City of Keene Planning Board

AGENDA

Tuesday, May 27, 2025 6:30 PM City Hall, 2nd Floor Council Chambers

A. AGENDA ITEMS

1) **Call to Order** – Roll Call

2) **Minutes of Previous Meeting** – April 28, 2025

3) **Final Vote on Conditional Approvals**

4) **Boundary Line Adjustment**

   a) **PB-2025-10 – Boundary Line Adjustment – 37 & 38 Grimes Rd** – Applicant Cardinal Surveying & Land Planning, on behalf of owners Christopher & Jennifer Tattersall & the Margaret A. Heatherman Trust, proposes to transfer ~10.35-ac of land from the ~31-ac parcel at 37 Grimes Rd to the ~29-ac parcel at 38 Grimes Rd (TMP#s 237-026-000 & 236-015-000). Both parcels are located in the Rural District.

5) Continued Public Hearing ***(To be continued to the July 28, 2025 Planning Board meeting.)***

   a) **PB-2024-20 – Earth Excavation Permit Major Amendment & Hillside Protection Conditional Use Permit – 21 & 57 Route 9** – Applicant Granite Engineering LLC, on behalf of owner G2 Holdings LLC, proposes to expand the existing gravel pit located at 21 & 57 Route 9 (TMP#s 215-007-000 & 215-008-000). A Hillside Protection CUP is requested for impacts to steep slopes. Waivers are requested from Sections 25.3.1.D, 25.3.3, 25.3.6, and 25.3.13 of the LDC related to the 250' surface water resource setback, excavation below the water table, toxic or acid forming materials, and the 5-ac excavation area maximum. The parcels are a combined ~109.1-ac in size and are located in the Rural District.

6) **Master Plan Update** (KeeneMasterPlan.com)

7) **Staff Updates**

8) **New Business**

9) **Upcoming Dates of Interest**
   - Joint Committee of the Planning Board and PLD – June 9th, 6:30 PM

- Planning Board Steering Committee – June 10th, 12:00 PM
- Planning Board Site Visit – June 18th, 8:00 AM – To Be Confirmed
- Planning Board Meeting – June 23rd, 6:30 PM

10) MORE TIME ITEMS

a) Potential Modifications to the Site Plan Review Thresholds
b) Training on Site Development Standards – Snow Storage & Landscaping

11) ADJOURNMENT

CITY OF KEENE
NEW HAMPSHIRE

MEMORANDUM

TO: Planning Board

FROM: Community Development Staff

DATE: May 16, 2025

SUBJECT: Agenda Item A.3 - Final Vote on Conditional Approvals

Recommendation:

To grant final approval for any projects that have met all their "conditions precedent to final approval."

Background:

This is a standing agenda item in response to the "George Stergiou v. City of Dover" opinion issued by the NH Supreme Court on July 21, 2022. As a matter of practice, the Planning Board issues a final vote on all conditionally approved projects after the "conditions precedent to final approval" have been met. This final vote will be the final approval and will start the 30-day appeal clock.

As of the date of this packet, the following application is ready for final approval:

1. **PB-2024-22 – Subdivision – Monadnock Conservancy, 0 Ashuelot St (TMP #567-001-000)**

If any projects meet their conditions precedent between date of this packet and the meeting, they will be identified and discussed during this agenda item.

All Planning Board actions, including final approvals, are posted on the City of Keene website the day after the meeting at KeeneNH.gov/planning-board.

STAFF REPORT

PB-2025-10 – BOUNDARY LINE ADJUSTMENT– 37 & 38 GRIMES RD BLA

Request:

Applicant Cardinal Surveying & Land Planning, on behalf of owners Christopher & Jennifer Tattersall & the Margaret A. Heatherman Trust, proposes to transfer ~10.34-ac of land from the ~31-ac parcel at 37 Grimes Rd to the ~29-ac parcel at 38 Grimes Rd (TMP#s 237-026-000 & 236-015-000). Both parcels are located in the Rural District.

Background:

The subject parcels are located in southeast Keene north of Arch St and west of Stonewall Farm. Grimes Rd connects to Arch St approximately 2,500 ft. to the northeast of the Route 9 intersection and provides street access for only the two subject parcels. The property at 37 Grimes Rd is an existing ~30-ac parcel on the east side of Grimes Rd with a single-family residence, detached garage, and in-ground pool. The property at 38 Grimes Rd is an existing ~29-ac parcel on the west side of the road with a single-family residence and detached garage.

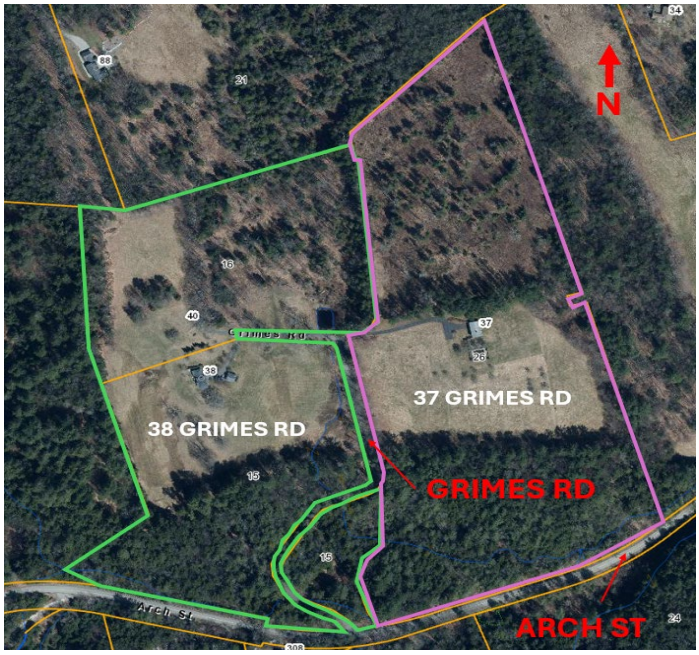


Fig. 1. Aerial image of 37 Grimes Rd in purple and 38 Grimes Rd in green.

The applicant proposes to transfer ~10-ac of land from the northern portion of 37 Grimes Rd, shown as parcel "A" on the BLA plat, to 38 Grimes Rd. The land transfer, combined with a recent lot merger, will bring 38 Grimes Rd to ~40-ac in size and reduce 37 Grimes Rd to ~20-ac in size. There is no development proposed as part of this application beyond the transfer of land between the two existing parcels.

Determination of Regional Impact:

After reviewing the application, staff have made a preliminary evaluation that the proposed boundary line adjustment does not appear to have the potential for "regional impact" as defined in RSA 36:55. The Board will need to make a final determination as to whether the proposal, if approved, could have the potential for regional impact.

Completeness:

The applicant has requested exemptions from submitting separate existing and proposed conditions plans, all technical reports, and a plan showing the metes and bounds of all parcels. After reviewing each request, Planning Staff have made the preliminary determination that granting the requested exemptions would have no bearing on the merits of the application and recommend that the Board accept the application as "complete."

Departmental Comments:

None

APPLICATION ANALYSIS: *The following is a review of the Planning Board Subdivision Regulations relevant to this application.*

SECTION 20.2.1 – LOTS: The applicant proposes to transfer ~10.34-ac of land identified as "Parcel A" on the BLA plat from 37 Grimes Rd (TMP# 237-026-000) to 38 Grimes Rd (TMP# 236-015-000) as shown in Figure 2. Following the land transfer, both subject parcels will continue to conform to all zoning requirements of the Rural Zoning District as shown in Table 1. This standard appears to be met.

Table 1. Area of Land Affected by Proposed Boundary Line Adjustment		
Lot Sizes	**37 Grimes**	**38 Grimes**
	Rural	**Rural**
Required in District	2-ac	2-ac
Before BLA	30.99-ac	29.39-ac
Amount of Land Transferred	-10.34-ac	+10.34-ac
After BLA Parcel Size	**20.65-ac**	**39.73-ac**

SECTION 20.2.2 – CHARACTER OF LAND FOR SUBDIVISION: Both parcels are characterized by areas of open field as well as forested areas. Both lots contain single-family residences and associated site improvements. There are no new developable lots being created as part of this application and no new development of the existing lots is being proposed at this time. It appears that this standard has been met.

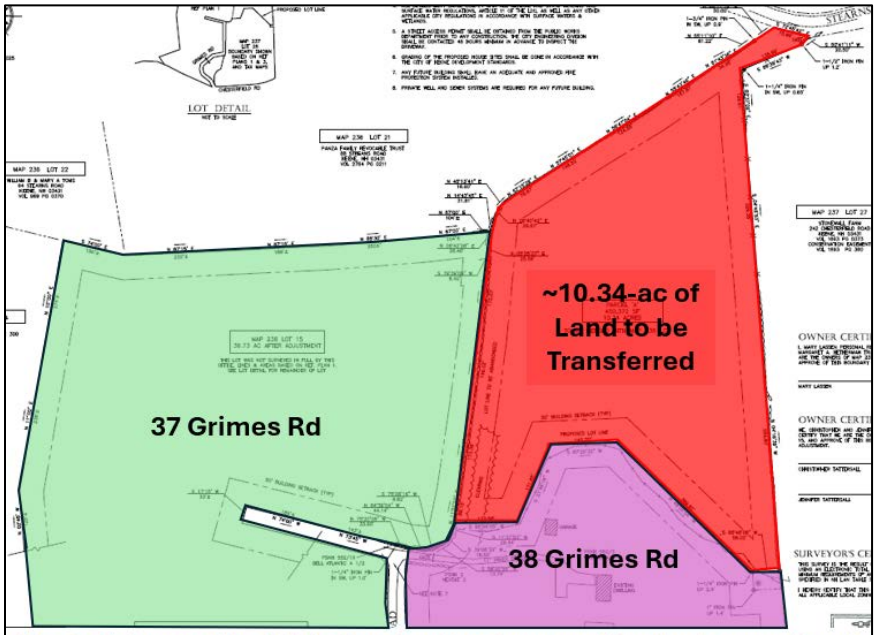


Fig. 2. Snippet of the BLA plan showing the area of land to be transferred.

STAFF REPORT

SECTION 20.2.3 – SCATTERED OR PREMATURE DEVELOPMENT: This application does not propose the creation of any new lots or development at this time. This standard is not applicable.

SECTION 20.2.4 – PRESERVATION OF EXISTING FEATURES: This application does not propose the creation of any new lots or development at this time. This standard is not applicable.

SECTION 20.2.5 – MONUMENTATION: The applicant proposes to install rebar pins at all corners along the proposed property line. Planning Staff recommend that the Board include a condition of approval related to the inspection of the lot monuments or the submittal of a security to cover the cost of a lot monument inspection prior to the final approval of this application. It appears that this standard has been met.

SECTION 20.2.6 – SPECIAL FLOOD HAZARD AREAS: The subject parcels are not located in the 100-year flood plain. This standard is not applicable.

SECTION 20.2.7 – FIRE PROTECTION & WATER SUPPLY: This application does not propose the creation of any new lots or development at this time. This standard is not applicable.

SECTION 20.2.8 – UTILITIES: The applicant does not propose to install any new utilities as part of this application. This standard is not applicable.

Recommended Motion:

If the Board is inclined to approve this request, the following motion is recommended:

> ***"Approve PB-2025-10 as shown on the plan identified as "Boundary Line Adjustment" prepared by Cardinal Surveying & Land Planning at a scale of 1 inch = 80 feet on April 18, 2025 and last revised May 6, 2025, with the following conditions precedent prior to final approval and signature of the plans by the Planning Board Chair:***
>
> 1. ***Owners' signatures appear on the proposed BLA plan.***
> 2. ***Submittal of four (4) full-sized paper copies and two (2) mylar copies of the plans.***
> 3. ***Submittal of a check in the amount of $51 made out to the City of Keene to cover recording fees.***
> 4. ***Inspection of the lot monuments by the Public Works Director, or their designee, following their installation, or the submittal of a security in a form and amount acceptable to the Public Works Director to ensure that the monuments will be set."***

City of Keene, NH

Planning Board
Boundary Line Adjustment (BLA) 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: Boundary Line Adjustment	**NUMBER OF PARCELS AFFECTED:** Map 237 lot 26 Map 236 lot 15
PROJECT ADDRESS(ES): 37 & 38 Grimes Rd	

SECTION 2: CONTACT INFORMATION

PROPERTY OWNER #1	PROPERTY OWNER #2
NAME/COMPANY: Margaret A Hetherman Trust	**NAME/COMPANY:** Christopher & Jennifer Tattersall
MAILING ADDRESS: 2400 S ocean Dr #4272, Fort Pierce, FL 34949-7980	**MAILING ADDRESS:** 38 Grimes Rd, Keene NH 03431
PHONE: 978-460-1181	**PHONE:** 603-762-3111
EMAIL: mhlassen1@gmail.com	**EMAIL:** tec@tattersallelectric.com
SIGNATURE: Mary Lassen, Trustee	**SIGNATURE:** Chris Tattersall
PRINTED NAME: Mary Lassen	**PRINTED NAME:** Christopher Tattersall

APPLICANT / AUTHORIZED AGENT	FOR OFFICE USE ONLY:
NAME/COMPANY: Cardinal Surveying & Land Planning, Wendy Pelletier	**TAX MAP PARCEL #(s):** 237-026-000-, 31 acres – 37 Grimes 236-015-000-, 29.39 acres – 38 Grimes ___-___-___-___-___
MAILING ADDRESS: PO Box 160, Sullivan NH 03445	
PHONE: 603-209-1989	
EMAIL: wendy@cardinalsurveying.net	**PARCEL SIZE:** 31 and 29.39 ac
SIGNATURE: Wendy A Pelletier	**ZONING:** Rural
PRINTED NAME: Wendy Pelletier	**PROJECT #:** PB-2025-10

DATE STAMP: RECEIVED APR 18 2025 By _____

CARDINAL SURVEYING & LAND PLANNING

PO Box 160
Sullivan, NH 03445
(603) 209-1989
www.cardinalsurveying.net
"Know Your Boundaries"

Boundary Line Adjustment
Margaret A. Hetherman Trust
Mary E. Lassen, Trustee
37 Grimes Rd
Keene, NH 03431

Project Narrative

TM 237-026-000 (37 Grimes Rd) is a 31 acre parcel in the Rural District. There is one dwelling on the lot. TM 236-015-000 is a 29.39 acre parcel also in the Rural district with one Dwelling.

The owners are proposing a boundary line adjustment reducing the size of lot 26. Lot 26 will be 20.66 acres. 10.34 acres from lot 26 will be added to lot 15 and will now be 39.73 acres.

There are no buildings, improvements or changes in use proposed on the lots at this time. The proposal complies with article 20 and is exempt from article 21 of the LDC.

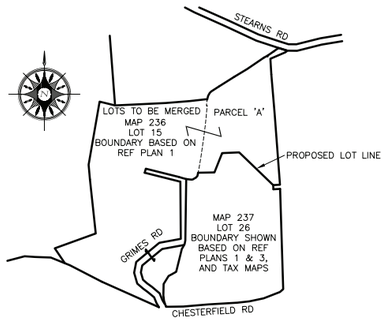
We request an exemption from providing an existing conditions and a proposed conditions plan, and from showing any wetlands, precautionary and prohibitive slopes. This project is to adjust the lot lines only and no additional development is planned.

Request for Waivers

Section 26.10.8.B.2 Full boundary survey and metes and bounds shown on all lots

1. A survey was performed, and metes and bounds have been shown in the area of the boundary line adjustments only. The remainder of lots 236-015-000 and 237-026-000 are based on a prior recorded survey by Flavin in 1999 and 2001 This should satisfy the intent of the regulations.
2. Granting the waiver will have no adverse impact on the abutters, the community or the environment. There are no changes to any exterior lot lines.
3. A survey of the entire additional area of over 61 acres would create a hardship for the owners when the lots have been previously surveyed in full.

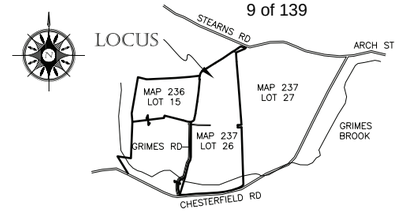
MAGNETIC MAR 2025



LOT DETAIL
NOT TO SCALE

CITY OF KEENE DEVELOPMENT STANDARDS

1. WORK PERFORMED WITHIN THE PRECAUTIONARY AND PROHIBITIVE SLOPE AREAS SHALL CONFORM TO THE CITY OF KEENE HILLSIDE PROTECTION ORDINANCE.
2. THE DEVELOPMENT OF A SITE SHALL NOT RESULT IN INCREASED VOLUME OR VELOCITY OF RUNOFF ONTO ADJACENT PROPERTIES OR SURFACE WATER BODIES IN ACCORDANCE WITH DRAINAGE & STORMWATER MANAGEMENT.
3. EACH PROJECT SHALL BE DESIGNED TO PREVENT EROSION AND SEDIMENTATION DURING AND SUBSEQUENT TO CONSTRUCTION IN ACCORDANCE WITH SEDIMENT & EROSION CONTROL.
4. ALL DEVELOPMENT SHALL COMPLY WITH ALL FEDERAL AND STATE WETLAND AND SURFACE WATER REGULATIONS, ARTICLE 11 OF THE LDC, AS WELL AS ANY OTHER APPLICABLE CITY REGULATIONS IN ACCORDANCE WITH SURFACE WATERS & WETLANDS.
5. A STREET ACCESS PERMIT SHALL BE OBTAINED FROM THE PUBLIC WORKS DEPARTMENT PRIOR TO ANY CONSTRUCTION. THE CITY ENGINEERING DIVISION SHALL BE CONTACTED 48 HOURS MINIMUM IN ADVANCE TO INSPECT THE DRIVEWAY.
6. GRADING OF THE PROPOSED HOUSE SITES SHALL BE DONE IN ACCORDANCE WITH THE CITY OF KEENE DEVELOPMENT STANDARDS.
7. ANY FUTURE BUILDING SHALL HAVE AN ADEQUATE AND APPROVED FIRE PROTECTION SYSTEM INSTALLED.
8. PRIVATE WELL AND SEWER SYSTEMS ARE REQUIRED FOR ANY FUTURE BUILDING.



LOCUS MAP
NOT TO SCALE

MAP 237 LOT 30
DEBRA BORDEN
37 STEARNS ROAD
KEENE, NH 03431
VOL 888 PG 0295

MAP 236 LOT 22
WILLIAM B & MARY A TOMS
94 STEARNS ROAD
KEENE, NH 03431
VOL 969 PG 0370

MAP 236 LOT 21
PANZA FAMILY REVOCABLE TRUST
88 STREANS ROAD
KEENE, NH 03431
VOL 2764 PG 0211

MAP 236 LOT 14
MICHAEL KIDDER
50 DUNHAM RIDGE, SUITE 300
BEVERLY, MA 01915
VOL 1693 PG 0373

MAP 237 LOT 27
STONEWALL FARM
242 CHESTERFIELD ROAD
KEENE, NH 03431
VOL 1693 PG 0373
CONSERVATION EASEMENT
VOL 1693 PG 360

MAP 236 LOT 15
39.73 AC AFTER ADJUSTMENT

THIS LOT WAS NOT SURVEYED IN FULL BY THIS OFFICE, LINES & AREAS BASED ON REF. PLAN 1. SEE LOT DETAIL FOR REMAINDER OF LOT

PARCEL 'A'
450,372 SF
10.34 ACRES
TO BE MERGED WITH MAP 236 LOT 15

MAP 237 LOT 26
MARGARET A HETHERMAN TRUST
2400 S OCEAN DRIVE #4272
FORT, FL 34949
VOL 2929 PG 0340

20.65± AC.
REMAINING AFTER BOUNDARY LINE ADJUSTMENT
SEE LOT DETAIL FOR REMAINDER OF MAP 237 LOT 26

POOL

GRAPHIC SCALE
80 0 40 80 160
(IN FEET)
1 inch = 80 ft.

GRIMES ROAD

LOT LINE TO BE ABANDONED

CLEARING

50' BUILDING SETBACK (TYP)

GARAGE

EXISTING DWELLING

11' PAVED DRIVEWAY

GATE

SEE NOTE 7

PSNH 552/1X
BELL ATLANTIC 4 1/2

PSNH 552/3
N&H 908A/3

PSNH 2
NEXT&T 2

1-1/4" IRON PIN
IN SW, UP 1.0'

1-3/4" IRON PIN
IN SW, UP 0.9'

1-1/2" IRON PIN
UP 1.2'

1-1/4" IRON PIN
UP 2.4'

1" IRON PIN
UP 1.4'

1-1/4" IRON PIN
IN SW, UP 0.65'

