit a copy of any permits, plans, or other information related to this matter; and reference the above file number on all correspondence.

This case has been added to our inspection list. Should you have any questions, please contact me at Sophera.M.Michailides@des.nh.gov or (603) 271-4056. Further information about NHDES programs may also be found at the NHDES website: www.des.nh.gov.

Sincerely,

Sophera M. Michailides
Compliance Specialist
Land Resources Management Program
Water Division

cc: Keene Conservation Commission
Keene Board of Selectmen

www.des.nh.gov

29 Hazen Drive • PO Box 95 • Concord, NH 03302-0095

NHDES Main Line: (603) 271-3503 • Subsurface Fax: (603) 271-6683 • Wetlands Fax: (603) 271-6588

TDD Access: Relay NH 1 (800) 735-2964



**STANDARD DREDGE AND FILL
WETLANDS PERMIT APPLICATION**
Water Division/Land Resources Management
Wetlands Bureau
Check the Status of your Application



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

APPLICANT'S NAME: Keene School District- Kenneth M. Dooley, Director

TOWN NAME: Keene

Administrative Use Only	Administrative Use Only	Administrative Use Only	File No
			Check No
			Amount
			Initials

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 Wetland Permit Planning Tool (WPPT), the Natural Heritage Bureau (NHB) DataCheck Tool, the Aquatic Restoration Mapper, 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Does the property contain a PRA? If yes, provide the following information:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> Does the project qualify for an Impact Classification Adjustment (e.g. NH Fish and Game Department (NHF&G) and NHB agreement for a classification downgrade) or a Project-Type Exception (e.g. Maintenance or Statutory Permit-by-Notification (SPN) project)? See Env-Wt 407.02 and Env-Wt 407.04. 	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> Protected species or habitat? <ul style="list-style-type: none"> If yes, species or habitat name(s): NHB Project ID #: 	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
• Bog?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
• Floodplain wetland contiguous to a tier 3 or higher watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
• Designated prime wetland or duly-established 100-foot buffer?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
• Sand dune, tidal wetland, tidal water, or undeveloped tidal buffer zone?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Is the property within a Designated River corridor? If yes, provide the following information:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> Name of Local River Management Advisory Committee (LAC): A copy of the application was sent to the LAC on Month: Day: Year: 	

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

Brief Project Description:

Wilson Pond Dam (D126002) has been deemed by NHDES Dam Bureau to be in Poor condition. The objective of this project is to make improvements to the dam to provide additional hydraulic capacity and stability to the dam. Wilson Pond is used for recreation in the northern residential neighborhood of Keene. The original stonewall dam was buried in stone fill material in 1979 to provide stability to the dam. This improvement however reduced the original hydraulic capacity of the dam, which had a sluiceway and overflow weir.

The current project involves replacing the intake structure with a new cast-in-place concrete structure to maintain the current water level in the pond, a new outlet pipe, construct a sub-surface concrete hydraulic cut-off wall, and reshaping the existing stone fill to create an overflow spillway. To protect the erodible soils in the dam and provide additional stability, the voids between existing stone fill and new riprap spillway will be filled with concrete. Other improvements beyond wetland areas include raising earthen portions of the dam and installing sub-surface mineral filters to capture seepage.

Work Sequence Narrative:

The proposed project will begin with the Owner completing a temporary drawdown of the pond by removing stoplog boards from the existing intake structure. This drawdown would lower the pond from El. 499.25-ft to 497.5-ft (1.75-ft total). To complete aspects of the work, such as the hydraulic cut-off wall, an additional foot of drawdown may be required, which would lower the pool to El. 496.5-ft (2.75-ft total)

The following sequence is anticipated to take place by a Contractor:

- Site Mobilization
- Traffic Control measures and project demarcation fencing installed.
- Control of Water measures installed.
- Erosion Prevention and Sediment Control measures installed.
- Exploratory Excavations
- Demolition of the existing intake structure and outlet pipe
- Excavation and subgrade preparation for new intake structure and outlet pipe
- New 24-inch RCP pipe placement
- Concrete placement of new intake structure and pipe cradle
- Open trench excavation of hydraulic cut-off wall
- Concrete placement of cut-off wall
- Reshaping of downstream stone fill and construction of spillway channel
- Raise remaining dam portions and install mineral filter.
- Restoration of surfaces with loam, seed, and mulch.
- Substantial completion and final completion checks
- Authorization to refill and remove control of water measures and EPSC measures
- Demobilization.

The Contractor before mobilizing to the site is required on the Plans and in the Specifications to submit a Control of Water plan to be reviewed and approved by NHDES and the Engineer. The anticipated plan will include a sand bag cofferdam, flow bypass system, and other measures to prevent sediment discharge downstream such as a turbidity curtain and dewatering bags.-



MEMORANDUM

To: Charles Johnston, Project File
Date: July 27, 2021
From: Grace Glynn
Subject: Keene Wilson Pond Dam Wetlands Review
Project No.: 824380

This memorandum summarizes the wetland site investigation performed at Lower Wilson Pond Dam on Arch St, Keene, as shown on the attached Permit Planning Tool (PPT) map.

I visited the site on July 22, 2021 to search for wetlands and found one wetland within the project area. I delineated it in accordance with the COE 1987 Wetland Delineation Manual and the COE 2012 Regional Supplement for the Northcentral and Northeast Region (transect data sheets attached). I flagged the boundaries and recorded them using a GPS unit with sub-meter accuracy. The wetland is labeled as Wetland A and is shown on the attached Wetlands Exhibit. Photos of the wetlands are attached. I also recorded Ordinary High Water (OHW) elevations north of Arch St. using a GPS with sub-meter accuracy.

Wetland A is palustrine emergent/scrub shrub (PEM/SS) and is located between Arch Street and the dam. The wetland is dominated by silky dogwood, purple loosestrife, sedges, elderberry, and jewelweed. Its principal values and functions include floodflow alteration and nutrient retention. This wetland is located below OHW and exhibited flowing surface water in some areas at the time of my visit.

As seen in the attached Wetland Exhibit, there is a small area of upland north of Wetland A dominated by non-native honeysuckle, multiflora rose, Norway maple, and periwinkle. East of Wetland A and just below the dam, some scattered hydrophytic plant species—such as purple loosestrife and swamp milkweed— are present, but no hydric soils are present in this area. It therefore does not meet the definition of wetland.

Work in any wetland or below Ordinary High Water would require an Army Corps of Engineers 404 Wetlands Permit. As shown on the attached PPT Map, the project area is located in a FEMA floodplain. As a general rule, anything that alters the natural topography of any floodway within the city of Keene requires a floodplain development permit from the superintendent of code enforcement, and may require permit review by the state of New Hampshire.

The attached Natural Heritage Bureau Data Check Tool report #21-2457 states that no records of rare species or exemplary natural communities are known from the project area. None were observed during the course of field work.

I:\8\824380 KSD Wilson Pond Dam Engineering, Permitting, Bid & Construction\Design\Permitting\Wetlands\Wetlands Memo 07 27 21.docx



1: 3,838

0 0.06 0.1 Miles

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.
THIS MAP IS NOT TO BE USED FOR NAVIGATION

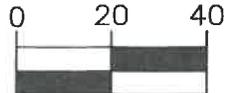
Legend

- Wetland_Permits_points
- Parcel Lines
- ☐ NH City/Town Boundaries
- Designated Rivers
 - ☐ Subject to SWCPA
 - ☐ Not Subject to SWCPA
- NWI Plus
 - Estuarine and Marine Deepwater
 - Estuarine and Marine Wetland
 - Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Other
 - Riverine
- NWI
 - Estuarine and Marine Deepwater
 - Estuarine and Marine Wetland
 - Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Other
 - Riverine
- World Imagery
- Low Resolution 15m Imagery

Notes



GRAPHIC SCALE



1 inch = 40 ft.

engineering

planning

management

development



KEENE WILSON POND DAM
KEENE, NEW HAMPSHIRE

WETLAND EXHIBIT

DRAWN BY JWP	DATE JUL, 2021
CHECKED BY	PROJ. NO. 824380M5
PROJ. ENG. GPG	DRAW. NO.



APPLICATION TO AMEND THE ZONING ORDINANCE

Petitioner: Keene Community Development Date: 6/14/2022

Address: 3 Washington Street, Keene, NH

Telephone: (603) 352-5440 Email: mbrunnere@keene-nh.gov

Existing Section Reference in Chapter 100, Land Development Code: 3.1.2, 19.3, 25.10

Does the amendment affect "Minimum Lot Size"? Yes No

Does the amendment affect "Permitted Uses"? Yes No

Does the amendment affect a zoning district that includes 100 or fewer properties?* Yes No
(For assistance in determining answer, Please contact Community Development) LD-1 District

I, Mari Brunner hereby certify that I have contacted Community Development to confirm whether the amendment affects a zoning district that includes 100 or fewer properties, and I certify that the information I have provided on this application is true and correct.

Attest: Mari Brunner
Petitioner's Signature

SUBMITTAL REQUIREMENTS WHICH MUST BE COMPLETE AT TIME OF SUBMISSION TO THE CITY CLERK:

- A properly drafted Ordinance containing the amendment in a form meeting the requirements of the City Clerk.
- A typed or neatly printed narrative explaining the purpose of, effect of, and justification for the proposed change(s).
- \$100.00 application fee.
- As provided for in RSA 675:7, if the proposed amendment would change the minimum lot sizes or the permitted uses in a zoning district, ***and such change affects a zoning district that includes 100 or fewer properties**, the Petitioner shall submit a notarized list of property owners affected by the zoning amendment. The list shall include the tax map number and address of each abutter or owner, and must be current with the Assessing Department's records within ten days of submittal. Two sets of mailing labels shall be provided.



APPLICATION TO AMEND THE ZONING ORDINANCE

Date Received by City Clerk: _____ Ordinance Number: _____

On City Council agenda: _____ Workshop to be held: _____

Public Hearing to be held _____

APPLICABLE FEES:

Application Fee @ \$100.00 \$ _____

Publication of Notice in The Keene Sentinel @ \$90.00 \$ _____

Postage Fees for property owners/agents and abutters at
current USPS 1st Class Mailing rate
(Only needed if amendment impacts 100 or fewer properties) \$ _____

Total Fees submitted to City Clerk \$ _____

The petitioner is also responsible for the publication costs for the public workshop before the joint Planning Board and Planning, Licenses and Development Committee. Additional fees will be collected by the Community Development Department for the mailing costs associated with the public workshop (If a mailing is required pursuant to RSA 675:7), as well as the publication of the public workshop notice.

CITY OF KEENE
NEW HAMPSHIRE

O-2022-09 Relating to Amendments to the City of Keene Land Development Code, Rural District and Conservation Residential Development Subdivision Regulations

The attached materials include the full text of Ordinance O-2022-09 relating to proposed amendments to the City of Keene Land Development Code, as well as excerpted sections of the adopted City of Keene Land Development Code that are proposed to be amended with Ordinance O-2022-09. Text that is highlighted in yellow and bolded is proposed to be added; and, text that is stricken through is proposed to be deleted.