STEARNS ROAD

GATE

LEGEND
- ● – PIN FOUND
- ○ – REBAR SET
- ⌀100 – UTILITY POLE
- Ⓦ – WELL
- ~~~~ – TREE LINE
- ⊂⊃⊂⊃ – STONE WALL
- –x–x– – WIRE FENCE
- —— – EASEMENT LINE
- — — — – APPROXIMATE ABUTTER LINE

_____ 2025
APPROVED AS A BOUNDARY LINE ADJUSTMENT
IN ACCORDANCE WITH THE PROVISIONS OF RSA 674.
THE CITY OF KEENE PLANNING BOARD
BY _____, CHAIRMAN
_____

NOTES
1. THE PURPOSE OF THIS PLAN IS TO ADJUST THE BOUNDARY LINE BETWEEN MAP 237 LOT 26 AND MAP 236 LOT 15.
2. OWNERS OF RECORD:
   MAP 237 LOT 26
   MARGARET A HETHERMAN TRUST
   2400 S OCEAN DR #4272
   FORT, FL 34949
   VOLUME 2929 PAGE 0340

   MAP 236 LOT 15
   CHRISTOPHER C & JENNIFER K TATTERSALL TRUST
   38 GRIMES ROAD
   KEENE, NH 03431
   VOLUME 2230 PAGE 0139
3. AREAS:
   MAP 237 LOT 26
   EXISTING: 31± ACRES PER TAX MAP
   PARCEL A: – 10.34 ACRES
   ADJUSTED: 20.66± ACRES

   MAP 236 LOT 15
   EXISTING: 29.39 ACRES PER PLANS
   PARCEL A: + 10.34 ACRES
   ADJUSTED: 39.73 ACRES
4. MAP AND LOT NUMBERS REFER TO THE CITY OF KEENE TAX MAPS.
5. CURRENT ZONING: RURAL DISTRICT

   MIN. LOT AREA – 2 ACRES

   BUILDING SETBACKS:
   FRONT – 50 FEET
   SIDE – 50 FEET
   REAR – 50 FEET
6. GRIMES ROAD IS SHOWN BASED ON STONEWALLS. NO LAYOUT WAS FOUND PER THE KEENE STREET INDEX.
7. THE BOUNDARY LINE BETWEEN MAP 237 LOT 26 AND MAP 236 LOT 15 IS SHOWN AS THE CENTERLINE OF THE ROAD ON REFERENCE PLAN 1, PER THE DEEDS. THE PUBLIC HAS AN EASEMENT OVER THE ROAD BED. THE BOUNDARY LINE IS SHOWN GOING ALONG THE STONEWALLS WITH RIGHTS TO THE CENTERLINE. THEREFORE MAP 236 LOT 15 HAS RIGHTS TO ACCESS THE LOT BETWEEN THE IRON PIPE AND LOT CORNER AS SHOWN.
8. MAP 237 LOT 26 AND MAP 236 LOT 15 ARE NOT WITHIN THE 100 YEAR FLOOD PLAIN.

OWNER CERTIFICATIONS
I, MARY LASSEN PERSONAL REPRESENTATIVE OF THE MARGARET A. HETHERMAN TRUST, CERTIFY THAT WE ARE THE OWNERS OF MAP 237 LOT 26, AND APPROVE OF THIS BOUNDARY LINE ADJUSTMENT.

MARY LASSEN DATE

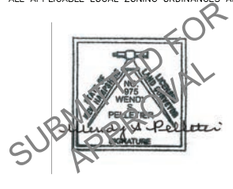
OWNER CERTIFICATIONS
WE, CHRISTOPHER AND JENNIFER TATTERSALL, CERTIFY THAT WE ARE THE OWNERS OF MAP 236 LOT 15, AND APPROVE OF THIS BOUNDARY LINE ADJUSTMENT.

CHRISTOPHER TATTERSALL DATE

JENNIFER TATTERSALL DATE

SURVEYOR'S CERTIFICATION
THIS SURVEY IS THE RESULT OF A RANDOM TRAVERSE USING AN ELECTRONIC TOTAL STATION AND MEETS THE MINIMUM REQUIREMENTS OF AN URBAN SURVEY AS SPECIFIED IN NH LAN TABLE 500.1.

I HEREBY CERTIFY THAT THIS PLAT CONFORMS TO ALL APPLICABLE LOCAL ZONING ORDINANCES AND RULES.



REVISIONS:
1. 5/6/25 REV PER STAFF COMMENTS WP

REFERENCE PLANS
1. PLAT OF SARAH B. & GILBERT A. CHADWICK SUBDIVISION, CHESTERFIELD & GRIMES ROADS, KEENE, N.H." SOURCE OF TITLE 1261/239 (1988), CHESHIRE COUNTY REGISTRY OF DEEDS, TAX MAP PARCEL #917-11-041, ZONE RURAL; PREPARED BY THOMAS W. FLAVIN, JR.; DATED MAY 21, 2001; SCALE 1"=100'; RECORDED AT CCRD PLAN C12-D06-0141.
2. "SURVEY BY HERBERT E RUSSELL SR., REGISTERED LAND SURVEYOR, STATE OF NEW HAMPSHIRE"; PREPARED BY H.E. RUSSELL SR.; DATED DEC 1971; SCALE 1"=50'; ON FILE AT CITY OF KEENE ENG. DEPT.
3. "PROPERTY OF STONEWALL FARM, A NEW HAMPSHIRE NONPROFIT CORPORATION, CONSERVATION EASEMENT AREAS IN FAVOR OF SOCIETY FOR THE PROTECTION OF NEW HAMPSHIRE FORESTS, CHESTERFIELD ROAD, CHESTERFIELD, NH". PREPARED BY THOMAS W. FLAVIN, JR.; DATED MARCH 16, 1999; SCALE 1"=200'; RECORDED AT CCRD PLAN C12-D04-0007.

DISCLAIMERS
1. THE PARCEL MAY BE SUBJECT TO OTHER EASEMENTS AS THEY EXIST OF RECORD OR IN FACT. CARDINAL SURVEYING AND LAND PLANNING DOES NOT INTEND OR REPRESENT THAT ALL RIGHTS AND EASEMENTS AFFECTING THE SUBJECT PROPERTY ARE SHOWN. A SPECIFIC TITLE EXAMINATION IS SUGGESTED TO DETERMINE THE NATURE AND EXTENT OF RIGHTS AND EASEMENTS AFFECTING THE SUBJECT PROPERTY.
2. THE LOCATION OF ANY UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. CARDINAL SURVEYING & LAND PLANNING MAKES NO CLAIMS TO THE ACCURACY OR COMPLETENESS OF THE UTILITIES SHOWN. FIELD VERIFICATION IS REQUIRED PRIOR TO ANY EXCAVATION ON THE SITE.
3. MAGNETIC BEARINGS SHOWN HEREON ARE BASED ON A COMPASS OBSERVATION TAKEN IN MARCH 2025 AND ARE FOR REFERENCE ONLY AND SERVE TO PROVIDE AN ANGULAR RELATIONSHIP BETWEEN LINES. VARIATIONS IN MAGNETIC BEARINGS MAY BE AFFECTED BY A CONSTANTLY CHANGING MAGNETIC DECLINATION AND LOCAL ATTRACTION.
4. CARDINAL SURVEYING & LAND PLANNING IS NOT RESPONSIBLE FOR PROPERTY DESCRIPTIONS PREPARED BY OTHER PERSONS FOR CONVEYANCE OF THE PROPERTY SHOWN HEREON.

BOUNDARY LINE ADJUSTMENT
MAP 237 LOT 26, MAP 236 LOT 15
37 & 38 GRIMES ROAD
KEENE, NH 03431

PREPARED FOR
THE MARGARET A. HETHERMAN TRUST &
CHRISTOPHER & JENNIFER TATTERSALL TRUST

CARDINAL SURVEYING & LAND PLANNING
PO Box 160
Sullivan, New Hampshire 03445
Tel. (603) 209-1989

SCALE: 1"= 80' DATE: APR 18 2025 SHT 1/1

JOB NO: 893 SURVEY DATE: 01-25 FB: 12/45

CITY OF KEENE
NEW HAMPSHIRE

MEMORANDUM

TO: Planning Board

FROM: Megan Fortson, Planner

DATE: May 16, 2025

SUBJECT: PB-2024-20 – Earth Excavation Permit Major Amendment & Hillside Protection Conditional Use Permit – 21 & 57 Route 9

Recommendation:

That the Planning Board vote to continue the public hearing for PB-2024-20 to the Planning Board meeting on Monday, July 28, 2025 at 6:30 pm in Council Chambers on the 2nd Floor of City Hall.

Background:

At the request of the applicant, the Board voted at the March 24th meeting to continue the above-referenced application to May 27, 2025. Updated materials were submitted by the applicant on May 9, including two additional waiver requests from Sections 25.3.3 and 25.3.6 of the Land Development Code (LDC) related to excavation below the water table and acid mine drainage. Staff are working with the applicant, property owner, and third-party consultant, Fieldstone Land Consultants, to facilitate the review of these updated materials. The applicant has submitted a request to continue the public hearing for this project to the Planning Board meeting on July 28, 2025.

Included as attachments to this memo are the continuance request, the updated application materials that have been submitted, and the most recent Planning Board decision letter that has been issued for this project. Links to the applicable Planning Board agenda packets and meeting minutes are included below. Additional information is available on the Planning Board webpage at https://keenenh.gov/planning-board/.

Planning Board Agenda Packets:

- February 24, 2025
- March 24, 2025

Planning Board Meeting Minutes:

- February 24, 2025
- March 24, 2025

From: Ariane Ice
To: Megan Fortson
Cc: Justin Daigneault; Brenton Cole; Jeff Merrit; Mari Brunner; Evan Clements; Emily Duseau; Chad Branon; Joel Banaszak; Cody Gordon
Subject: Extension request 7/28/25
Date: Thursday, May 15, 2025 11:04:32 AM

Hello Megan,
Thank you for your patience. I would like to formally request on behalf of G2 Holdings an extension of the hearing currently scheduled for May 27th until the July 28th hearing date. As per our earlier discussion, representatives of the applicant will be in attendance on 5/27 in case there are any questions regarding this request.
If there is anything further your office requires please let me know.
Thank you for your assistance in this matter.
Ariane Ice

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: G2 Holdings, LLC

PROJECT ADDRESS(ES): 57 Route 9

TYPE OF APPLICATION BEING SUBMITTED:
- ☐ EARTH EXCAVATION PERMIT
- ■ MAJOR AMENDMENT
- ☐ MINOR AMENDMENT
- ☐ PERMIT RENEWAL

SECTION 2: CONTACT INFORMATION

PROPERTY OWNER	APPLICANT
NAME/COMPANY: G2 Holdings, LLC	**NAME/COMPANY:** G2 Holdings, LLC
MAILING ADDRESS: 250 North Street, Jaffrey, NH 03452	**MAILING ADDRESS:** 250 North Street, Jaffrey, NH 03452
PHONE: 603-325-8457	**PHONE:** 603-325-8457
EMAIL: cody@mygordonservices.com	**EMAIL:** cody@mygordonservices.com
SIGNATURE:	**SIGNATURE:**
PRINTED NAME: Cody Gordon	**PRINTED NAME:** Cody Gordon

AUTHORIZED AGENT (if different than Owner/Applicant)	FOR OFFICE USE ONLY:	
NAME/COMPANY: Granite Engineering, LLC	**TAX MAP PARCEL #(s):** ___-___-___-___-___ ___-___-___-___-___	
MAILING ADDRESS: 150 Dow Street, Suite 421, Manchester, NH 03101		
PHONE: 603-518-8030	**PARCEL SIZE:**	**DATE STAMP:**
EMAIL: jdaigneault@graniteeng.com	**ZONING DISTRICT:**	
SIGNATURE:		
PRINTED NAME: Justin Daigneault	**PROJECT #:**	

City of Keene, NH

Hillside Protection Conditional Use Permit (CUP) 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: GRAVEL AND EARTH REMOVAL PLAN, G2 HOLDINGS, LLC	**AREA OF PRECAUTIONARY SLOPES TO BE IMPACTED:** *(in square feet)* Lot 7 = 202,015 SF
PROJECT ADDRESS(ES): 57 ROUTE 9, TAX MAP 215, LOTS 7 & 8	

SECTION 2: CONTACT INFORMATION

PROPERTY OWNER	APPLICANT
NAME/COMPANY: G2 Holdings, LLC	**NAME/COMPANY:** G2 Holdings, LLC
MAILING ADDRESS: 250 North Street, Jaffrey, NH 03452	**MAILING ADDRESS:** 250 North Street, Jaffrey, NH 03452
PHONE: 603-325-8457	**PHONE:** 603-325-8457
EMAIL: cody@mygordonservices.com	**EMAIL:** cody@mygordonservices.com
SIGNATURE:	**SIGNATURE:**
PRINTED NAME: Cody Gordan	**PRINTED NAME:** Cody Gordan

AUTHORIZED AGENT (if different than Owner/Applicant)	FOR OFFICE USE ONLY:	
NAME/COMPANY: Granite Engineering, LLC	**TAX MAP PARCEL #(s):** ___-___-___-___-___ ___-___-___-___-___	
MAILING ADDRESS: 150 Dow Street, Suite 421, Manchester, NH 03101		
PHONE: 603-518-8030	**PARCEL SIZE:**	**DATE STAMP:**
EMAIL: jdaigneault@graniteeng.com	**ZONING DISTRICT:**	
SIGNATURE:		
PRINTED NAME: Justin Daigneault	**PROJECT #:**	

FIELDSTONE
LAND CONSULTANTS, PLLC
Surveying ⌖ Engineering
Land Planning ⌖ Septic Designs
206 Elm Street, Milford, NH 03055 - Phone: 603-672-5456 - Fax: 603-413-5456
www.FieldstoneLandConsultants.com

February 14, 2025

City of Keene – Planning Board
Community Development Department
3 Washington Street
Keene, NH 03431
Attn: Megan Fortson, Planner
Evan Clements, Planner
Mari Brunner, Senior Planner

RE: G2 Holdings LLC - Excavation Permit Package Review
Tax Map 215 Lots 7 & 8 – 57 Route 9 – Keene, NH

Dear Board Members,

As requested, Fieldstone Land Consultants, PLLC (Fieldstone) has performed a review of the documents submitted for the above referenced project for completeness to the applicable City of Keene Land Development Code. The following documents were submitted for our review:

- Transmittal Letter prepared by Granite Engineering LLC, dated December 19, 2024.
- Earth Excavation Permit Application, dated December 12, 2024
- Community Development Department Certified Notice List, dated December 12, 2024
- Owner Affidavit
- Project Narrative
- Natural Heritage Bureau Environmental Review, dated February 6, 2024
- Hydrogeologic Investigation Report, dated December 18, 2024
- Acid Mine Drainage Report, dated December 18, 2024
- Request for waivers to Article 25.3.1.D and Article 25.3.13 with exhibits
- Gravel and Earth Removal Plan Set, dated December 20, 2024
- Hillside Protection Conditional Use Permit Application with Exhibits
- Copy of Alteration of Terrain Permit and Stormwater Management Application, dated December 20, 2024

- City Response Letter, dated February 3, 2025
- Stormwater Pollution Prevention Plan, Dated January 30, 2025
- Stormwater Management Report, dated January 22, 2025
- Revised Plan Set, last revised February 3, 2024

Fieldstone has completed a review of the materials provided against the City Land Development Code. More specifically the submission materials have been reviewed under Article 25 – Earth Excavation Regulations and Article 26 Section 26.19.4 which handles the Earth Excavation Permit.

Section 25 Earth Excavation Permit:

1. Section 25.2B: This project will require state and federal permits and these permits have not been obtained yet. Fieldstone would recommend that these permits be considered as conditions of approval when and if the project reaches that point.
2. Section 25.2C: The reports prepared and submitted indicate that this project has the potential to cause adverse impacts associated with the excavation project operations. This section outlines hazards as noise, traffic, dust or fumes, visual impacts, degradation of roadways, erosion and soil instability, sedimentation, adverse impacts to surface and ground waters, loss or fragmentation of important habitat, air quality degradation, pollution of soils or diminution of the value of abutter properties. Based on the materials provided it appears that this project will result in adverse impacts to surface and groundwaters. This is outlined in the Acid Mine Drainage Potential Report and we believe the stormwater management report does not currently adequately address the surface water conditions.
3. Section 25.3D: 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. The proposed excavation is located within 250-ft in a number of locations and the applicant is seeking a waiver from this section.
4. Section 25.3.3: The ground water table elevations need to be revisited in the reports. There appears to be conflicting data from the test pits and soil borings regarding the location of the estimated seasonal highwater table. Depending on the results of this work other portions of Section 24.3.4 may or may not be applicable. For example, the excavation depths in Period 8 appear to show depths of excavation below the water table. Test pits and record boring logs show seasonal high-water tables that are encountered and proper separation for infiltration does not appear to be provided. Based on our review of the data it appears this project will need an exception from 25.3.3A as excavation appears to be proposed below 6 feet from the seasonal high-water table.
5. Section 25.3.4.A.1: We have reviewed the soil logs and their proximity on the property. The number of observations appear to be appropriate at this stage but additional data may be required to support the current design since the current design does not appear to have adequate separation to water. Additional investigation may also be required depending on the consultant's responses surrounding concerns for potential impacts.

6. Section 25.3.4.A.2: The surface data table on Sheet 11 of 22 does not accurately represent elevations (existing and proposed) and separation to seasonal. The Hydrogeologic Investigation performed by SLR shows that boring log SLR-10 observed water at 840.1+/-, SLR-11 observed water at 817.8+/- and SLR-12 observed water at 888.5+/-. The finish grades in these areas appear to show interference. The plans do not show all of the record borings locations. For example, SLR-12 appears to be missing and the excavation at this location is approximately 855+/- based on what we understand to be its location. This appears to be 30+ feet below the observed seasonal water table.

SLR

TABLE 1
GROUND SURFACE, WELL, AND GROUNDWATER ELEVATIONS
Tax Map 215, Lot 7
Route 9, Keene, New Hampshire
Project # 144.16535.00023

Well ID	Ground Surface Elevation (feet)	Proposed Excavation Depth	Well Elevation At Top PVC (feet)	Total Well Depth (feet)	Bottom Well Elevation from Ground Surface (feet)	PVC Well Screen Interval (feet)	Depth to Groundwater Date	Depth to Groundwater from Ground Surface (feet)	Groundwater Elevation (feet)
SLR-10	883 ±	854 ±	884.7 ±	55	828 ±	5-55	3/22/22	42.9	840.1 ±
SLR-11	863 ±	856 ±	865.3 ±	45.2	817.8 ±	5-45	3/22/22	dry at 45.2	817.8 ±
SLR-12	890 ±	858 ±	892.7 ±	39.5	850.5 ±	4.5-39.5	3/22/22	1.5	888.5 ±

7. Section 25.3.4B2: The data for the wells depicted on the plans (3 wells) should be provided and documented for baseline information. It would seem appropriate that the Hydrogeologic Investigation provide the well data (depth of water and baseline testing of these wells since they are located on the site. The monitoring plan may want to include one or more of these wells too.
8. Section 25.3.4B3A: The soil logs and borings in Period 8 do not seem to meet the requirements outlined in this section.
9. Section 25.3.4C: The proposed monitoring plan for this project does not match the frequency outlined in this section. The City shall determine if they are comfortable with the proposed frequency and if relief is required from this section of the regulations.
10. Section 25.3.6: This section states " 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." Per the Acid Mine Drainage Potential Report prepared by Frontier Geoservices this project has the potential to produce acid mine drainage. The

report outlines that borings 1 through 8 have the elements or compounds that could produce acid mine drainage.

11. Section 25.3.7: This Section addresses Stormwater Management and states "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. The stormwater management report and design for this project is currently incomplete as it does not evaluate the pre and post conditions. The submitted report does not include preconstruction conditions or properly model the phasing of the project and the phased conditions throughout the project.
    b. This should include monitoring the same observation points and modeling the closest downstream structures that route the runoff from the site.
    c. The original approvals for this site included the submission of a stormwater management report prepared by TFMoran that properly evaluated the pre and post conditions and storm events. Since this is an expansion of this project we would anticipate a similar submission for the expansion of this project. The submission should also account for the phasing of the project showing that the project meets the standards throughout the phasing periods.
    d. Other details to consider in the stormwater management report:
        i. The model should account for ledge and the associated impervious conditions and shallow ledge. The post conditions do not account for the amount of exposed ledge or shallow ledge resulting from the project. All of the subcatchments show 0% impervious cover and low CN's for the actual anticipated conditions. We believe the CN's used are not representative of post-construction conditions.
        ii. Outlet structures seem to have orifice plates bolted to headwalls but do not seem to provide for emergency outlets for larger storms or in the event of clogging.
        iii. The report should compare peak rates and volumes at the two observation points.
        iv. Confirm adequate depths to ESHWT are being provided.
        v. Verify inlet conditions and culvert cover for cross-culverts.
        vi. Ditch (reach) modeling and capacity analysis should account for stone check dams.
        vii. The report and plans need to include an inspection and maintenance manual outlining all stormwater practices with recommended inspection and maintenance.
    e. It is unclear what the intentions are for handling stormwater and the transition between Phases or Periods.
12. Section 25.3.8: A review of site photographs and the plans provided shows that the project

is currently not constructed per the prior approved plans. The drainage at the entrance is not completed and as such dust control and the transportation of dirt/mud off the site onto the adjacent roadway is occurring.

13. Section 25.3.10: Note #21 of the Operations Notes makes reference to known important Archeological sites. Please clarify if there are any such sites on-site.
14. Section 25.3.12: Per this section a fence or barricade shall be installed and the plans have a detail addressing this. Please clarify the intent regarding the timing of the installation of this fence for each phase or period of construction.
15. Section 25.3.13: Per this section the excavation areas shall not exceed 5-acres. The applicant is seeking a waiver from this section.
16. Section 25.3.17: The access driveway and associated drainage and construction details does not appear to be completed as designed and approved for the initial approval of this project. This is evident if you compare the existing conditions plans with the details depicted on Sheet 10 of 22. There needs to be some clarification on what the intent is with the front end of this project and how it will be brought into compliance with the approved plans.
17. Section 25.3.25: The plans should be revised to incorporate notes addressing record keeping per this section.
18. Section 25.3.26: The applicant shall provide the Community Development Department copies of all local, state and/or federal permits required for this project.
19. Section 25.4.1D: To meet this requirement the Stormwater Management Report should appropriately model the pre and post condition design storms and evaluate observation points to ensure that the project will not have negative impacts to downstream areas. reclamation plan should be revised to incorporate notes from this section to ensure compliance with the City Code. This includes notes pertaining to incremental reclamation, topsoil, vegetation, monitoring and remediation as applicable.
20. Section 25.4.6: We would recommend that the reclamation plans be revised to incorporate the remediation note outlined in this section.

Plan Review – General Review Comments:

1. Sheet 1 of 22 – Operations notes #3 should mention the 250-foot wetland setback to excavation setback as applicable too.
2. Sheet 1 of 22 – Operations notes #10 is not correct. The subject site is not self-contained and this note should be revised accordingly. There are areas of the site that are not self-contained including but not limited to existing access roads, etc.. This note misrepresents current and proposed conditions.
3. Sheet 1 of 22 – Operations notes #17 appears to conflict with the updated existing conditions plan as fuel is currently stored on-site. We would recommend the preparation and submission of a Source Control Plan due to the presence of hazardous materials on-site and the nature and size of the proposed project.
4. Existing Conditions Sheets should show setbacks and buffers. The limit of disturbance line

on the updated existing conditions plan seems to represent a wetland impact on the east portion of the site. Please clarify and correct plan as applicable.

5. Sheet 5 of 22 – The temporary sedimentation basin needs additional detail. There appears to be no erosion and sedimentation controls, berm detail, emergency outlet controls and contour labels. Are other access improvements going to be included with this initial work?
6. Sheet 6 of 22 – the 30" culvert in Period 1 has two outlets labeled and I would check the cover over this pipe as the grading appears to be too shallow.
7. Sheet 10 of 22 – What is the plan for transitioning form the temporary basin and into this final design? Reviewing the soils data seems to indicate that the basin design is too low and the excavation in areas will intercept SHWT. It looks like the existing trailer and facilities are in the way and should be moved.
8. Sheet 12 and 14 of 22 – Additional Basin details are needed. Contour labels, berm detail, emergency outlet and associated details.
9. Has an EPA Notice of Intent (NOI) been filed for the current site operations? Please provide appropriate materials so we can verify compliance with the initial approved site plan.
10. A reclamation bond will need to be established for the project prior to work commencing.
11. The exiting conditions plan seems to indicate that the site is not currently in compliance with the previously approved plans. The plan appears to be missing drainage culverts, a stormwater management basin (infiltration basin), an outlet structure, an emergency spillway, slope benching, a reinforced drainage swale, drainage at the entrance, access roadway grading, stop sign at entrance, etcetera. See photo of entrance which depicts current conditions and a deviation from the approved plan.

12. Existing conditions plans should show setback and wetland buffer areas to ensure there are no impacts to those areas.

13. We have highlighted two areas on the aerial photography below. Further information should be provided for these areas as they appear to be new impact areas. The arrow on the image also represents an area that appears to be seeing more drainage as there is significant erosion and soil loss which is visible from NH Route 9. We recommend that this area be investigated further.

14. The phasing plans need to meet the detail and note requirements outlined in this section. It is difficult to decipher what improvements are required for each phase and how phases transition.

This concludes our first review of the technical components for the above referenced project. Please feel free to contact us should you have any questions or require additional information.

Sincerely,
FIELDSTONE LAND CONSULTANTS, PLLC

Chad E. Branon, P.E.
Civil Engineer/Principal

GRANITE ENGINEERING, LLC
civil engineering ● land planning ● municipal services

May 9, 2025

City of Keene
Community Development Department – Planning and Zoning
3 Washington Street
Keene, New Hampshire 03431

RE: G2 Holdings, LLC
Tax Map 215 Lots 7 & 8
21 & 57 Route 9, Keene, NH
GE Project No. 2302011

Dear Ms. Fortson,

We are in receipt of a consultant review report, dated February 14, 2025, relative to the review of the Earth Excavation Permit application, PB-2024-20, for the G2 Holdings, LLC project located at 21 & 57 Route 9. In addition to responses to your comments, please find the following material in support of the referenced project:

- Three (3) Copies of the waiver requests for Article 25.3.3 and Article 25.3.6
- Three (3) copies of the Surface Water Resources Setback Plan (22" x 34")
- Three (3) Copies of the Stormwater Management Report
- Three (3) Copies of the Acid Mine Draiange Detection Initial Response Action Plan
- Three (3) Copies of the Stormwater Pollution Prevention Plan (SWPPP) for the current pit operations
- Three (3) Copies of the revised plans (22" x 34")
- One (1) check in the amount of $150.64
- Digital submission of the updated materials

In response to the comments made by Fieldstone Land Consultants, PLLC, we offer the following explanations and/or responses:

<u>Section 25 Earth Excavation Permit:</u>

1. Section 25.2B: This project will require state and federal permits and these permits have not been obtained yet. Fieldstone would recommend that these permits be considered as conditions of approval when and if the project reaches that point.

   No response required.

2. Section 25.2C: The reports prepared and submitted indicate that this project has the

potential to cause adverse impacts associated with the excavation project operations. This section outlines hazards as noise, traffic, dust or fumes, visual impacts, degradation of roadways, erosion and soil instability, sedimentation, adverse impacts to surface and ground waters, loss or fragmentation of important habitat, air quality degradation, pollution of soils or diminution of the value of abutter properties. Based on the materials provided it appears that this project will result in adverse impacts to surface and groundwaters. This is outlined in the Acid Mine Drainage Potential Report and we believe the stormwater management report does not currently adequately address the surface water conditions.

Although the site's bedrock <u>may</u> exhibit <u>potential</u> acid-generating properties, this characteristic alone does not inherently make it so. Professionally engineered plans, a Hydrogeologic Investigation Report, Acid Mine Drainage Potential Report, and an Acid Mine Drainage Detection Initial Response Action Plan prepared by a professional geologist are included in this submission. As demonstrated in the submitted material, 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.

Given that bedrock was encountered and has the potential to contain minerals that could lead to AMD, a waiver is required to proceed with bedrock excavation. This waiver is necessary to excavate the material on-site adequately. While AMD is uncommon in active New England quarries, our proactive approach includes initial testing, early detection protocols, and action plans, which are crucial for managing any potential adverse effects. These supporting documents have been included with this submittal.

All stormwater from bedrock excavation activities will be collected, contained, and infiltrated back into the ground. We anticipate zero runoff associated with the bedrock excavated areas discharging the site, effectively protecting surface waters from potential AMD. The revised Stormwater Management Report includes an analysis of the two proposed infiltration basins and the ability to infiltrate the stormwater up to and including the 50-year 24-hour storm event. In addition to reintroducing surface water to the ground, the proposed lining of the two infiltration ponds with 12 inches of crushed limestone gravel as a precautionary measure will help neutralize any potential for acid mine drainage.

3. Section 25.3D: 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. The proposed excavation is located within 250-ft in a number of locations and the applicant is seeking a waiver from this section

No response required.

4. Section 25.3.3: The ground water table elevations need to be revisited in the reports. There appears to be conflicting data from the test pits and soil borings regarding the location of the estimated seasonal highwater table. Depending on the results of this work other portions of Section 24.3.4 may or may not be applicable. For example, the excavation depths in Period 8 appear to show depths of excavation below the water table. Test pits and record boring logs show seasonal high-water tables that are encountered and proper separation for infiltration does not appear to be provided. Based on our review of the data it appears this project will need an exception from 25.3.3A as excavation appears to be proposed below 6 feet from the seasonal high-water table.

   A groundwater monitoring well (SLR-12), installed by SLR International Corporation, observed a groundwater fracture within 18 inches of the existing ground surface. It is the project's intent to refrain from excavating this area. While there is no evidence that the fracture in which SLR-12 is located extends into the proposed excavation area, we are respectfully requesting this waiver to ensure continued compliance with Article 25.3.3.

   The groundwater monitoring well which encountered high groundwater, is an anomaly. This particular well, drilled by a different company for another firm, unexpectedly encountered a high level of groundwater. The applicant noted during drilling that surface water was present nearby and appeared to be flowing into the well. It's important to note that a nearby well and test pit, located close to SLR-12, did not encounter any groundwater. Furthermore, all overburden and bedrock wells within the planned excavation area have also shown no groundwater.

   While we believe the high groundwater reading in the anomalous well is likely inaccurate due to the observed surface water influence, we have taken care to avoid disturbing the adjacent grade. However, completely avoiding the adjacent area would unfortunately prevent the construction of a critical sedimentation pond. These sedimentation ponds are essential for effective site runoff control. They function by capturing and holding water, allowing sediment to settle out. This process is vital in preventing sediment from entering downstream water bodies and safeguarding water quality during the construction phase. If groundwater is actually encountered in the adjacent area, blasting operations will cease as MSHA, the protective protocols governing blasting, does not allow the blasting within groundwater.

The floor of the basin is at elevation 842.00 and relatively half way between the wells. Based on this information, the water table was interpolated and estimated at 828.95.

5. Section 25.3.4.A.1: We have reviewed the soil logs and their proximity on the property. The number of observations appear to be appropriate at this stage but additional data may be required to support the current design since the current design does not appear to have adequate separation to water. Additional investigation may also be required depending on the consultant's responses surrounding concerns for potential impacts.

   See response to #4.

6. Section 25.3.4.A.2: The surface data table on Sheet 11 of 22 does not accurately represent elevations (existing and proposed) and separation to seasonal. The Hydrogeologic Investigation performed by SLR shows that boring log SLR-10 observed water at 840.1+/-, SLR-11 observed water at 817.8+/- and SLR-12 observed water at 888.5+/-. The finish grades in these areas appear to show interference. The plans do not show all of the record borings locations. For example, SLR-12 appears to be missing and the excavation at this location is approximately 855+/- based on what we understand to be its location. This appears to be 30+ feet below the observed seasonal water table.

   The proposed grade at SLR-10 is 860.00 in period 1, and 855.00 in period 8. This grading is approximately 15 feet above the observed water table found (840.1+/-). The proposed grade at SLR-11 is 880.00 in period 1, and 855.00 in period 8. This grading is approximately 37 feet above the observed water table found (817.8 +/-). SLR-12 is shown on sheets 5 and 10, and the existing grade at SLR-12 is 888+/-. The existing grade is to be maintained in this location. No excavation is occurring in this location.

7. Section 25.3.4.B.2: The data for the wells depicted on the plans (3 wells) should be provided and documented for baseline information. It would seem appropriate that the Hydrogeologic Investigation provide the well data (depth of water and baseline testing of these wells since they are located on the site. The monitoring plan may want to include one or more of these wells too.

   A revised monitoring plan has been developed and includes monitoring SLR 10, 11, and 12 that were previously installed.

8. Section 25.3.4.B.3A: The soil logs and borings in Period 8 do not seem to meet the requirements outlined in this section.

The section requires that wells be dug 50' below the proposed pit – if excavation is within the water table. SLR 10 and SLR 11 were both dug below the proposed pit bottom, and did not encounter the water table within our excavation limits. The proposed design does not propose excavating below the water table. SLR-12 is shown on sheets 11 and 16. It is currently located in the area between period 1 and period 8 in an area where grading is not anticipated. SRL-12 does show a water level greater than the adjacent proposed pit floor depth. All bedrock groundwater flow at the site is controlled by fracture flow and we have no evidence suggesting that the fracture in which SRL-12 is located extends into the excavation area. SLR-12 showed groundwater to be within 18" of the surface, however, both SLR-4 and test pit 6, both of which are within very close proximity to SLR-12, did not find groundwater. Overburden wells MW-1 through MW-8 did not encounter groundwater. Bedrock wells BRW-1 through BRW-6 did not encounter groundwater. Furthermore, due to the blasting means and methods, the excavation is limited to "dry-hole" areas only.

9. Section 25.3.4C: The proposed monitoring plan for this project does not match the frequency outlined in this section. The City shall determine if they are comfortable with the proposed frequency and if relief is required from this section of the regulations.

   A revised monitoring plan has been provided that includes monitoring tables of both AMD and water level monitoring. It also includes both on-site and off-site water quality monitoring notes. See sheet 17.

10. Section 25.3.6: This section states " 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." Per the Acid Mine Drainage Potential Report prepared by Frontier Geoservices this project has the potential to produce acid mine drainage. The report outlines that borings 1 through 8 have the elements or compounds that could produce acid mine drainage.

    See Response to #2

11. Section 25.3.7: This Section addresses Stormwater Management and states "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. The stormwater management report and design for this project is currently incomplete as it does not evaluate the pre and post conditions. The submitted report does not include preconstruction conditions or properly model the phasing of the project and the phased conditions throughout the project.
A revised Stormwater Management Report has been updated to show the pre and post development flows from the project area to the wetlands and drainage culverts adjacent and under Route 9. There is a net decrease in peak flow during all storm events, up to and including the 100-yr storm event, per the request of the Conservation Commission. The two-year pre- vs. post volumes for channel protection have also been met.

b. This should include monitoring the same observation points and modeling the closest downstream structures that route the runoff from the site.

See response above.

c. The original approvals for this site included the submission of a stormwater management report prepared by TFMoran that properly evaluated the pre and post conditions and storm events. Since this is an expansion of this project we would anticipate a similar submission for the expansion of this project. The submission should also account for the phasing of the project showing that the project meets the standards throughout the phasing periods.

Two pre vs post drainage models have been analyzed, which include an interim phase showing the project meets pre vs post flows during the phasing periods. During this interim phase, the temporary sedimentation pond SF1 is to be expanded. This pond will detain and infiltrate all the stormwater associated with the subsequent phases of work. Upon completion of period 7, and during period 8, as the pit floor in period 8 is lowered, proposed infiltration pond SF8 will be constructed. This will capture and infiltrate all of the stormwater associated with the project.

d. Other details to consider in the stormwater management report:

i. The model should account for ledge and the associated impervious conditions and shallow ledge. The post conditions do not account for the amount of exposed ledge or shallow ledge resulting from the project. All of the subcatchments show 0% impervious cover and low CN's for the actual anticipated conditions. We believe the CN's used are not representative of post-construction conditions.

Ledge and associated impervious conditions, including gravel haul roads, have been reflected in the updated drainage analysis.

ii. Outlet structures seem to have orifice plates bolted to headwalls but do not seem to provide for emergency outlets for larger storms or in the event of clogging.

Outlet structures for the use of emergency overflow devices have been added to SF5, SF6, and SF7. Hydrocad has been updated with these structures as well as the details (pond detail updated, OCS structure details have been provided.

iii. The report should compare peak rates and volumes at the two observation points.

See response to 11a.

iv. Confirm adequate depths to ESHWT are being provided.

Both the temporary sediment basin SF7 and the final proposed infiltration basin SF8 have the required separation to ESHWT. See response to 4.

v. Verify inlet conditions and culvert cover for cross-culverts.

Inlet conditions have been verified, and minimum cover has been provided for all culverts.

vi. Ditch (reach) modeling and capacity analysis should account for stone check dams.

Temporary stone check dams have been removed as ditches are proposed to be stone armored.

vii. The report and plans need to include an inspection and maintenance manual outlining all stormwater practices with recommended inspection and maintenance.

An Operation and Maintenance Manual has been included in the stormwater report.

e. It is unclear what the intentions are for handling stormwater and the transition between Phases or Periods.

See response to 11c.

12. Section 25.3.8: A review of site photographs and the plans provided shows that the project is currently not constructed per the prior approved plans. The drainage at the entrance is not completed and as such dust control and the transportation of dirt/mud off the site onto the adjacent roadway is occurring.
Plans have been revised to show improvements at the entrance. This work will include widening the paved apron, stone outlet protection, and grading a depression at the existing driveway culvert. Phasing notes have been added to sheets 5 and 10 to specify what items need to be completed associated with the access road and during which period. Additional notation has been included on sheets 5 and 10 that specify what items are to be constructed and when, based on the previously approved project.

13. Section 25.3.10: Note #21 of the Operations Notes makes reference to known important Archeological sites. Please clarify if there are any such sites on-site.

Per a review by the NH Division of Historical Resources, there are no known resources to be impacted. This note has been eliminated,

14. Section 25.3.12: Per this section a fence or barricade shall be installed and the plans have a detail addressing this. Please clarify the intent regarding the timing of the installation of this fence for each phase or period of construction.

Operation notes have been revised to include the following:
Earthen Berms 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. These Shall Be Erected At The Start Of Each Permit Period, And Shall Remain Until Pit Excavation Area Has Been Reclaimed.

15. Section 25.3.13: Per this section the excavation areas shall not exceed 5-acres. The applicant is seeking a waiver from this section.

No response required.

16. Section 25.3.17: The access driveway and associated drainage and construction details does not appear to be completed as designed and approved for the initial approval of this project. This is evident if you compare the existing conditions plans with the details depicted on Sheet 10 of 22. There needs to be some clarification on what the intent is with the front end of this project and how it will be brought into compliance with the approved plans.

See response to 12.

17. Section 25.3.25: The plans should be revised to incorporate notes addressing record keeping per this section.

    General note 27 on sheet 1 now reads: All logs required to be maintained by the applicant/operator shall be retained by the applicant for a period of not less than 5-years and shall be made available to the community development department, or its designated agent, upon request.

18. Section 25.3.26: The applicant shall provide the Community Development Department copies of all local, state and/or federal permits required for this project.

    No response required.

19. Section 25.4.1D: To meet this requirement the Stormwater Management Report should appropriately model the pre and post condition design storms and evaluate observation points to ensure that the project will not have negative impacts to downstream areas. reclamation plan should be revised to incorporate notes from this section to ensure compliance with the City Code. This includes notes pertaining to incremental reclamation, topsoil, vegetation, monitoring and remediation as applicable.

    The stormwater management report has appropriately modeled pre vs post conditions. The reclamation notes have been revised to include the pertinent notes from this section.

20. Section 25.4.6: We would recommend that the reclamation plans be revised to incorporate the remediation note outlined in this section.