The proposed changes include:

- Reducing the minimum lot size for the Rural District from five acres to 2 acres.
- Changing the density factor and minimum lot size for the Rural District within the Conservation Residential Development Subdivision (CRD) regulations to 2 acres per unit and 32,000 square feet, respectively.
- Adding three density incentive options to the CRD regulations, including an open space density incentive, a solar incentive, and a workforce housing incentive.
- Modifying the permitted uses within the CRD regulations for the Rural District and Low Density-1 District to include multifamily dwelling with limitations. The number of dwelling units per structure shall be limited to three, and this use shall only be permitted in conjunction with a workforce housing density incentive application.
- Amending Table 8-1, “Permitted Principal Uses by Zoning District,” and the “Permitted Uses” sections of the Rural, Low Density, and Low Density 1 Districts in Article 3 to display uses that are permitted within the Conservation Residential Development Subdivision regulations.
- Removing the requirement to submit a “Yield Analysis Plan” as part of a CRD application.
- Adding additional submittal and filing requirements for CRD applications that include a request for a solar density incentive and/or a workforce housing density incentive.

The intent of these proposed changes is to expand opportunity for housing development in the Rural District while maintaining and protecting environmentally sensitive areas. In addition, the intent of the proposed density incentive options is to promote community goals related to open space preservation, renewable energy, and providing a balanced and diverse housing stock.

Twenty-Two
Relating to Amendments to the Land Development Code

That Chapter 100 of the Code of Ordinances of the City of Keene, New Hampshire, as amended, is hereby further amended by deleting the stricken text and adding the bolded and underlined text, as follows:

1. That Section 3.1.2 “Dimensions & Siting” of Article 3 be amended as follows:

Min Lot Area	5 acres <u>2 acres</u>
Min lot area per dwelling unit without city water & sewer	5 acres
Min lot area per dwelling unit with city water & sewer	2 acres
Min Lot Width at Building Line	200 ft
Min Road Frontage	50 ft
Min Front Setback	50 ft
Min Rear Setback	50 ft
Min Side Setback	50 ft

2. That Section 3.1.5 “Permitted Uses” of Article 3 be amended to display “Dwelling, Two-Family / Duplex” and “Dwelling, Multifamily” as permitted uses by a Conservation Residential Development Subdivision in the Rural District.
3. That Section 3.3.5 “Permitted Uses” of Article 3 be amended to display “Dwelling, Two-Family / Duplex” and “Dwelling, Multifamily” as permitted uses by a Conservation Residential Development Subdivision in the Low Density District.
4. That Section 3.4.5 “Permitted Uses” of Article 3 be amended to display “Dwelling, Two-Family / Duplex” and “Dwelling, Multifamily” as permitted uses by a Conservation Residential Development Subdivision in the Low Density 1 District.
5. Update Table 8-1 “Permitted Principal Uses by Zoning District” in Article 8 to display “Dwelling, Two-Family / Duplex” and “Dwelling, Multifamily” as permitted uses by a Conservation Residential Development Subdivision in the Rural, Low Density, and Low-Density 1 Districts.

6. That Section 19.3.2.C “Density” of Article 19 be amended as follows:

~~C. Density. The maximum number of dwelling units allowed within a conservation residential development subdivision shall be determined by dividing the total area of the existing tract by the density factor per dwelling unit specified in Table 19-2.~~

1. The number of dwelling units allowed within a conservation residential development subdivision shall be determined by dividing the total area of the existing tract by the density factor per dwelling unit specified in Table 19-2.
2. A density bonus may be granted to developments that meet the criteria for one or more of the density incentives detailed in Section 19.3.6. In no instance shall a total density bonus of more than 30% above the standard allowable density be granted to any single development. This section shall not be waivable.

7. That Table 19-1 “Dimensional Requirements for Conservation Residential Development Subdivisions” in Article 19 be amended to change the minimum lot area for the Rural District from 1 acre to 32,000 square feet.

8. Remove Section 19.3.2.D “Open Space Reserve,” sub-section 2 of Article 19, which states “Conservation residential development subdivisions in the Rural zoning district that permanently reserve 60% of the existing tract area or greater as open space shall be eligible for a density bonus, as noted in Table 19-2.”

9. That Table 19-2 “Density & Open Space Requirements” in Article 19 be amended as follows:

Zoning District	Density Factor per Dwelling Unit ¹	Min Open Space
Rural	4 acres 2 acres	50%
	3 acres	60%
Low Density-1 (without city water)	1 acre	50%
Low Density-1 (with city water)	20,000 sf	50%
Low Density	10,000 sf	50%

¹ Density bonus(es) may be granted as specified in Section 19.3.6

10. That Table 19-3 “Conservation Residential Development Permitted Uses” be amended as follows:

Permitted Use	Rural District	Low Density-1 District	Low Density District
Single-Family Dwelling	P	P	P
Two-Family Dwelling	P	P	P
Multifamily Dwelling	P ¹ (max of 3 dwelling units per structure)	P ¹ (max of 3 dwelling units per structure)	P (max of 6 dwelling units per structure)

"P" = Permitted Use " - " = Use Not Permitted

P1 = Use permitted with workforce housing density incentive

11. That a new Section entitled “Optional Density Incentives” be added after Section 19.3.5 of Article 19, as follows:

Section 19.3.6: Optional Density Incentives

Conservation Residential Development Subdivisions that meet certain performance criteria shall be eligible for a density bonus above the standard allowable density, up to a maximum of 30%. The 30% density cap shall not be waivable. If a density incentive is granted, the minimum lot size specified in Table 19-1 shall be waived.

A. Open Space Density Incentive. Conservation Residential Development Subdivisions with a minimum tract size of 10 acres that permanently reserve at least 65% of the existing tract area as open space shall be eligible for a density bonus of 10% or one dwelling unit, whichever is greater.

B. Solar Density Incentive. Conservation Residential Development Subdivisions that meet the following criteria shall be eligible for a density bonus of 10% or one dwelling unit, whichever is greater:

- 1. At least 50% of the lots shall be solar-oriented. A "solar-oriented lot" shall mean a lot with its longest lot line dimension oriented to within thirty (30) degrees of a true east-west line.**
- 2. The long axis of all dwelling units on solar-oriented lots shall be oriented so that the long axis faces within 20 degrees of true south.**
- 3. At least four (4) kilowatts of solar PV shall be installed for each dwelling unit on a solar-oriented lot.**
- 4. Where, as determined by the City, topographic, environmental, and soil conditions, and existing street configurations permit, the predominant pattern of new streets in subdivisions subject to this section shall be oriented within thirty (30) degrees of east-west orientation.**

C. Workforce Housing Density Incentive. Conservation Residential Development Subdivisions that meet the criteria below shall be eligible for a density bonus of 20% or one dwelling

unit, whichever is greater. In addition, the permitted uses for a development that meets this section in the Rural District or Low Density-1 District shall include “multifamily dwelling” (max of 3 units per structure).

1. Workforce Housing, Owner-Occupied. A Workforce Housing Density Incentive will be granted to developments that guarantee the following:
 - a. Twenty percent (20%) or more of the units constructed will be sold at initial sale for a price that can be afforded by a household with an income not more than 80% of the HUD Median Area Income for a family of four in Cheshire County.
 - b. Units will be sold with a deed restriction and recorded housing agreement that names an Income Verification Agent who will verify that the purchaser meets the income requirements. The resale value of the unit shall be restricted to the affordable purchase price for a period of 30 years. The resale value of the unit is not to be more than the original purchase price plus two times the accumulated consumer price index.
 - c. All units built under this provision shall be of the same approximate size, character, quality, and construction as the market rate units, and shall be distributed evenly throughout the project.
 - d. Affordability shall be defined as housing that can be purchased under a conventional mortgage whereby the combined annual expenses for principal, interest, property taxes, homeowner’s insurance and condominium fees (if applicable) will not exceed 30% of household income.
2. Workforce Housing, Rental. A Workforce Housing Density Incentive will be granted to developments that guarantee the following:
 - a. Twenty percent (20%) or more of the units constructed will be rented for a price that can be afforded by a household with an income not more than 60% of the HUD Median Area Income for a family of three in Cheshire County.
 - b. Units will be rented with a deed restriction and recorded housing agreement that names an Income Verification Agent who will verify that the renter meets the income requirements. The rental value of the unit shall be restricted to the affordable rental price for a period of 30 years.
 - c. All units built under this provision shall be of the same approximate size, character, quality, and construction as the market rate units, and shall be evenly distributed throughout the project.
 - d. Affordability shall be defined as housing that can be rented whereby the combined annual rental and utility expenses will not exceed 30% of household income.
3. Assurance of Continued Affordability. In order to qualify as workforce housing under this section, the application shall make a binding commitment that the dwelling units will remain affordable for a period of 30 years. This shall be enforced through a deed restriction, restrictive covenant, or some other contractual arrangement through a local, state or federal housing authority or other non-profit housing trust or agency to administer this provision. No dwelling unit created by this bonus shall be occupied

until written confirmation of the income eligibility of the tenant or buyer of the unit has been documented.

12. That Section 25.10.5 “Submittal Requirements,” sub-section C “Conservation Residential Development Subdivision Applications” of Article 25 be amended as follows:

In addition to the submittal requirements for a subdivision or boundary line adjustment in Section 25.10.5.B, a completed application for a proposed conservation residential development subdivision shall include the following.

1. An overview plan (1-copy on 22-in by 34-in paper or larger size; 1-copy on 11-in by 17- in paper; and, an electronic pdf file), which displays the entire tract and any existing public roads, public or private protected lands, woodlands areas, surface waters, and precautionary or prohibitive slopes located within 200-ft of the tract.
2. An existing conditions plan displaying the location of primary and secondary conservation values as defined in Section 19.3 of this LDC.
- ~~3. A yield analysis (1-copy on 22-in by 34-in paper or larger size; 1-copy on 11-in by 17-in paper; and, an electronic pdf file) to determine the number of residential units that may be permitted within a conservation residential development subdivision. Although this plan shall be drawn to scale, it need not be based upon a field survey. The yield analysis may be prepared as an overlay to the existing conditions plan.~~
 - ~~a. The yield analysis shall be performed by applying a conventional subdivision layout, including lots conforming to the dimensional standards of the underlying zoning district and streets needed to access such lots. The conventional layout shall reflect a development density and pattern, taking into account surface waters, floodplains, steep slopes, existing easements or encumbrances, and the suitability of soils for private subsurface wastewater disposal if City sewer service is not available.~~
- 4 ~~3~~. A proposed conditions plan including the following.
 - a. The area(s) designated as Open Space, any common land and any specifically protected conservation values.
 - b. Any proposed uses of the Open Space (e.g. agriculture, recreation, forestry, etc.) and/or common lands shall be noted on the plan.
 - c. The location and dimensions of any proposed roads, sidewalks, and trails.
- ~~5~~ 4. A landscaping plan (1-copy on 22-in by 34-in paper or larger size; 1-copy on 11-in by 17-in paper; and, an electronic pdf file) providing the following information:
 - a. The location of existing wooded and vegetated areas and proposed changes to the outline of these areas.
 - b. The location, species and size of all landscaping materials proposed to be installed on the site, including street trees.