    The reclamation notes have been revised to include the following: Excavation operations that cause adverse impacts shall abate and/or remediate those impacts, restoring all affected areas to pre-impact conditions. Reclamation shall not be said to be complete until all adversely impacted areas have been successfully remediated.

<u>Plan Review – General Review Comments:</u>

1. Sheet 1 of 22 – Operations notes #3 should mention the 250-foot wetland setback to excavation setback as applicable too.

   General note #21 has included this information.

2. Sheet 1 of 22 – Operations notes #10 is not correct. The subject site is not self-contained and this note should be revised accordingly. There are areas of the site

that are not self-contained including but not limited to existing access roads, etc.. This note misrepresents current and proposed conditions.

Operations Note 10 has been revised.

3. Sheet 1 of 22 – Operations notes #17 appears to conflict with the updated existing conditions plan as fuel is currently stored on-site. We would recommend the preparation and submission of a Source Control Plan due to the presence of hazardous materials on-site and the nature and size of the proposed project.

   Note 17 has been removed. Refer to fueling notes on sheets 5 and 10. Fueling operations are proposed to be in compliance with Env-WQ 1510.08.
   Spill prevention measures currently on-site are located in the job trailer and consists of 55 gallon drum MS spill prevention barrels.

4. Existing Conditions Sheets should show setbacks and buffers. The limit of disturbance line on the updated existing conditions plan seems to represent a wetland impact on the east portion of the site. Please clarify and correct plan as applicable.

   The excavation, drainage, and erosion control plan show both the current limits and proposed limits of disturbance, as well as all surface water / wetland setbacks. The area in which the existing conditions plan shows disturbance within a wetland is an existing disturbed area that has been restored and confirmed by Ecosystems Land Planning and by the City of Keene. See response to item #13.

5. Sheet 5 of 22 – The temporary sedimentation basin needs additional detail. There appears to be no erosion and sedimentation controls, berm detail, emergency outlet controls and contour labels. Are other access improvements going to be included with this initial work?

   The grading plans and details have been revised to include more information for the ponds.

6. Sheet 6 of 22 – the 30" culvert in Period 1 has two outlets labeled and I would check the cover over this pipe as the grading appears to be too shallow.

   The culvert has one outlet HW#10B labeled. The culvert as proposed has been checked and meets or exceeds manufactures minimum requirements of 12" of cover.

7. Sheet 10 of 22 – What is the plan for transitioning from the temporary basin and into this final design? Reviewing the soils data seems to indicate that the basin design is too low and the excavation in areas will intercept SHWT. It looks like the existing trailer and facilities are in the way and should be moved.

   As the pit floor is lowered, the temporary sedimentation basin will be expanded upon as excavation continues. By the time the pit floor has been excavated to elevation 860.00, the infiltration basin shown in period 8 will have been constructed to the proposed pit floor of 842.00.
   SLR-11 had noted water table at elevation 817.8. SLR 10 had noted water table at 840.1. The floor of the basin is at elevation 842.00 and relatively half way between the wells. Based on this information, the water table was interpolated and estimated at 828.95.
   The existing trailer and facilities are proposed to be relocated from their current location as shown on sheet 10, during the start of period 8.

8. Sheet 12 and 14 of 22 – Additional Basin details are needed. Contour labels, berm detail, emergency outlet and associated details.

   The plans and details sheets have been revised to include additional information for the ponds.

9. Has an EPA Notice of Intent (NOI) been filed for the current site operations? Please provide appropriate materials so we can verify compliance with the initial approved site plan.

   An NOI for the 2022 NPDES Construction General Permit was filed and has been included.

10. A reclamation bond will need to be established for the project prior to work commencing.

    No response required.

11. The exiting conditions plan seems to indicate that the site is not currently in compliance with the previously approved plans. The plan appears to be missing drainage culverts, a stormwater management basin (infiltration basin), an outlet structure, an emergency spillway, slope benching, a reinforced drainage swale, drainage at the entrance, access roadway grading, stop sign at entrance, etcetera. See photo of entrance which depicts current conditions and a deviation from the approved plan.

Plans have been revised to show culvert and stone ditching to be added at the entrance. Phasing notes have been added to sheet 5 and sheet 10 to specify what items need to be completed associated with the access road and during which period. Additional notation has been included on sheets 5 and 10 that specify what items are to be constructed and when based on the previous approved project.

12. Existing conditions plans should show setback and wetland buffer areas to ensure there are no impacts to those areas

    An updated Surface Water Resources Setback Plan has been included and addresses this comment and that shows the following:
    - ***Limits of disturbance***
    - ***Previously approved encroachments on surface water setbacks***
    - ***Proposed encroachments on surface water setbacks***
    - ***Previously restored areas of impacts on surface water setbacks***

13. We have highlighted two areas on the aerial photography below. Further information should be provided for these areas as they appear to be new impact areas. The arrow on the image also represents an area that appears to be seeing more drainage as there is significant erosion and soil loss which is visible from NH Route 9. We recommend that this area be investigated further.

    The area circled to the west, located adjacent to the existing pit, was an area of restoration associated with the previously permitted gravel pit. Per A joint inspection conducted on September 28, 2023 between the applicant, City Staff, and certified wetland scientist, it was determined that area had been successfully replanted. The second area circled is an existing cleared area that is evident on google imagery as far back as 2008, most likely a logging lay down area. The erosion along the perennial stream as noted on lot 8, the old Seafield Pines Facility, has been a known issue prior to the applicant owning the property.

14. The phasing plans need to meet the detail and note requirements outlined in this section. It is difficult to decipher what improvements are required for each phase and how phases transition.

    Phasing notes have been revised, as well as call out notes on the plans to address construction sequencing.

In response to Bryan Ruoff's (City Engineer) comment *"The existing paved access road radii need to be increased in order to support the traffic loading and associated turning*

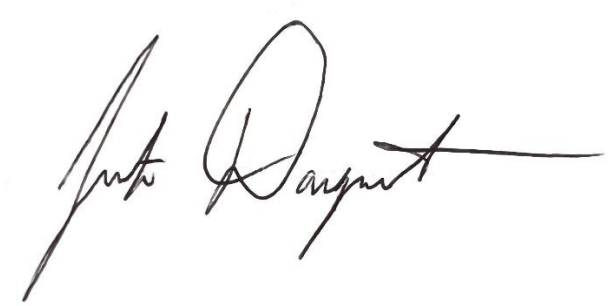
movements into and out of the site. The existing turning movements extend outside of the pavement and will exacerbate the deterioration of the road", we offer the following:

We understand this is an area of concern, as the applicant has placed crushed stone in these areas to accommodate truck movements. The pavement radii at the entrance has been revised for a permanent solution. Our phasing notes indicate this work to be done at the start of this project.

During the March 24th Planning Board meeting, a suggestion was raised by the Mayor for increased awareness of the construction vehicles entering NH Route 9 at the existing site entrance. Our plans have been revised to address this concern, by adding signage indicating vehicles will be entering and exiting in this location.

We trust the noted plan revisions and/or explanations will adequately address the conditions listed above. Should you have any further questions or comments, please do not hesitate to contact this office.

Best Regards,



Justin Daigneault
Project Manager

GRANITE ENGINEERING, LLC
civil engineering ● land planning ● municipal services

Waivers

The applicant requests the following waivers in accordance with Article 26.19.13:

1. **Which Requirement:**
   Article 25.3.6 – 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.

   Why the waiver is needed:
   Professionally engineered plans, a Hydrogeologic Investigation Report, Acid Mine Drainage Potential Report, and an Acid Mine Drainage Detection Initial Response Action Plan prepared by a professional geologist were submitted in conjunction with the subject excavation permit. As demonstrated in the submitted material, 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.

   Our initial site testing, involving eight overburden wells, revealed bedrock at depths ranging from less than 5 feet to 14 feet. Subsequent testing of the bedrock, combined with an acid-producing potential analysis, helped us evaluate the risk of Acid Mine Drainage (AMD). AMD can occur when low pH waters at an excavation site contain elevated levels of certain minerals.

   Given that bedrock was encountered and has the potential to contain minerals that could lead to AMD, a waiver is required to proceed with bedrock excavation. This waiver is necessary to adequately excavate the material on-site. While AMD is uncommon in active New England quarries, our proactive approach includes initial testing, early detection protocols, and action plans, which are crucial for managing any potential adverse effects. These supporting documents have been included with this waiver request for your review.

   Alternative Standard:
   The alternative to the proposed would result in no bedrock excavation activities on-site. Due to the shallow depth of bedrock found throughout the property, excavation with avoiding bedrock is not a practical option. Bedrock, or granite, is common in New Hampshire and is regularly excavated for various purposes. While AMD testing isn't typical in New England, it's a potential factor in many quarrying operations.

Considering the makeup of the granite bedrock in Keene and the areas where bedrock excavation is permitted, there's a possibility that any bedrock extraction in Keene might lead to the same waiver requirement.

Not in Violation:
Granting this waiver would not violate NH RSA 155:E, as the State of New Hampshire does not have specific regulations for AMD. Because AMD is uncommon in the state, testing and mitigation for it are not typically required. However, note that the applicant will monitor groundwater and surface water compounds, which will be compared to the relevant NHDES regulatory standards.

Adverse Impacts:
A proactive approach to AMD will allow the excavation of the bedrock and prevent any adverse impact on surface and groundwater:

Sampling
Initial testing and analysis have indicated that AMD may potentially occur on Site. Due to this potential, it is proposed that strategically placed wells will be monitored on a bi-annual basis in the months of April and October. Additionally, samples will be collected from surface water basins constructed throughout the project. The basins collect all surface water conveyed from the proposed excavation and discharge to one common infiltration pond. Baseline, pre-excavation monitoring will consist of the collection of two (2) rounds of samples collected a minimum of 14 calendar days apart. Results will be reviewed in comparison to the New Hampshire Department of Environmental Services (NHDES) Ambient Groundwater Quality Standards (AGQS). All results will be forwarded to the City of Keene Community Development Department within 45 days of sample collection.

Prevention
AMD occurs when surface water interacts with heavy metals, resulting in a low pH level. Our strategy focuses on minimizing the contact between surface water and bedrock.

The bedrock at our site has limited exposure to groundwater. To assess groundwater potential, we installed eight bedrock wells. Only two of these encountered groundwater, and both were located outside the planned excavation area. While one existing well found groundwater close to the surface, another nearby well and test pit did not, indicating a general lack of groundwater within the bedrock intended for mining. This limited groundwater significantly reduces the potential for water to interact with the bedrock.

Furthermore, all stormwater from excavation activities will be collected, contained, and infiltrated back into the ground. We anticipate zero runoff leaving the site, effectively protecting surface waters from potential AMD.

Research indicates a link between abandoned quarries and AMD due to prolonged water contact with minerals. To avoid this, any stockpiled material will be moved off-site promptly. We also plan to refrain from blasting and processing bedrock unless there is a clear economic demand.

Finally, all exposed bedrock, with the exception of the vertical ledge face, will be reclaimed with suitable loam and seed. This will prevent long-term contact between surface water and the minerals.

Pre-mitigation
All stormwater associated with the excavation activities is collected, detained, and infiltrated back into the ground via infiltration ponds. Zero runoff is expected to leave the site. In addition of reintroducing surface water to the ground, the proposed lining the two infiltration ponds with 12 inches of crushed limestone gravel as a precautionary measure will help neutralize any potential for acid mine drainage.

Mitigation
Although unlikely, if a surface and/or groundwater sampling location presents results that are indicative of the formation of acid mine drainage, NHDES and the City of Keene will be notified immediately. Furthermore, the following immediate initial response actions will be implemented:

1. All active quarrying/mining operations occurring in the affected area will cease and exposed bedrock surfaces shall be expeditiously restored to have a minimum thickness of 3-feet of cover material. The cover material shall consist of a minimum of 30% clay content. The intent of the clay content and compaction is to limit air and surface water contact with the source of the acid mine drainage.
2. Any affected drainages which may be contributing/conveying acid mine drainage shall be armored with 1-foot of 2-inch minus, crushed, limestone gravel.
3. The frequency of surface water and groundwater monitoring for acid mine drainage will be increased to a quarterly basis.
4. All surface water within ½-mile downgradient of the detected acid mine drainage shall be sampled within 2-weeks of the initial detection and be included in the surface water monitoring program.
5. Sampling of all domestic water supply wells within ½-mile of the affected area for acid mine drainage parameters will occur within 2-weeks of the initial detection and continue to be sampled on a quarterly basis.
    a. If acid mine drainage is detected in a domestic water supply well the homeowner shall be offered to have a “point-of-use” water treatment system installed and maintained while a new, unimpacted, domestic water supply is made available at no cost to the homeowner.

6. A groundwater quality assessment in the areas adjected to the detected acid mine drainage will be initiated.
    a. The Groundwater Quality Assessment shall include the installation of a minimum of three (3) monitoring wells; one upgradient of the affected surface water, and two down-gradient of the affected surface water. Additional monitoring wells may be required to determine the horizontal and vertical distribution of the groundwater impacts.
    b. Groundwater samples will be collected within 2 weeks of installation and analyzed for acid mine drainage parameters listed above. A second, confirmatory round of sampling will occur 2-weeks after the initial sampling round. Monitoring wells will be sampled on a quarterly basis if acid mine drainage impacts are detected. If results indicate acid mine drainage may have traveled further downgradient additional monitoring wells may be required.

Purpose and Intent:
The purpose of this regulation is to protect surface waters AMD. AMD occurs when water reacts with sulfur bearing minerals creating sulfuric acid. The overall result of AMD is lower levels of pH of the surface water, and the potential for high levels of toxic materials. The regulation requires the applicant to prove that the proposed bedrock extraction will not negatively impact surface waters and wetlands. While the purpose of the regulation is clear, the submitted material and detection plans, thoroughly address the lack of impact this project will have on the surrounding environment.

Not Unduly Injurious:
Granting this waiver is not expected to negatively affect public or environmental welfare. Our project incorporates a proactive AMD detection plan, overseen by our professional geologist and detailed previously, which will ensure no adverse environmental or public impact.

We will conduct preemptive monitoring to gather the necessary data for early risk detection. Furthermore, our design and operational practices are specifically chosen to prevent long-term exposure of bedrock and surface water. We will also implement pre-mitigation steps to encourage a balanced pH level in the surface water. In the event that risk is detected, a comprehensive mitigation plan is in place to allow for a swift and coordinated response from both the applicant and the City to prevent any potential impact.

Unique Site Characteristics :
While we do not believe the site possesses a particularly unique character, the City's requirement for Acid Mine Drainage (AMD) testing is. The state does not mandate this testing, and to our knowledge, no other municipality in New Hampshire requires it.

Although the site's bedrock *may* exhibit *potential* acid-generating properties, this characteristic alone does not inherently make it unique. If AMD testing was standard practice across all rock excavation sites in New England, we would have a clearer understanding of how prevalent these properties actually are.

2. **Which Requirement:**
   Article 25.3.3 – Excavation below the water table – 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. 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.

   Why the waiver is needed:
   A groundwater monitoring well (SLR-12), installed by SLR International Corporation, observed a groundwater fracture within 18 inches of the existing ground surface. It is the project's intent to refrain from excavating this area. While there is no evidence that the fracture in which SLR-12 is located extends into the proposed excavation area, we are respectfully requesting this waiver to ensure continued compliance with Article 25.3.3.

   Alternative Standard:
   The groundwater monitoring well which encountered high groundwater is an anomaly. This particular well, drilled by a different company for another firm, unexpectedly encountered a high level of groundwater. The applicant noted during drilling that surface water was present nearby and appeared to be flowing into the well. It's important to note that a nearby well and test pit, located close to SLR-12, did not encounter any groundwater. Furthermore, all overburden and bedrock wells within the planned excavation area have also shown no groundwater.

   While we believe the high groundwater reading in the anomalous well is likely inaccurate due to the observed surface water influence, we have taken care to avoid disturbing the adjacent grade. However, completely avoiding the adjacent area would unfortunately prevent the construction of a critical sedimentation pond. These sedimentation ponds are essential for effective site runoff control. They function by capturing and holding water, allowing sediment to settle out. This process is vital in preventing sediment from entering downstream water bodies and safeguarding water quality during the construction phase. If groundwater is actually encountered in the adjacent area, blasting operations will cease as MSHA, the protective protocols governing blasting, does not allow the blasting within groundwater.

Not in Violation:
We do not anticipate encountering groundwater during the proposed excavation activities. The site is underlain by crystalline bedrock, which is non-porous and transmits groundwater primarily through fractures. Our investigation of bedrock wells within the excavation area did not reveal any groundwater-bearing zones or fractures. It's important to note that the only well where groundwater was observed (SLR-12) is situated outside the proposed excavation footprint.

Furthermore, nearby wells SLR-4 and test pit 6, both located in close proximity to SLR-12, did not show any signs of groundwater. Our extensive investigation also included overburden wells MW-1 through MW-8 and bedrock wells BRW-1 through BRW-6, none of which encountered groundwater.

As a precautionary measure, all blast hole drilling will be meticulously logged to identify any potential fractures or groundwater-bearing zones. Blasting operations will not proceed in any areas where such zones are identified.

Finally, it's critical to understand that if groundwater is encountered in the vicinity, all blasting activities will immediately cease. This is in strict adherence to MSHA's protective protocols, which explicitly prohibit blasting within groundwater.

Adverse Impacts:
Excavation will not adversely affect water quality or quantity. It is not anticipated that any work within the groundwater will be conducted therefore there will be no effect on groundwater quantity or quality. Based on our initial assessment, we do not anticipate any adverse effects on water quality or quantity. Our initial site testing, which included eight overburden wells, indicated bedrock at depths between less than 5 feet and 14 feet. Further testing confirmed that the groundwater level is below our planned excavation depths. In the event that groundwater is unexpectedly encountered near the well with a higher level (which we believe is an isolated case), construction in that specific area will cease.

To further safeguard water resources, we will conduct on-site testing of surface water quality before it infiltrates the ground. We are proposing a bi-annual monitoring program involving strategically positioned wells, with sampling occurring in April and October. Additionally, we will collect samples from surface water basins designed to capture all surface water runoff from the excavation area. These basins will discharge into a central infiltration pond for surface water treatment.

Prior to commencing excavation, we will establish a baseline water quality profile by collecting two rounds of samples, separated by a minimum of 14 calendar days. The results will be compared against the New Hampshire Department of Environmental Services (NHDES) Ambient Groundwater Quality Standards (AGQS). All monitoring

data will be submitted to the City of Keene Community Development Department within 45 days of each sample collection.

Purpose and Intent:

This regulation aims to preserve both water quality and quantity. Water quantity will be maintained by capturing all runoff on-site for infiltration. The water quality monitoring program will include testing drinking water supplies and comparing results to NHDES Ambient Groundwater Quality Standards (AGQS).

Not Unduly Injurious:

Granting this waiver will not be unduly injurious to public or environmental welfare. A robust monitoring program has been established, including the monitoring of bedrock wells, six surface water locations, and all drinking water wells within a half-mile radius of the site. Practices and measures are put in place to help safeguard the environment including a surface water treatment system, groundwater excavation prevention measures, AMD action plans, and MSHA oversight. MSHA's regulations regarding explosives and blasting are focused on ensuring the safety of miners and the mine environment during blasting operations. The emphasis on safe practices and the use of permissible materials and equipment helps to minimize potential risks that could lead to groundwater contamination.

Unique Site Characteristics:

A groundwater monitoring well (SLR-12), installed by SLR International Corporation, observed a groundwater fracture within 18 inches of the existing ground surface. We intend to avoid excavation in this immediate area. We believe the high groundwater encountered in this well is an isolated occurrence. Our findings during drilling suggest that surface water was present nearby and may have flowed into the well, potentially influencing the results. It's important to note that a nearby well and test pit, situated close to SLR-12, did not encounter any groundwater. Additionally, all other overburden and bedrock wells within the planned excavation footprint have also remained dry. This suggests that the condition at SLR-12 is a unique characteristic of that specific location and not representative of the broader area.

To ensure the protection of this localized area, we will refrain from excavating directly at the SLR-12 location, though work will continue in the adjacent areas. Should the findings from this well indicate a broader groundwater impact beyond this localized point source, we will immediately halt excavation and blasting activities to prevent any potential disruption to groundwater resources.

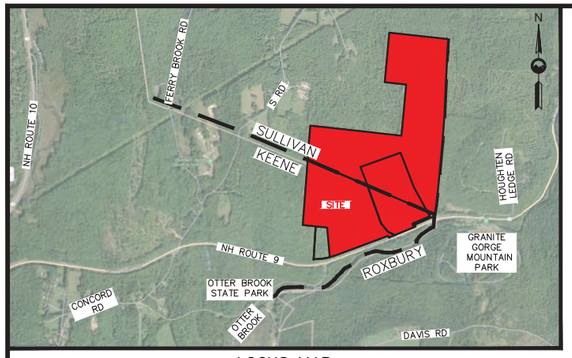
Sincerely,

Justin Daigneault
Project Manager

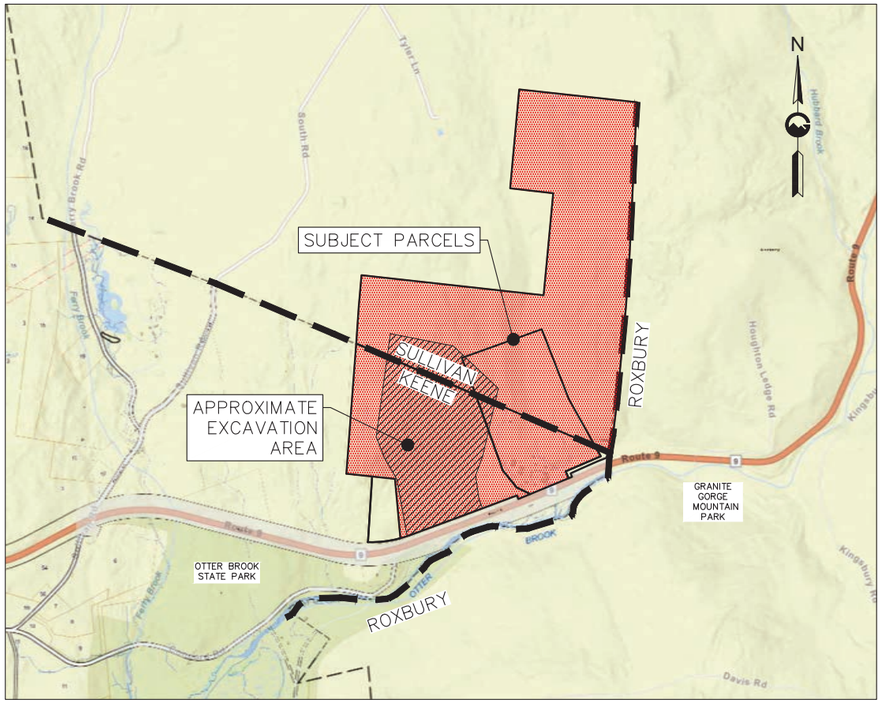
GRAVEL AND EARTH REMOVAL PLAN

G2 HOLDINGS, LLC

KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE, NEW HAMPSHIRE
CHESHIRE COUNTY



LOCUS MAP
SCALE: ±1"=2,000'



LOCATION PLAN
SCALE: 1"=1,000'

SHEET NO.	TABLE OF CONTENTS
1	OVERVIEW PLAN
2–3	EXISTING CONDITIONS PLAN WITH BOUNDARY LINES
4	CONTEXT PLAN
5–10	EXCAVATION, DRAINAGE & EROSION CONTROL PLAN
11–16	IMPACT CONTROL & MONITORING PLAN
17	MONITORING PLAN
18–19	RECLAMATION PLAN
20–23	DETAILS

OWNER & APPLICANT:
G2 HOLDINGS, LLC
250 NORTH STREET
JAFFREY, NH 03452
(603) 325–8457

CIVIL ENGINEER:
GRANITE ENGINEERING, LLC
150 DOW STREET, TOWER 2, STE 421
MANCHESTER, NH 03101
(603) 518–8030

WETLAND SCIENTIST:
ECOSYSTEMS LAND PLANNING
36 DUNKLEE STREET
CONCORD, NH 03301
(603) 224–6244

SURVEYOR:
SMITH & POSPESIL LAND SURVEYING, PLLC
240 QUEBEC ROAD
LYMAN, NH 03585
(603) 838–6494

SOIL SCIENTIST:
HURLEY ENVIRONMENTAL AND LAND PLANNING, LLC.
P.O. BOX 356
EPSOM, NH 03234
(603) 583–1745

HYDROGEOLOGIST:
FRONTIER GEOSERVICES, LLC.
127 OLD WARNER ROAD
BRADFORD, NH 03221
(603) 748–37155

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150 Dow Street, Tower 2, Suite 421
Manchester,
New Hampshire 03101
603.518.8030
www.GraniteEng.com

STAMP:

REVISIONS

No.	DATE	COMMENTS	BY
1	12/20/24	PROJECT SUBMITTAL	JD
2	2/3/25	REVISED PER CITY COMMENTS	JD
3	5/9/25	REVISED PER CITY COMMENTS	JD

GENERAL NOTES:

1. THE PURPOSE OF THIS PLAN IS TO ILLUSTRATE THE PROPOSED EXPANSION OF AN EXISTING GRAVEL AND EARTH REMOVAL OPERATION FOR G2 HOLDINGS, LLC ON CITY OF KEENE TAX MAP 215, LOTS 7 AND 8, AND INCLUDING TAX MAP 5, LOTS 46 AND 46–1 IN THE TOWN OF SULLIVAN.
2. CURRENT USE OF THE PROPERTY IS FOR GRAVEL AND EARTH REMOVALS.
3. AREA OF SUBJECT PARCEL = 101.27 ACRES (CITY OF KEENE), 197.82 ACRES (SULLIVAN)
4. OWNERS OF RECORD:
   G2 HOLDINGS, LLC
   250 NORTH STREET
   JAFFREY, NH 03452
5. THE SUBJECT PARCEL IS LOCATED WITHIN THE CITY OF KEENE AND TOWN OF SULLIVAN R (RURAL) ZONING DISTRICTS AND SUBJECT TO THE FOLLOWING DIMENSIONAL REGULATIONS:

KEENE

	REQUIRED	EXISTING LOT 7	EXISTING LOT 8
MIN. LOT AREA	2 AC	76.89 AC	24.38 AC
MIN. LOT FRONTAGE	50 FT	1,716.9 FT	545 FT
MIN. FRONT YARD	50 FT	N/A	70 FT
MIN. SIDE YARD	50 FT	N/A	132 FT
MIN. REAR YARD	50 FT	N/A	408 FT
EXCAVATION SETBACK	300 FT	322 FT	N/A

SULLIVAN

	REQUIRED	EXISTING LOT 46–1	EXISTING LOT 46
MIN. LOT AREA	2 AC	28.1± AC	169.0± AC
MIN. LOT FRONTAGE	200 FT	N/A	N/A
MIN. FRONT YARD SETBACK	50 FT	N/A	N/A
MIN. SIDE YARD SETBACK	20 FT	N/A	N/A
MIN. REAR YARD SETBACK	20 FT	N/A	N/A
EXCAVATION SETBACK TO BUILDINGS	150 FT	N/A	N/A
MIN. EXCAVATION SETBACK FROM ABUTTERS	50 FT	N/A	371 FT

6. BASE SURVEY INFORMATION INCLUDING BOUNDARY, EXISTING FEATURES, AND TOPOGRAPHY SHOWN ON THIS PLAN ARE TAKEN FROM PLAN REFERENCES AND FIELD SURVEY BY SMITH & POSPESIL LAND SURVEYING COMPANY, PLLC IN AUGUST 2022.
7. TOPOGRAPHIC INFORMATION SHOWN WITHIN THE AREA OF DISTURBANCE IS TAKEN FROM FIELD SURVEY BY SMITH & POSPESIL LAND SURVEYING COMPANY, PLLC IN OCTOBER 2022 AND MAY OF 2023.
8. HORIZONTAL DATUM IS ON THE NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM NAD83 (2011).
9. VERTICAL DATUM IS NAVD 88.
10. EXCAVATION SITE, DESIGNED BY TFM WAIVERS APPROVED BY THE KEENE PLANNING BOARD OF ADJUSTMENTS ON AUGUST 22, 2022:
    - 24.3.1.A. (200' PUBLIC ROW SETBACK) – GRANTED
    - 24.3.1.C. (150' ACCESS DRIVEWAY SETBACK) – GRANTED
    - 24.3.1.D. (SURFACE WATER RESOURCE SETBACKS) – GRANTED
    - 24.3.4 (GROUNDWATER QUANTITY BASELINE MEASUREMENTS) – GRANTED
    - 24.3.5 (GROUNDWATER QUALITY BASELINE MEASUREMENTS – GRANTED
    - 24.3.13 (MAXIMUM EXCAVATION AREA) – GRANTED
11. EXCAVATION SITE, DESIGNED BY TFM CONDITIONAL USE PERMIT APPROVED BY THE KEENE PLANNING BOARD OF ADJUSTMENTS ON AUGUST 22, 2022 – KEENE HILLSIDE PROTECTION
12. KEENE ZBA SPECIAL EXCEPTION FOR GRAVEL PIT USE – GRANTED 8/22/2022
13. THE FOLLOWING ARE REQUESTED FROM THE CITY OF KEENE PLANNING BOARD:
    - 25.3.1.D. (SURFACE WATER RESOURCE SETBACKS) – WAIVER REQUIRED
    - 25.3.13 (MAXIMUM EXCAVATION AREA) – WAIVER REQUIRED
    - 25.3.3 (EXCAVATION BELOW THE WATER TABLE) – WAIVER REQUIRED
    - 25.3.6 (TOXIC OR ACID FORMING MATERIALS) – WAIVER REQUIRED
14. THE PROJECT REQUIRES THE FOLLOWING STATE, FEDERAL, AND LOCAL PERMITS:

PERMIT	STATUS	PERMIT NO.
NHDES AOT	PENDING	
KEENE HILLSIDE PROTECTION – CONDITIONAL USE PERMIT	PENDING	
KEENE EARTH EXCAVATION	PENDING	

WETLAND MAPPING PERFORMED BY JOHN ST. JOHN OF ECOSYSTEMS LAND PLANNING IN OCTOBER–NOVEMBER 2023.

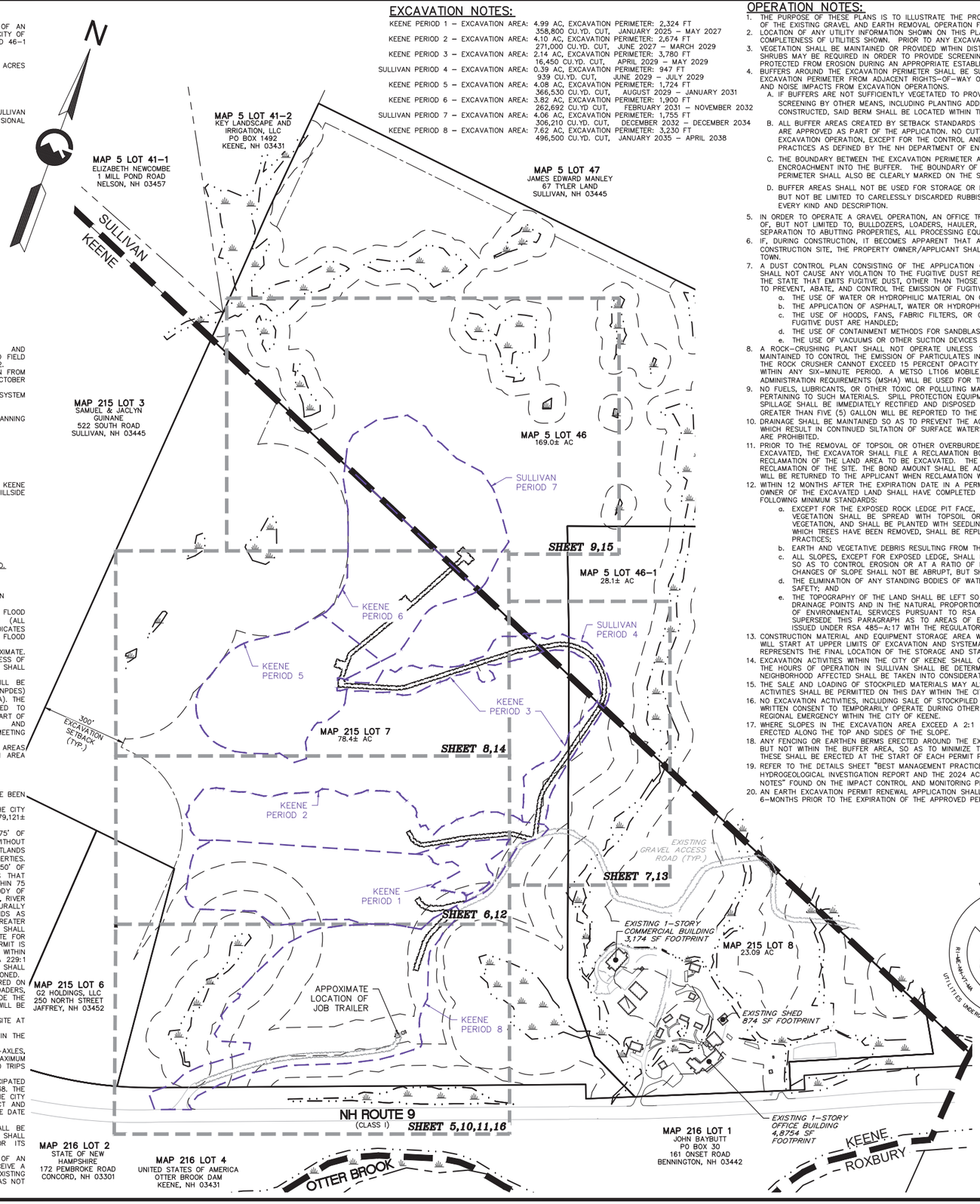
15. EXAMINATION OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) FOR CHESHIRE COUNTY, NEW HAMPSHIRE (ALL JURISDICTIONS), MAP NUMBER 33005C0165E, EFFECTIVE DATE 05/23/2006 INDICATES THAT NO PORTION OF THE SUBJECT PARCEL IS LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA.
16. LOCATION OF ANY UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. GRANITE ENGINEERING, LLC MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE THE CONTRACTOR SHALL CONTACT DIG SAFE AT 811.
17. THIS PROJECT DISTURBS IN EXCESS OF 1–ACRE OF LAND. THEREFORE, WILL BE REQUIRED TO OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE AS ISSUED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THE OWNER/DEVELOPER AND "OPERATOR" (APPLICANT) SHALL EACH BE REQUIRED TO PREPARE AND SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA PRIOR TO THE START OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR THE PREPARATION AND IMPLEMENTATION OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) MEETING THE REQUIREMENTS OF THE CURRENT CONSTRUCTION GENERAL PERMIT.
18. AREAS OF DISTURBANCE SHALL NOT EXCEED 5 ACRES AT A TIME. IN ORDER FOR AREAS TO BE EXCLUDED OF THIS 5 ACRE MAXIMUM, THEY MUST BE STABILIZED. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    A. BASE COURSE GRAVELS ARE INSTALLED;
    B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
    C. A MINIMUM OF 3" OF NON–EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED; OR EROSION CONTROL BLANKET HAVE BEEN PROPERLY INSTALLED.
19. THE APPROXIMATE AMOUNT OF MATERIAL PROPOSED TO BE EXCAVATED WITHIN THE CITY OF KEENE IS IS 1,771,972± CUBIC YARDS AND FOR THE TOTAL PROJECT IS 2,079,121± CUBIC YARDS.
20. WITHIN THE CITY OF KEENE, NO EXCAVATION WILL BE PERFORMED WITHIN 75' OF MAPPED WETLANDS, NO EXCAVATION WITHIN 250' OF MAPPED WETLANDS WITHOUT APPROVAL FROM THE PLANNING BOARD, ACCESS ROADS WITHIN 150' FROM WETLANDS WITHOUT APPROVAL FROM THE PLANNING BOARD, AND 300' OF ABUTTING PROPERTIES. WITHIN THE TOWN OF SULLIVAN, NO EXCAVATION WILL BE PERFORMED WITHIN 50' OF ABUTTING PROPERTIES THAT DISPROVE, AND 10' FROM ABUTTING PROPERTIES THAT APPROVE OF THE GRAVEL OPERATION. NO EXCAVATION SHALL BE PERMITTED WITHIN 75 FEET OF ANY GREAT POND, NAVIGABLE RIVER, OR ANY OTHER STANDING BODY OF WATER 10 ACRES OR MORE IN AREA, OR WITHIN 25 FEET OF ANY OTHER STREAM, RIVER OR BROOK WHICH NORMALLY FLOWS THROUGHOUT THE YEAR, OR ANY NATURALLY OCCURRING STANDING BODY OF WATER LESS THAN 10 ACRES, PRIME WETLANDS AS DESIGNATED IN ACCORDANCE WITH RSA 482–A:15, I OR ANY OTHER WETLAND GREATER THAN 5 ACRES IN AREA AS DEFINED BY THE WETLANDS BOARD. NO EXCAVATION SHALL BE PERMITTED CLOSER THAN 150 FEET TO AN EXISTING DWELLING OR TO A SITE FOR WHICH A BUILDING PERMIT HAS BEEN ISSUED AT THE TIME THE EXCAVATION PERMIT IS GRANTED. NO EXCAVATION SHALL BE PERMITTED BELOW ROAD LEVELS WITHIN 50 FEET OF THE RIGHT–OF–WAY OF ANY PUBLIC HIGHWAY AS DEFINED IN RSA 229:1 UNLESS SUCH EXCAVATION IS FOR THE PURPOSE OF SAID HIGHWAY. VEGETATION SHALL BE MAINTAINED OR PROVIDED WITHIN THE PERIPHERAL AREAS REQUIRED AS MENTIONED.
21. IN ORDER TO OPERATE A GRAVEL OPERATION, GRAVEL EQUIPMENT WILL BE STORED ON SITE. THIS EQUIPMENT WILL CONSIST OF, BUT NOT LIMITED TO, BULLDOZERS, LOADERS, HAULER, EXCAVATORS, WATER TRUCKS, AND PROCESSORS. IN ORDER TO PROVIDE THE FURTHEST SEPARATION TO ABUTTING PROPERTIES, ALL PROCESSING EQUIPMENT WILL BE CENTRALLY LOCATED.
22. A COPY OF THE APPROVED GRAVEL AND EARTH REMOVAL PLAN SHALL BE ON SITE AT ALL TIMES.
23. PLOWED SNOW FROM THE OPERATION SHALL BE MAINTAINED AND ON SITE WITHIN THE CONTAINED AREA.
24. TRUCKS UTILIZED FOR TRANSPORT OF MATERIAL WILL CONSIST OF TRI–AXLES, 10–WHEELERS, AND TRACTOR TRAILER DUMP TRUCKS. THE ANTICIPATED MAXIMUM NUMBER OF VEHICLE TRIPS PER DAY BASED ON CURRENT PIT OPERATIONS IS 60 TRIPS PER DAY.
25. THE ESTIMATED PROJECT TIME FRAME WILL EXCEED FIVE YEARS. THE ANTICIPATED SCHEDULE IS EXPECTED TO START IN JANUARY 2025 AND LAST UNTIL APRIL 2038. THE APPLICANT MUST SUBMIT TO THE DEPARTMENT OF ENVIRONMENTAL SERVICES, THE CITY OF KEENE, AND THE TOWN OF SULLIVAN A WRITTEN UPDATE OF THE PROJECT AND REVISED PLANS DOCUMENTING THE PROJECT STATUS EVERY FIVE YEARS FROM THE DATE OF THE ALTERATION OF TERRAIN PERMIT.
26. ALL LOGS REQUIRED TO BE MAINTAINED BY THE APPLICANT/OPERATOR SHALL BE RETAINED BY THE APPLICANT FOR A PERIOD OF NOT LESS THAN 5–YEARS AND SHALL BE MADE AVAILABLE TO THE COMMUNITY DEVELOPMENT DEPARTMENT, OR ITS DESIGNATED AGENT, UPON REQUEST.
27. WITHIN THE TOWN OF SULLIVAN, ANY ADDITION, EXPANSION, OR ALTERATION OF AN EXISTING USE FOR WHICH A SPECIAL EXCEPTION HAD BEEN GRANTED MUST RECEIVE A NEW SPECIAL EXCEPTION IF THERE IS AN EXPANSION OF THE AREA OF THE EXISTING STRUCTURE OR EXPANSION INTO NEW LAND FOR WHICH A SPECIAL EXCEPTION HAS NOT BEEN GRANTED

EXCAVATION NOTES:

KEENE PERIOD 1 – EXCAVATION AREA:	4.99 AC, EXCAVATION PERIMETER: 2,324 FT	358,800 CU.YD. CUT, JANUARY 2025 – MAY 2027
KEENE PERIOD 2 – EXCAVATION AREA:	4.10 AC, EXCAVATION PERIMETER: 2,674 FT	271,000 CU.YD. CUT, JUNE 2027 – MARCH 2029
KEENE PERIOD 3 – EXCAVATION AREA:	2.14 AC, EXCAVATION PERIMETER: 3,780 FT	16,450 CU.YD. CUT, APRIL 2029 – MAY 2029
SULLIVAN PERIOD 4 – EXCAVATION AREA:	0.39 AC, EXCAVATION PERIMETER: 947 FT	939 CU.YD. CUT, JUNE 2029 – JULY 2029
KEENE PERIOD 5 – EXCAVATION AREA:	4.08 AC, EXCAVATION PERIMETER: 1,724 FT	366,530 CU.YD. CUT, AUGUST 2029 – JANUARY 2031
KEENE PERIOD 6 – EXCAVATION AREA:	3.82 AC, EXCAVATION PERIMETER: 1,900 FT	262,692 CU.YD CUT, FEBRUARY 2031 – NOVEMBER 2032
SULLIVAN PERIOD 7 – EXCAVATION AREA:	4.06 AC, EXCAVATION PERIMETER: 1,755 FT	306,210 CU.YD. CUT, DECEMBER 2032 – DECEMBER 2034
KEENE PERIOD 8 – EXCAVATION AREA:	7.62 AC, EXCAVATION PERIMETER: 3,230 FT	496,500 CU.YD. CUT, JANUARY 2035 – APRIL 2038

OPERATION NOTES:

1. THE PURPOSE OF THESE PLANS IS TO ILLUSTRATE THE PROPOSED GRADING, EROSION CONTROL, AND RECLAMATION ASSOCIATED WITH THE EXPANSION OF THE EXISTING GRAVEL AND EARTH REMOVAL OPERATION FOR G2 HOLDNGS, LLC.
2. LOCATION OF ANY UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. GRANITE ENGINEERING, LLC MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE THE CONTRACTOR SHALL CONTACT DIG SAFE AT 811.
3. VEGETATION SHALL BE MAINTAINED OR PROVIDED WITHIN DISTURBED AREAS. IF DEEMED NECESSARY BY THE PLANNING BOARD, SUITABLE TREES AND/OR SHRUBS MAY BE REQUIRED IN ORDER TO PROVIDE SCREENING, NATURAL BEAUTY AND TO AID IN EROSION CONTROL. SUCH PLANTED AREAS SHALL BE PROTECTED FROM EROSION DURING AN APPROPRIATE ESTABLISHED PERIOD BY MULCH AND STRUCTURAL EROSION CONTROL DEVICES.
4. 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.
5. IN ORDER TO OPERATE A GRAVEL OPERATION, AN OFFICE TRAILER AND GRAVEL EQUIPMENT WILL BE STORED ON SITE. THIS EQUIPMENT WILL CONSIST OF, BUT NOT LIMITED TO, BULLDOZERS, LOADERS, HAULER, EXCAVATORS, WATER TRUCKS, AND PROCESSORS. IN ORDER TO PROVIDE THE FURTHEST SEPARATION TO ABUTTING PROPERTIES, ALL PROCESSING EQUIPMENT WILL BE CENTRALLY LOCATED.
6. IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT ADDITIONAL EROSION CONTROL MEASURES ARE REQUIRED TO STOP ANY EROSION ON THE CONSTRUCTION SITE, THE PROPERTY OWNER/APPLICANT SHALL BE REQUIRED TO INSTALL THE NECESSARY EROSION PROTECTION AT NO EXPENSE TO THE TOWN.
7. A DUST CONTROL PLAN CONSISTING OF THE APPLICATION OF WATER ON AN AS NEEDED BASIS WILL BE EMPLOYED. SUCH EXCAVATION ACTIVITIES SHALL NOT CAUSE ANY VIOLATION TO THE FUGITIVE DUST REQUIREMENTS ESTABLISHED IN ENV–A 1002. ANY PERSON ENGAGED IN ANY ACTIVITY WITHIN THE STATE THAT EMITS FUGITIVE DUST, OTHER THAN THOSE LISTED SHALL TAKE PRECAUTIONS THROUGHOUT THE DURATION OF THE ACTIVITY IN ORDER TO PREVENT, ABATE, AND CONTROL THE EMISSION OF FUGITIVE DUST. PRECAUTIONS SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:
    a. THE USE OF WATER OR HYDROPHILIC MATERIAL ON OPERATIONS OR SURFACES, OR BOTH;
    b. THE APPLICATION OF ASPHALT, WATER OR HYDROPHILIC MATERIAL, OR TARPS OR OTHER SUCH COVERS TO MATERIAL STOCKPILES;
    c. THE USE OF HOODS, FANS, FABRIC FILTERS, OR OTHER DEVICES TO ENCLOSE AND VENT AREAS WHERE MATERIALS PRONE TO PRODUCING FUGITIVE DUST ARE HANDLED;
    d. THE USE OF CONTAINMENT METHODS FOR SANDBLASTING OR SIMILAR OPERATIONS; AND
    e. THE USE OF VACUUMS OR OTHER SUCTION DEVICES TO COLLECT AIRBORNE PARTICULATE MATTER.
8. A ROCK–CRUSHING PLANT SHALL NOT OPERATE UNLESS THE PLANT IS EQUIPPED WITH AN EMISSION CONTROL SYSTEM THAT IS OPERATED AND MAINTAINED TO CONTROL THE EMISSION OF PARTICULATES IN COMPLIANCE WITH EPA 40 CFR 60, SUBPART OOO AND ENV–A 2800. VISIBLE DUST FROM THE ROCK CRUSHER CANNOT EXCEED 15 PERCENT OPACITY WHILE CERTAIN TRANSFER POINTS OF THE SYSTEM CANNOT EXCEED 10 PERCENT OPACITY WITHIN ANY SIX–MINUTE PERIOD. A METSO LT106 MOBILE CRUSHER MEETING CURRENT U.S. DEPARTMENT OF LABOR MINE SAFETY AND HEALTH ADMINISTRATION REQUIREMENTS (MSHA) WILL BE USED FOR THESE ACTIVITIES.
9. NO FUELS, LUBRICANTS, OR OTHER TOXIC OR POLLUTING MATERIALS SHALL BE STORED ON–SITE UNLESS IN COMPLIANCE WITH STATE LAWS OR RULES PERTAINING TO SUCH MATERIALS. SPILL PROTECTION EQUIPMENT WILL BE STORED ON SITE FOR IMMEDIATE RESPONSE TO ANY POTENTIAL SPILLS. ANY SPILLAGE SHALL BE IMMEDIATELY RECTIFIED AND DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL STANDARDS. ALL SPILLS OF GREATER THAN FIVE (5) GALLON WILL BE REPORTED TO THE KEENE AND SULLIVAN FIRE DEPARTMENTS AND TO NHDES.
10. DRAINAGE SHALL BE MAINTAINED SO AS TO PREVENT THE ACCUMULATION OF FREE–STANDING WATER FOR PROLONGED PERIODS. EXCAVATION PRACTICES WHICH RESULT IN CONTINUED SILTATION OF SURFACE WATERS OR ANY DEGRADATION OF WATER QUALITY OF ANY PUBLIC OR PRIVATE WATER SUPPLIES ARE PROHIBITED.
11. PRIOR TO THE REMOVAL OF TOPSOIL OR OTHER OVERBURDEN MATERIAL FROM ANY LAND AREA WITHIN THE CITY OF KEENE THAT HAS NOT YET BEEN EXCAVATED, THE EXCAVATOR SHALL FILE A RECLAMATION BOND OR OTHER SECURITY AS PRESCRIBED BY THE REGULATOR, SUFFICIENT TO SECURE THE RECLAMATION OF THE LAND AREA TO BE EXCAVATED. THE BOND AMOUNT WILL BE ESTABLISHED BY THE CITY OF KEENE PLANNING BOARD TO COVER RECLAMATION OF THE SITE. THE BOND AMOUNT SHALL BE ADEQUATE TO RECLAIM THE EXCAVATION SITE IN ACCORDANCE WITH RSA 155–E:5. THE BOND WILL BE RETURNED TO THE APPLICANT WHEN RECLAMATION WORK HAS BEEN COMPLETED.
12. WITHIN 12 MONTHS AFTER THE EXPIRATION DATE IN A PERMIT ISSUED OR OF THE COMPLETION OF ANY EXCAVATION, WHICHEVER OCCURS FIRST, THE OWNER OF THE EXCAVATED LAND SHALL HAVE COMPLETED THE RECLAMATION OF THE AREAS AFFECTED BY THE EXCAVATION TO MEET EACH OF THE FOLLOWING MINIMUM STANDARDS:
    a. EXCEPT FOR THE EXPOSED ROCK LEDGE PIT FACE, ALL AREAS WHICH HAVE BEEN AFFECTED BY THE EXCAVATION OR OTHERWISE STRIPPED OF VEGETATION SHALL BE SPREAD WITH TOPSOIL OR STRIPPINGS, IF ANY, BUT IN ANY CASE COVERED BY SOIL CAPABLE OF SUSTAINING VEGETATION, AND SHALL BE PLANTED WITH SEEDLINGS OR GRASS SUITABLE TO PREVENT EROSION. AREAS VISIBLE FROM A PUBLIC WAY, FROM WHICH TREES HAVE BEEN REMOVED, SHALL BE REPLANTED WITH TREE SEEDLINGS, SET OUT IN ACCORDANCE WITH ACCEPTABLE HORTICULTURAL PRACTICES;
    b. EARTH AND VEGETATIVE DEBRIS RESULTING FROM THE EXCAVATION SHALL BE REMOVED OR OTHERWISE LAWFULLY DISPOSED OF;
    c. ALL SLOPES, EXCEPT FOR EXPOSED LEDGE, SHALL BE GRADED TO NATURAL REPOSE FOR THE TYPE OF SOIL OF WHICH THEY ARE COMPOSED SO AS TO CONTROL EROSION OR AT A RATIO OF HORIZONTAL TO VERTICAL PROPOSED BY THE OWNER AND APPROVED BY THE REGULATOR. CHANGES OF SLOPE SHALL NOT BE ABRUPT, BUT SHALL BLEND WITH THE SURROUNDING TERRAIN;
    d. THE ELIMINATION OF ANY STANDING BODIES OF WATER CREATED IN THE EXCAVATION PROJECT AS MAY CONSTITUTE A HAZARD TO HEALTH AND SAFETY; AND
    e. 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. FOR EXCAVATION PROJECTS WHICH REQUIRE A PERMIT FROM THE DEPARTMENT OF ENVIRONMENTAL SERVICES PURSUANT TO RSA 485–A:17, THE PROVISIONS OF THAT STATUTE, AND RULES ADOPTED UNDER IT, SHALL SUPERSEDE THIS PARAGRAPH AS TO AREAS OF EXCAVATION SITES COVERED THEREBY. THE EXCAVATOR SHALL FILE A COPY OF PERMITS ISSUED UNDER RSA 485–A:17 WITH THE REGULATOR.
13. CONSTRUCTION MATERIAL AND EQUIPMENT STORAGE AREA WILL RELOCATE DEPENDING UPON THE PROGRESS OF THE GRAVEL OPERATION. SAID AREA WILL START AT UPPER LIMITS OF EXCAVATION AND SYSTEMATICALLY RELOCATE AS EXCAVATION PROGRESSES. THE AREA ILLUSTRATED ON THIS PLAN REPRESENTS THE FINAL LOCATION OF THE STORAGE AND STAGING AREA.
14. EXCAVATION ACTIVITIES WITHIN THE CITY OF KEENE SHALL ONLY OCCUR BETWEEN THE HOURS OF 7:00 AM AND 5:00 PM, MONDAY THROUGH FRIDAY. THE HOURS OF OPERATION IN SULLIVAN SHALL BE DETERMINED BY THE SULLIVAN PLANNING BOARD. THE LEVEL OF OPERATION AND THE TYPE OF NEIGHBORHOOD AFFECTED SHALL BE TAKEN INTO CONSIDERATION IN ESTABLISHING THESE HOURS.
15. 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 WITHIN THE CITY OF KEENE.
16. NO EXCAVATION ACTIVITIES, INCLUDING SALE OF STOCKPILED MATERIALS, SHALL BE PERMITTED ON SUNDAYS, OR LEGAL HOLIDAYS, 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 WITHIN THE CITY OF KEENE.
17. WHERE SLOPES IN THE EXCAVATION AREA EXCEED A 2:1 SLOPE, A FENCE OR OTHER SUITABLE BARRICADE AT LEAST 4–FT IN HEIGHT SHALL BE ERECTED ALONG THE TOP AND SIDES OF THE SLOPE.
18. ANY FENCING OR EARTHEN BERMS 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. THESE SHALL BE ERECTED AT THE START OF EACH PERMIT PERIOD, AND SHALL REMAIN UNTIL PIT EXCAVATION AREA HAS BEEN RECLAIMED.