- c. A table listing all plant species to be installed on the site, indicating the size (average height and width) at planting and at maturity as well as the number of each species to be installed.
6. **5.** Written documentation of the process applied by the applicant in the layout of the proposed conservation residential development subdivision to ensure that proposed or future development does not adversely impact primary and secondary conservation areas as defined in Section 19.3 of this LDC.
- 6. Applications that include a request for the Solar Density Incentive in Section 19.3.6.B shall include the following information:**
- a. **A written request for the density incentive that describes how the application meets the requirements of Section 19.3.6.B.**
 - b. **A solar access plan that displays the building areas or locations of structures on all solar-oriented lots in order to demonstrate that it would be possible to site a structure which is unshaded by other nearby structures, site features, or topography. This solar access plan shall demonstrate that the building areas or structures on solar-oriented lots are not obscured by any vegetation, building, or object for a minimum of four hours between the hours of 9:00 AM and 3:00 PM Standard time on any day of the year. This plan may be included as an overlay to the subdivision plan or site plan, if required.**
- 7. Applications that include a request for the Workforce Housing Density Incentive in Section 19.3.6.C shall include the following information:**
- a. **A written request for the density incentive that includes a calculation of the number of units provided under this section and a description of each unit's size, type, number of bedrooms, estimated cost, location within the development, and other relevant data.**
 - c. **Written statement describing how the proposed development will meet the requirements of Section 19.3.6.C.3.**
 - d. **The Planning Board shall request additional information if, in their judgment, it is necessary to determine whether the requirements of Section 19.3.6.C have been met.**
13. That Section 25.10.9 "Filing," sub-section C of Article 25 be amended as follows:
- C. For approved conservation residential development subdivision applications, applicants shall also submit written documentation of any legal instruments required for the management of the designated Open Space land to the Community Development Department. **In addition, applicants shall submit written documentation of any legal instruments required to demonstrate compliance with the criteria of any and all optional density incentives granted by the Planning Board.** Such documents **shall be submitted to the Community Development Department and** are subject to the review and approval of the City Attorney prior to signature.

George S. Hansel, Mayor

ARTICLE 3. RESIDENTIAL ZONING DISTRICTS

3.1 RURAL (R)	3-2
3.2 RESIDENTIAL PRESERVATION (RP).....	3-3
3.3 LOW DENSITY (LD).....	3-4
3.4 LOW DENSITY 1 (LD-1)	3-5
3.5 MEDIUM DENSITY (MD)	3-6
3.6 HIGH DENSITY (HD)	3-7
3.7 HIGH DENSITY 1 (HD-1)	3-8

3.1 RURAL (R)

3.1.1 Purpose

The Rural (R) District is intended to provide for areas of very low density development, predominantly of a residential or agricultural nature. These areas are generally outside of the valley floor, beyond where city water, sewer and other city services can be readily supplied.

3.1.2 Dimensions & Siting

Min Lot Area	2 acres
	5 acres
Min lot area per dwelling unit without city water & sewer	5 acres
Min lot area per dwelling unit with city water & sewer	2 acres
Min Lot Width at Building Line	200 ft
Min Road Frontage	50 ft
Min Front Setback	50 ft
Min Rear Setback	50 ft
Min Side Setback	50 ft

3.1.3 Buildout

Max Building Coverage	10%
Max Impervious Coverage	20%

3.1.4 Height

Max Stories Above Grade	2
Max Building Height	35 ft

3.1.5 Permitted Uses

RESIDENTIAL USES		SECTION
Dwelling, Manufactured Housing	P ¹	8.3.1.B
Dwelling, Single-Family	P	8.3.1.D
Dwelling, Two-Family	CRD	8.3.1.E
Dwelling, Multifamily	CRD	8.3.1.C
Manufactured Housing Park	P	8.3.1.F
COMMERCIAL USES		SECTION
Animal Care Facility	P	8.3.2.B
Bed and Breakfast	SE	8.3.2.G
Greenhouse / Nursery	P	8.3.2.L
Kennel	P	8.3.2.P
CONGREGATE LIVING / SOCIAL SERVICES USES		SECTION
Group Home, Small	CUP	8.3.4.F
OPEN SPACE USES		SECTION
Cemetery	P	8.3.6.A
Community Garden	P	8.3.6.B
Conservation Area	P	8.3.6.C
Farming	P	8.3.6.D
Golf Course	P ¹	8.3.6.E
Gravel Pit	SE	8.3.6.F
INFRASTRUCTURE USES		SECTION
Solar Energy System (Small-Scale)	P ¹	8.3.7.A
Solar Energy System (Medium-Scale)	CUP	8.3.7.B
Solar Energy System (Large-Scale)	CUP	8.3.7.C
Telecommunications Facilities	P ¹	8.3.7.E

P = Permitted

P¹ = Permitted with limitations per Article 8.

SE = Permitted by Special Exception

CUP = Permitted by Conditional Use Permit

CRD = Permitted by Conservation Residential Development

3.2 RESIDENTIAL PRESERVATION (RP)

3.2.1 Purpose

The Residential Preservation (RP) District is intended to return this area of the City to neighborhoods composed predominantly of moderately dense single-family residential development. This district serves as an additional downtown zoning district that promotes pedestrian-scale development, walkability, bikeability, and urban green space where possible. All uses in this district shall have city water and sewer service.

3.2.2 Dimensions & Siting

Min Lot Area	8,000 sf
Min Lot Width at Building Line	60 ft
Min Road Frontage	50 ft
Min Front Setback	15 ft
Min Rear Setback	20 ft
Min Side Setback	10 ft

3.2.3 Buildout

Max Building Coverage	35%
Max Impervious Coverage	45%
Min Green / Open Space	55%

3.2.4 Height

Max Stories Above Grade	2
Max Building Height	35 ft

3.2.5 Permitted Uses

RESIDENTIAL USES		SECTION
Dwelling, Single-Family	P	8.3.1.D
COMMERCIAL USES		SECTION
Bed and Breakfast	SE	8.3.2.G
CONGREGATE LIVING / SOCIAL SERVICES USES		SECTION
Group Home, Small	CUP	8.3.4.F
OPEN SPACE USES		SECTION
Community Garden	P	8.3.6.B
Conservation Area	P	8.3.6.C
INFRASTRUCTURE USES		SECTION
Telecommunications Facilities	P ¹	8.3.7.E

P = Permitted
P¹ = Permitted with limitations per Article 8.
SE = Permitted by Special Exception
CUP = Permitted by Conditional Use Permit

3.3 LOW DENSITY (LD)

3.3.1 Purpose

The Low Density (LD) District is intended to provide for low-intensity single-family residential development. All uses in this district shall have city water and sewer service.

3.3.2 Dimensions & Siting

Min Lot Area	10,000 sf
Min Lot Width at Building Line	70 ft
Min Road Frontage	60 ft
Min Front Setback	15 ft
Min Rear Setback	20 ft
Min Side Setback	10 ft

3.3.3 Buildout

Max Building Coverage	35%
Max Impervious Coverage	45%
Min Green / Open Space	55%

3.3.4 Height

Max Stories Above Grade	2
Max Building Height	35 ft

3.3.5 Permitted Uses

RESIDENTIAL USES		SECTION
Dwelling, Single-Family	P	8.3.1.D
Dwelling, Two-Family	CRD	8.3.1.E
Dwelling, Multifamily	CRD	8.3.1.C
CONGREGATE LIVING / SOCIAL SERVICES USES		SECTION
Group Home, Small	CUP	8.3.4.F
OPEN SPACE USES		SECTION
Community Garden	P	8.3.6.B
Conservation Area	P	8.3.6.C
INFRASTRUCTURE USES		SECTION
Telecommunications Facilities	P ¹	8.3.7.E

P = Permitted
P¹ = Permitted with limitations per Article 8.
CUP = Permitted by Conditional Use Permit

CRD = Permitted by Conservation Residential Development

3.4 LOW DENSITY 1 (LD-1)

3.4.1 Purpose

The Low Density 1 (LD-1) District is intended to provide for low intensity residential development, which is primarily detached single-family dwellings on lots of 1-acre or larger in areas on the outer edge of available city water and sewer service. All uses in this district shall have city sewer. City water is required if sufficient volume and pressure is available as determined by the Public Works Department.

3.4.2 Dimensions & Siting

Lots Without City Water Service

Min Lot Area	1 acre
Min Lot Width at Building Line	75 ft
Min Road Frontage	100 ft
Min Road Frontage (For lots fronting on a cul-de-sac)	60 ft
Min Front Setback	15 ft
Min Rear Setback	20 ft
Min Side Setback	10 ft

Lots With City Water Service

Min Lot Area	20,000 sf
Min Lot Width at Building Line	75 ft
Min Road Frontage	75 ft
Min Road Frontage (For lots fronting on a cul-de-sac)	60 ft
Min Front Setback	15 ft
Min Rear Setback	20 ft
Min Side Setback	10 ft

3.4.3 Buildout

Max Building Coverage	30%
Max Impervious Coverage	35%
Min Green / Open Space	65%

3.4.4 Height

Max Stories Above Grade	2
Max Building Height	35 ft

3.4.5 Permitted Uses

RESIDENTIAL USES		SECTION
Dwelling, Single-Family	P	8.3.1.D
Dwelling, Two-Family	CRD	8.3.1.E
Dwelling, Multifamily	CRD	8.3.1.C
CONGREGATE LIVING / SOCIAL SERVICES USES		SECTION
Group Home, Small	CUP	8.3.4.F
OPEN SPACE USES		SECTION
Community Garden	P	8.3.6.B
Conservation Area	P	8.3.6.C
INFRASTRUCTURE USES		SECTION
Telecommunications Facilities	P ¹	8.3.7.E

P = Permitted

P¹ = Permitted with limitations per Article 8.

CUP = Permitted by Conditional Use Permit

CRD = Permitted by Conservation Residential Development

TABLE 8-1: PERMITTED PRINCIPAL USES BY ZONING DISTRICT

P = Permitted P¹ = Permitted with limitations per Article 8 SE = Permitted by Special Exception CUP = Permitted by Conditional Use Permit **CRD = Permitted by Conservation Residential Development** - = Not Permitted