19. REFER TO THE DETAILS SHEET "BEST MANAGEMENT PRACTICES FOR BLASTING". THE GROUNDWATER MONITORING PROCEDURES ARE FOUND IN THE 2024 HYDROGEOLOGICAL INVESTIGATION REPORT AND THE 2024 ACID MINE DRAINAGE POTENTIAL REPORT. REFER TO "NOISE IMPACT CONTROL AND MONITORING NOTES" FOUND ON THE IMPACT CONTROL AND MONITORING PLANS.
20. AN EARTH EXCAVATION PERMIT RENEWAL APPLICATION SHALL BE SUBMITTED TO THE CITY OF KEENE COMMUNITY DEVELOPMENT DEPARTMENT AT LEAST 6–MONTHS PRIOR TO THE EXPIRATION OF THE APPROVED PERMIT PERIOD IN ACCORDANCE WITH SEC. 26.19.12 OF THE LAND DEVELOPMENT CODE.



LEGEND

- ABUTTER LINE
- PROPERTY LINE
- EXCAVATION SETBACK LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- PROPOSED EDGE OF GRAVEL
- WETLANDS BOUNDARY
- WETLAND BUFFER
- PERIOD LINE
- SHEETS
- TOWN LINE

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET) 1 inch = 200 ft.

REVISIONS

No.	DATE	COMMENTS	BY
1	12/20/24	PROJECT SUBMITTAL	JD
2	2/3/25	REVISED PER CITY COMMENTS	JD
3	5/9/25	REVISED PER CITY COMMENTS	JD

OWNER/APPLICANT:
G2 HOLDINGS, LLC
250 NORTH STREET
JAFFREY, NH 03452

GRANITE ENGINEERING
civil engineering ● land planning ● municipal services
150 Dow Street, Tower 2, Suite 421
Manchester, New Hampshire 03101
603.518.8030
www.GraniteEng.com

STAMP:
STATE OF NEW HAMPSHIRE
STEPHEN J. COLE
No. 14744
2/3/25
LICENSED PROFESSIONAL ENGINEER

LOCATION:
KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES
KEENE

TITLE:
OVERVIEW PLAN

PROJECT No.	DATE:	SCALE:
23–0201–1	MAY 9, 2025	HORIZ. 1"=200'
SHEET:	1 OF 23	

P:\3\2302011\Uteg\Production Plans\2302011_SITE.dwg OVERVIEW & PHASING PLAN, 5/7/2025 5:09:09 PM, jusland, DWG To PDF.pc3, ANSI full bleed D (22.00 x 34.00 Inches), 1:1

NEW HAMPSHIRE STATE PLANE
COORDINATE SYSTEM NAD 83
MAGNETIC DECLINATION: 13° 53' W
CONVERGENCE ANGLE = 0°22'39"
OBSERVATION DATE: MAY, 2023
COMBINED SCALE FACTOR: 0.99995790.

KEY LANDSCAPE & IRRIGATION, LLC
SULLIVAN TM 5
LOT 41-2

ELIZABETH NEWCOMBE
SULLIVAN TM 5
LOT 41-1

JAMES MANLEY
SULLIVAN TM 5
LOT 47

G2 HOLDINGS, LLC
SULLIVAN TM 5
LOT 46
169.0 AC +/-

G2 HOLDINGS, LLC
ROXBURY TM 401
LOT 6
28.9 AC +/-

G2 HOLDINGS, LLC
SULLIVAN TM 5
LOT 46-1
28.1 AC +/-

G2 HOLDINGS, LLC
KEENE TM 215 LOT 7
78.4 +/- AC

G2 HOLDINGS, LLC
KEENE TM 215 LOT 6
7.02 AC

G2 HOLDINGS, LLC
TM 215 LOT 8
23.09 AC

G2 HOLDINGS, LLC
KEENE TM 215
LOT 9
.95 AC

G2 HOLDINGS, LLC
ROXBURY TM 401 LOT 1

HIGH-FOREST PARTNERS, LLC
ROXBURY TM 401 LOT 2

BETEAU REVOCABLE TRUST OF 2018
ROXBURY TM 401 LOT 3

SAMUEL & JACLYN GUINANE
KEENE TM 215
LOT 3

1/2" IRON PIPE FOUND UP 2"
S 10°40'23" W 411.64'
1/2" IRON PIPE FOUND UP 12"
S 05°59'34" W 387.53'
TOWNLINE MONUMENT RED & WHITE PAINTED IRON PIPE FOUND IN STONE PILE
S 86°42'47" E 868.45'
N 83°41'57" W 1492.00'
END WALL
N 83°41'57" W 925.89'
REBAR FOUND UP 3"
LINE PER PLAN REF B
S 04°18'17" W 99.71'
SULLIVAN
KEENE
S 86°42'47" E 1718.25'
N 04°17'14" E 723.07'
3/4" IRON PIPE FOUND UP 10"
N 70°14'53" E 1121.17'
N 20°50'50" W 416.62'
3/4" IRON PIPE FOUND UP 4"
N 19°44'52" W 105.76'
EX CULV 18" HDPE INV IN: 880.4 INV OUT: 877.8
EX CULV (12" HDPE INV IN: 886.1 INV OUT: 884.4
EX CULV 48" CMP INV IN: 847.2 INV OUT: 845.8
EX CULV 6" HDPE INV IN: 860.9 INV OUT: 859.2
N 19°44'52" W 1058.12'
N 86°42'47" W 718.41'
S 21°11'07" E 695.20'
S 28°05'47" E 718.39'
LIMIT OF DISTURBANCE AS OF 5/31/2023
QUARRY AREA
STONEWALL INTERSECTION
END OF STONEWALL
N 06°59'18" E 422.61'
N 05°20'08" E 1279.96'
N 04°04'08" E 695.00'
SULLIVAN
ROXBURY
REBAR FOUND UP 3"
LINE PER PLAN REF B
N 06°42'27" W 234.74'
1" IRON PIPE FOUND UP 4" AT END OF WALL
N 07°39'03" E 49.69'
N 86°45'24" W 912.50'
S 22°22'01" E 100.19'
S 66°50'25" W 504.36'
29°38'35" E 149.40'
N 39°16'00" W 289.22'
N 86°45'24" W 230.00'
N 67°38'53" E 170.95'
S 67°38'53" W 545.09'
S 69°32'32" W 638.48'
N 20°42'54" W 50.36'
S 69°36'46" W 855.33'
S 69°36'46" W 22.80'
N 03°38'42" E 867.48'
S 05°59'18" E 281.52'
LINES NOT SURVEYED
N 03°38'42" E 1.67' FROM NHDOT R.O.W TO REBAR FOUND
TRIPLE BLAZED TREE NO PIN FOUND
N 83°24'18" W 341.78'
IRON ROD FOUND IN BOULDER
S 83°24'18" E 303.22'
L = 433.01'
R = 1432.50'
CH =N 83°13'01" E
CL = 431.45'
L = 123.55'
R = 1432.50'
CH =N 72°05'03" E
CL = 123.54'
EX CULV 24" HDPE INV IN: 807.2 INV OUT: 800.1
NH ROUTE 9
FRANKLIN PIERCE HIGHWAY
KEENE
ROXBURY

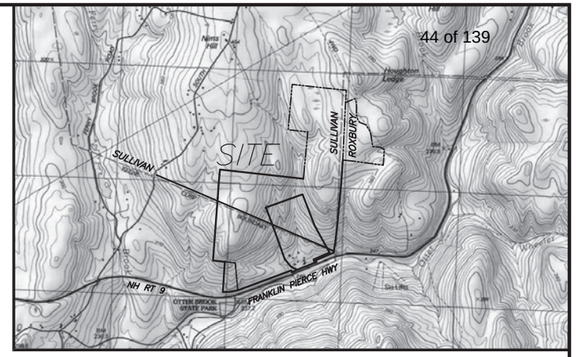
NOTES:

1. Owner of Record: G2 Holdings, LLC 250 North Street, Jaffrey, NH 03452.
2. The Basis of Bearing is Grid. The Horizontal Datum is on the New Hampshire State Plane Coordinate System NAD83 (2011). The Vertical Datum is NAVD 88. Both horizontal and vertical datumes were derived from a static GNSS observation taken during the time of the field survey and processed using the Online Positioning User System (OPUS).
3. This plan is based on a field survey completed in October 2022, May of 2023 & January of 2025 using iGuage 8 & 9 dual frequency RTK survey grade GNSS receivers, a Topcon Robotic Total Station and DJI Mavic 3E drone. The survey is classified as Rural and exceeds the minimum positional tolerances for property corners (0.25') and control (0.13') computed using a least squares adjustment at the 95% confidence level.
4. The property lies in the Rural Residential Zoning District in Sullivan – Building Setbacks are 50 feet – front, 20 feet side and rear. The property lies in the Rural Zoning District in Keene – R. Building Setbacks are 50 feet – front, side and rear.
5. The wetlands shown hereon were delineated by John St. John, NH CWS #221 of Ecosystems Land Planning from August–October of 2023.

STATE OF NEW HAMPSHIRE
JOHN J. ST. JOHN
No. 221
CERTIFIED WETLAND SCIENTIST

LEGEND
- Monument Found
- Highway Bound
- Calculated Point
- Well
- Utility Pole
- Property Line
- Town Line
- Approx Abutters Line
- Limits of Disturbance
- Major Contour Line
- Minor Contour Line
- Edge of Wetland
- Stream

0' 200' 400' 600'
Scale: 1 inch = 200 feet



LOCATION MAP
1 inch = 2000 feet

Reference Plans:

A. "Steel Tape and Compass Survey of 3 Lot Subdivision for Wayne W. & Elaine Sargent, Route 9 Keene and Sullivan, NH", By Herbert E. Russell, RLS #21. Dated August, 1979. Recorded at Cheshire County Registry of Deeds Cabniet 2 Pg 94 Roll #305.

B. "Boundary Survey: Land of Seafield Pines Hospital Corporation, Keene, Sullivan & Roxbury, County of Cheshire, State of New Hampshire" By C.T. Male Associates, P. C. Dated June, 1989. Job No. 88-05837. Not Recorded.

C. "Charles S. and John W. Towns, "Nims" Woodlot, Keene, NH" By William P. House, Dated May, 1965. Recorded at the Cheshire Country Registry of Deeds Plan Book 19 Pg 37.

D. "Bolles Subdivision, 3 Lot Subdivision & Boundary Line Adjustment Map 5 Lot 42, 469 South Road, Sullivan, NH" By Cardinal Surveying & Land Planning. Recorded at the Cheshire County Registry of Deeds Plans #21048, 21049 and 21087.

E. "Plan of Proposed T.L.R. Project No. 14201, NH Project No P-2962-C, Franklin Pierce Highway, City of Keene and Town of Roxbury, County of Cheshire.", By State of New Hampshire Department of Public Works and Highways. Dated November 16, 1956. On file and available on-line with the New Hampshire Department of Transportation, Right of Way Bureau.

STATE OF NEW HAMPSHIRE
No. 987
ERIC POSPESIL
SIGNATURE
LICENSED LAND SURVEYOR

A SURVEY OF LAND FOR

G2 HOLDINGS, LLC

TAX MAP 5 LOTS 46 & 46-1
VOLUME 3079 PAGE 283
IN THE TOWN OF
SULLIVAN, NEW HAMPSHIRE
AND
TAX MAP 215 LOTS 6,7,8 & 9
VOLUME 3079 PAGE 283 &
VOLUME 3199 PAGE 1197
IN THE CITY OF
KEENE, NEW HAMPSHIRE

SMITH & POSPESIL
LAND SURVEYING COMPANY, PLLC
240 QUEBEC ROAD, LYMAN, N.H. 03585

JUNE 19, 2023
REVISED JULY 16, 2024
& JANUARY 27, 2025

NEW HAMPSHIRE STATE PLANE
COORDINATE SYSTEM NAD 83
MAGNETIC DECLINATION: 13° 53' W
CONVERGENCE ANGLE = -0°22'39"
OBSERVATION DATE: MAY, 2023
COMBINED SCALE FACTOR: 0.99995790.

LIMIT OF DISTURBANCE
AS OF 5/31/2023

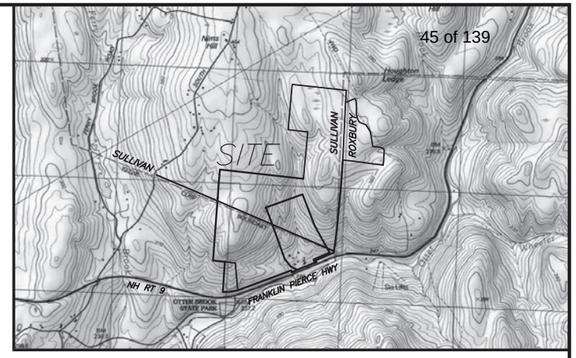
G2 HOLDINGS, LLC
KEENE TM 215 LOT 7
78.4 +/- AC

LINES NOT SURVEYED

S 05°13'18" E
787.52'

G2 HOLDINGS, LLC
KEENE TM 215 LOT 6
7.02 AC

CHIPSTONE
1 1/2" STONE
3/4" STONE
STOCKPILES
RIP RAP
RIP RAP
SAND
PROCESSING EQUIPMENT
CRUSHING PILE
NO TRESPASS
LOAM
LOAM
STOCKPILES
LOAM
BERM
3/4" STONE
CONCRETE
ROUGH LOAM
1 1/2" GRAVEL
FUEL STORAGE
TEMP. OFFICE
GATE
GAURDRAIL
SIGN 10 MPH
S 69°36'46" W
22.80'
L = 123.55'
R = 1432.50'
CH =N 72°05'03" E
CL = 123.54'
BUSINESS SIGN
S 69°36'46" W
855.33'
S 69°32'32" W
638.48'
PAVED ENTRANCE
NH ROUTE 9
FRANKLIN PIERCE HIGHWAY
EX. CULV
24" HDPE
INV IN: 807.2
INV OUT: 800.1



LOCATION MAP
1 inch = 2000 feet

Reference Plans:

A. "Steel Tape and Compass Survey of 3 Lot Subdivision for Wayne W. & Elaine Sargent, Route 9 Keene and Sullivan, NH", By Herbert E. Russell, RLS #21. Dated August, 1979. Recorded at Cheshire County Registry of Deeds Cabniet 2 Pg 94 Roll #305.

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NOTES:

1. Owner of Record: G2 Holdings, LLC 250 North Street, Jaffrey, NH 03452.
2. The Basis of Bearing is Grid. The Horizontal Datum is on the New Hampshire State Plane Coordinate System NAD83 (2011). The Vertical Datum is NAVD 88. Both horizontal and vertical datumes were derived from a static GNSS observation taken during the time of the field survey and processed using the Online Positioning User System (OPUS).
3. This plan is based on an updated field survey completed in January of 2025 using 10uuage dual frequency RTK survey grade GNSS receivers, and a DJI Mavic 3E Drone. The survey is classified as Rural and exceeds the minimum positional tolerances for property corners (0.25') and control (0.13') computed using a least squares adjustment at the 95% confidence level.
4. The property lies in the Rural Residential Zoning District in Sullivan – Building Setbacks are 50 feet – front, 20 feet side and rear. The property lies in the Rural Zoning District in Keene – R. Building Setbacks are 50 feet – front, side and rear.
5. The wetlands shown hereon were delineated by John St. John, NH CWS #221 of Ecosystems Land Planning from August-October of 2023.
6. The purpose of this plan sheet is to show the current conditions of Phase I excavation as of January 22, 2025.

STATE OF NEW HAMPSHIRE
JOHN J. ST. JOHN
No. 221
CERTIFIED WETLAND SCIENTIST

LICENSED LAND SURVEYOR
No. 907
ERIC S. POSPESIL
SIGNATURE

LEGEND
- Monument Found
- Highway Bound
- Calculated Point
- Utility Pole
- Property Line
- Limits of Disturbance
- Stockpile
- Major Contour Line
- Minor Contour Line
- Edge of Wetland
- Stream

0' 50' 100' 150'
Scale: 1 inch = 50 feet

EXISTING CONDITIONS PHASE I PIT

G2 HOLDINGS, LLC

TAX MAP 215 LOTS 6&7
VOLUME 3079 PAGE 283 &
VOLUME 3199 PAGE 1197
IN THE CITY OF
KEENE, NEW HAMPSHIRE

SMITH & POSPESIL
LAND SURVEYING COMPANY, PLLC
240 QUEBEC ROAD, LYMAN, N.H. 03585

JUNE 19, 2023
REVISED JULY 16, 2024
& JANUARY 27, 2025

N

GENERAL NOTES:

1. 500' AND 5,280 (1 MILE) RADII OF THE EXCAVATION AREA ARE SHOWN.
2. 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 NH GRANIT.
3. THE APPROXIMATE LOCATION OF ALL BUILDINGS ARE SHOWN. THIS INFORMATION IS FROM NH GRANIT AND KEENE TAX MAP INFORMATION.
4. THE APPROXIMATE LOCATION OF NH ROUTE 9 IS SHOWN. THIS INFORMATION IS FROM NH GRANIT.
5. 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 NH GRANIT.
6. THE ZONE LINE ALONG THE TOWN LINES ARE SHOWN. THE ENTIRETY OF THE 1-MILE RADIUS IS WITHIN THE RURAL ZONE.
7. 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.
8. 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.
9. THERE ARE NO KNOWN FUTURE MUNICIPAL WATER SUPPLY SITES WITHIN A 1-MILE RADIUS OF THE EXCAVATION SITE.
10. ALL SURFACE WATERS ARE SHOWN WITHIN A 1-MILE RADIUS OF THE EXCAVATION SITE. THIS INFORMATION COMES FROM NH GRANIT AND NHDES ONESTOP DATA RESEARCH.
11. 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.
12. ALL OTHER PRIVATE WELL ESTIMATION IS AN APPROXIMATION.

CONSERVATION ZONING DISTRICT

RURAL ZONING DISTRICT

KEENE

SULLIVAN

ROXBURY

5,280' RADIUS OF EXCAVATION AREA

500' RADIUS OF EXCAVATION AREA

APPROXIMATE AREA OF EXCAVATION

VIEW PRESERVATION OVERLAY ZONE 1

SMITH

K&J BUILDERS

BOLLES

BOLLES

GUINANE

WOODBURY

MADDEN

BEARD STONE RIDGE BUILDERS

OBRIEN

BURROUGHS

NHDOT

GRANITE GORGE

SOBOLEVSKI

VAN FRAN

ELLIS

S ROAD

TYLER ROAD

FERRY BROOK ROAD

SULLIVAN ROAD

RTE 9 – FRANKLIN PIERCE HWY

HOUGHTON LEDGE ROAD

NEWCOMB ROAD

DAVIS ROAD

OTTER BROOK

OTTER BROOK STATE PARK

OTTER BROOK LAKE

GRANITE GORGE MOUNTAIN PARK

SULLIVAN TAX MAP 5 LOT 41-2 KEY LANDSCAPE & IRRIGATION, LLC

SULLIVAN TAX MAP 5 LOT 41-1 ELIZABETH NEWCOMBE

SULLIVAN TAX MAP 5 LOT 40 SAMUEL & JACLYN GUINANE

SULLIVAN TAX MAP 5 LOT 47 JAMES MANLEY

SULLIVAN TAX MAP 5 LOT 46 G2 HOLDINGS, LLC

TAX MAP 215 LOT 3 SAMUEL & JACLYN GUINANE

TAX MAP 215 LOT 7 G2 HOLDINGS, LLC

SULLIVAN TAX MAP 5 LOT 46-1 G2 HOLDINGS, LLC

TAX MAP 215 LOT 8 G2 HOLDINGS, LLC

TAX MAP 215 LOT 6 G2 HOLDINGS, LLC

OTTER BROOK CENTER PUBLIC WATER SUPPLY PUBLIC WATER SYSTEM ID: 1242010 STATUS: INACTIVE

SEAFIELD PINES HOSPITAL PUBLIC WATER SUPPLY PUBLIC WATER SYSTEM ID: 1249010 STATUS: INACTIVE

OTTER BROOK LAKE REC. AREA PUBLIC WATER SUPPLY PUBLIC WATER SYSTEM ID: 1247030 STATUS: INACTIVE

TAX MAP 216 LOT 4 UNITED STATES OF AMERICA

TAX MAP 216 LOT 1 JOHN BAYBUTT

TAX MAP 216 LOT 2 STATE OF NH

VIEW PRESERVATION OVERLAY ZONE 1

LEGEND

- APPROX. BUILDING LOCATION
- APPROX. LOCATION OF PRIVATE WELL
- APPROX. LOCATION OF PUBLIC WELL
- ABUTTER LINE
- PROPERTY LINE
- APPROX. AREA OF EXCAVATION
- EXCAVATION AREA RADIUS
- ZONE LINE
- VIEW PRESERVATION OVERLAY ZONE LINE
- TOWN LINE

GRAPHIC SCALE

700 0 350 700 1400 2800

(IN FEET)
1 inch = 700 ft.

DIG SAFE
811
CALL TOLL FREE
DAMAGE PREVENTION SYSTEM
UTILITIES UNDERGROUND
RI-ME-MA-VT-NH

P:\23\23020111\dwg\Production Plans\23020111-CONTEXT PLAN.dwg, CONTEXT PLAN, 5/7/2025 4:13:14 PM, justind, DWG To PDF.pc3, ANSI full bleed D (34.00 x 22.00 Inches), 1:1

GRANITE ENGINEERING
civil engineering
land planning
municipal services

REVISIONS

No.	DATE	COMMENTS	BY
1	12/20/24	PROJECT SUBMITTAL	JD
2	2/3/25	REVISED PER CITY COMMENTS	JD
3	5/9/25	REVISED PER CITY COMMENTS	JD

OWNER/APPLICANT:
G2 HOLDINGS, LLC
250 NORTH STREET
JAFFREY, NH 03452

GRANITE ENGINEERING
civil engineering • land planning • municipal services
150 Dow Street, Tower 2, Suite 421
Manchester,
New Hampshire 03101
603.518.8030
www.GraniteEng.com

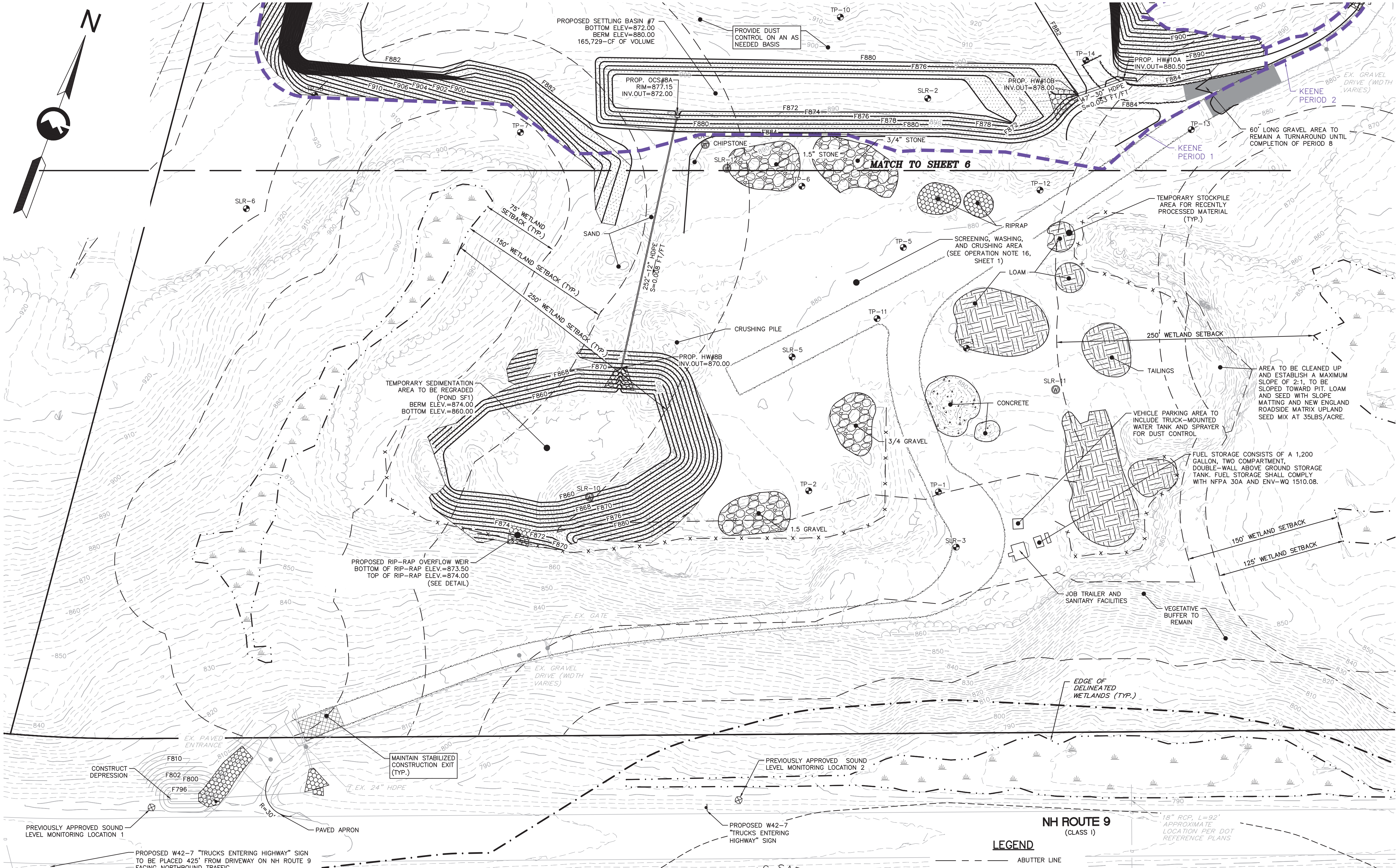
STAMP:
STATE OF NEW HAMPSHIRE - BRENTON J. COLE No. 14744 2/3/25 LICENSED PROFESSIONAL ENGINEER

LOCATION:
KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES KEENE

TITLE:
CONTEXT PLAN

PROJECT No.	DATE:	SCALE:
23-0201-1	MAY 9, 2025	HORIZ. 1"=700'
SHEET:	4 OF 23	



EROSION & SEDIMENT CONTROL LEGEND

▭	STONE CHECK DAM
⌒⌒⌒	LIMITS OF CLEARING
— x — x —	SILT FENCE
▩	STABILIZED CONSTRUCTION EXIT
▤	STAGING AND STOCKPILE AREA
░	EROSION CONTROL BLANKET

PHASING NOTES:

1. INSTALL NECESSARY EROSION CONTROL MEASURES, I.E. SILT FENCE.
2. REGRADE AND REPLANT BUFFER AREA
3. INSTALL SIGNAGE
4. INSTALL PAVED APRON AND CULVERT ENTRANCE INLET DEPRESSION.
5. INSTALL CULVERT OUTLET PROTECTION AT EXISTING 24" HDPE CULVERT
6. COMPLETE EXCAVATION OF TEMPORARY SEDIMENTATION AREA.
7. TEMPORARY SEDIMENTATION POND TO BE LINED WITH 12 INCHES OF CRUSHED LIMESTONE GRAVEL, THEN LOAMED AND SEEDED.
8. BEGIN EXCAVATION IN PERIOD 1. CONSTRUCT OUTLET STRUCTURE AND CULVERT OF TEMPORARY SEDIMENTATION BASIN AND DIRECT DISCHARGE TO TEMPORARY SEDIMENT AREA.
9. ALL TRUCK TURNAROUND AREAS TO BE MAINTAINED UNTIL THE COMPLETION OF PERIOD 7, THEN THOSE AREAS ARE TO BE RECLAIMED.

SEE SHEET 6 FOR EROSION CONTROL NOTES (TYP.)

SEE SHEET 1 FOR OPERATION NOTES (TYP.)

LOAM & SEED ALL DISTURBED AREAS (TYP.)

DIG SAFE
RI–ME–NH–VT–MA
CALL TOLL FREE
811
UTILITIES UNDERGROUND
DAMAGE PREVENTION SYSTEM

LEGEND

— — —	ABUTTER LINE
——	PROPERTY LINE
— - —	EXCAVATION SETBACK LINE
——	EXISTING EDGE OF PAVEMENT
～～	EXISTING EDGE OF GRAVEL
— · · —	WETLANDS BOUNDARY
— — —	WETLAND BUFFER
～～	PROPOSED EDGE OF GRAVEL
— — —	PERIOD LINE
⌒⌒ / ⌒⌒	EX./PROP. TREELINE
——	PROP. GRADE LINE
— —	EX. MAJOR CONTOUR
- -	EX. MINOR CONTOUR
▩	RIP RAP
–/–	EX./PROP. HEADWALL
═	PROP. DRAINAGE LINE
— D —	EX. DRAINAGE LINE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

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land planning
municipal services

REVISIONS

No.	DATE	COMMENTS	BY
1	12/20/24	PROJECT SUBMITTAL	JD
2	2/3/25	REVISED PER CITY COMMENTS	JD
3	5/9/25	REVISED PER CITY COMMENTS	JD

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BRENTON J. COLE
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2/3/25
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PROFESSIONAL ENGINEER

LOCATION:
KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES KEENE

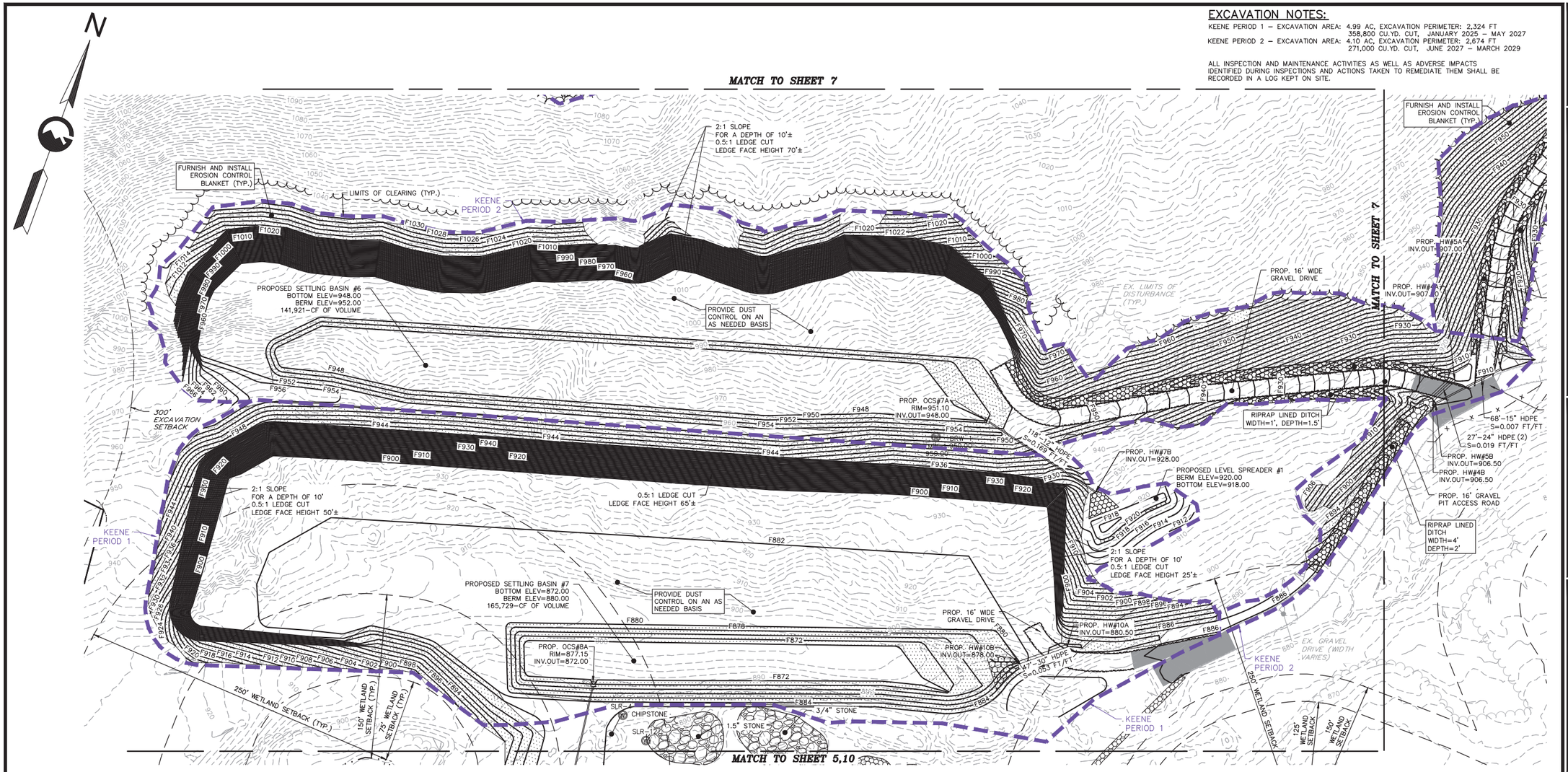
TITLE:
EXCAVATION, DRAINAGE & EROSION CONTROL PLAN

PROJECT No.	DATE:	SCALE:
23–0201–1	MAY 9, 2025	HORIZ. 1"=50'
SHEET: 5 OF 23		

EXCAVATION NOTES:

KEENE PERIOD 1 – EXCAVATION AREA: 4.99 AC, EXCAVATION PERIMETER: 2,324 FT
358,800 CU.YD. CUT, JANUARY 2025 – MAY 2027
KEENE PERIOD 2 – EXCAVATION AREA: 4.10 AC, EXCAVATION PERIMETER: 2,674 FT
271,000 CU.YD. CUT, JUNE 2027 – MARCH 2029

ALL INSPECTION AND MAINTENANCE ACTIVITIES AS WELL AS ADVERSE IMPACTS IDENTIFIED DURING INSPECTIONS AND ACTIONS TAKEN TO REMEDIATE THEM SHALL BE RECORDED IN A LOG KEPT ON SITE.



PHASING NOTES:

1. CONTINUE EXCAVATION IN PERIOD 1. AS PIT FLOOR IS LOWERED, EXCAVATE SEDIMENT BASIN AS REQUIRED. INSTALL OUTLET CULVERT.
2. ONCE PERIOD 1 HAS REACHED FINAL GRADING, RECLAIM ENTIRE AREA. PRIOR TO LOAMING AND SEEDING THE SEDIMENT AREA, REMOVE ALL SILTED MATERIALS. LOAM AND SEED, ENSURE OUTLET CULVERT IS INSTALLED.RECLAIM ACCESS TO THE PIT.
3. BEGIN CONSTRUCTION OF PERIOD 2, STARTING WITH THE ACCESS. INSTALL ALL EROSION CONTROL DEVICES.CONSTRUCT DITCH ALONG WEST SIDE OF EXISTING ACCESS ROAD. INSTALL CULVERTS AT THE INTERSECTION WITH THE NEW ACCESS ROAD RUNNING TO THE NORTH.
4. AS PIT AREA IN PERIOD IS EXCAVATED, PITCH SLOPE TO THE SOUTH OF THE AREA AND BEGIN EXCAVATION OF THE SEDIMENT RETENTION AREA. DIRECT DISHARGE FROM THE SEDIMENT DOWN THE EASTERN SIDE OF RECLAIMED PHASE 1. AS THE SEDIMENT AREA IS LOWERED, INSTALL OUTLET CULVERT, AND DIRECT TO THE EXISTING SLOPE TO THE EAST OF PERIOD 1.
5. ONCE PERIOD 2 HAS REACHED FINAL GRADING, RECLAIM ENTIRE AREA. PRIOR TO LOAMING AND SEEDING THE SEDIMENT AREA, REMOVE ALL SILTED MATERIALS. LOAM AND SEED, ENSURE OUTLET CULVERT IS INSTALLED. RECLAIM ACCESS TO THE PIT TO INTERSECTION OF NEW ACCESS RUNNING TO THE NORTH.
6. ALL TRUCK TURNAROUND AREAS TO BE MAINTAINED UNTIL THE COMPLETION OF PERIOD 7, THEN THOSE AREAS ARE TO BE RECLAIMED.

DIG SAFE
811
CALL TOLL FREE
DAMAGE PREVENTION SYSTEM
UTILITIES UNDERGROUND

SEE SHEET 1 FOR OPERATION NOTES (TYP.)

LOAM & SEED ALL DISTURBED AREAS (TYP.)

EROSION CONTROL NOTES:

1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE REQUIRED ONSITE TEMPORARY CONSTRUCTION EROSION CONTROL MEASURES.
2. ALL MEASURES IN THE PLAN SHALL MEET AS A MINIMUM THE BEST MANAGEMENT PRACTICES SET FORTH IN VOLUME 3 OF THE NEW HAMPSHIRE STORMWATER MANUAL "EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION" AS PUBLISHED AND AMENDED BY THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES.
3. WHENEVER PRACTICAL, NATURAL VEGETATION SHALL BE RETAINED, PROTECTED OR SUPPLEMENTED. THE STRIPPING OF VEGETATION SHALL BE DONE IN A MANNER THAT MINIMIZES SOIL EROSION.
4. APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO LAND DISTURBANCE.
5. THE AREA OF DISTURBANCE SHALL BE KEPT TO A MINIMUM. DISTURBED AREAS REMAINING IDLE FOR MORE THAN 30 DAYS SHALL BE STABILIZED
6. MEASURES SHALL BE TAKEN TO CONTROL EROSION WITHIN THE PROJECT AREA. SEDIMENT IN RUNOFF WATER SHALL BE TRAPPED AND RETAINED WITHIN THE PROJECT AREA USING APPROVED MEASURES.
7. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN FUNCTIONING CONDITION UNTIL FINAL SITE STABILIZATION IS ACCOMPLISHED.
8. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AFTER FINAL SITE STABILIZATION. TRAPPED SEDIMENT AND OTHER DISTURBED SOIL AREAS RESULTING FROM THE REMOVAL OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED WITHIN 30 DAYS UNLESS CONDITIONS DICTATE OTHERWISE.
9. THE CITY OF KEENE SHALL RESERVE THE RIGHT TO REQUIRE FURTHER EROSION CONTROL PRACTICES DURING CONSTRUCTION SHOULD THEY FIND IT NECESSARY.
10. THE RESPONSIBLE PARTY SHALL INSTALL, INSPECT, REPORT, OPERATE, AND MAINTAIN ALL STORMWATER MANAGEMENT AND EROSION CONTROL MEASURES REQUIRED BY THESE PLANS.
11. TEMPORARY EROSION CONTROL MEASURES SHALL BE INSTALLED IN STRICT ACCORDANCE WITH PROJECT PLANS. IN ADDITION, SIMILAR MEASURES SHALL BE INSTALLED WHERE AND WHEN THE FIELD CONDITION, OR FIELD OPERATION OF THE INDIVIDUAL SITE CONTRACTOR, MAY WARRANT.
12. ALL DISTURBED AREAS DESIGNATED TO BE TURF, SHALL RECEIVE A MINIMUM APPLICATION OF 4 INCHES OF LOAM (COMPACTED THICKNESS), PRIOR TO FINAL SEEDING AND MULCHING.
13. IN THE EVENT THAT, DURING CONSTRUCTION OF ANY PORTION OF THIS PROJECT, A WINTER SHUTDOWN IS NECESSARY, THE CONTRACTOR SHALL STABILIZE ALL INCOMPLETE WORK AND PROVIDE FOR SUITABLE METHODS OF DIVERTING RUNOFF IN ORDER TO ELIMINATE SHEET FLOW ACROSS FROZEN SURFACES.
14. DUST SHALL BE CONTROLLED BY THE USE OF WATER AS NECESSARY THROUGHOUT THE CONSTRUCTION PERIOD, IN ACCORDANCE WITH ENV–A 1000.
15. IN NO WAY ARE THOSE TEMPORARY EROSION CONTROL MEASURES INDICATED ON THESE PLANS TO BE CONSIDERED ALL INCLUSIVE. THE CONTRACTOR SHALL USE JUDGEMENT IN INSTALLING SUPPLEMENTARY EROSION CONTROL MEASURES WHERE AND WHEN SPECIFIC SITE CONDITIONS AND/OR CONSTRUCTION METHODOLOGIES MAY WARRANT.
16. GRADED AREAS SHALL BE VEGETATED TO INSURE EROSION CONTROL BY SEEDING, MULCHING, AND FERTILIZING. DISTURBED AREAS SHALL BE PLANTED WITH SUITABLE PLANT MATERIALS.
17. GRADING SHALL NOT EXCEED A RATIO OF 3 HORIZONTAL TO 1 VERTICAL WITHOUT SPECIAL EROSION CONTROL MEASURES. NETTING OR SIMILAR MATERIAL SHALL BE PROVIDED ON SLOPES WITH A RATIO GREATER THAN 3:1 WHILE GROUND COVER IS BEING ESTABLISHED.