Use Definition & Standard Section

RESIDENTIAL USES	R	RP	LD	LD-1	MD	HD	HD-1	DT-C	DT-G	DT-E	DT-L	DT-T	DT-I	COM	CL	BGR	NB	O	CP	I	IP	HC	A	C	
Dwelling, Above Ground Floor	-	-	-	-	P	P	P	P	P	P	P	P	P	-	-	P	P	P	-	-	-	-	P	-	8.3.1
Dwelling, Manufactured Housing	P ¹	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3.1
Dwelling, Multifamily	CRD	-	CRD	CRD	P ¹	P	P	P ¹	P	P	P	P	-	-	-	P	P	P	-	-	-	-	-	-	8.3.1
Dwelling, Single-Family	P	P	P	P	P	P	P	-	-	-	-	P	-	-	-	-	P	P	-	-	-	-	P	-	8.3.1
Dwelling, Two-Family / Duplex	CRD	-	CRD	CRD	P	P	P	-	-	P	P	P	-	-	-	-	P	P	-	-	-	-	SE	-	8.3.1
Manufactured Housing Park	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3.1
COMMERCIAL USES	R	RP	LD	LD-1	MD	HD	HD-1	DT-C	DT-G	DT-E	DT-L	DT-T	DT-I	COM	CL	BGR	NB	O	CP	I	IP	HC	A	C	
Agricultural-Related Educational & Recreational Activity as a Business	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P ¹	-	8.3.2
Animal Care Facility	P	-	-	-	-	-	-	-	P	P	P	-	-	P	P	-	-	-	-	-	-	-	P	-	8.3.2
Art Gallery	-	-	-	-	-	-	-	P	P	P	P	-	P	P	P	P	P	-	-	-	-	-	-	-	8.3.2
Art or Fitness Studio	-	-	-	-	-	-	-	P	P	P	P	-	P	P	P	P	P	-	-	P	-	-	-	-	8.3.2
Banking or Lending Institution	-	-	-	-	-	-	-	P	P	P	P	-	P	P	P	-	P	-	-	-	-	-	-	-	8.3.2
Bar	-	-	-	-	-	-	-	P	P	-	-	-	-	P	P	-	-	-	-	-	-	-	-	-	8.3.2
Bed and Breakfast	SE	SE	-	-	-	SE	SE	-	-	-	-	P ¹	-	-	-	P ¹	SE	P ¹	-	-	-	-	SE	-	8.3.2
Car Wash	-	-	-	-	-	-	-	-	-	SE	-	-	-	P	P	-	-	-	-	P	-	-	-	-	8.3.2
Clinic	-	-	-	-	-	-	-	P	P	P	P	-	P	P	P	-	-	-	-	-	-	P	-	-	8.3.2
Day Care Center	-	-	-	-	-	-	-	P	P	P	SE	SE	P	P	P	P	SE	SE	P	SE	P	P	-	-	8.3.2
Event Venue	-	-	-	-	-	-	-	-	P	-	-	-	P	P	-	-	-	-	-	-	-	-	SE	-	8.3.2
Funeral Home	-	-	-	-	-	-	-	-	P	P	P	P	-	P	P	-	P	P	-	-	-	-	-	-	8.3.2
Greenhouse / Nursery	P	-	-	-	-	-	-	-	-	-	-	-	-	P	P	P	-	-	-	P	-	-	P	-	8.3.2
Health Center / Gym	-	-	-	-	-	-	-	P	P	P	P	-	P	P	P	P	-	-	-	P	-	P	-	-	8.3.2
Heavy Rental & Service Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	P	-	-	-	-	8.3.2
Hotel/Motel	-	-	-	-	-	-	-	P	P	-	-	-	P	P	-	-	-	-	-	-	-	-	-	-	8.3.2
Kennel	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	8.3.2
Micro-Brewery/Micro-Distillery/Micro-Winery	-	-	-	-	-	-	-	P	P	-	-	-	-	P	P	-	-	-	-	-	-	-	-	-	8.3.2.R
Motor Vehicle Dealership	-	-	-	-	-	-	-	-	-	P	-	-	-	P	P	-	-	-	-	-	-	-	-	-	8.3.2
Neighborhood Grocery Store	-	-	-	-	-	SE	-	P	P	P	P	-	-	P	-	P	P	-	-	-	-	-	-	-	8.3.2
Office	-	-	-	-	-	-	-	P	P	P	P	P	P	P	P	P ¹	P ¹	P	P ¹	SE	SE	P	-	-	8.3.2.M
Personal Service Establishment	-	-	-	-	-	-	-	P	P	P	P	-	P	P	P	-	P	-	-	-	-	P	-	-	8.3.2
Private Club / Lodge	-	-	-	-	-	-	-	P	P	P	P	SE	-	P	P	-	-	SE	-	-	-	-	-	-	8.3.2
Recreation/Entertainment Facility - Indoor	-	-	-	-	-	-	-	P	P	-	-	-	P	P	P	-	-	-	-	-	-	-	-	-	8.3.2
Recreation/Entertainment Facility - Outdoor	-	-	-	-	-	-	-	-	P	-	-	-	P	P	P	-	-	-	-	-	-	-	SE	-	8.3.2.A
Research and Development	-	-	-	-	-	-	-	SE	P	-	-	-	P	P	P	P	-	-	P	P	P	P	-	-	8.3.2.A
Restaurant	-	-	-	-	-	-	-	P	P	P	P	-	P	P	P	P ¹	P ¹	-	-	-	-	-	-	-	8.3.2.A
Retail Establishment, Heavy	-	-	-	-	-	-	-	-	-	-	-	-	-	P	P	-	-	-	-	-	-	-	-	-	8.3.2.A
Retail Establishment, Light	-	-	-	-	-	-	-	P	P	P	P	-	P	P	P	-	P ¹	-	-	-	-	P	-	-	8.3.2.A
Self Storage Facility - Exterior Access	-	-	-	-	-	-	-	-	-	-	-	-	-	P	P	-	-	-	-	P	-	-	-	-	8.3.2.A
Self Storage Facility - Interior Access	-	-	-	-	-	-	-	-	SE	P	-	-	-	P	P	-	-	-	-	P	-	-	-	-	8.3.2.A
Sexually Oriented Business	-	-	-	-	-	-	-	-	-	-	-	-	-	P ¹	-	-	-	-	-	-	-	-	-	-	8.3.2.A
Specialty Food Service	-	-	-	-	-	-	-	P	P	P	P	-	P	P	P	P	P	-	-	-	-	-	-	-	8.3.2.A
Vehicle Fueling Station	-	-	-	-	-	-	-	-	-	-	-	-	-	P ¹	P ¹	-	-	-	-	-	-	-	-	-	8.3.2.A

access to the cistern and supporting facilities shall conform to the Keene Fire Department hydrant specifications.

3. Individual residential sprinkler systems meeting the standards of NFPA 13D or NFPA 13R may be installed; however, in no case may the installation of such a system be made a requirement of approval.
4. Any other public or private fire protection water supply system approved by the Fire Chief and determined by the Planning Board to provide a similar or greater level of fire protection than the options provided in (1) and (2) above.

19.2.8 Utilities

- A. When required by City Code, all subdivisions will be serviced by City water and sewer. All necessary water and sewer lines shall be installed to the required specifications of the Public Works Department and shall include service lines running from the water and sewer mains to the property line to service each lot. In addition, utility rights-of-way shall be provided in accordance with Article 22 of this LDC.
- B. All lots smaller than 1-acre in size shall be connected to City sewer service, unless otherwise expressly allowed in this LDC.

19.3 CONSERVATION RESIDENTIAL DEVELOPMENT SUBDIVISIONS

19.3.1 Purpose

The purpose of a conservation residential development subdivision is to promote the conservation of natural resources while providing greater flexibility and creativity in the design of residential development than would be possible using conventional zoning and subdivision practices.

This purpose is accomplished by allowing for clustering of dwelling units at a higher density than would be allowed by the underlying zoning district, provided a portion of the existing tract of land to be subdivided is permanently designated as open space.

19.3.2 Dimensional Standards

A. Minimum Dimensional Requirements.

All conservation residential development subdivisions shall meet the minimum dimensional requirements specified in Table 19-1. If not specified in Table 19-1 or elsewhere in this Article, the dimensional requirements of the underlying zoning district shall apply.

- B. **Perimeter Building Setback.** A building setback shall be required around the perimeter of the existing tract proposed for subdivision (excluding access points) as specified in Table 19-1. The land area included in the perimeter setback may be counted toward the calculation of open space.

- C. **Density.** ~~The maximum number of dwelling units allowed within a conservation residential development subdivision shall be determined by dividing the total area of the existing tract by the density factor per dwelling unit specified in Table 19-2.~~

1. **The number of dwelling units allowed within a conservation reservation development subdivision shall be determined by dividing the total area of the existing tract by the density factor per dwelling unit specified in Table 19-2.**

Table 19-1: Dimensional Requirements for Conservation Residential Development Subdivisions

		Rural District	Low Density-1 District (without city water)	Low Density-1 District (with city water)	Low Density District	
TRACT	Min tract size	10 acres	5 acres	5 acres	5 acres	
	Min tract frontage	100 ft	100 ft	100 ft	50 ft	
	Perimeter Building Setback	From external roads	100 ft	30 ft	30 ft	30 ft
		From other tract boundaries	50 ft	20 ft	20 ft	20 ft
Min Lot Area		1 acre 32,000 SF	16,000 sf	8,000 sf	6,000 sf	
LOT	Min Road Frontage	40 ft	40 ft	40 ft	40 ft	
	Min Lot Width at Building Line	75 ft	75 ft	60 ft	60 ft	
	Min Front Setback	15 ft	15 ft	15 ft	15 ft	
	Min Rear Setback	20 ft	20 ft	15 ft	15 ft	
	Min Side Setback	10 ft	10 ft	10 ft	10 ft	
	Max Building Coverage	30%	35%	40%	45%	
	Max Impervious Coverage	35%	40%	45%	60%	

- A density bonus may be granted to developments that meet the criteria for one or more of the density incentives detailed in Section 19.3.6. In no instance shall a density of more than 30% above the standard allowable density be granted to any single development. This section shall not be waivable.**

D. Open Space Reserve

- All conservation residential development subdivisions shall permanently reserve at least 50% of the area of the existing tract as open space.
- Conservation residential development subdivisions in the Rural zoning district that permanently reserve 60% of the existing tract area or greater as open space shall be eligible for a density bonus, as noted in Table 19-2.
- Any land designated for roads within the open space may not be used in the

Table 19-2: Density & Open Space Requirements

Zoning District	Density Factor per Dwelling Unit ¹	Min Open Space
Rural	4 acres 2 acres	50%
	3 acres	60%
Low Density-1 (without city water)	1 acre	50%
Low Density-1 (with city water)	20,000 sf	50%
Low Density	10,000 sf	50%

¹Density bonus(es) may be granted as specified in Section 19.3.6

calculation of the open space area.

19.3.3 Permitted Uses

A. Residential Uses. Table 19-3 identifies the uses allowed on building lots in a conservation residential development subdivision.

Table 19-3: Conservation Residential Development Permitted Uses

Permitted Use	Rural District	Low Density-1 District	Low Density District
Single-Family Dwelling	P	P	P
Two-Family Dwelling	P	P	P
Multifamily Dwelling	P 1 (max of 3 dwelling units per structure)	P 1 (max of 3 dwelling units per structure)	P (max of 6 dwelling units per structure)

"P" = Permitted Use " - " = Use Not Permitted

P1 = Use permitted with Workforce Housing density incentive

B. Open Space Uses. Uses allowed on land designated as open space in a conservation residential development subdivision shall be limited to the following uses. Use of the designated open space area may be further restricted by the owners of the open space.

1. Conservation
2. Agriculture
3. Forestry
4. Passive Recreation

19.3.4 Primary & Secondary Conservation Areas

Plans for a conservation residential development subdivision shall identify and delineate primary and secondary conservation areas on the existing tract, as defined below. Delineation of lands to be used to meet the open space requirements of the conservation residential development subdivision shall be based on an analysis and prioritization of primary and secondary conservation values identified on the tract.

A. Primary Conservation Areas. Primary conservation areas shall consist of all slopes over 25% gradient; surface waters, including streams, wetlands, vernal pools, ponds, and any

buffers associated with them; and, springs and floodways.

- B. Secondary Conservation Areas.** Secondary conservation areas shall consist of the following list of attributes.
1. Significant natural areas of species defined by the New Hampshire Natural Heritage Inventory as endangered, threatened, or of special concern.
 2. Slopes in excess of 15% where disturbance and resulting erosion and sedimentation could be detrimental to water quality
 3. Woodlands, particularly those performing important ecological functions, such as soil stabilization and protection of streams, wetlands and wildlife habitats.
 4. Areas with topographic and soil conditions affording high rates of infiltration and percolation.
 5. Groups of trees and large individual trees of botanic significance.
 6. Prime agricultural soils as defined by the USDA Natural Resource Conservation Service.
 7. Historic features that are designated on the NH State Register of Historic Places, or the National Register of Historic Places or Historic Landmarks.
 8. Cultural features, such as stone walls, barn foundations, and cellar holes.
 9. Existing or planned recreational trails on or throughout the tract that connect to other locations in the City.
 10. Visually prominent topographic features such as knolls, hilltops, ridges, outlooks, and scenic viewsheds.
 11. Highest condition habitat areas as defined by the NH Wildlife Action Plan, as amended.
 12. Drinking water supply areas.

19.3.5 Design Criteria

- A. General Criteria.** In addition to the standards for review listed in Section 19.2 of this Article, the following review criteria shall apply to applications for conservation residential development subdivisions.
1. All proposed development shall be located outside of primary conservation areas, and shall be designed to minimize impact to any identified secondary conservation areas.
 2. Streets shall be constructed in accordance with the standards in Article 22 of this LDC, and shall connect to an existing street network.
 3. All structures shall be accessed from interior streets, rather than from roads bordering the perimeter of the tract.
 - a. In the event that a waiver of this standard is granted, shared driveways shall be incorporated where feasible.
- B. Open Space Standards.** The location and layout of all open space within a conservation residential development subdivision shall require Planning Board approval and comply with the following standards.
1. The areas of land designated to meet the open space requirement of any conservation residential development subdivision shall not be used for siting of individual lots, construction of buildings, facilities for accessory uses, roads and other areas for vehicular traffic.
 2. In delineating the required open space area(s), an interconnectedness of the conservation values shall be maintained and fragmentation of the open space into small, disconnected parcels shall be avoided.
 - a. The lot area of any parcel designated as open space shall not be less than 1-acre.
 - b. All areas of open space do not need to

be contiguous, but consideration shall be given to connections between non-contiguous areas.

- c.** Where possible, any designated open space will be located so that it is adjacent to other open space or protected lands that abut the existing tract.
- 3.** Each proposed lot in the conservation residential development subdivision shall have reasonable access to the open space, but need not front directly on such land.

C. Open Space Ownership & Maintenance

- 1.** Land designated for open space in a conservation residential development subdivision shall not be further subdivided and shall remain as open space in perpetuity.
- 2.** All designated open space and any associated facilities in a conservation residential development subdivision shall be permanently protected by covenants or easements as approved by the Planning Board or its designee.
 - a.** All designated open space and any other common lands, roads and/or facilities shall be deeded to and maintained by a Homeowner's Association, a non-profit organization, or some other entity as approved by the Planning Board or its designee.
 - i.** The designated open space and any other common features shall be held, managed and maintained by the developer until such time as they are transferred to the designated entity under an agreement approved by the Planning Board or its designee.

19.3.6 Optional Density Incentives

Conservation Residential Development

Subdivisions that meet certain performance criteria shall be eligible for a density bonus above the standard allowable density, up to a maximum of 30%. The 30% density cap shall not be waivable. If a density incentive is granted, the minimum lot size specified in Table 19-1 shall be waived.

- A. **Open Space Density Incentive.** Conservation Residential Development Subdivisions with a minimum tract size of 10 acres that permanently reserve at least 65% of the existing tract area as open space shall be eligible for a density bonus of 10% or one dwelling unit, whichever is greater.
- B. **Solar Density Incentive.** Conservation Residential Development Subdivisions that meet the following criteria shall be eligible for a density bonus of 10% or one dwelling unit, whichever is greater:
 1. At least 50% of the lots shall be solar-oriented. A "solar-oriented lot" shall mean a lot with its longest lot line dimension oriented to within thirty (30) degrees of a true east-west line.
 2. The long axis of all dwelling units on solar-oriented lots shall be oriented so that the long axis faces within 20 degrees of true south.
 3. At least four (4) kilowatts of solar PV shall be installed for each dwelling unit on a solar-oriented lot.
 4. Where, as determined by the City, topographic, environmental, and soil conditions, and existing street configurations permit, the predominant pattern of new streets in subdivisions subject to this section shall be oriented within thirty (30) degrees of east-west orientation.
- C. **Workforce Housing Density Incentive.** Conservation Residential Development

Subdivisions that meet the criteria below shall be eligible for a density bonus of 20% or one dwelling unit, whichever is greater. In addition, the permitted uses for a development that meets this section in the Rural District or Low Density-1 District shall include "multifamily dwelling" (max of 3 units per structure).

1. **Workforce Housing, Owner-Occupied.** A Workforce Housing Density Incentive will be granted to developments that guarantee the following:
 - a. Twenty percent (20%) or more of the units constructed will be sold at initial sale for a price that can be afforded by a household with an income not more than 80% of the HUD Median Area Income for a family of four in Cheshire County.
 - b. Units will be sold with a deed restriction and recorded housing agreement that names an Income Verification Agent who will verify that the purchaser meets the income requirements. The resale value of the unit shall be restricted to the affordable purchase price for a period of 30 years. The resale value of the unit is not to be more than the original purchase price plus two times the accumulated consumer price index.
 - c. All units built under this provision shall be of the same approximate size, character, quality, and construction as the market rate units, and shall be distributed evenly throughout the project.
 - d. Affordability shall be defined as housing that can be purchased under a conventional mortgage whereby the combined annual expenses for principal, interest, property taxes, homeowner's insurance and condominium fees (if applicable) will

not exceed 30% of household income.

non-profit housing trust or agency to administer this provision. No dwelling unit created by this bonus shall be occupied until written confirmation of the income eligibility of the tenant or buyer of the unit has been documented.

2. **Workforce Housing, Rental.** A Workforce Housing Density Incentive will be granted to developments that guarantee the following:
 - a. **Twenty percent (20%) or more of the units constructed will be rented for a price that can be afforded by a household with an income not more than 60% of the HUD Median Area Income for a family of three in Cheshire County.**
 - b. **Units will be rented with a deed restriction and recorded housing agreement that names an Income Verification Agent who will verify that the renter meets the income requirements. The rental price of the unit shall be restricted to the affordable rental price for a period of 30 years.**
 - c. **All units built under this provision shall be of the same approximate size, character, quality, and construction as the market rate units, and shall be evenly distributed throughout the project.**
 - d. **Affordability shall be defined as housing that can be rented whereby the combined annual rental and utility expenses will not exceed 30% of household income.**
3. **Assurance of Continued Affordability.** In order to qualify as workforce housing under this section, the application shall make a binding commitment that the dwelling units will remain affordable for a period of 30 years. This shall be enforced through a deed restriction, restrictive covenant, or some other contractual arrangement through a local, state or federal housing authority or other

25.10 SUBDIVISION REVIEW

25.10.1 Description

Subdivision review allows for the orderly division or consolidation of lots, as well as the alteration or adjustment of lot boundary lines.

25.10.2 Initiation

The applicant for subdivision review shall either own the fee simple interest in the property(s) that is the subject of the review or have written permission of the fee simple owner.

25.10.3 Authority

- A.** The Planning Board shall have the authority to hear and decide on applications for subdivision review including boundary line adjustments and conservation residential development subdivisions.
- B.** For voluntary merger applications, the Planning Board designates the Zoning Administrator as their designee to review and decide on such applications, and in their absence, the Community Development Director.

25.10.4 Applicability

Subdivision review shall be required for the following types of subdivisions.

- A. Subdivision.** Any division of a lot, tract or parcel of land into 2 or more lots, plats, sites, or other divisions of land for the purpose, whether immediate or future, of sale, rent, lease or building development.
- B. Conservation Residential Development Subdivision.** Applications for subdivision review consisting of 3 or more proposed lots and the layout and construction of a new road, where the existing parcel to be subdivided is located in either the Rural, Low Density, or Low Density-1 zoning districts, and meets the minimum lot size requirements specified in Article 19, shall follow the conservation residential development subdivision process set forth in Section 19.3 of this LDC.

- C. Boundary Line Adjustment.** The adjustment of boundary lines between 1 or more contiguous, preexisting approved or subdivided lots.
- D. Voluntary Mergers.** The merger of 2 or more contiguous pre-existing approved or subdivided lots owned by the same property owner.

25.10.5 Submittal Requirements

An applicant for subdivision review shall submit a completed application on the appropriate form to the Community Development Department, and shall provide sufficient information to enable City staff and the Planning Board to evaluate the proposal for compliance with this LDC. Submittal requirements for the different types of subdivision review are included below.

A. Voluntary Merger Applications

A completed voluntary merger application shall include the following.

- 1.** A completed and notarized voluntary merger form.
- 2.** A map, drawn to scale, displaying the layout and boundaries of the lots proposed to be merged.
- 3.** Application fee as set forth in the LDC Schedule of Fees in Appendix B of the City Code of Ordinances.

B. Subdivision & Boundary Line Adjustment Applications

A completed application for subdivisions and boundary line adjustments shall include the following.

- 1.** A written narrative describing the type, scope and scale of the proposal including the following information.
 - a.** The sizes of the existing and proposed lot.
 - b.** Existing and proposed uses.
 - c.** The location of access points for the existing and proposed lots.

- d. An explanation of how the proposal complies with the applicable standards in this LDC.
2. A complete plan set signed and stamped by a NH licensed surveyor (7-copies on 22-in by 34-in paper or larger size; 1-copy on 11-in by 17-in paper; and, an electronic pdf file), which shall include the following materials.
 - a. A location map of the proposed subdivision or boundary line adjustment.
 - b. An existing conditions plan (at a scale of 1-in = 100-ft or a larger scale) showing all parcels affected by the proposal, and depicting the following information.
 - i. Contours of at most 5-ft intervals
 - ii. Owner names and tax map parcel numbers for all abutters.
 - iii. Boundaries and acreage of the existing lot(s) subject to review.
 - iv. Surface waters, including wetland areas delineated by a NH certified wetland scientist, and any manmade waterways, ponds, ditches, etc.
 - v. Precautionary and prohibitive slopes.
 - vi. Delineation of 100-year floodplain and floodways as shown on current FIRM maps.
 - vii. Location of any public streets, rights-of-way, and easements.
 - viii. Location of existing structures, wooded and vegetated areas, site features (e.g. fences, walls, ground-mounted equipment, utilities, stormwater facilities, wells, septic systems, stone walls, etc.), driveways, and parking areas on the subject property, and to the extent practicable on directly abutting properties.
- c. A proposed conditions plan (at a scale of 1-in = 100-ft or at a larger scale) showing all parcels affected by the proposal, and depicting the following information.
 - i. Owner names and tax map parcel numbers for all direct abutters.
 - ii. Boundaries and acreage of the proposed lots subject to review.
 - iii. Location of any existing structures or site features, driveways, parking areas, public streets, rights-of-way, easements, surface waters (including wetland areas delineated by a NH certified wetland scientist), precautionary and prohibitive slopes, 100-year floodplain and floodways delineation, and wooded and vegetated areas that are displayed on the existing conditions plan, and are proposed to remain.
 - iv. The location of proposed structures and site features, lot lines, public streets, rights-of-way, easements, driveways and parking areas.
3. Any additional information the Planning Board, or its designee, may reasonably deem necessary to determine compliance with the applicable regulations of this LDC.
 4. Any technical reports prepared by a NH licensed engineer or qualified professional, which may be required or reasonably requested by the Planning Board, or its designee, based on the nature and scope of the proposal. Such reports may include, but are not limited to drainage, traffic, and/or soils analyses.
 5. A list of abutters and others requiring notification. This list shall include the name, mailing address, street address, and tax map parcel number for: all owners of property that directly abuts and/or is directly across the street or stream from the subject parcel; all owners of property located

within 200-ft of the subject parcel; and, any holders of conservation, preservation or agricultural preservation restrictions. The list shall also include the name and mailing address of the applicant.