EROSION & SEDIMENT CONTROL LEGEND

- STONE CHECK DAM
- LIMITS OF CLEARING
- SILT FENCE
- STABILIZED CONSTRUCTION EXIT
- STAGING AND STOCKPILE AREA
- EROSION CONTROL BLANKET

LEGEND

- ABUTTER LINE
- PROPERTY LINE
- EXCAVATION SETBACK LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- WETLANDS BOUNDARY
- WETLAND BUFFER
- PROPOSED EDGE OF GRAVEL
- PERIOD LINE
- EX./PROP. TREELINE
- PROP. GRADE LINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- RIP RAP
- EX./PROP. HEADWALL
- PROP. DRAINAGE LINE

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

REVISIONS

No.	DATE	COMMENTS	BY
1	12/20/24	PROJECT SUBMITTAL	JD
2	2/3/25	REVISED PER CITY COMMENTS	JD
3	5/9/25	REVISED PER CITY COMMENTS	JD

OWNER/APPLICANT:
62 HOLDINGS, LLC
250 NORTH STREET
JAFFREY, NH 03452

GRANITE ENGINEERING
civil engineering ● land planning ● municipal services
150 Dow Street, Tower 2, Suite 421
Manchester, New Hampshire 03101
603.518.8030
www.GraniteEng.com

STAMP:
STATE OF NEW HAMPSHIRE – JOHN R. BRENTON – COLE No. 14744 – 2/3/25 – LICENSED PROFESSIONAL ENGINEER

LOCATION:
KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

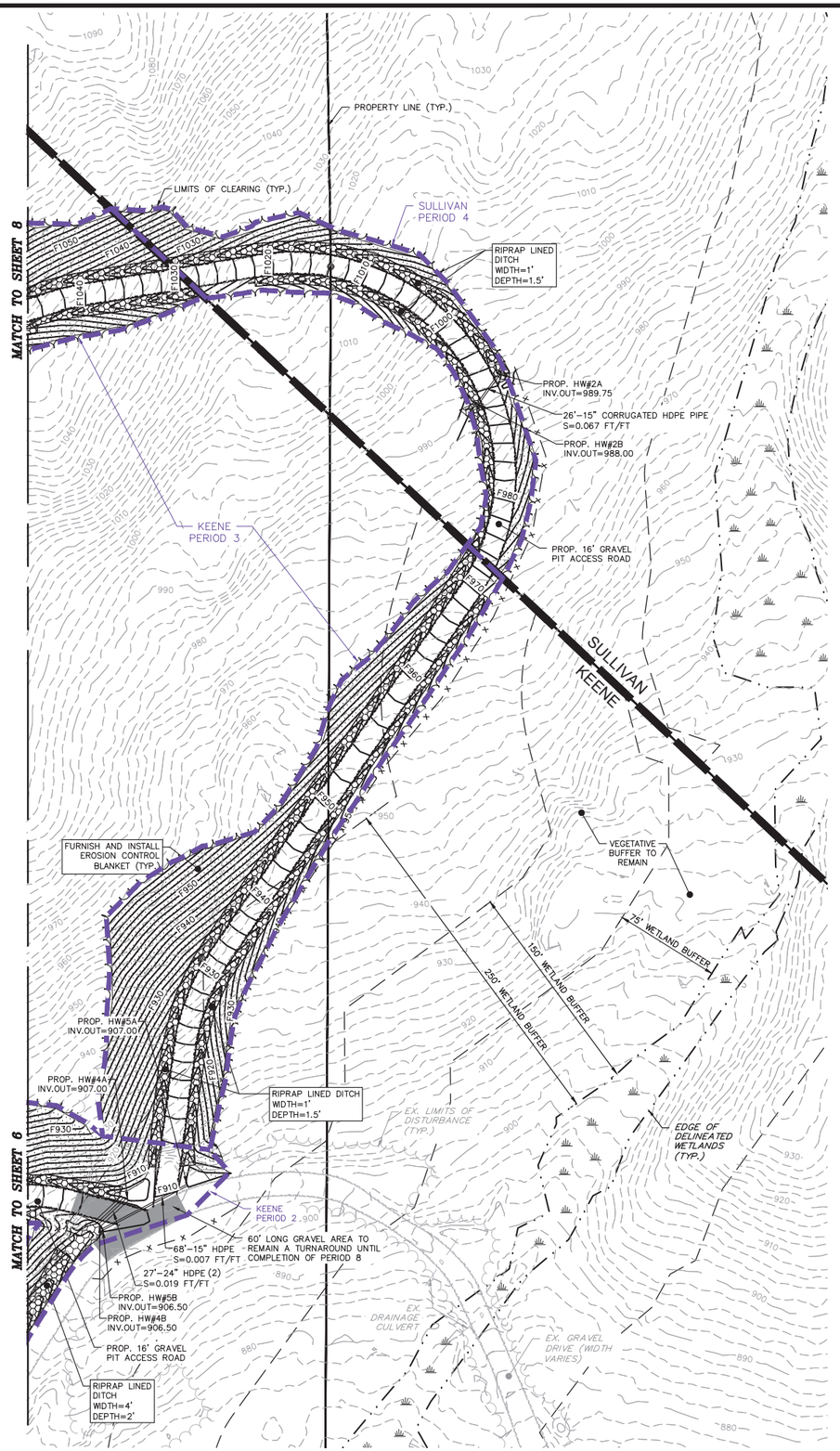
PROJECT:
GORDON SERVICES KEENE

TITLE:
EXCAVATION, DRAINAGE & EROSION CONTROL PLAN

PROJECT No.	DATE:	SCALE:
23-0201-1	MAY 9, 2025	HORIZ. 1"=50'
SHEET:	6 OF 23	

PHASING NOTES:

1. INSTALL ALL NECESSARY EROSION CONTROL ITEMS, I.E. SILT FENCE, STONE CHECK DAMS.
2. CONSTRUCT PIT ACCESS IN ITS ENTIRETY TO THE START OF PERIOD 5.
3. INSTALL ALL CULVERTS, RIP RAP CULVERT OUTLETS, AND DITCH PROTECTION.
4. ALL TRUCK TURNAROUND AREAS TO BE MAINTAINED UNTIL THE COMPLETION OF PERIOD 7, THEN THOSE AREAS ARE TO BE RECLAIMED.



SEE SHEET 1 FOR OPERATION NOTES (TYP.)

SEE SHEET 6 FOR EROSION CONTROL NOTES (TYP.)

LOAM & SEED ALL DISTURBED AREAS (TYP.)

EXCAVATION NOTES:

KEENE PERIOD 3 – EXCAVATION AREA: 2.14 AC, EXCAVATION PERIMETER: 3,780 FT
16,450 CU.YD. CUT, APRIL 2029 – MAY 2029
SULLIVAN PERIOD 4 – EXCAVATION AREA: 0.39 AC, EXCAVATION PERIMETER: 947 FT
939 CU.YD. CUT, JUNE 2029 – JULY 2029

ALL INSPECTION AND MAINTENANCE ACTIVITIES AS WELL AS ADVERSE IMPACTS IDENTIFIED DURING INSPECTIONS AND ACTIONS TAKEN TO REMEDIATE THEM SHALL BE RECORDED IN A LOG KEPT ON SITE.

N

LEGEND

- ABUTTER LINE
- PROPERTY LINE
- EXCAVATION SETBACK LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- WETLANDS BOUNDARY
- WETLAND BUFFER
- PROPOSED EDGE OF GRAVEL
- PERIOD LINE
- EX./PROP. TREELINE
- PROP. GRADE LINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- RIP RAP
- EX./PROP. HEADWALL
- PROP. DRAINAGE LINE
- EX. DRAINAGE LINE

EROSION & SEDIMENT CONTROL LEGEND

- STONE CHECK DAM
- LIMITS OF CLEARING
- SILT FENCE
- STABILIZED CONSTRUCTION EXIT
- STAGING AND STOCKPILE AREA
- EROSION CONTROL BLANKET

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UTILITIES UNDERGROUND

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

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REVISIONS

No.	DATE	COMMENTS	BY
1	12/20/24	PROJECT SUBMITTAL	JD
2	2/3/25	REVISED PER CITY COMMENTS	JD
3	5/9/25	REVISED PER CITY COMMENTS	JD

OWNER/APPLICANT:
62 HOLDINGS, LLC
250 NORTH STREET
JAFFREY, NH 03452

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150 Dow Street, Tower 2, Suite 421
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STAMP:
STATE OF NEW HAMPSHIRE
BRENTON S. COLE
No. 14744
2/3/25
LICENSED PROFESSIONAL ENGINEER

LOCATION:
KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES KEENE

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EXCAVATION, DRAINAGE & EROSION CONTROL PLAN

PROJECT No.	DATE:	SCALE:
23-0201-1	MAY 9, 2025	HORIZ. 1"=50'
SHEET: 7 OF 23		

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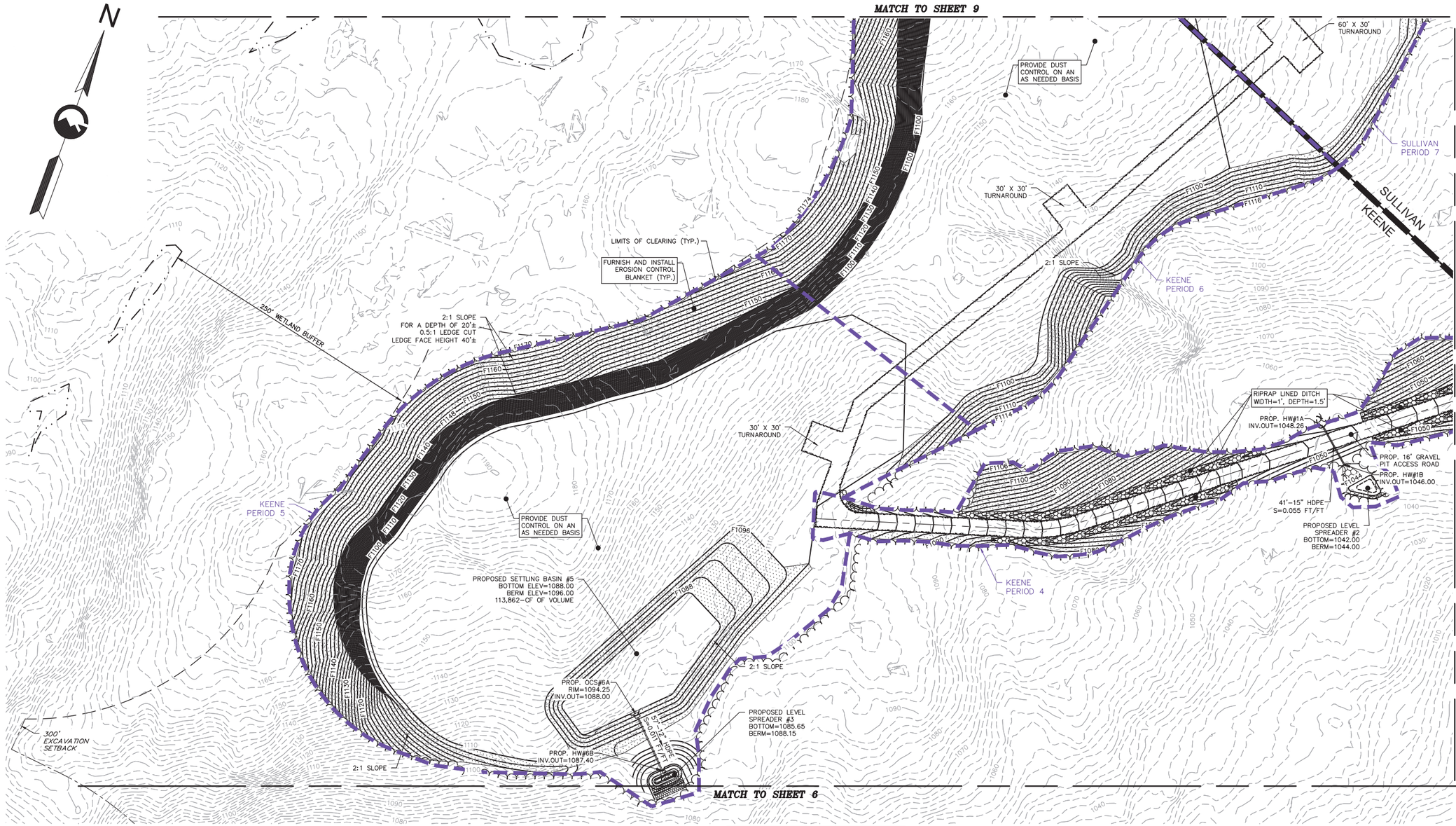

PHASING NOTES:

1. INSTALL NECESSARY EROSION CONTROL MEASURES, I.E. SILT FENCE.
2. BEGIN EXCAVATION IN PERIOD 5. CONSTRUCT TEMPORARY SEDIMENT BASIN AS NEEDED AND DIRECT DISCHARGE TO TEMPORARY SEDIMENT AREA.
3. SLOPE PIT TO RUN TO THE SOUTH TO THE SEDIMENT AREA. AS EXCAVATION PROCEDES, LOWER SEDIMENT AREA AS NEEDED.
4. ONCE PERIOD 5 HAS REACHED FINAL GRADING, RECLAIM ENTIRE AREA, LEAVING TRUCK AND EQUIPMENT ACCESS TO PERIOD 6. PRIOR TO LOAMING AND SEEDING THE SEDIMENT AREA, REMOVE ALL SILTED MATERIALS. LOAM AND SEED, ENSURE OUTLET CULVERT IS INSTALLED.
5. INSTALL EROSION CONTROL MEASURES FOR PERIOD 6.
6. BEGIN EXCAVATION IN PERIOD 6. SLOPE PIT FLOOR TO THE SOUTH. INSTALL TEMPORARY SEDIMENT BASINS AS NEEDED. DO NOT DISCHARGE SEDIMENT TO RECLAIMED AREA PERIOD 5.
7. ONCE PERIOD 6 HAS REACHED FINAL GRADING, RECLAIM ENTIRE AREA, LEAVING TRUCK AND EQUIPMENT ACCESS TO PERIOD 7.
8. ALL TRUCK TURNAROUND AREAS TO BE MAINTAINED UNTIL THE COMPLETION OF PERIOD 7, THEN THOSE AREAS ARE TO BE RECLAIMED.

LOAM & SEED ALL DISTURBED AREAS (TYP.)

SEE SHEET 1 FOR OPERATION NOTES (TYP.)

SEE SHEET 6 FOR EROSION CONTROL NOTES (TYP.)

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EXCAVATION NOTES:

KEENE PERIOD 5 – EXCAVATION AREA: 4.08 AC, EXCAVATION PERIMETER: 1,724 FT
366,530 CU.YD. CUT, AUGUST 2029 – JANUARY 2031

KEENE PERIOD 6 – EXCAVATION AREA: 3.82 AC, EXCAVATION PERIMETER: 1,900 FT
262,692 CU.YD CUT, FEBRUARY 2031 – NOVEMBER 2032

SULLIVAN PERIOD 7 – EXCAVATION AREA: 4.06 AC, EXCAVATION PERIMETER: 1,755 FT
306,210 CU.YD. CUT, DECEMBER 2032 – DECEMBER 2034

ALL INSPECTION AND MAINTENANCE ACTIVITIES AS WELL AS ADVERSE IMPACTS IDENTIFIED DURING INSPECTIONS AND ACTIONS TAKEN TO REMEDIATE THEM SHALL BE RECORDED IN A LOG KEPT ON SITE.

LEGEND

- ABUTTER LINE
- PROPERTY LINE
- EXCAVATION SETBACK LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- WETLANDS BOUNDARY
- WETLAND BUFFER
- PROPOSED EDGE OF GRAVEL
- PERIOD LINE
- EX./PROP. TREELINE
- PROP. GRADE LINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- RIP RAP
- EX./PROP. HEADWALL
- PROP. DRAINAGE LINE

EROSION & SEDIMENT CONTROL LEGEND

- STONE CHECK DAM
- LIMITS OF CLEARING
- SILT FENCE
- STABILIZED CONSTRUCTION EXIT
- STAGING AND STOCKPILE AREA
- EROSION CONTROL BLANKET

GRAPHIC SCALE

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23-0201-1	MAY 9, 2025	HORIZ. 1"=50'
SHEET:	8 OF 23	

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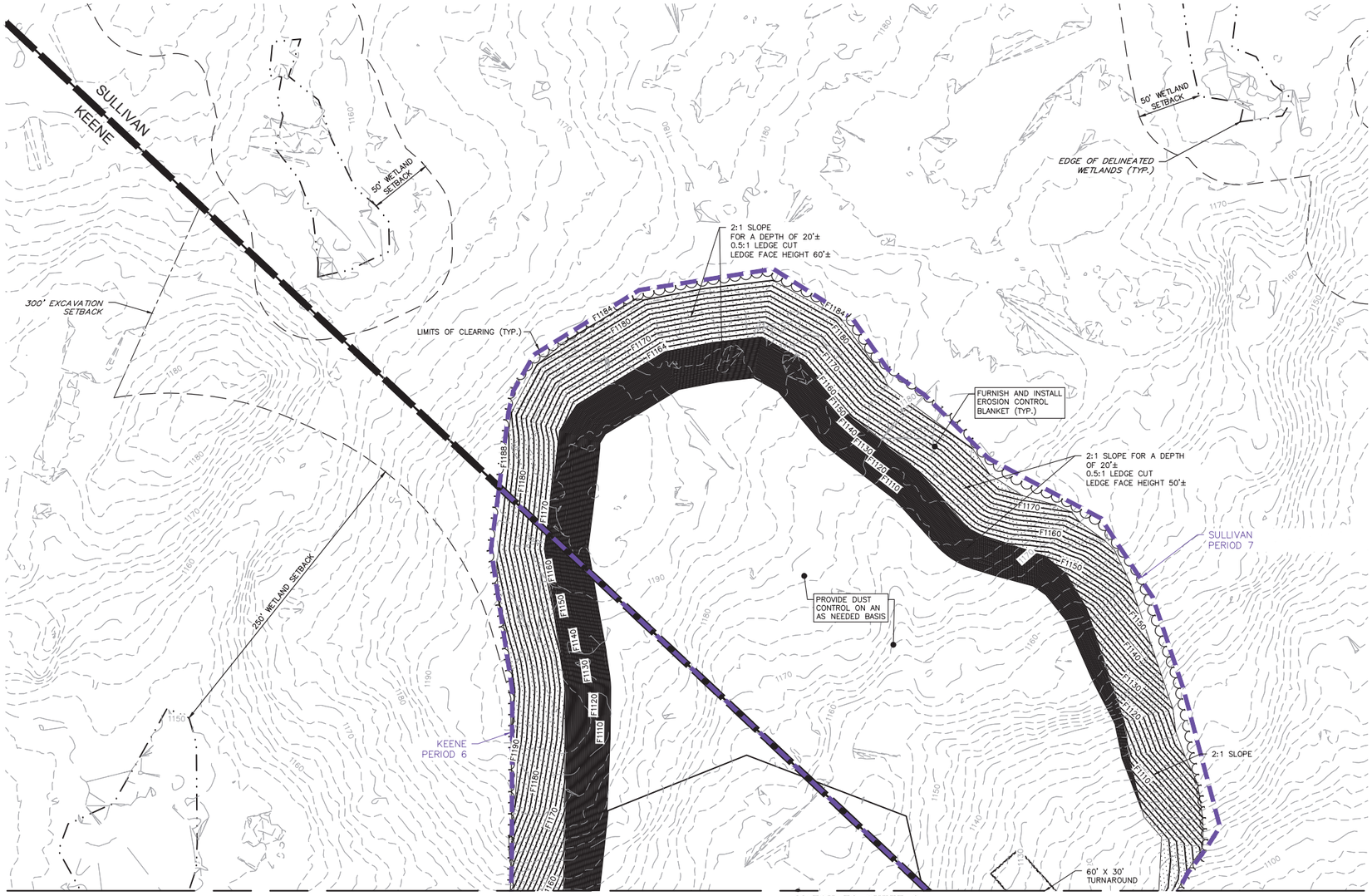

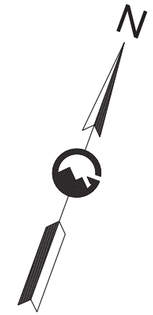

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EROSION & SEDIMENT CONTROL LEGEND

- STONE CHECK DAM
- LIMITS OF CLEARING
- SILT FENCE
- STABILIZED CONSTRUCTION EXIT
- STAGING AND STOCKPILE AREA
- EROSION CONTROL BLANKET

PHASING NOTES:

1. INSTALL EROSION CONTROL MEASURES FOR PERIOD 7.
2. BEGIN EXCAVATION IN PERIOD 7. SLOPE PIT FLOOR TO THE SOUTH. INSTALL TEMPORARY SEDIMENT BASINS AS NEEDED. DO NOT DISCHARGE SEDIMENT TO RECLAIMED AREA PERIOD 6.
3. ONCE PERIOD 7 HAS REACHED FINAL GRADING, RECLAIM ENTIRE AREA. RECLAIM GRAVEL SURFACE OF ENTIRE HAUL ROAD.
4. ALL TRUCK TURNAROUND AREAS TO BE MAINTAINED UNTIL THE COMPLETION OF PERIOD 7, THEN THOSE AREAS ARE TO BE RECLAIMED.

LOAM & SEED ALL DISTURBED AREAS (TYP.)

SEE SHEET 1 FOR OPERATION NOTES (TYP.)

SEE SHEET 6 FOR EROSION CONTROL NOTES (TYP.)

EXCAVATION NOTES:

KEENE PERIOD 6 – EXCAVATION AREA: 3.82 AC, EXCAVATION PERIMETER: 1,900 FT
262,692 CU.YD CUT, FEBRUARY 2031 – NOVEMBER 2032

SULLIVAN PERIOD 7 – EXCAVATION AREA: 4.06 AC, EXCAVATION PERIMETER: 1,755 FT
306,210 CU.YD. CUT, DECEMBER 2032 – DECEMBER 2034

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GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

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BRENTON S. DOLE
No. 14744
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LICENSED
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KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
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CHESHIRE COUNTY

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GORDON SERVICES KEENE

TITLE: **EXCAVATION, DRAINAGE & EROSION CONTROL PLAN**

PROJECT No.	DATE:	SCALE:
23-0201-1	MAY 9, 2025	HORIZ. 1"=50'
SHEET:	9 OF 23	

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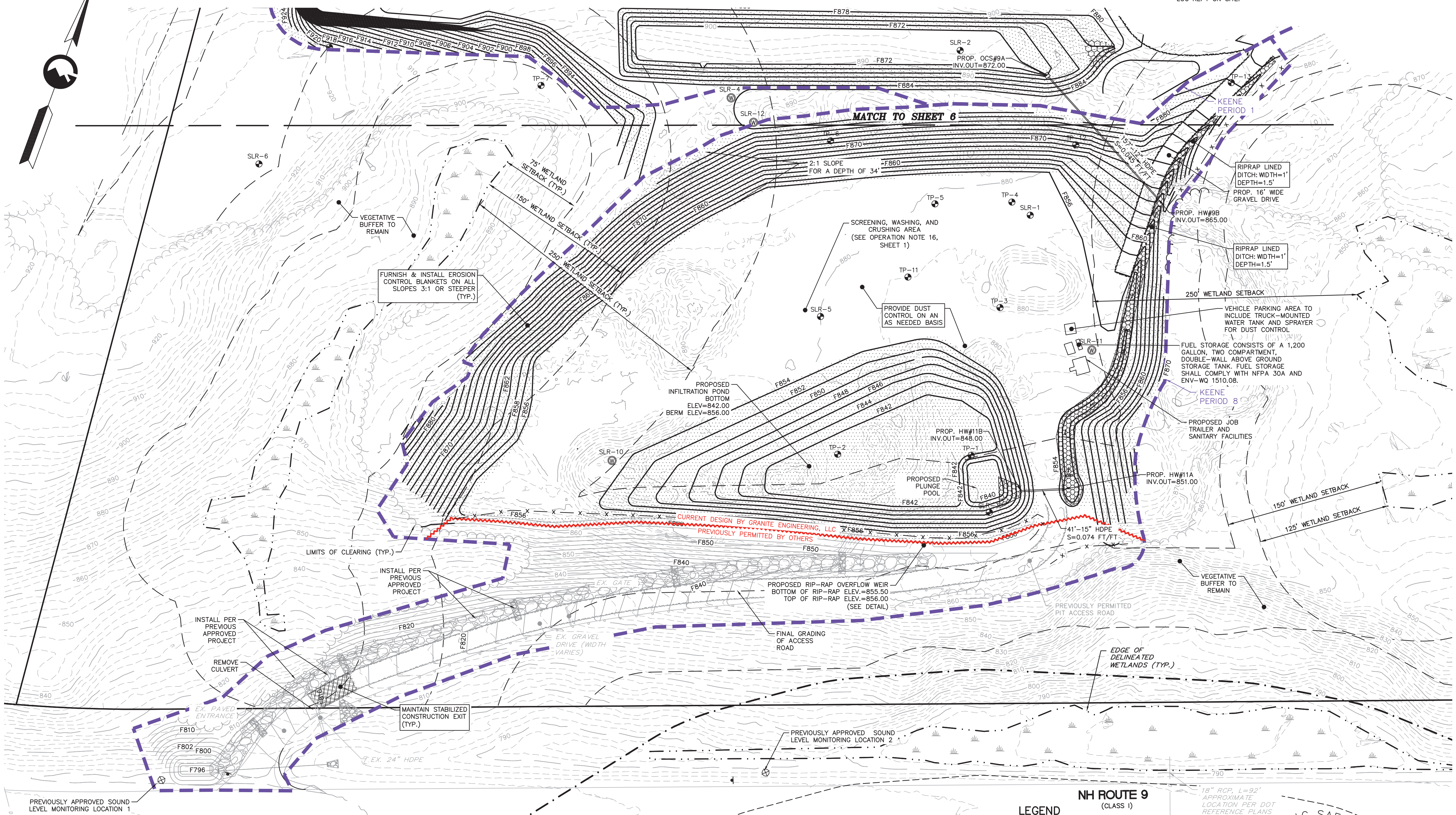
EXCAVATION NOTES:

KEENE PERIOD 8 – EXCAVATION AREA: 7.62 AC, EXCAVATION PERIMETER: 3,230 FT
496,500 CU.YD. CUT, JANUARY 2035 – APRIL 2038

ALL INSPECTION AND MAINTENANCE ACTIVITIES AS WELL AS ADVERSE IMPACTS IDENTIFIED DURING INSPECTIONS AND ACTIONS TAKEN TO REMEDIATE THEM SHALL BE RECORDED IN A LOG KEPT ON SITE.



PHASING NOTES:

1. INSTALL EROSION CONTROL MEASURES FOR PERIOD 8.
2. BEGIN EXCAVATION IN PERIOD 8. SLOPE PIT FLOOR TO THE SOUTH.
3. AS PIT FLOOR IS LOWERED, EXCAVATE AND EXPAND TEMPORARY SEDIMENTATION BASIN EASTERLY, AT ALL TIMES MAINTAINING A MINIMUM DEPTH OF 12'.
4. WHEN THE 12" OUTLET PIPE FROM SETTLING BASIN #7 HAS REACHED 12" COVER, STORMWATER SHALL BE DIRECTED VIA OVERLAND FLOW THRU DITCHING TO THE CURRENT INFILTRATION AREA.
5. THIS CONNECTION SHALL BE KEPT IN PLACE UNTIL THE PIT FLOOR REACHES ELEVATION 865.00.
6. ONCE PIT FLOOR HAS REACHED ELEV. 865.00, INSTALL THE 157' FET OF 12" CULVERT AND PROPOSED OUTLET STRUCTURE AND DAYLIGHT TO THE DITCH ALONG THE WEST OF THE PIT ROAD.
7. DIRECT RUNOFF TO PROPOSED SEDIMENT AREA AS SHOWN ON THIS PLAN. TO KEEP ACCESS TO THE PIT OPEN, INSTALL A CULVERT TO DIRECT STORMWATER RUNOFF TO THE SEDIMENT RETENTION AREA.
9. PLUG EXISTING 12" OUTLET PIPE THAT WAS INSTALLED IN THE SEDIMENT RETENTION AREA CONSTRUCTED IN PHASE 1. REMOVE OUTLET STRUCTURE AND PLUG INLET OF 12" PIPE WITH FLOWABLE FILL.
10. BY THE TIME THE PIT FLOOR REACHES ELEVATION 860.00, THE TEMPORARY SEDIMENTATION AREA SHALL HAVE SHIFTED TO THE INFILTRATION LOCATION SHOWN, WITH A FLOOR ELEVATION OF 848.00.
11. AS THE PIT FLOOR IS LOWERED, THE GRADE OF THE MAIN ACCESS ROAD OFF ROUTE 9 WILL NEED TO BE ADJUSTED TO CURRENT PIT FLOOR ELEVATIONS. THE RIP RAP SWALE ON THE WESTERLY SIDE SHALL REMAIN AND ADJUSTED AS NEEDED.
12. ONCE PERIOD 8 HAS REACHED FINAL GRADING, INSTALL FINAL PERMANENT CHECK DAMS IN THE MAIN ACCESS ROAD DITCHLINE, REMOVE EXISTRING 24" HDPE CULVERT, INSTALL SURFACE SAND FILTERS, INSTALL 18" HDPE CULVERT, INSTALL RETAINING WALL, AND INSTALL FENCE PER PREVIOUS DESIGN PLANS BY TF MORAN AND APPROVED BY THE CITY OF LEBANON.
13. LINE INFILTRATION POND WITH 12 INCHES OF CRUSHED LIMESTONE GRAVEL, THEN LOAM AND SEED.
14. INSTALL INFILTRATION POND EMERGENCY SPILLWAY.
15. RECLAIM ENTIRE AREA. RECLAIM GRAVEL SURFACE OF ACCESS ROAD. REMOVE TEMPORARY EROSION CONTROL MEASURES.

EROSION & SEDIMENT CONTROL LEGEND

- STONE CHECK DAM
- LIMITS OF CLEARING
- SILT FENCE
- ▨ STABILIZED CONSTRUCTION EXIT
- STAGING AND STOCKPILE AREA
- EROSION CONTROL BLANKET

SEE SHEET 6 FOR EROSION CONTROL NOTES (TYP.)

SEE SHEET 1 FOR OPERATION NOTES (TYP.)

LOAM & SEED ALL DISTURBED AREAS (TYP.)

LEGEND

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GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

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GORDON SERVICES
KEENE

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SHEET: 10 OF 23		

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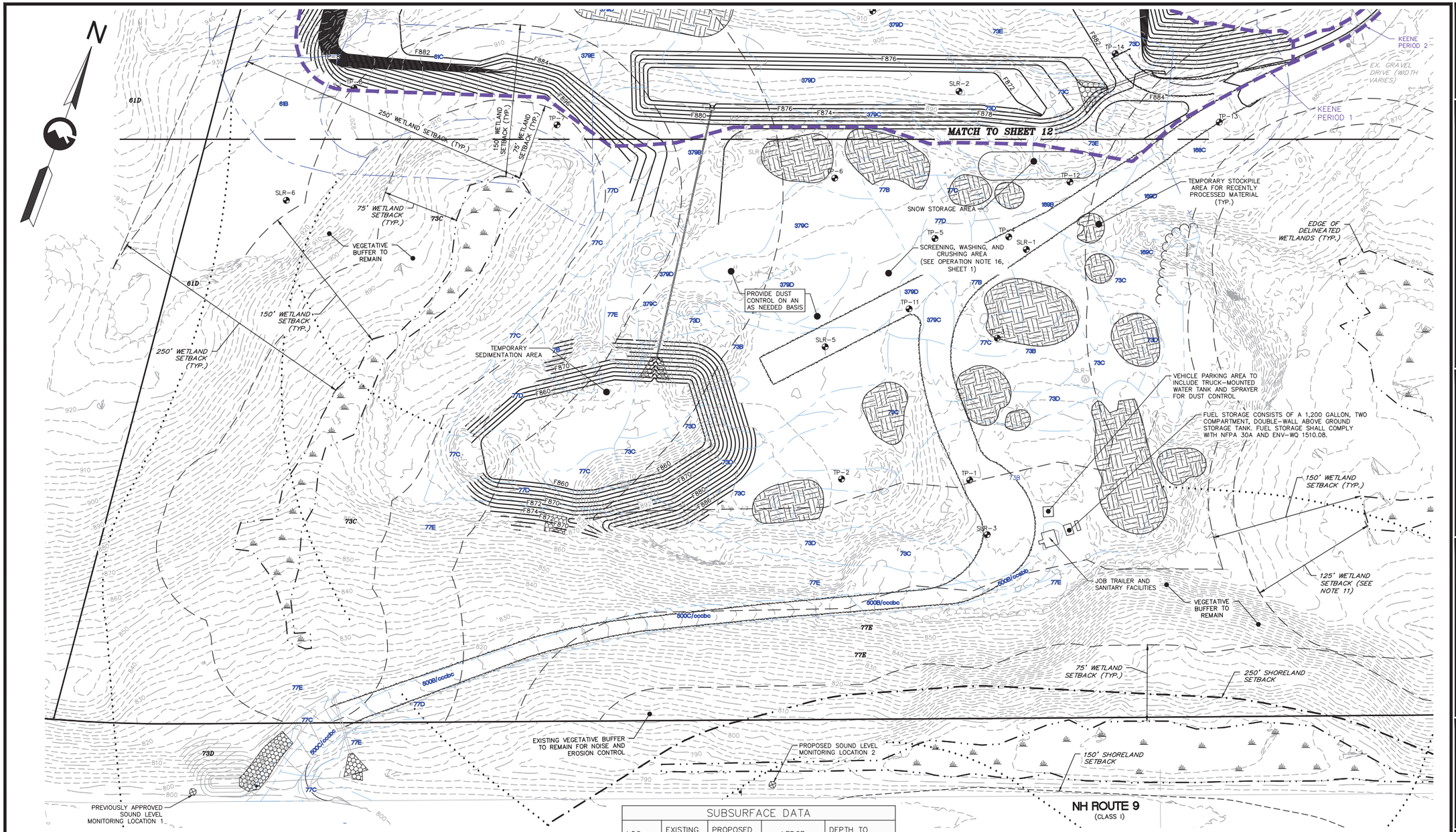

SEE SHEET 1 FOR OPERATION NOTES (TYP.)

SEE SHEET 12 FOR IMPACT CONTROL & MONITORING PLAN NOTES (TYP.)

LOAM & SEED ALL DISTURBED AREAS (TYP.)

SSSS LEGEND (SURVEYED BY THOMAS SOKOLOSKI)

		HYDROLOGIC SOIL GROUP
73B	BERKSHIRE FINE SANDY LOAM, 0–8% SLOPES, VERY STONY	B
73C	BERKSHIRE FINE SANDY LOAM, 8–15% SLOPES, VERY STONY	B
73D	BERKSHIRE FINE SANDY LOAM, 15–25% SLOPES, VERY STONY	B
73E	BERKSHIRE FINE SANDY LOAM, 25%+ SLOPES , VERY STONY	B
77B	BERKSHIRE FINE SANDY LOAM, 0–8% SLOPES, VERY STONY	C
77C	BERKSHIRE FINE SANDY LOAM, 8–15% SLOPES, VERY STONY	C
77D	BERKSHIRE FINE SANDY LOAM, 15–25% SLOPES, VERY STONY	C
77E	BERKSHIRE FINE SANDY LOAM, 25%+ SLOPES, VERY STONY	C
169B	SUNAPEE FINE SANDY LOAM, 0–8% SLOPES, VERY STONY	B
169C	SUNAPEE FINE SANDY LOAM, 8–15% SLOPES, VERY STONY	B
169D	SUNAPEE FINE SANDY LOAM, 15–25% SLOPES, VERY STONY	B
379B	DIXFIELD FINE SANDY LOAM, 0–8% SLOPES, VERY STONY	C
379C	DIXFIELD FINE SANDY LOAM, 8–15% SLOPES, VERY STONY	C
379D	DIXFIELD FINE SANDY LOAM, 15–25% SLOPES, VERY STONY	C
500B/ccabb	UDORTHENTS, LOAMY, 0–8% SLOPES	B
500B/ccabb	UDORTHENTS, LOAMY, 0–8% SLOPES	B
500B/ccabb	URBAN LAND, 8–15% SLOPES	B

SUBSURFACE DATA

LOG	EXISTING GROUND	PROPOSED GRADE	LEDGE	DEPTH TO GROUNDWATER
T-1	881	854.5	NONE TO 867.0	---
T-2	878	854.5	NONE TO 863.0	---
TP-3	872	855.5	NONE TO 858.0	---
TP-4	874.5	870	NONE TO 859.5	---
TP-5	882	876	NONE TO 869.0	---
TP-6	887	887	NONE to 873.0	---
TP-7	893	893	881'	---
TP-8	916	916	913	---
TP-9	927	927	918	---
TP-10	910	910	904.5	---
TP-11	881	865	867	---
TP-12	875	875	867	---
TP-13	882	882	876	---
TP-14	903	903	897	---
TP-15	942	942	936	---
TP-16	980	980	975	---
SLR-1	874	865	NONE TO 853.5	---
SLR-2	894	894	889	---
SLR-3	867	852	NONE TO 842	---
SLR-4	888	888	873	---
SLR-5	890	886	862	---
SLR-6	920	920	910	---
SLR-10	884	854	NONE TO 829.0	42.9
SLR-11	871.5	855	NONE TO 795.5	NONE TO 45.2
SLR-12	888.5	888.5	877.5	1.5

SUBSURFACE DATA FROM TEST PIT, BORING, AND WELL INSTALLATION LOGS CONTAINED IN THE LIMITED GEOHYDROLOGIC INVESTIGATION BY SLR INTERNATIONAL CORPORATION, DATED MARCH 25, 2022.

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- SOILS SURVEYED BY THOMAS SOKOLOSKI
- SOILS SURVEYED BY LUKE HURLEY
- NRCS SOILS
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KEENE

TITLE:
IMPACT CONTROL & MONITORING PLAN

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23-0201-1	MAY 9, 2025	HORIZ. 1"=50'
SHEET:	11 OF 23	

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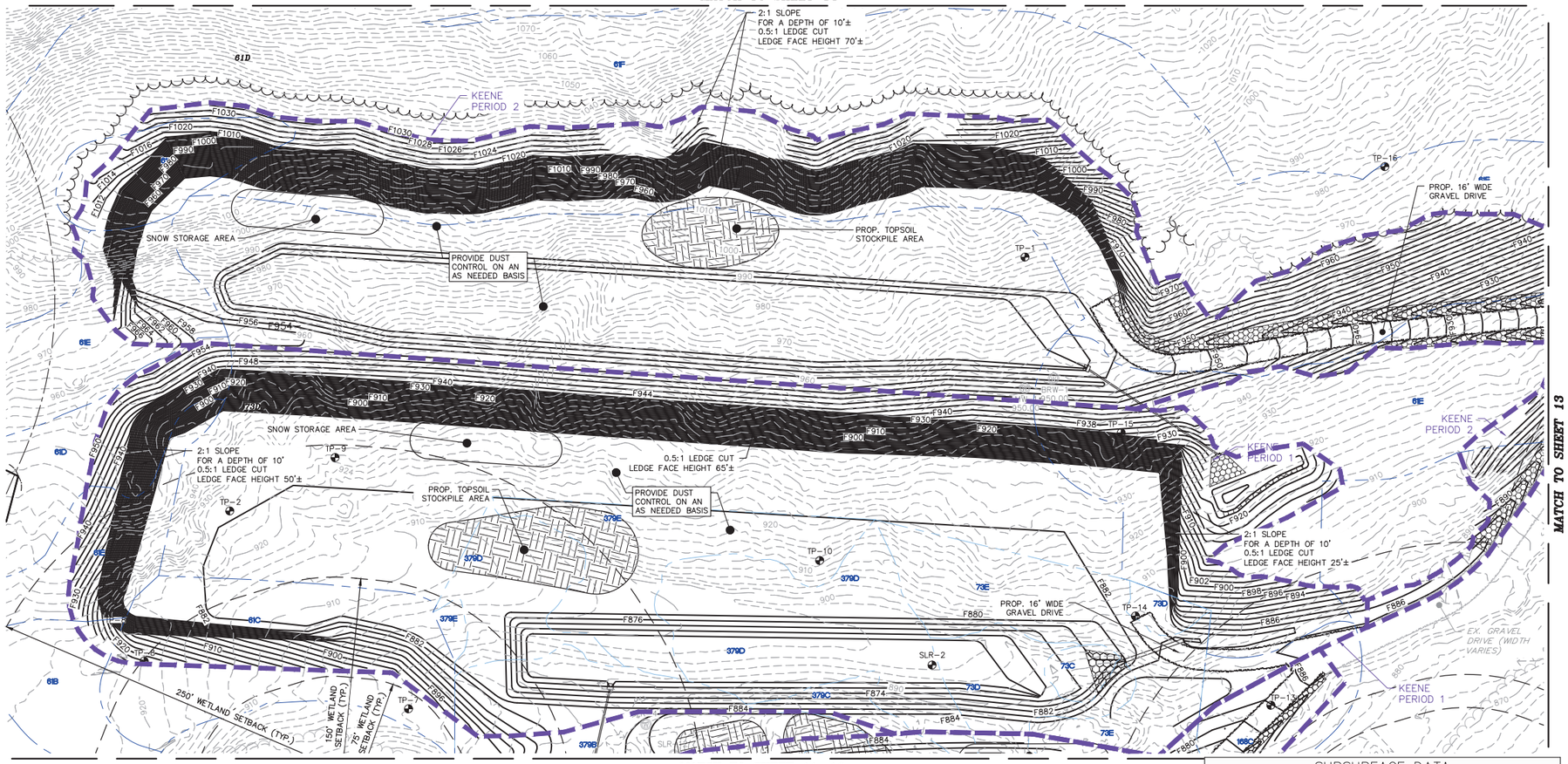

LEGEND

- ABUTTER LINE
- PROPERTY LINE
- EXCAVATION SETBACK LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- PROPOSED EDGE OF GRAVEL
- WETLANDS BOUNDARY
- WETLAND BUFFER
- SOILS SURVEYED BY THOMAS SOKOLOSKI
- SOILS SURVEYED BY LUKE HURLEY
- NRCS SOILS
- EX./PROP. TREELINE
- PROP. GRADE LINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- PERIOD LINE
- TOWN LINE

DIG SAFE
811
UTILITIES UNDERGROUND
CALL TOLL FREE
DAMAGE PREVENTION SYSTEM

NOISE IMPACT CONTROL AND MONITORING NOTES:

1. 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)').
2. 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.
3. 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.
   A. 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.
   B. 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.
   C. 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)').
4. AMBIENT SOUND LEVELS: THE BACKGROUND AMBIENT SOUND LEVELS SHALL BE MEASURED PRIOR TO THE COMMENCEMENT OF THE INITIAL OPERATION.
   A. 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.
   B. 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.
5. ONGOING MONITORING: THE APPLICANT SHALL MONITOR AT THE SELECTED MONITORING LOCATIONS THE SOUND LEVELS GENERATED BY THE OPERATION, AS FOLLOWS.
   A. 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.
   B. 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.
   C. 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.
   D. 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.
6. COMPLAINTS REGARDING THE LEVEL OF NOISE GENERATED FROM EXCAVATION OPERATIONS SHALL BE RESOLVED PER THE PROCEDURES OUTLINED IN 24.3.15.E OF THE CITY OF KEENE LAND DEVELOPMENT CODE.

HAZARDOUS AND TOXIC SPILL RESPONSE NOTES:

1. SPILL CONTROL PRACTICES ARE OUTLINED IN THE STORMWATER POLLUTION PREVENTION PLANS (SWPPP).
2. THE CHEMICALS EMPLOYED ON-SITE WILL VARY THROUGHOUT THE EXCAVATION PROCESS, PRIMARILY CONSISTING OF PETROLEUM-BASED OILS, LUBRICANTS, AND GASOLINE-BASED FUELS. THESE SUBSTANCES MUST BE STORED SECURELY IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND MUST BE ACCOMPANIED BY MATERIAL SAFETY DATA SHEETS AND SPILL RESPONSE MATERIALS.
3. STRICT PRECAUTIONS MUST BE TAKEN DURING ON-SITE FUELING OPERATIONS TO PREVENT SPILLS AND OVERFILLING.

LOAM & SEED ALL DISTURBED AREAS (TYP.)

SEE SHEET 1 FOR OPERATION NOTES (TYP.)

SEE SHEET 4 FOR EROSION CONTROL NOTES (TYP.)

DUST CONTROL & MONITORING NOTES:

1. THE SITE SHALL OPERATE IN A MANNER THAT PREVENTS FUGITIVE DUST EMISSIONS PUSUANT TO NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES ENV-A 1002, FUGITIVE DUST.
2. DUST CONTROL PRACTICES ARE OUTLINED IN THE STORMWATER POLLUTION PREVENTION PLANS (SWPPP).
3. 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. DUST CONTROL WILL BE ACCOMPLSHED USING A TRUCK-MOUNTED WATER TANK AND SPRAY SYSTEM AS NEEDED.
   D. INSPECTION OF ACCESS DRIVEWAY STABILIZED CONSTRUCTION ENTRANCES AND OTHER EROSION CONTROL MEASURES, 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.
   E. 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. THE OPERATION AND MAINTENANCE MANUAL, LOCATED WITHIN THE STORMWATER MANAGEMENT REPORT, SHALL BE USED FOR INSTURCTIONS OF HOW TO INSPECT AND MAINTAIN EROSION AND SEDIMENT CONTROL PRACTICES.

FUELING NOTES:

1. FUELING AND MAINTENANCE OF EQUIPMENT OR VEHICLE PRACTICES ARE OUTLINED IN THE STORMWATER POLLUTION PREVENTION PLANS (SWPPP).
2. FUELS AND REGULATED SUBSTANCES WILL BE STORED IN A SEALED AND CLEARED LABELED CONTAINER WITHIN THE ENCLOSED CHEMICAL STORAGE AREA.
3. THE ENCLOSED CHEMICAL STORAGE AREA WILL BE STABLE, LEVEL AND IMPERVIOUS.
4. SECONDARY CONTAINMENT WILL BE PROVIDED FOR FUELING ACTIVITIES ON SITE.
5. MOBILE FUELING WILL BE USED DURING EXCAVATION ACTIVITIES.
6. ALL FUELING AND STORAGE OF FUELS ON SITE WILL COMPLY WITH STATE AND FEDERAL REQUIREMENTS.
7. EMPLOYEES WHO PARTAKE IN FUELING ACTIVITIES SHALL BE TRAINED ON SPILL PREVENTION AND CONTROL.
8. ANY SPILL THAT IS: 25 GALLONS OR MORE, NOT IMMEDIATELY CONTAINED, REMOVED WITHIN 24-HRS, A POTENTIAL SURFACE WATER OR GROUNDWATER IMPACT, SHALL BE REPORTED TO NHDES AT (603) 271-3899 OR STATE POLICE AT (603) 223-4381.
9. CONTAMINATED SOILS OR MATERIALS SHALL BE STORED AND DISPOSED OF IN ACCORDANCE WITH ALL STATE AND FEDERAL REQUIREMENTS. CONTACT NHDES HAZARDOUS WASTE MANAGEMENT BUREAU'S COMPLIANCE SECTION AT (603) 271-2942 FOR INFORMATION REGARDING HAZARDOUS MATERIALS.
10. THE CHEMICAL STORAGE AREA SHALL BE KEPT LOCKED WHEN NOT IN USE.
11. ALL FUELING RELATED ACTIVITIES SHALL BE AT LEAST 50' AWAY FROM ANY CATCH BASIN OR SURFACE WATER.

SUBSURFACE DATA

LOG	EXISTING GROUND	PROPOSED GRADE	LEDGE	DEPTH TO GROUNDWATER
T-1	881	854.5	NONE TO 867.0	---
T-2	878	854.5	NONE TO 863.0	---
TP-3	872	855.5	NONE TO 858.0	---
TP-4	874.5	870	NONE TO 859.5	---
TP-5	882	876	NONE TO 869.0	---
TP-6	887	887	NONE to 873.0	---
TP-7	893	893	881'	---
TP-8	916	916	913	---
TP-9	927	927	918	---
TP-10	910	910	904.5	---
TP-11	881	865	867	---
TP-12	875	875	867	---
TP-13	882	882	876	---
TP-14	903	903	897	---
TP-15	942	942	936	---
TP-16	980	980	975	---
SLR-1	874	865	NONE TO 853.5	---
SLR-2	894	894	889	---
SLR-3	867	852	NONE TO 842	---
SLR-4	888	888	873	---
SLR-5	890	886	862	---
SLR-6	920	920	910	---
SLR-10	884	854	NONE TO 829.0	42.9
SLR-11	871.5	855	NONE TO 795.5	NONE TO 45.2
SLR-12	888.5	888.5	877.5	1.5

SUBSURFACE DATA FROM TEST PIT, BORING, AND WELL INSTALLATION LOGS CONTAINED IN THE LIMITED GEOHYDROLOGIC INVESTIGATION BY SLR INTERNATIONAL CORPORATION, DATED MARCH 25, 2022.

DEICING NOTES:

A. RECORDS FOR TRACKING THE USE OF SALT AND OTHER DEICERS FOR EACH STORM EVENT SHALL BE MAINTAINED UNTIL ALL AREAS HAVE BEEN RECLAIMED. THE DEICING APPLICATION RATE GUIDELINES SHALL FOLLOW THE RECOMMENDATIONS IN THE NH STORMWATER MANUAL: VOLUME 2, LATEST EDITION.

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

NRCS SOILS LEGEND

22	COLTON GRAVELLY SANDY LOAM, RATED A
60	TUNBRIDGE-BERKSHIRE COMPLEX, RATED C
61	TUNBRIDGE-LYMAN-ROCK OUTCROP COMPLEX, RATED C
73	BERKSHIRE FINE SANDY LOAM, RATED B
77	MARLOW FINE SANDY LOAM, VERY STONY, RATED C
161	LYMAN-TUNBRIDGE-ROCK OUTCROP COMPLEX, RATED D
169	SUNAPEE FINE SANDY LOAM, RATED C

SITE SPECIFIC SOIL SURVEY NOTES:

THIS MAP PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT, INTENDED FOR INFILTRATION REQUIREMENTS BY THE NH DES ALTERATION OF TERRAIN BUREAU. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST, AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE. THERE IS A REPORT THAT ACCOMPANIES THIS MAP.

THE SITE SPECIFIC SOIL SURVEY (SSSS) WAS PRODUCED JULY 15, 2024, AND WAS PREPARED BY LUKE HURLEY, CSS #0095M, HURLEY ENVIRONMENTAL AND LAND PLANNING, LLC.

SOILS WERE IDENTIFIED WITH THE NEW HAMPSHIRE STATE-WIDE NUMERICAL SOILS LEGEND, USDA NRCS, DURHAM, NH. ISSUE #10, JANUARY 2011. THE NUMERIC LEGEND WAS AMENDED TO IDENTIFY THE CORRECT SOIL COMPONENTS OF THE COMPLEX.

HYDROLOGIC SOIL GROUP FROM KSAT VALUES FOR NEW HAMPSHIRE SOILS, SOCIETY OF SOIL SCIENTIST OF NEW ENGLAND, SPECIAL PUBLICATION NO. 5, SEPTEMBER, 2009.

HYDROLOGIC SSSM SYM.	SSS MAP NAME	HISS SYM.	SOIL GRP
168	SUNAPEE	321	B
61	TURNBRIDGE LYMAN ROCK OUTCROP	224/227	C
92	LYMAN	224	D

SLOPE PERIOD:
0-8% B 8-15% C 15-25% D 25%+ E

REVISIONS			
No.	DATE	COMMENTS	BY
1	12/20/24	PROJECT SUBMITTAL	JD
2	2/3/25	REVISED PER CITY COMMENTS	JD
3	5/9/25	REVISED PER CITY COMMENTS	JD

OWNER/APPLICANT:
62 HOLDINGS, LLC
250 NORTH STREET
JAFFREY, NH 03452

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Manchester,
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STAMP:

STATE OF NEW HAMPSHIRE
BRENTON
COLE
No. 14744
2/3/25
LICENSED
PROFESSIONAL ENGINEER

STATE OF NEW HAMPSHIRE
LUKE
SHURLEY
No. 0095
7/5/24
CERTIFIED SOIL SCIENTIST

LOCATION:
KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES
KEENE

TITLE:
IMPACT CONTROL & MONITORING PLAN

PROJECT No.	DATE:	SCALE:
23-0201-1	MAY 9, 2025	HORIZ. 1"=50'
SHEET: 12 OF 23		

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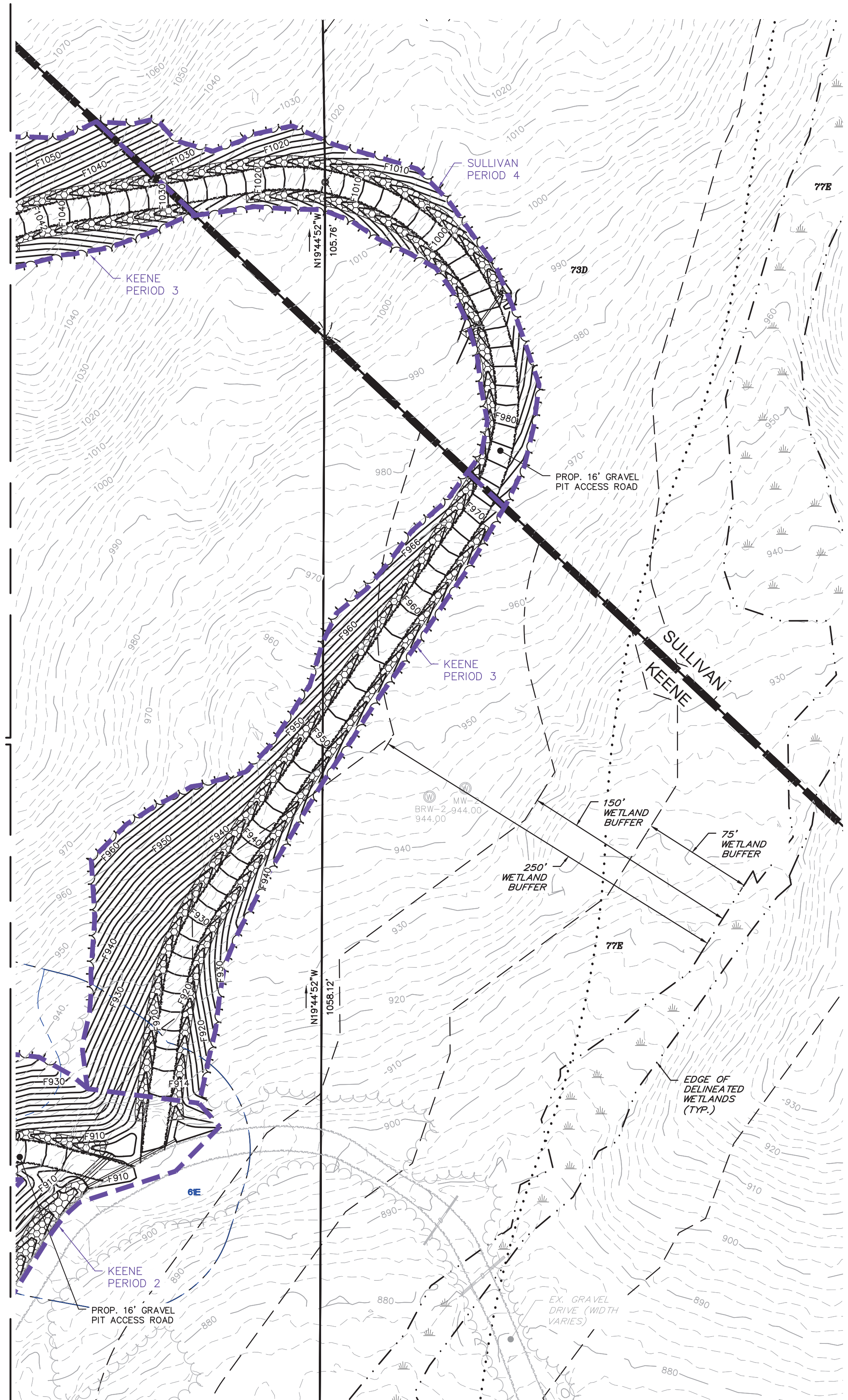

SEE SHEET 1 FOR OPERATION NOTES (TYP.)

SEE SHEET 12 FOR IMPACT CONTROL & MONITORING PLAN NOTES (TYP.)

LOAM & SEED ALL DISTURBED AREAS (TYP.)

N

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SSSM SYM.	SSS MAP NAME	HISS SYM.	HYDROLOGIC SOIL GRP.
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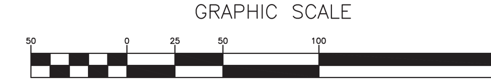