6. 2 sets of mailing labels for each abutter and others requiring notice, including the owner of the subject property and their authorized agent.
7. Application fee as set forth in the LDC Schedule of Fees in Appendix B of the City Code of Ordinances, including the costs for published and mailed notice, which shall be Certified Mail.

C. Conservation Residential Development Subdivision Applications

In addition to the submittal requirements for a subdivision or boundary line adjustment in Section 25.10.5.B, a completed application for a proposed conservation residential development subdivision shall include the following.

1. An overview plan (1-copy on 22-in by 34-in paper or larger size; 1-copy on 11-in by 17-in paper; and, an electronic pdf file), which displays the entire tract and any existing public roads, public or private protected lands, woodlands areas, surface waters, and precautionary or prohibitive slopes located within 200-ft of the tract.
2. An existing conditions plan displaying the location of primary and secondary conservation values as defined in Section 19.3 of this LDC.
3. A yield analysis (1-copy on 22-in by 34-in paper or larger size; 1-copy on 11-in by 17-in paper; and, an electronic pdf file) to determine the number of residential units that may be permitted within a conservation residential development subdivision. Although this plan shall be drawn to scale, it need not be based upon a field survey. The yield analysis may be prepared as an overlay to the existing conditions plan.
 - a. The yield analysis shall be performed by applying a conventional subdivision

~~layout, including lots conforming to the dimensional standards of the underlying zoning district and streets needed to access such lots. The conventional layout shall reflect a development density and pattern, taking into account surface waters, floodplains, steep slopes, existing easements or encumbrances, and the suitability of soils for private subsurface wastewater disposal if City sewer service is not available.~~

4. **3.** A proposed conditions plan including the following.
 - a. The area(s) designated as Open Space, any common land and any specifically protected conservation values.
 - b. Any proposed uses of the Open Space (e.g. agriculture, recreation, forestry, etc.) and/or common lands shall be noted on the plan.
 - c. The location and dimensions of any proposed roads, sidewalks, and trails.
5. **4.** A landscaping plan (1-copy on 22-in by 34-in paper or larger size; 1-copy on 11-in by 17-in paper; and, an electronic pdf file) providing the following information:
 - a. The location of existing wooded and vegetated areas and proposed changes to the outline of these areas.
 - b. The location, species and size of all landscaping materials proposed to be installed on the site, including street trees.
 - c. A table listing all plant species to be installed on the site, indicating the size (average height and width) at planting and at maturity as well as the number of each species to be installed.
6. **5.** Written documentation of the process applied by the applicant in the layout of the proposed conservation residential development subdivision to ensure that proposed or future development does not

adversely impact primary and secondary conservation areas as defined in Section 19.3 of this LDC.

7. **6. Applications that include a request for the Solar Density Incentive in Section 19.3.6.B shall include the following information:**

- a. **A written request for the density incentive that describes how the application meets the requirements of Section 19.3.6.B.**
- b. **A solar access plan that displays the building areas or locations of structures on all solar-oriented lots in order to demonstrate that it would be possible to site a structure which is unshaded by other nearby structures, site features, or topography. This solar access plan shall demonstrate that the building areas or structures on solar-oriented lots are not obscured by any vegetation, building, or object for a minimum of four hours between the hours of 9:00 AM and 3:00 PM Standard time on any day of the year. This plan may be included as an overlay to the subdivision plan or site plan, if required.**

8. **7. Applications that include a request for the Workforce Housing Density Incentive in Section 19.3.6.C shall include the following information:**

- a. **A written request for the density incentive that includes a calculation of the number of units provided under this section and a description of each unit's size, type, number of bedrooms, estimated cost, location within the development, and other relevant data.**
- b. **Written statement describing how the proposed development will meet the requirements of Section 19.3.6.C.3.**
- c. **The Planning Board shall request additional information if, in their**

judgment, it is necessary to determine whether the requirements of Section 19.3.6.C have been met.

25.10.6 Submittal Requirement Exemptions

- A. An applicant may make a request to the Community Development Director, or their designee, to exempt their application from specific submittal requirements.
- B. Any exemption granted by the Community Development Director, or their designee, shall be evaluated and approved by the Planning Board during its review of application completeness. If the Board determines the exempted material is necessary to complete its review of the application, they may deny the exemption request and determine the application to be incomplete.
- C. If a requested exemption is not granted by the Community Development Director, or their designee, the applicant may appeal the decision to the Planning Board prior to the Board's determination of application completeness.

25.10.7 Application Submittal Deadline

A completed application shall be submitted to the Community Development Director, or their designee, no later than 26-business days prior to the Planning Board meeting date at which the applicant desires the application to be reviewed.

25.10.8 Procedure

In addition to the common application and review procedures of this Article, the following review and approval procedures shall apply to applications for subdivision review.

A. Voluntary Merger Procedure

- 1. Except where such merger would create a violation of then-current ordinances or regulations, all voluntary merger applications shall be approved administratively, and no public hearing shall be required.
- 2. No new survey plat need be recorded, but a

notice of the merger, sufficient to identify the relevant parcels and endorsed in writing by the Planning Board, or its designee, shall be filed for recording in the County Registry of Deeds, and a copy sent to the City of Keene Assessing Department.

3. No such merged parcel shall thereafter be separately transferred without subdivision approval.

B. Boundary Line Adjustment Procedure

1. All boundary line adjustment applications shall be reviewed by the Planning Board without a public hearing. However, mailed notice to abutters and other persons requiring notice is required.
2. An updated survey showing the boundary line adjustment, and all metes and bounds of the revised parcels shall be prepared by the applicant following approval from the Planning Board, and shall be filed with the Community Development Department for recording in the County Registry of Deeds.

C. Subdivision & Conservation Residential Development Subdivision Procedure

1. **Presubmission Meeting.** Applicants for subdivision review that propose the creation of 3 or more lots shall attend a pre-submission meeting at least 2-weeks prior to the Planning Board submittal deadline.
2. **Staff Determination of Application Completeness.** Within 2 business days following the application submittal deadline, the Community Development Director, or their designee, shall complete an initial review of the application to evaluate whether the submittal requirements have been met.
 - a. If the missing application materials or information are necessary for proper documentation, but are not central to the initial departmental review, the applicant will be permitted to provide the required materials or information by the revision deadline of 14 calendar

days prior to the corresponding regularly scheduled Planning Board meeting date.

3. **Departmental Review.** Once the Community Development Director, or their designee, has made an initial determination that an application is complete, copies of the application and associated materials shall be sent to the City's Engineering Division, Fire Department, Police Department, Zoning Administrator, and Building and Health Official for technical review.
 - a. City staff will be requested to return comments on the application to the Community Development Department within 5-business days of the distribution date.
 - b. The Community Development Director, or their designee, shall communicate departmental comments to the applicant, as soon as they are all received.
4. **Revision Deadline.** Any plan revisions or additional information requested of the applicant by City staff following departmental review of the application shall be delivered to the Community Development Department no later than the revision deadline of 14 calendar days prior to the corresponding regularly scheduled Planning Board meeting date. The revision deadline shall not be waivable.
5. **Site Visits.** At the discretion of the Community Development Director or Planning Board Chair, a formal Planning Board site visit to the subject property may be scheduled prior to the Planning Board public hearing on the application.
6. **Compliance with Zoning.**
 - a. Applications requiring approval from the Zoning Board of Adjustment shall not be noticed for public hearing until such approvals have been obtained.
 - b. Applications shall be in compliance with the Zoning Regulations prior to the

issuance of public notice for the public hearing.

7. **Notice of Public Hearing.** The Community Development Director, or their designee, shall forward applications for subdivision review to the Planning Board for a public hearing, and shall provide published and mailed notice of this public hearing pursuant to NH RSA 675:7(l).
8. **Board Determination of Application Completeness.** The Planning Board shall vote to determine whether the application is complete prior to opening the public hearing.
 - a. The Planning Board shall consider advice from the Community Development Director, or their designee, in reaching a determination of application completeness.
 - b. If the Planning Board determines that an application is incomplete, the Board will either issue a written decision of incompleteness or, with the applicant's consent, table the application until the next regular meeting of the Board.
9. **Public Hearing.** Upon reaching a finding that an application is complete, the Planning Board may open the public hearing for the application.
10. **Decision.** The Planning Board shall finish its review of an application within 65 calendar days of the meeting at which the Board accepted the application as being complete. If the Board feels that more time is needed, or if the applicant requests additional time, the timeframe provided for review under NH RSA 676:4 can be extended by mutual agreement of the Board and the applicant, so long as the applicant requests the extension in writing.

25.10.9 Filing

- A. Building permits shall not be issued until approved subdivision plans have been signed by the Planning Board Chair or Vice Chair. Said signature shall signify that the plan has

been duly approved by the Board and that all conditions precedent to plan signature have been met as specified in the approval.

- B. Prior to Planning Board Chair or Vice Chair signature of a plan approved by the Board, the applicant shall:
 1. Demonstrate to the satisfaction of the Community Development Director, or their designee, that all conditions of approval have been met as specified by the Board; and,
 2. Provide complete copies of the approved plan set in a number and form as specified by the Community Development Department, including 2-copies of the approved subdivision plan printed on mylar in a format pursuant to NH RSA 478:1-a and displaying the owners signature(s).
- C. For approved conservation residential development subdivision applications, applicants shall also submit written documentation of any legal instruments required for the management of the designated Open Space land to the Community Development Department. **In addition, applicants shall submit written documentation of any legal instruments required to demonstrate compliance with the criteria of any and all optional density incentives granted by the Planning Board.** Such documents **shall be submitted to the Community Development Department and** are subject to the review and approval of the City Attorney prior to signature.
- D. Unless otherwise specified in Section 25.10, the Community Development Department shall record the approved subdivision plan with the County Registry of Deeds.

25.10.10 Approval Standards

Subdivision review by the Planning Board, or its designee, shall include an analysis of land characteristics and access potential to determine if each proposed new lot or each lot affected is of such character that it can be accessed and used for building in a manner that avoids or mitigates the

MEMORANDUM

To: Joint Committee of the Planning Board and PLD Committee
From: Mari Brunner, Senior Planner
Date: August 2, 2022
Subject: O-2022-09 Relating to Proposed Amendments to the Land Development Code

Overview

This Ordinance proposes the following amendments to the City of Keene Land Development Code:

- Reduce the minimum lot size for the Rural District from five acres to 2 acres.
- Change the density factor and minimum lot size for the Rural District within the Conservation Residential Development Subdivision (CRD) regulations to 2 acres per unit and 32,000 square feet, respectively.
- Amend Table 8-1, “Permitted Principal Uses by Zoning District,” and the “Permitted Uses” sections of the Rural, Low Density, and Low Density 1 Districts in Article 3 to display uses that are permitted within the Conservation Residential Development Subdivision regulations.
- Add three density incentive options to the CRD regulations, including an open space density incentive, a solar incentive, and a workforce housing incentive.
- Modify the permitted uses within the CRD regulations for the Rural District and Low Density-1 District to include multifamily dwelling with limitations. The number of dwelling units per structure shall be limited to three, and this use shall only be permitted in conjunction with a workforce housing density incentive application.
- Remove the requirement to submit a “Yield Analysis Plan” as part of a CRD application.
- Add additional submittal and filing requirements for CRD applications that include a request for a solar density incentive and/or a workforce housing density incentive.

The intent of the proposed changes to the Rural District is to expand opportunity for housing development while maintaining and protecting environmentally sensitive areas, such as steep slopes, wetlands, and other surface waters. The intent of the proposed density incentive options within the CRD regulations is to promote community goals related to open space preservation, renewable energy, and providing a balanced and diverse housing stock. In addition, this ordinance would fix a couple of glitches that were recently identified by staff within the Zoning Ordinance and CRD Regulations.

Overview of Rural District & Proposed Changes

The Rural District is a residential zoning district that is generally located outside of the valley floor, beyond where city water, sewer and other city services can be readily supplied. The intent of this district is “to provide for areas of very low density development, predominantly of a residential or agricultural nature.” Permitted residential uses within this district include “Dwelling, Single-Family,” “Dwelling, Two-Family/Duplex” (CRD Subdivision only), and “Dwelling, Manufactured Housing.” The full list of permitted uses within this district is included in Figure 1 on the right.

There are about 1,118 parcels of land (not including 407 condominiums) within the Rural District, covering a land area of 14,313.5 acres. Most of the land within the Rural District does not have access to city sewer or water service, as shown in Figure 2 on the next page. The minimum lot size for this district is 5 acres; however, the minimum lot area per dwelling unit is reduced to 2 acres if the lot has access to both city sewer and city water.

Table 1. Size ranges for parcels in the Rural District (in acres).

Size range	Parcel count	Percent
0 < 2 acres	396	35%
2 to < 5 acres	247	22%
5 to < 10 acres	175	16%
10+ acres	300	27%
	1,118	100%

Currently, there are 643 parcels (58%) that are less than five acres in size, as shown in Table 1. There are a couple possible reasons for the large number of lots that are non-conforming with respect to lot size. Historically, the area now zoned as “Rural” was mostly zoned as “Agricultural” as shown on the 1971 Zoning Map, depicted in Figure 3. The minimum lot size for the Agricultural District prior to 1970 was 10,000 sf, or 1 acre if the lot did not have access to city water and sewer. In 1970, the minimum lot size for the Agricultural District was increased to 2 acres. Then, in 1977, the Rural District was established and the minimum lot size was set at 5 acres, or 2 acres “if such lot contains an area not less than 33,000 adjoining square feet of soil which is either Charleton loam, Charleton very stony loam, Gloucester sandy loam, Gloucester very stony sandy loam.” These zoning changes most likely made lots which were conforming at the time into legally nonconforming lots.

In addition, under previous zoning ordinances, the Planning Board had the option to approve planned unit developments (PUDs) and could “vary the density, or intensity, of land use, otherwise applicable to the land within the planned unit residential development.” Therefore, the Planning Board had the ability to approve PUDs with lot sizes that were smaller than allowed within the underlying zoning district through the subdivision and site plan review process. The Planned Unit Development option was removed at some point prior to 1994.

3.1.5 Permitted Uses		
RESIDENTIAL USES		SECTION
Dwelling, Manufactured Housing	P ¹	8.3.1.B
Dwelling, Single-Family	P	8.3.1.D
Manufactured Housing Park	P	8.3.1.F
COMMERCIAL USES		SECTION
Animal Care Facility	P	8.3.2.B
Bed and Breakfast	SE	8.3.2.G
Greenhouse / Nursery	P	8.3.2.L
Kennel	P	8.3.2.P
CONGREGATE LIVING / SOCIAL SERVICES USES		SECTION
Group Home, Small	CUP	8.3.4.F
OPEN SPACE USES		SECTION
Cemetery	P	8.3.6.A
Community Garden	P	8.3.6.B
Conservation Area	P	8.3.6.C
Farming	P	8.3.6.D
Golf Course	P ¹	8.3.6.E
Gravel Pit	SE	8.3.6.F
INFRASTRUCTURE USES		SECTION
Solar Energy System (Small-Scale)	P ¹	8.3.7.A
Solar Energy System (Medium-Scale)	CUP	8.3.7.B
Solar Energy System (Large-Scale)	CUP	8.3.7.C
Telecommunications Facilities	P ¹	8.3.7.E

P = Permitted
P¹ = Permitted with limitations per Article 8.
SE = Permitted by Special Exception
CUP = Permitted by Conditional Use Permit

Figure 1. List of permitted principal uses within the Rural District.

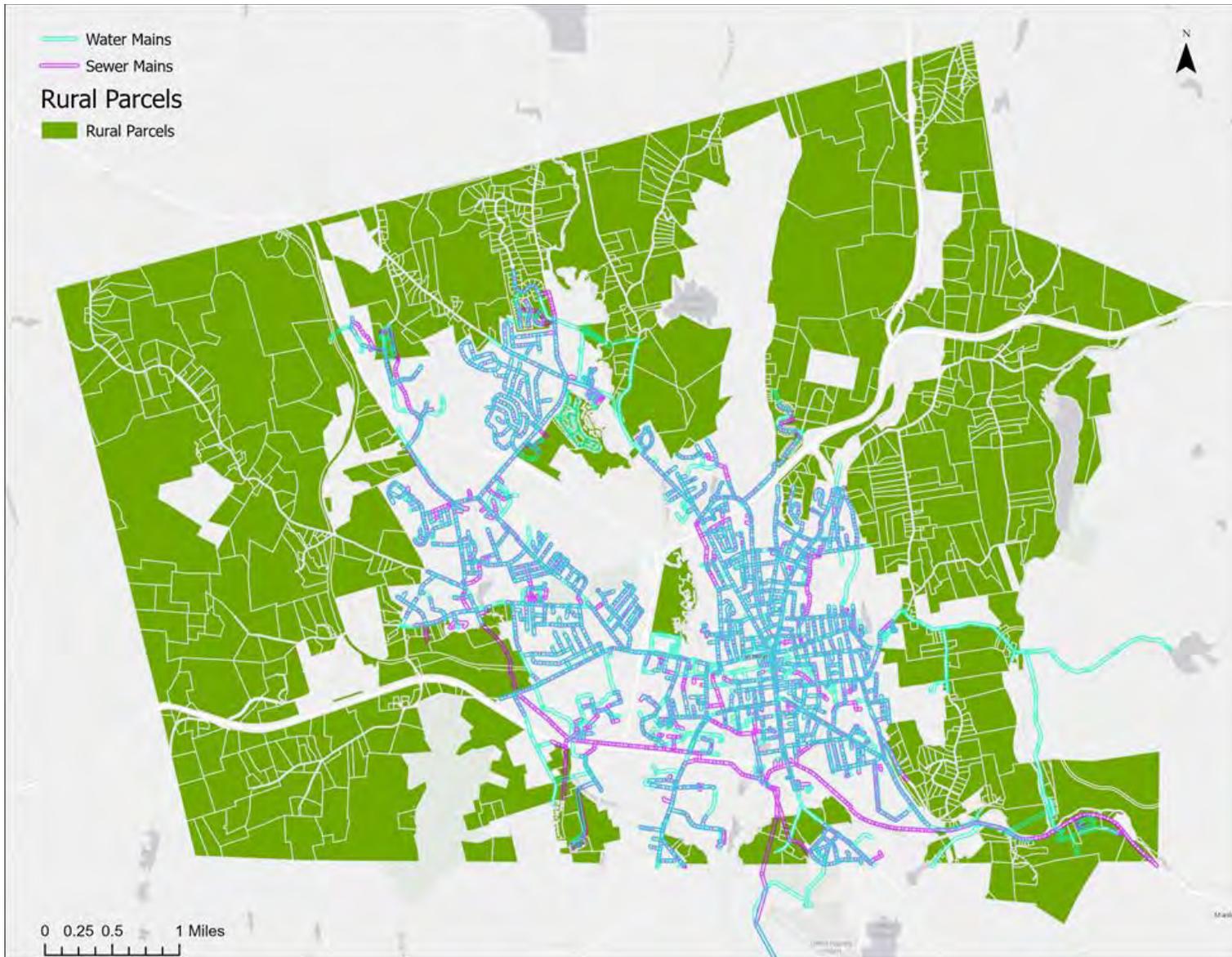


Figure 2. Map displaying parcels located in the Rural District (shown in green), the location of City sewer infrastructure (shown in purple), and the extent of the City water infrastructure (shown in light blue). Areas City sewer and City water overlap are shown in the darker blue color.

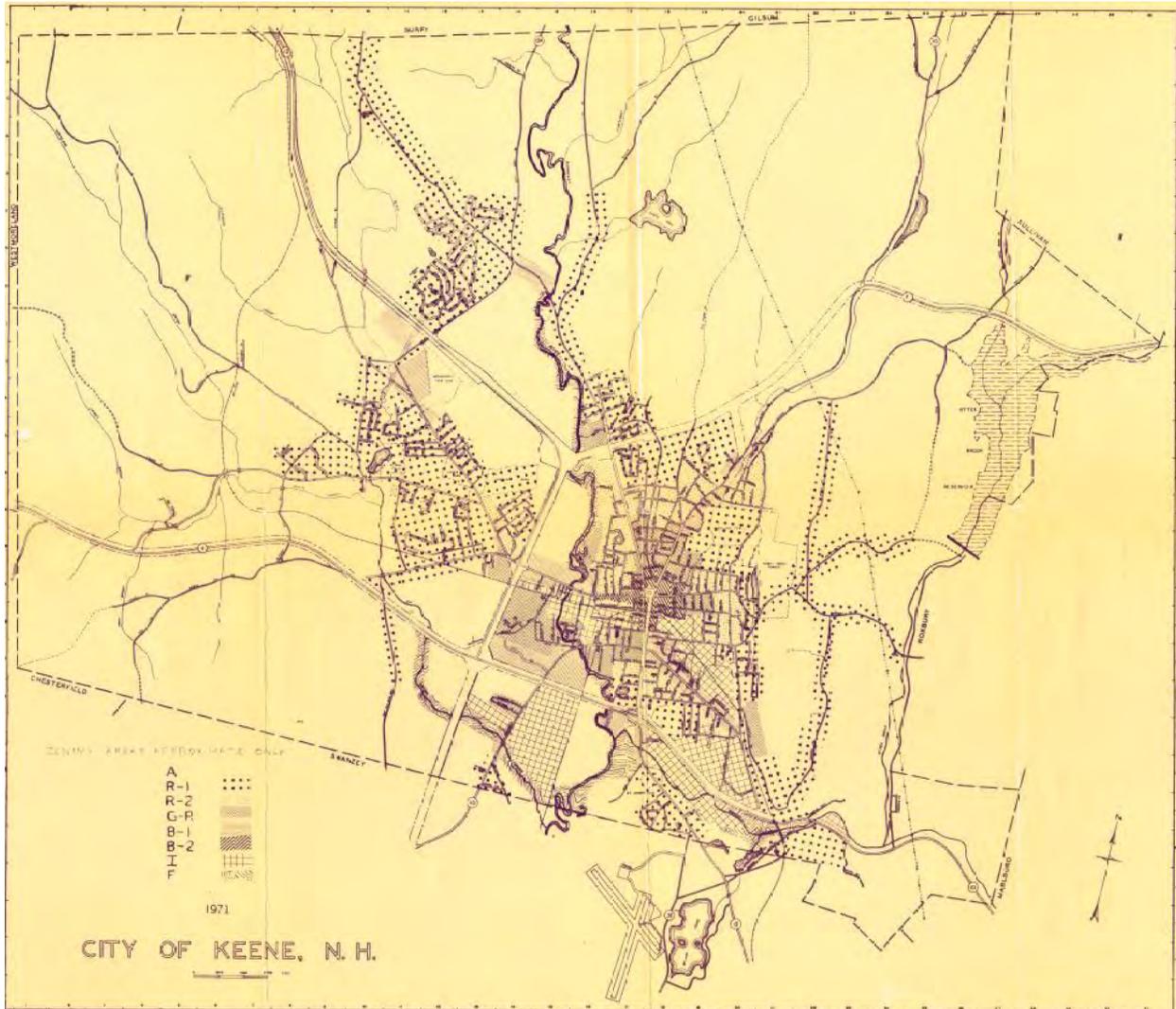


Figure 3. Scanned image of the 1971 Zoning Map for the City of Keene, NH. The legend key is as follows: A = Agricultural (areas shown in solid white), R-1 = Single Residence, R-2 = Single-Two Family Residence, G-R = General Residence, B-1 = Roadside Business, B-2 = Central Business, I = Industrial, and F = Floodplain.

The proposed changes to the Rural District include changing the minimum lot size from 5 acres to 2 acres. This change would make approximately 247 parcels that are currently nonconforming with respect to lot size into conforming lots, and would reduce the percentage that are nonconforming from 58% to 35%. The intent of this proposed change is to create more opportunity for low density residential development within the Rural District. No other changes to the dimensional standards (minimum lot width, setbacks, coverage, maximum height, etc.) are proposed within the zoning ordinance. However, changes are proposed to the dimensional standards and permitted uses within the Conservation Residential Development Subdivision (CRD) Regulations, which are discussed further on in this memo.

Overview of Conservation Residential Development Subdivision & Proposed Changes

A Conservation Residential Development Subdivision (CRD) is a subdivision in which at least 50% of the land is permanently conserved as open space while the homes are located on the remaining portion of the site. This approach allows the same number of residential units as could be built with a conventional subdivision; however, it allows for more flexibility in the placement of those units in order to maximize protection of important natural and cultural amenities on the site and maintain the character of the community.

In order to utilize the CRD option, the land must be located in the Low Density, Low Density-1, or Rural Zoning Districts and it must meet the minimum lot size requirements listed in Table 19-1 of the Land Development Code (10 acres for Rural, 5 acres for Low Density and Low Density-1). A CRD is required for subdivisions proposing the creation of 3 or more lots and the layout and construction of a new road, where the parcel to be subdivided is located in either the Rural, Low Density, or Low Density-1 zoning district and meets the minimum lot size requirements listed above.

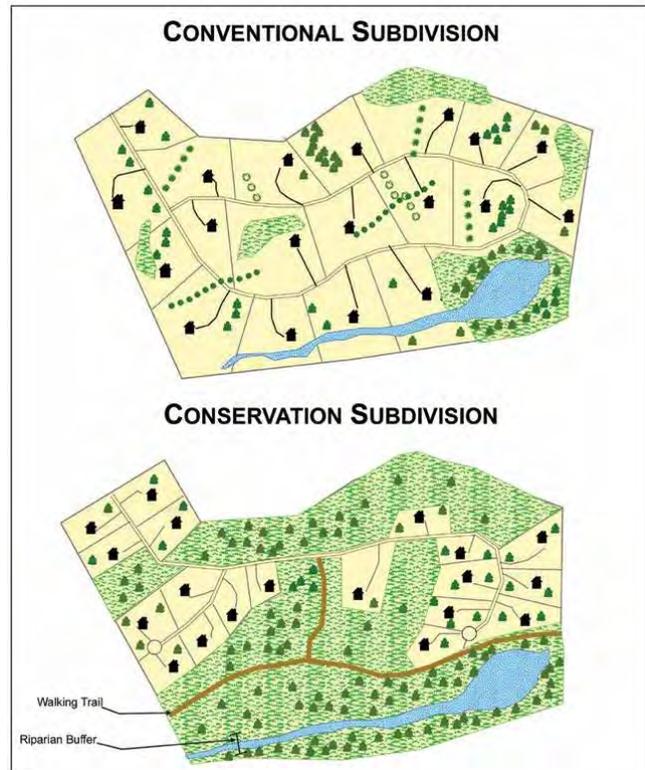


Figure 4. Comparison of conventional and conservation subdivision. Image source: Lehigh Valley Planning Commission Model Ordinance for Conservation Subdivisions (Dec. 2015).

Proposed changes to CRD Dimensional Standards

The CRD Regulations include less restrictive lot dimensional requirements than the underlying zoning district in order to accomplish the objectives stated above. Currently, the minimum lot size for the Rural District is 1 acre and the density factor is 4 acres per unit (50% open space) or 3 acres per unit (60% open space). In order to be consistent with the proposal to change the minimum lot size for the underlying zoning district from 5 acres to 2 acres, this Ordinance proposes to change the minimum lot size for the Rural District within the CRD Regulations to 32,000 sf and the density factor to 2 acres per unit. No other changes to the dimensional standards within the CRD Regulations are proposed.

Proposed Density Incentive Options

In order to promote community goals related to open space preservation, renewable energy, and providing a balanced and diverse housing stock, this Ordinance proposes to create three density incentive options whereby a developer could receive a density bonus above the standard allowable density if certain performance criteria are met. The maximum density bonus that any one development may receive is proposed to be capped at 30% (this cap cannot be waived).

Open Space Density Incentive:

The intent of this option is to encourage development that reserves at least 65% of the existing land area as open space. The land preserved as open space cannot be further subdivided and must remain as open space in perpetuity. In return, the developer shall be eligible for a density bonus of 10% or 1 dwelling unit, whichever is greater. In order to qualify for this incentive, the existing tract of land must be at least 10 acres in size.

Solar Density Incentive:

The intent of this incentive is to encourage the installation of solar photovoltaic (PV) energy systems in new construction. It is based on the premise that the ideal orientation for buildings to harvest solar energy is within 30 degrees of true south. In order to receive this incentive, at least 50% of the lots within the subdivision must be “solar oriented” (i.e. have the longest lot line dimension oriented within thirty degrees of a true east-west line). All dwelling units on solar-oriented lots must be oriented so that the long axis faces within 20 degrees of true south, and at least 4 kilowatts of solar PV must be installed for each dwelling unit on a solar-oriented lot. In addition, where practical, this option requires that the predominant street pattern shall be oriented within 30 degrees of east-west orientation. In return for meeting this criteria, the developer shall be eligible for a density bonus of 10% or 1 dwelling unit, whichever is greater.

Any applications for the Solar Density Incentive would need to include a written request that describes how the development meets the criteria for this incentive as well as a solar access plan that demonstrates it would be possible to site building areas or structures on solar-oriented lots that are not obscured for a minimum of four hours between 9:00 am and 3:00 pm on any day of the year.

Workforce Housing Density Incentive:

The intent of this incentive is to encourage developments that provide affordable workforce housing. “Workforce Housing” is proposed to be defined as housing that is sold at initial sale for a price that can be afforded by a household with an income not more than 80% of the HUD Median Area Income for a family of four in Cheshire County (owner-occupied) or rented for a price that can be afforded by a household with an income not more than 60% of the HUD Median Area Income for a family of three in Cheshire County (rental). In order to be eligible for this incentive, a development must guarantee that at least 20% of the total number of units (including any units allowed by a density bonus) will be workforce housing.

In order to ensure that any residential units that are designated as “workforce housing” remain affordable, this Ordinance proposes that units shall either be sold or rented with a deed restriction and recorded housing agreement that names an Income Verification Agent who will verify that the purchaser or renter meets the income requirements. The resale value or rental value shall be restricted to the affordable purchase or rental price for a period of 30 years. In addition, the workforce housing units must be of the same approximate size, character, quality, and construction as the market rate units, and they must be distributed evenly throughout the project.

In return for meeting the workforce housing criteria, a developer shall be eligible for a density bonus of 20% or 1 dwelling unit, whichever is greater. As an additional incentive, the ordinance proposes to allow triplexes (3-unit multifamily dwellings) in the Low Density-1 and Rural Districts for developments that meet the workforce housing criteria. These incentives are proposed to help offset financial losses on the part of the developer associated with building units that are sold or rented below market rate.

Any applications for the Workforce Housing Density Incentive would need to include the following submittal items: A written request that includes a calculation of the number of workforce housing units provided, a description of each unit’s size, type, number of bedrooms, estimated cost, and location within the development; A written statement explaining how the dwelling units will remain affordable for a period of 30 years (i.e. deed restriction, restrictive covenant, etc.); and any additional information the Planning Board may request in order to determine whether the requirements of the Workforce Housing Density Incentive have been met.

Other Proposed Changes

City staff recently identified two errors/glitches that were made when the Land Development Code was adopted and which need to be fixed. The first glitch relates to the change in application type for the CRD Regulations. Prior to the Land Development Code, the CRD Subdivision was a Conditional Use Permit application. All conditional use permits (CUPs) are authorized within the zoning ordinance; however, the specific regulations pertaining to the CRD Subdivision CUP were located within the Planning Board Regulations. When the Land Development Code was adopted, the CRD Subdivision was switched from a CUP application to a regular subdivision application. As such, it was no longer located within the zoning ordinance. When this switch occurred, there was no longer any reference to the CRD Regulations – or the uses permitted within the CRD Regulations – in the zoning ordinance. Staff propose to fix this oversight by displaying the uses permitted within the CRD Regulations in the “Permitted Uses” section of the Low Density, Low Density-1, and Rural Zoning Districts in Article 3 as well as in Table 8-1, “Permitted Principal Uses by Zoning District.”

The second error identified by staff is the requirement for applicants to submit a “Yield Analysis Plan” as part of a CRD Subdivision application. Prior to the adoption of the Land Development Code, the maximum allowed density was calculated using a Yield Analysis Plan. Under this approach, an applicant was required to create a conventional subdivision plan to determine the number of allowable units, which was an expensive and time-consuming process that discouraged the use of the CRD subdivision option. When the Land Development Code was adopted, the Yield Analysis approach was replaced with a formula-based approach, where the number of units allowed is based on the underlying zoning or density requirements. However, the submittal requirements for CRD applications still lists a “Yield Analysis Plan” as a required submittal item. Staff propose to fix this error by removing the requirement to submit a Yield Analysis Plan.