STATE OF NEW HAMPSHIRE
LUKE D HURLEY
NO. 095
CERTIFIED SOIL SCIENTIST
7/5/24

DIG SAFE
RI–ME–NH–VT–MA
CALL TOLL FREE
811
UTILITIES UNDERGROUND DAMAGE PREVENTION SYSTEM

GRAPHIC SCALE



(IN FEET)
1 inch = 50 ft.

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REVISIONS

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250 NORTH STREET
JAFFREY, NH 03452

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Manchester,
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PROJECT:
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TITLE:
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PROJECT No.	DATE:	SCALE:
23–0201–1	MAY 9, 2025	HORIZ. 1"=50'
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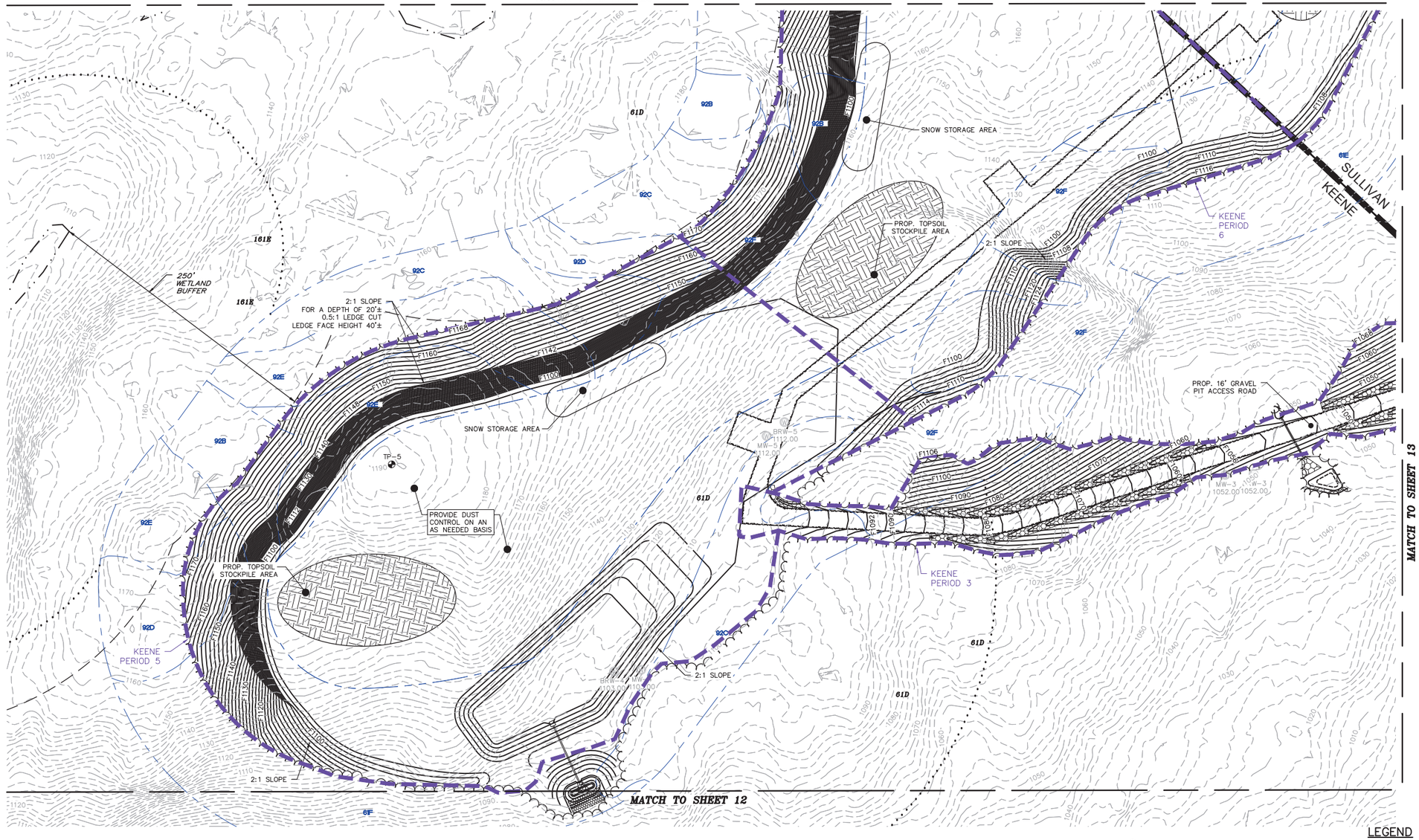

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STATE OF NEW HAMPSHIRE LUKE D. HURLEY No. 095M 7/15/24 LICENSED SOIL SCIENTIST

SEE SHEET 12 FOR IMPACT CONTROL & MONITORING PLAN NOTES (TYP.)

SEE SHEET 1 FOR OPERATION NOTES (TYP.)

LOAM & SEED ALL DISTURBED AREAS (TYP.)

DIG SAFE — 811 — CALL TOLL FREE — DAMAGE PREVENTION SYSTEM — UTILITIES UNDERGROUND — RI-SAFE-DIG-811-MA

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(IN FEET)
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- EX. MINOR CONTOUR
- PERIOD LINE
- TOWN LINE

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3	5/9/25	REVISED PER CITY COMMENTS	JD

OWNER/APPLICANT:
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250 NORTH STREET
JAFFREY, NH 03452

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STAMP:
STATE OF NEW HAMPSHIRE BRENTON S. COLE No. 14744 6/3/25 LICENSED PROFESSIONAL ENGINEER

LOCATION:
KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES KEENE

TITLE:
IMPACT CONTROL & MONITORING PLAN

PROJECT No.	DATE:	SCALE:
23-0201-1	MAY 9, 2025	HORIZ. 1"=50'
SHEET: 14 OF 23		

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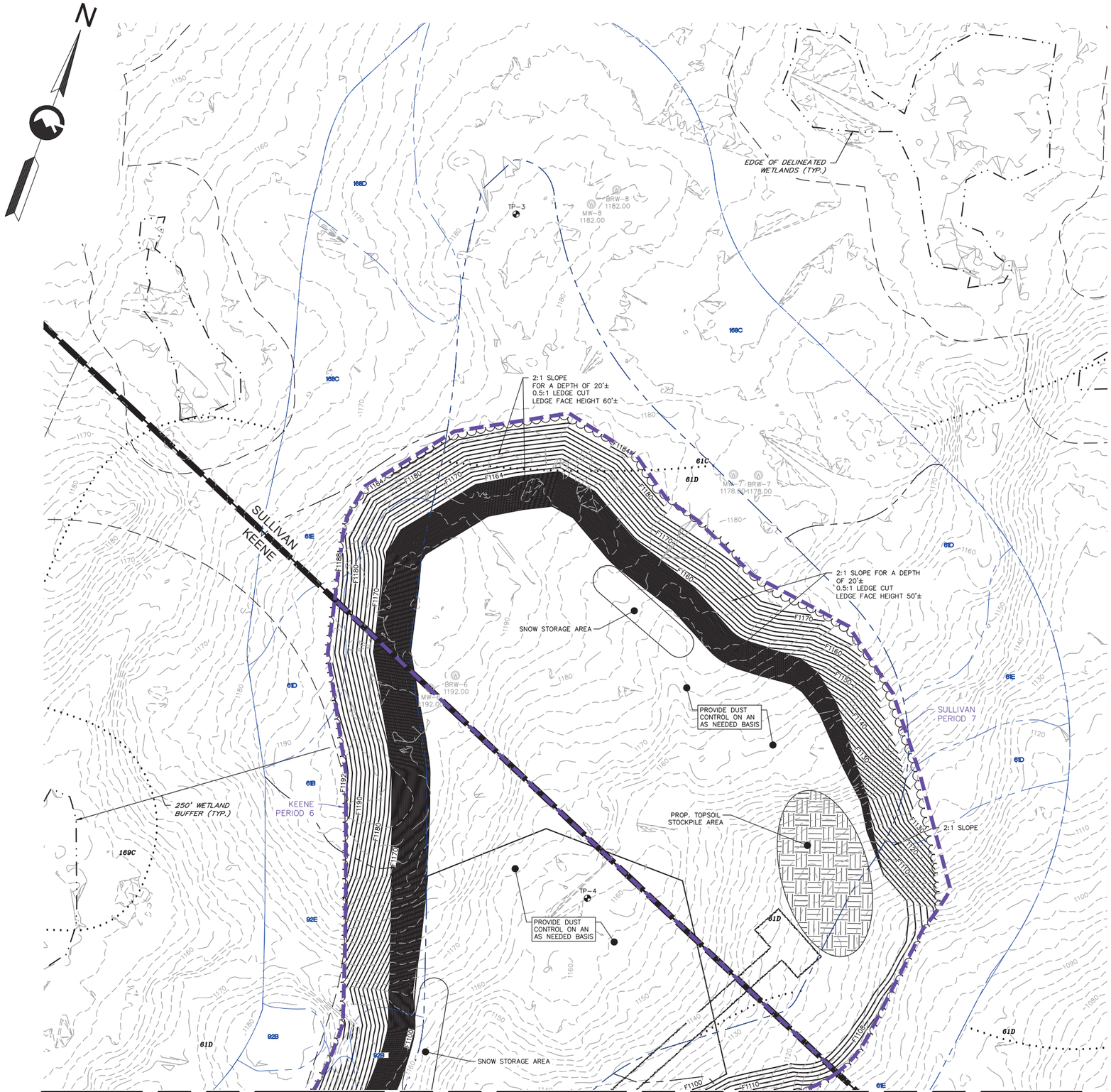

SITE SPECIFIC SOIL SURVEY NOTES:

THIS MAP PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT, INTENDED FOR INFILTRATION REQUIREMENTS BY THE NH DES ALTERATION OF TERRAIN BUREAU. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST, AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE. THERE IS A REPORT THAT ACCOMPANIES THIS MAP.

THE SITE SPECIFIC SOIL SURVEY (SSSS) WAS PRODUCED JULY 15, 2024, AND WAS PREPARED BY LUKE HURLEY, CSS #095M, HURLEY ENVIRONMENTAL AND LAND PLANNING, LLC.

SOILS WERE IDENTIFIED WITH THE NEW HAMPSHIRE STATE-WIDE NUMERICAL SOILS LEGEND, USDA NRCS, DURHAM, NH. ISSUE #10, JANUARY 2011. THE NUMERIC LEGEND WAS AMENDED TO IDENTIFY THE CORRECT SOIL COMPONENTS OF THE COMPLEX.

HYDROLOGIC SOIL GROUP FROM KSAT VALUES FOR NEW HAMPSHIRE SOILS, SOCIETY OF SOIL SCIENTIST OF NEW ENGLAND, SPECIAL PUBLICATION NO. 5, SEPTEMBER, 2009.

HYDROLOGIC SSSM SYM.	SSS MAP NAME	HISS SYM.	SOIL GRP.
168	SUNAPEE	321	B
61	TURNBRIDGE LYMAN ROCK OUTCROP	224/227	C
92	LYMAN	224	D

SLOPE PERIOD:
0-8% B 8-15% C 15-25% D 25%+ E

STATE OF NEW HAMPSHIRE
LUKE D. HURLEY
NO. 095
CERTIFIED SOIL SCIENTIST

NRCS SOILS LEGEND

22	COLTON GRAVELLY SANDY LOAM, RATED A
60	TUNBRIDGE-BERKSHIRE COMPLEX, RATED C
61	TUNBRIDGE-LYMAN-ROCK OUTCROP COMPLEX, RATED C
73	BERKSHIRE FINE SANDY LOAM, RATED B
77	MARLOW FINE SANDY LOAM, VERY STONY, RATED C
161	LYMAN-TUNBRIDGE-ROCK OUTCROP COMPLEX, RATED D
169	SUNAPEE FINE SANDY LOAM, RATED C

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UTILITIES UNDERGROUND

SEE SHEET 12 FOR IMPACT CONTROL & MONITORING PLAN NOTES (TYP.)

SEE SHEET 1 FOR OPERATION NOTES (TYP.)

LOAM & SEED ALL DISTURBED AREAS (TYP.)

LEGEND

- ABUTTER LINE
- PROPERTY LINE
- EXCAVATION SETBACK LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- PROPOSED EDGE OF GRAVEL
- WETLANDS BOUNDARY
- WETLAND BUFFER
- SOILS SURVEYED BY THOMAS SOKOLOSKI
- SOILS SURVEYED BY LUKE HURLEY
- NRCS SOILS
- EX./PROP. TREELINE
- PROP. GRADE LINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- PERIOD LINE
- TOWN LINE

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

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GORDON SERVICES
KEENE

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23-0201-1	MAY 9, 2025	HORIZ. 1"=50'
SHEET: 15 OF 23		

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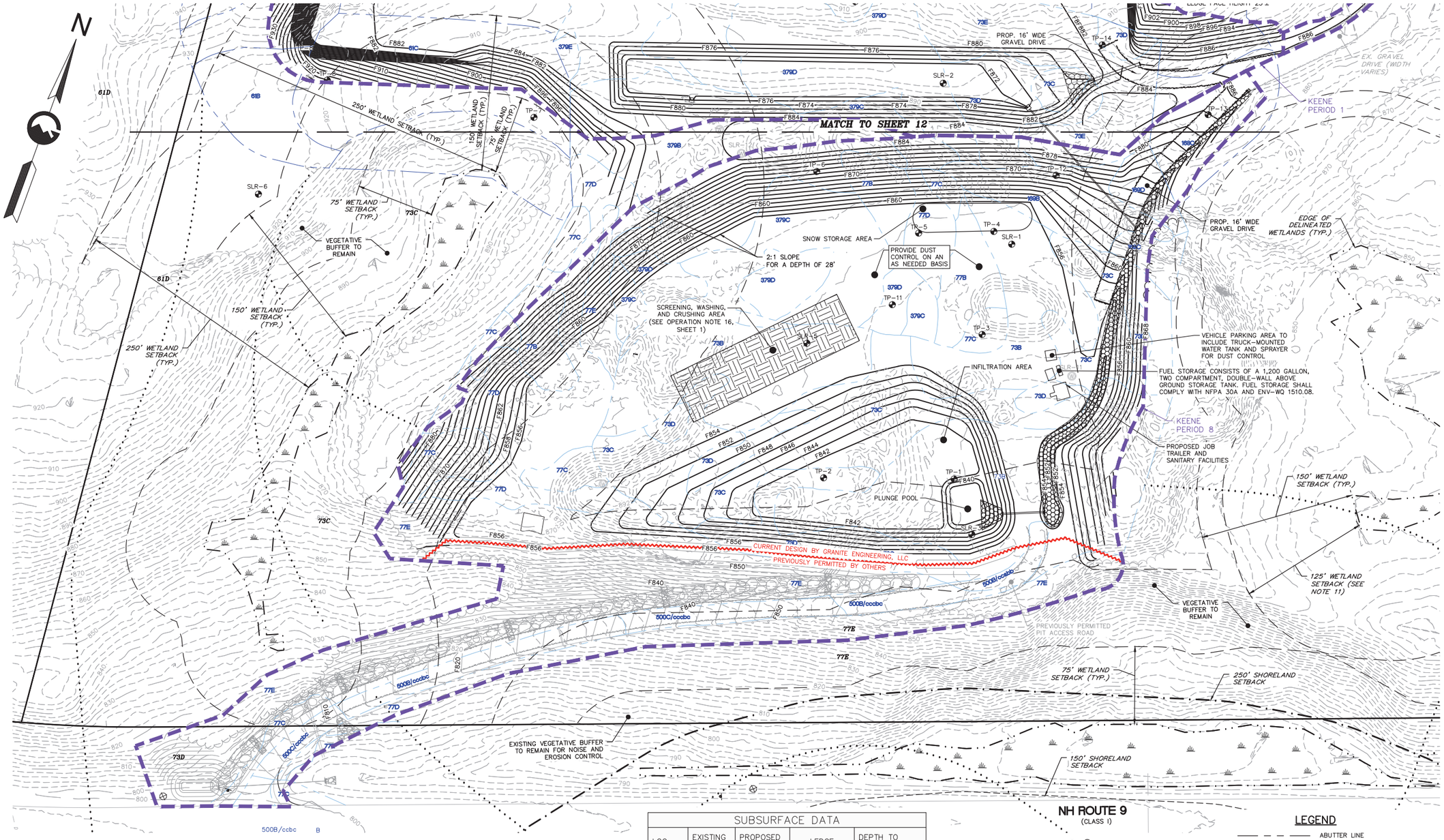

SEE SHEET 1 FOR OPERATION NOTES (TYP.)

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LOAM & SEED ALL DISTURBED AREAS (TYP.)

SSSS LEGEND (SURVEYED BY THOMAS SOKOLOSKI)

		HYDROLOGIC SOIL GROUP
73B	BERKSHIRE FINE SANDY LOAM, 0–8% SLOPES, VERY STONY	B
73C	BERKSHIRE FINE SANDY LOAM, 8–15% SLOPES, VERY STONY	B
73D	BERKSHIRE FINE SANDY LOAM, 15–25% SLOPES, VERY STONY	B
73E	BERKSHIRE FINE SANDY LOAM, 25%+ SLOPES , VERY STONY	B
77B	BERKSHIRE FINE SANDY LOAM, 0–8% SLOPES, VERY STONY	C
77C	BERKSHIRE FINE SANDY LOAM, 8–15% SLOPES, VERY STONY	C
77D	BERKSHIRE FINE SANDY LOAM, 15–25% SLOPES, VERY STONY	C
77E	BERKSHIRE FINE SANDY LOAM, 25%+ SLOPES, VERY STONY	C
159B	SUNAPEE FINE SANDY LOAM, 0–8% SLOPES, VERY STONY	B
159C	SUNAPEE FINE SANDY LOAM, 8–15% SLOPES, VERY STONY	B
159D	SUNAPEE FINE SANDY LOAM, 15–25% SLOPES, VERY STONY	B
379B	DIXFIELD FINE SANDY LOAM, 0–8% SLOPES, VERY STONY	C
379C	DIXFIELD FINE SANDY LOAM, 8–15% SLOPES, VERY STONY	C
379D	DIXFIELD FINE SANDY LOAM, 15–25% SLOPES, VERY STONY	C
500B/ccabb	UDORTHENTS, LOAMY, 0–8% SLOPES	B
500B/ccabb	UDORTHENTS, LOAMY, 0–8% SLOPES	B
500B/ccabb	URBAN LAND, 8–15% SLOPES	B

SUBSURFACE DATA

LOG	EXISTING GROUND	PROPOSED GRADE	LEDGE	DEPTH TO GROUNDWATER
T–1	881	854.5	NONE TO 867.0	---
T–2	878	854.5	NONE TO 863.0	---
TP–3	872	855.5	NONE TO 858.0	---
TP–4	874.5	870	NONE TO 859.5	---
TP–5	882	876	NONE TO 869.0	---
TP–6	887	887	NONE to 873.0	---
TP–7	893	893	881'	---
TP–8	916	916	913	---
TP–9	927	927	918	---
TP–10	910	910	904.5	---
TP–11	881	865	867	---
TP–12	875	875	867	---
TP–13	882	882	876	---
TP–14	903	903	897	---
TP–15	942	942	936	---
TP–16	980	980	975	---
SLR–1	874	865	NONE TO 853.5	---
SLR–2	894	894	889	---
SLR–3	867	852	NONE TO 842	---
SLR–4	888	888	873	---
SLR–5	890	886	862	---
SLR–6	920	920	910	---
SLR–10	884	854	NONE TO 829.0	42.9
SLR–11	871.5	855	NONE TO 795.5	NONE TO 45.2
SLR–12	888.5	888.5	877.5	1.5

SUBSURFACE DATA FROM TEST PIT, BORING, AND WELL INSTALLATION LOGS CONTAINED IN THE LIMITED GEOHYDROLOGIC INVESTIGATION BY SLR INTERNATIONAL CORPORATION, DATED MARCH 25, 2022.

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LEGEND

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GRAPHIC SCALE

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(IN FEET)
1 inch = 50 ft.

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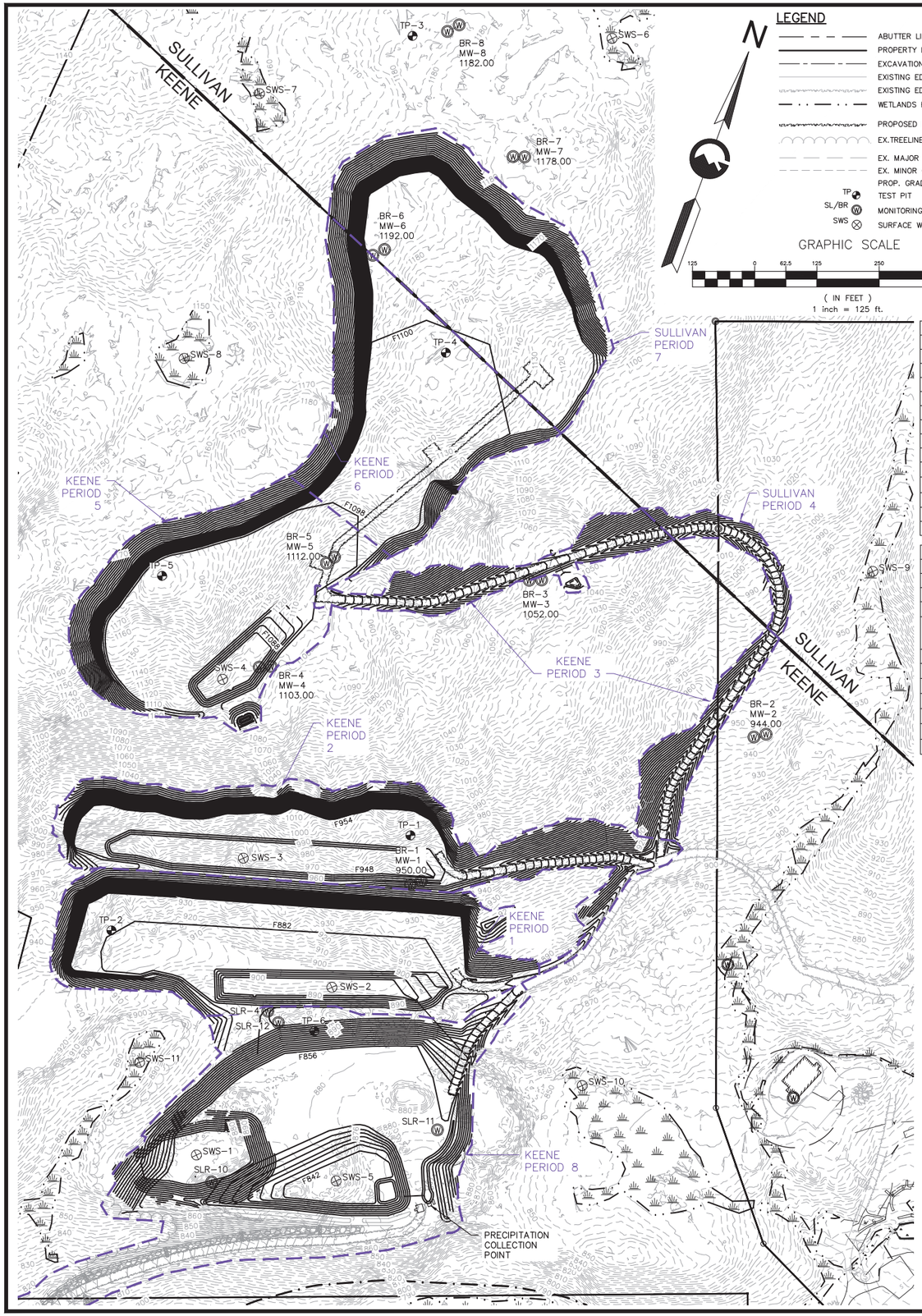

LEGEND

- ABUTTER LINE
- PROPERTY LINE
- EXCAVATION SETBACK LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- WETLANDS BOUNDARY
- PROPOSED EDGE OF GRAVEL
- EX.TREELINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- PROP. GRADE LINE
- TP — TEST PIT
- SL/BR — MONITORING WELL
- SWS — SURFACE WATER SAMPLE LOCATION

GRAPHIC SCALE

125 0 62.5 125 250 500

(IN FEET)
1 inch = 125 ft.

ACID ROCK DRAINAGE (ARD) MONITORING		
MONITORING LOCATION	TESTING MONTHS	FREQUENCY
SLR–10	APRIL & OCTOBER	BI–ANNUALLY
SLR–11	APRIL & OCTOBER	BI–ANNUALLY
SLR–12	APRIL & OCTOBER	BI–ANNUALLY
BR–1	APRIL & OCTOBER	BI–ANNUALLY
BR–2	APRIL & OCTOBER	BI–ANNUALLY
BR–3	APRIL & OCTOBER	BI–ANNUALLY
BR–4	APRIL & OCTOBER	BI–ANNUALLY
BR–5	APRIL & OCTOBER	BI–ANNUALLY
BR–6	APRIL & OCTOBER	BI–ANNUALLY
BR–7	APRIL & OCTOBER	BI–ANNUALLY
BR–8	APRIL & OCTOBER	BI–ANNUALLY
SWS–1	APRIL & OCTOBER	BI–ANNUALLY UNTIL START OF PERIOD 8
SWS–2	APRIL & OCTOBER	BI–ANNUALLY AFTER START OF PERIOD 1
SWS–3	APRIL & OCTOBER	BI–ANNUALLY AFTER START OF PERIOD 21
SWS–4	APRIL & OCTOBER	BI–ANNUALLY AFTER START OF PERIOD 5
SWS–5	APRIL & OCTOBER	BI–ANNUALLY AFTER START OF PERIOD 8

WATER LEVEL MONITORING	
MONITORING LOCATION	FREQUENCY
SLR–10	MONTHLY
SLR–11	MONTHLY
SLR–12	MONTHLY
MW–2	MONTHLY
MW–4	MONTHLY
BR–7	MONTHLY
BR–8	MONTHLY
SWS–6	MONTHLY
SWS–7	MONTHLY
SWS–8	MONTHLY
SWS–9	MONTHLY
SWS–10	MONTHLY
SWS–11	MONTHLY

AMD FORMATION STANDARDS	
ANALYTE	STANDARD
SPECIFIC CONDUCTANCE	NO STANDARD
OXIDATION REDUCTION POTENTIAL	NO STANDARD
DISSOLVED OXYGEN	75%/5 mg/L
TURBIDITY	10 NTU (BEYOND NATURALLY OCCURRING CONDITIONS)
pH	6.0 SU
ARSENIC	5 µg/L
COPPER	1,300 µg/L
IRON	300 µg/L
MANGANESE	300 µg/L
NICKEL	100 µg/L
LEAD	15 µg/L

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TEST PITS

ID	EXISTING GRADE	LEDGE	GROUNDWATER	E.S.H.W.T.
TP–1	986.0	3.1'	NONE FOUND	NONE FOUND
TP–2	926.0	NONE	NONE FOUND	20"
TP–3	1180.0	NONE	NONE FOUND	NONE FOUND
TP–4	1158.0	NONE	NONE FOUND	32"
TP–5	1190.0	0.5'	NONE FOUND	NONE FOUND
TP–6	887.0	873.0	NONE FOUND	NONE FOUND

OVERBURDEN WELLS

WELL	EXISTING GRADE	LEDGE	GROUNDWATER
MW–1	950.0	3.3'	NONE FOUND
MW–2	944.0	12'	NONE FOUND
M3–3	1052.0	14.2'	NONE FOUND
MW–4	1103.0	3.1'	NONE FOUND
MW–5	1112.0	5'	NONE FOUND
MW–6	1192.0	0.9'	NONE FOUND
MW–7	1178.0	1.9'	NONE FOUND
MW–8	1182.0	1.1'	NONE FOUND

Well	Ground Elevation (ft AMSL)	Bedrock Depth (feet)	Depth/Bottom Elevation (feet/ ft AMSL)	Proposed Pit Floor Elevation (ft AMSL)	Groundwater Elevation (ft AMSL)
BRW-1	950	3	54/896	950	DRY
BRW-2	944	12	62/882	940	DRY
BRW-3	1052	14	51/1,001	1,050	DRY
BRW-4	1,103	3	81/1,022	1,098	DRY
BRW-5	1,112	3	141/971	1,098	DRY
BRW-6	1,192	1	142/1,050	1,098	DRY
BRW-7	1,178	1.9	141/1,037	1,098*	1,177.04
BRW-8	1,182	1	141/1,041	1,098*	1,179.16

*Well is located outside of project area. The pit floor elevation that is noted is the proposed elevation of the nearest excavation.

ON–SITE WATER QUALITY MONITORING NOTES (ARD MONITORING)

1. PH, SPECIFIC CONDUCTANCE, OXIDATION, REDECTION POTENTIAL, DISSOLVED OXYGEN AND TURBITY AND LABRATORY ANALYSIS OF DISSOLVED AND TOTAL METALS INCLUDING; ARSENIC, COPPER, IRON, MAGNESE, NICKEL AND LEAD WILL BE TESTED AT EACH LOCATION

INITIAL RESPONSE ACTION – AMD DETECTION

IF A SURFACE AND/OR GROUNDWATER SAMPLING LOCATION PRESENTS RESULTS THAT ARE INDICATIVE OF THE FORMATION OF ACID MINE DRAINAGE, NHDES AND THE CITY OF KEENE WILL BE NOTIFIED IMMEDIATELY. FURTHERMORE, THE FOLLOWING IMMEDIATE INITIAL RESPONSE ACTIONS WILL BE IMPLEMENTED.

1. ALL ACTIVE QUARRYING/MINING OPERATIONS OCCURRING IN THE AFFECTED AREA WILL CEASE AND EXPOSED BEDROCK SURFACES SHALL BE EXPEDITIOUSLY RESTORED TO HAVE A MINIMUM THICKNESS OF 3–FEET OF COVER MATERIAL. THE COVER MATERIAL SHALL CONSIST OF A MINIMUM OF 30% CLAY CONTENT. COVER MATERIAL SHALL BE COMPACTED IN 1–FOOT LIFTS. THE INTENT OF THE CLAY CONTENT AND COMPACTION IS TO LIMIT AIR AND SURFACE WATER CONTACT WITH THE SOURCE OF THE ACID MINE DRAINAGE.
2. ANY DOWNSLOPE AFFECTED DRAINAGES WHICH MAY BE CONTRIBUTING/CONVEYING ACID MINE DRAINAGE SHALL BE ARMORED WITH 1–FOOT OF 2–INCH MINUS, CRUSHED, LIMESTONE GRAVEL.
3. THE FREQUENCY OF SURFACE WATER AND GROUNDWATER MONITORING FOR ACID MINE DRAINAGE WILL BE INCREASED TO A QUARTERLY BASIS.
4. ALL SURFACE WATER WITHIN ½–MILE DOWNGRADIENT OF THE DETECTED ACID MINE DRAINAGE SHALL BE SAMPLED WITHIN 2–WEEKS OF THE INITIAL DETECTION AND BE INCLUDED IN THE SURFACE WATER MONITORING PROGRAM.
5. SAMPLING OF ALL DOMESTIC WATER SUPPLY WELLS WITHIN ½–MILE OF THE AFFECTED AREA FOR ACID MINE DRAINAGE PARAMETERS WILL OCCUR WITHIN 2–WEEKS OF THE INITIAL DETECTION AND CONTINUE TO BE SAMPLED ON A QUARTERLY BASIS.
   A. IF ACID MINE DRAINAGE IS DETECTED IN A DOMESTIC WATER SUPPLY WELL THE HOMEOWNER SHALL BE OFFERED TO HAVE A "POINT–OF–USE" WATER TREATMENT SYSTEM INSTALLED AND MAINTAINED WHILE A NEW, UNIMPACTED, DOMESTIC WATER SUPPLY IS MADE AVAILABLE AT NO COST TO THE HOMEOWNER.
6. A GROUNDWATER QUALITY ASSESSMENT IN THE AREAS ADJACENT TO THE DETECTED ACID MINE DRAINAGE WILL BE INITIATED.
   A. THE GROUNDWATER QUALITY ASSESSMENT SHALL INCLUDE THE INSTALLATION OF A MINIMUM OF THREE (3) MONITORING WELLS; ONE UPGRADIENT OF THE AFFECTED SURFACE WATER, AND TWO DOWN–GRADIENT OF THE AFFECTED SURFACE WATER. ADDITIONAL MONITORING WELLS MAY BE REQUIRED TO DETERMINE THE HORIZONTAL AND VERTICAL DISTRIBUTION OF THE GROUNDWATER IMPACTS.
   B. GROUNDWATER SAMPLES WILL BE COLLECTED WITHIN 2 WEEKS OF INSTALLATION AND ANALYZED FOR ACID MINE DRAINAGE PARAMETERS LISTED ABOVE. A SECOND, CONFIRMATORY ROUND OF SAMPLING WILL OCCUR 2–WEEKS AFTER THE INITIAL SAMPLING ROUND. MONITORING WELLS WILL BE SAMPLED ON A QUARTERLY BASIS IF ACID MINE DRAINAGE IMPACTS ARE DETECTED.

OFF–SITE WATER QUALITY MONITORING NOTES

1. LAND OWNERS WITHIN ½ MILE OF THE EXCAVATION SITE WILL BE OFFERED GROUNDWATER QUALITY MONITORING.
2. NOTIFICATIONS WILL BE MADE TO LANDOWNERS WITH THE OPTION TO ALLOW OR DECLINE MONITORING.

   BASELINE MONITORING
3. TWO ROUNDS OF SAMPLING WILL OCCUR A MINIMUM OF 14 CALENDAR DAYS APART.
4. SAMPLES WILL BE ANALYZED FOR VOLATILE ORGANIC COMPOUNDS AND NITRATE.
5. RESULTS WILL BE SENT TO THE LAND OWNER, THE CITY OF KEENE, & TOWN OF SULLIVAN.

   ON–GOING MONITORING
6. BI–ANNUAL BASIS OF WELLS DURING THE TERM OF THE PERMIT.
7. BI–ANNUAL BASIS OF WELLS TWO (2) YEARS FOLLOWING THE CEASE OF OPERATIONS AT THE SITE AND RECLAMATION.
4. SAMPLES WILL BE ANALYZED FOR VOLATILE ORGANIC COMPOUNDS AND NITRATE.
5. RESULTS WILL BE SENT TO THE LAND OWNER, THE CITY OF KEENE, & TOWN OF SULLIVAN.

   ADVERSE IMPACTS
6. DRINKING WATER RESULTS WILL BE COMPARED TO THE NHDES AMBIENT GROUNDWATER QUALITY STANDARDS (AGQS).
7. IF ADVERSE IMPACTS ARE NOTED, THE APPLICANT WILL IMMEDIATELY BE NOTIFIED TO CEASE BEDROCK EXCAVATION.
8. NHDES, THE CITY OF KEENE, AND TOWN OF SULLIVAN WILL BE NOTIFIED.
9. IF MONITORING INDICATES THE EXCAVATION ACTIVITIES CAUSED THE IDENTIFIED CONTAMINATION, A LICENSED NH WELL CONTRACTOR WILL BE IMMEDIATELY RETAINED FOR INSTALLATION OF A NEW WATER SUPPLY WELL IN AN AREA THAT HAS NOT BEEN IMPACTED BY CONTAMINATION.
10. COST OF WELL WILL BE THE SOLE RESPONSIBILITY OF THE APPLICANT.

BEST MANAGEMENT PRACTICES FOR BLASTING

ALL ACTIVITIES RELATED TO BLASTING SHALL FOLLOW BEST MANAGEMENT PRACTICES (BMPS) TO PREVENT CONTAMINATION OF GROUNDWATER INCLUDING PREPARING, REVIEWING AND FOLLOWING AN APPROVED BLASTING PLAN; PROPER DRILLING, EXPLOSIVE HANDING AND LOADING PROCEDURES; OBSERVING THE ENTIRE BLASTING PROCEDURES; EVALUATING BLASTING PERFORMANCE; AND HANDLING AND STORAGE OF BLASTED ROCK.

(1) LOADING PRACTICES. THE FOLLOWING BLASTHOLE LOADING PRACTICES TO MINIMIZE ENVIRONMENTAL EFFECTS SHALL BE FOLLOWED:
   (a) 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. IF A FRACTURE OR WATER BEARING ZONE IS ENCOUNTERED IN A BOREHOLE, NO BLASTING SHALL OCCUR AT THAT LOCATION.
   (b) 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.
   (c) 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.
   (d) 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.
   (e) 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.
   (f) 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.
(2) EXPLOSIVE SELECTION. THE FOLLOWING BMPS SHALL BE FOLLOWED TO REDUCE THE POTENTIAL FOR GROUNDWATER CONTAMINATION WHEN EXPLOSIVES ARE USED:
   (a) EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT ARE APPROPRIATE FOR SITE CONDITIONS AND SAFE BLAST EXECUTION.
   (b) 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.
(3) PREVENTION OF MISFIRES. APPROPRIATE PRACTICES SHALL BE DEVELOPED AND IMPLEMENTED TO PREVENT MISFIRES.
(4) 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:
   (a) REMOVE THE MUCK PILE FROM THE BLAST AREA AS SOON AS REASONABLY POSSIBLE.
   (b) MANAGE THE INTERACTION OF BLASTED ROCK PILES AND STORMWATER TO PREVENT CONTAMINATION OF WATER SUPPLY WELLS OR SURFACE WATER.
(5) 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:
   (a) THE FUEL STORAGE REQUIREMENTS SHALL INCLUDE
      1. STORAGE OF REGULATED SUBSTANCES ON AN IMPERVIOUS SURFACE.
      2. SECURE STORAGE AREAS AGAINST UNAUTHORIZED ENTRY.
      3. LABEL REGULATED CONTAINERS CLEARLY AND VISIBLY.
      4. INSPECT STORAGE AREAS WEEKLY.
      5. COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS.
      6. 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.
      7. 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
   (a) THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:
      1. EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED.
      2. PLACE DRIP PANS UNDER SPIGOTS, VALVES, AND PUMPS.
      3. HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK AREAS.
      4. USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES.
      5. PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.
   (a) 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.
   (b) FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT WILL COMPLY WITH THE REGULATIONS OF NHDES [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.]

SUBSURFACE DATA

LOG	EXISTING GROUND	PROPOSED GRADE	LEDGE	DEPTH TO GROUNDWATER	WELL BOTTOM	GROUNDWATER ELEV.
SLR–4	888.0	880.0	873.0	NONE FOUND	873.0	NONE FOUND
SLR–10	884.0	855.0	NONE TO 829.0	42.9	828.0	841.1
SLR–11	871.5.0	855.0	NONE TO 795.5	NONE TO 45.2	817.8	826.3
SLR–12	885.0*	885.0	877.5	1.5	850.5	883.5**

SUBSURFACE DATA FROM TEST PIT, BORING, AND WELL INSTALLATION LOGS CONTAINED IN THE LIMITED GEOHYDROLOGIC INVESTIGATION BY SLR INTERNATIONAL CORPORATION, DATED MARCH 25, 2022.

* ELEVATION BASED ON CURRENT SURVEY

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62 HOLDINGS, LLC
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STAMP:
STATE OF NEW HAMPSHIRE
BRENTON J. COLE
No. 14744
2/3/25
LICENSED
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LOCATION:
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SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

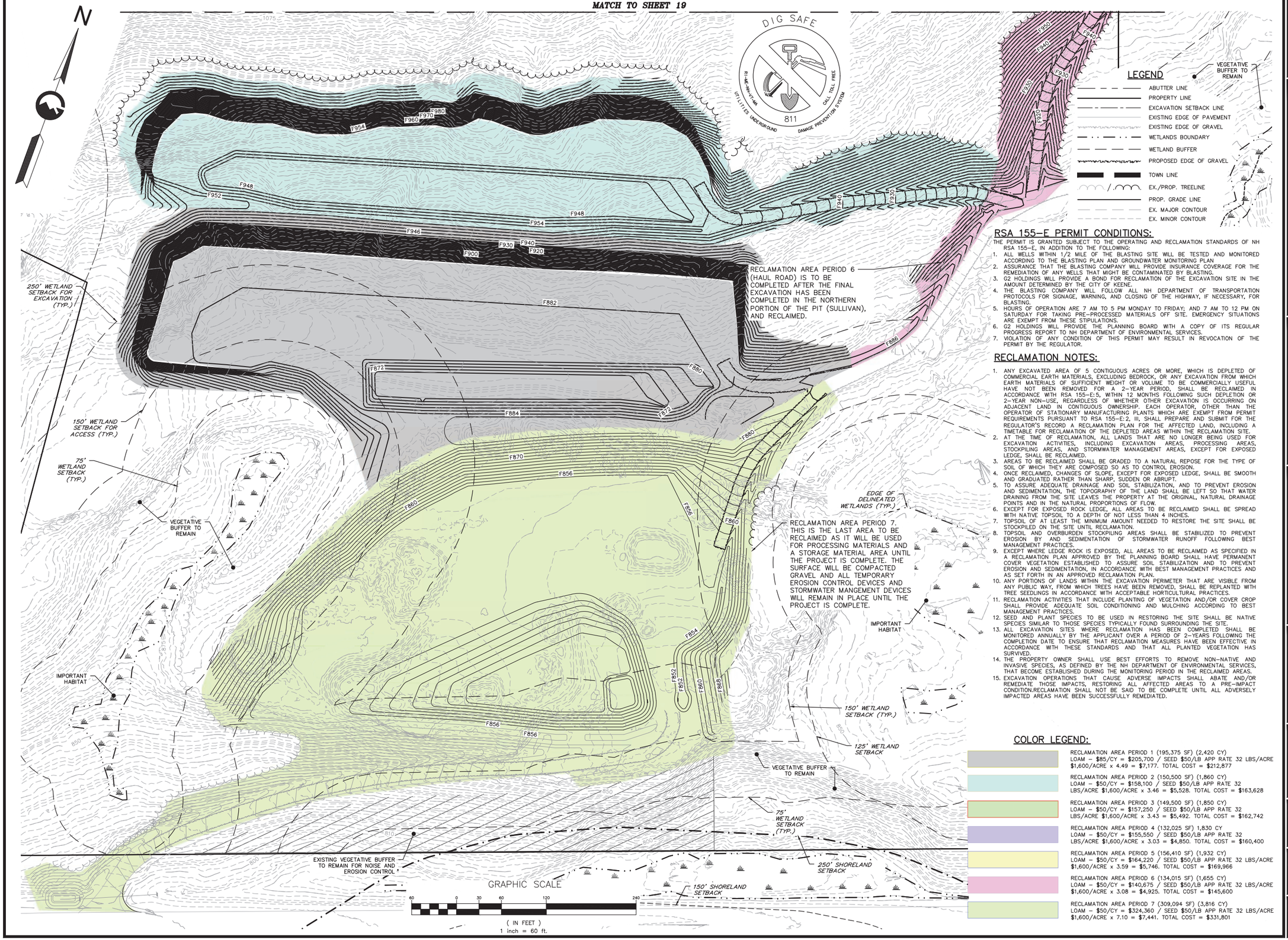
PROJECT:
GORDON SERVICES KEENE

TITLE:
MONITORING PLAN

PROJECT No.	DATE:	SCALE:
23–0201–1	MAY 9, 2025	HORIZ. 1"=125'
SHEET: 17 OF 23		

P:\23\0201\1\dwg\Production Plan\v2\0201-1-WELL.dwg, WELL MONITORING PLAN, 5/7/2025 12:33:33 PM, jsstrnd, DWG To PDF.pc3, ANSI full bleed D (34.00 x 22.00 Inches), 1:1

MATCH TO SHEET 19



RSA 155-E PERMIT CONDITIONS:

THE PERMIT IS GRANTED SUBJECT TO THE OPERATING AND RECLAMATION STANDARDS OF NH RSA 155-E, IN ADDITION TO THE FOLLOWING:

1. ALL WELLS WITHIN 1/2 MILE OF THE BLASTING SITE WILL BE TESTED AND MONITORED ACCORDING TO THE BLASTING PLAN AND GROUNDWATER MONITORING PLAN.
2. ASSURANCE THAT THE BLASTING COMPANY WILL PROVIDE INSURANCE COVERAGE FOR THE REMEDIATION OF ANY WELLS THAT MIGHT BE CONTAMINATED BY BLASTING.
3. G2 HOLDINGS WILL PROVIDE A BOND FOR RECLAMATION OF THE EXCAVATION SITE IN THE AMOUNT DETERMINED BY THE CITY OF KEENE.
4. THE BLASTING COMPANY WILL FOLLOW ALL NH DEPARTMENT OF TRANSPORTATION PROTOCOLS FOR SIGNAGE, WARNING, AND CLOSING OF THE HIGHWAY, IF NECESSARY, FOR BLASTING.
5. HOURS OF OPERATION ARE 7 AM TO 5 PM MONDAY TO FRIDAY; AND 7 AM TO 12 PM ON SATURDAY FOR TAKING PRE-PROCESSED MATERIALS OFF SITE. EMERGENCY SITUATIONS ARE EXEMPT FROM THESE STIPULATIONS.
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COLOR LEGEND:

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LOAM – $85/CY = $205,700 / SEED $50/LB APP RATE 32 LBS/ACRE $1,600/ACRE x 4.49 = $7,177. TOTAL COST = $212,877

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CHESHIRE COUNTY

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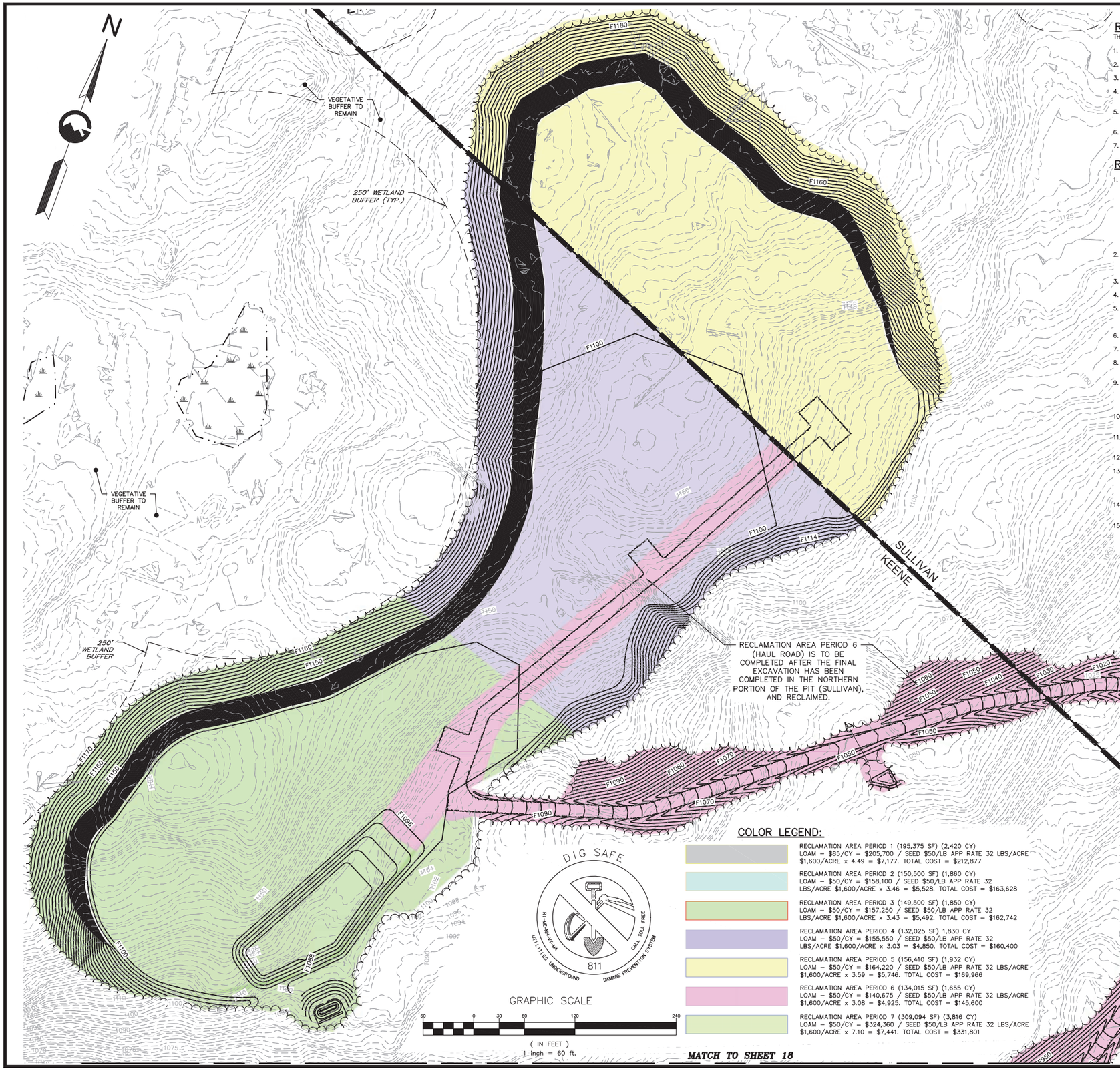
GORDON SERVICES
KEENE

TITLE:
RECLAMATION PLAN

PROJECT No.	DATE:	SCALE:
23-0201-1	MAY 9, 2025	HORIZ. 1"=60'
SHEET: 18 OF 23		

P:\2302011\Daily Production Plan\230201 RECLAMATION PLAN.dwg, RECLAMATION PLAN, 5/7/2025 4:39:30 PM, justind, DWG To PDF.pc3, ANSI full bleed D (34.00 x 22.00 Inches), 1:1



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LEGEND

- ABUTTER LINE
- PROPERTY LINE
- EXCAVATION SETBACK LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- WETLANDS BOUNDARY
- WETLAND BUFFER
- PROPOSED EDGE OF GRAVEL
- TOWN LINE
- EX./PROP. TREELINE
- PROP. GRADE LINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR

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TITLE:
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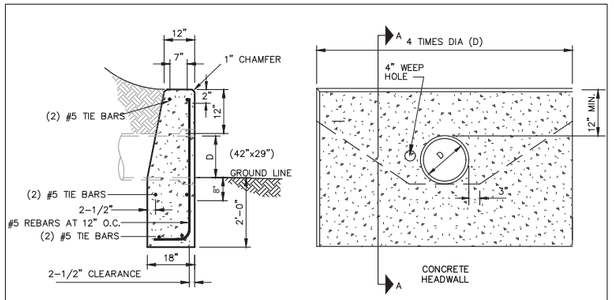


CLASS B CONCRETE – SCHEDULE FOR REINFORCED CONCRETE

PIPE DIAMETER	12"	15"	18"	24"	30"	36"	42"	48"	54"	60"
NUMBER	4	4	4	4	4	4	4	4	4	4
LENGTH OF BARS	3'-0"	3'-0"	3'-0"	3'-0"	4'-0"	4'-0"	5'-0"	5'-0"	6'-0"	6'-0"

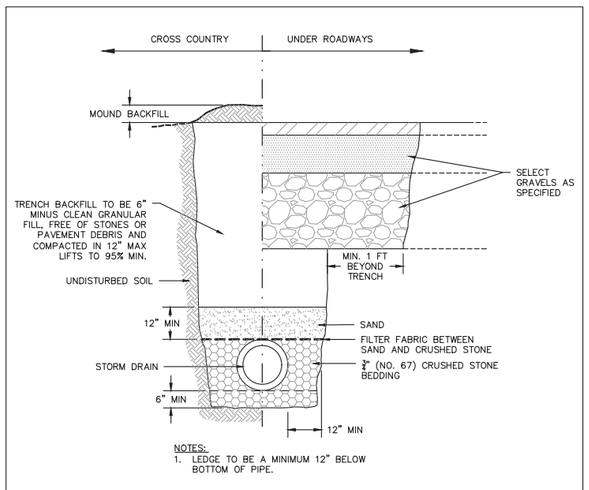
CLASS B CONCRETE – SCHEDULE FOR REINFORCED CONCRETE

PIPE DIAMETER	12"	15"	18"	24"	30"	36"	42"	48"	54"	60"
CONCRETE QUANTITY (YDS)	1.0	1.3	1.8	2.7	3.5	4.9	6.4	8.0	10.0	12.3

NOTES:
1. FOR DESCRIPTIONS, MATERIALS AND CONSTRUCTION METHODS, SEE LATEST NHDOT SPECIFICATIONS.
2. ALL CONCRETE DIMENSIONS SHOWN ARE MINIMUM.

TYPICAL CONCRETE HEADWALL DETAIL

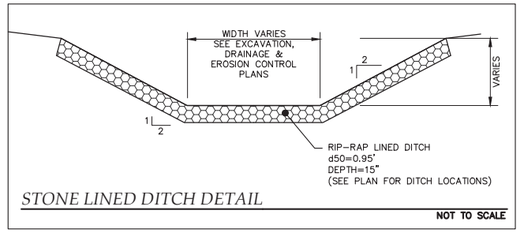
NOT TO SCALE



NOTES:
1. LEDGE TO BE A MINIMUM 12" BELOW BOTTOM OF PIPE.

STORM DRAIN TRENCH DETAIL

NOT TO SCALE



STONE LINED DITCH DETAIL

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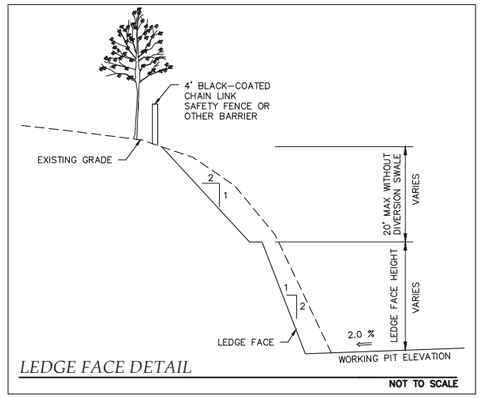

LEDGE FACE DETAIL

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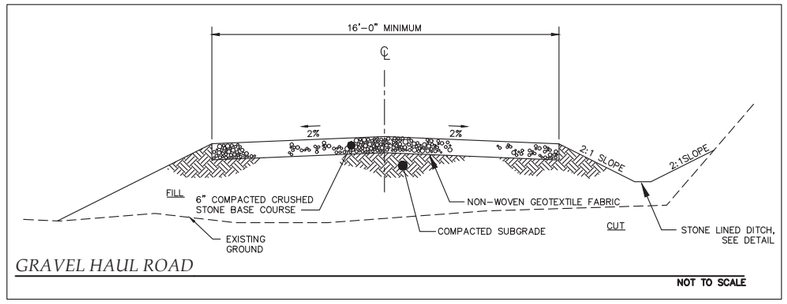

GRAVEL HAUL ROAD

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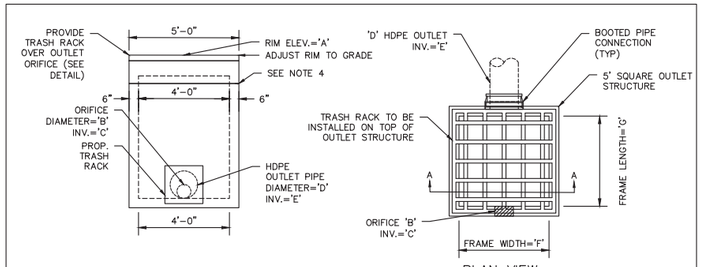


SECTION A-A

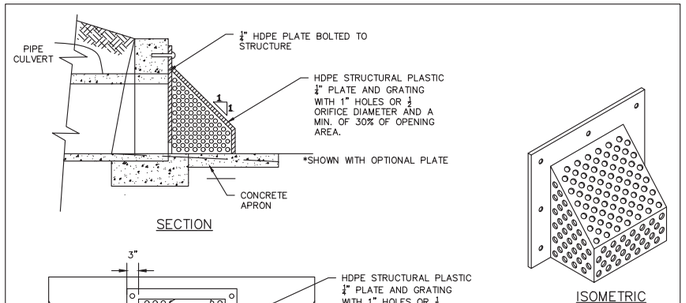
PLAN VIEW

OUTLET CONTROL STRUCTURE ELEVATIONS							
POND ID	A	B	C	D	E	F	G
SF5	1094.25	6"	1088.00	12"	1088.00	48"	48"
SF6	951.10	6"	948.00	12"	948.00	48"	48"
SF7	877.15	10"	872.00	12"	872.00	48"	48"

NOTES:
1. CONCRETE: fc=4,000 PSI @ 28 DAYS MINIMUM, TYPE III CEMENT.
2. REINFORCING STEEL: ASTM-A615 GRADE #60, ASTM A-185 WWF.
3. DESIGN LOADING: AASHTO-HS20-44, ASTM C-478 PRECAST REINFORCED CONCRETE MANHOLE SECTIONS
4. BUTYL RUBBER JOINT SEALANT CONFORMS TO LATEST ASTM C-990 SPECS
5. ONE POUR MONOLITHIC BASE SECTION.

OUTLET STRUCTURE DETAIL

NOT TO SCALE



TRASH RACK DETAIL

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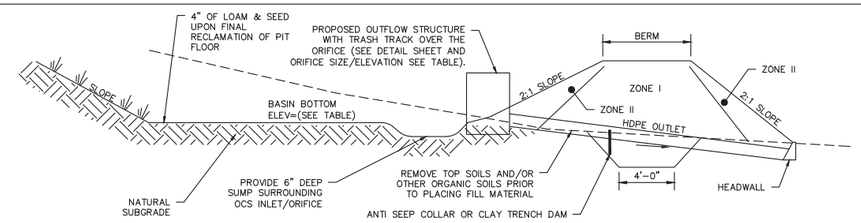

NOTES:
1. CONTRACTOR TO NOTIFY DIG-SAFE 72 HOURS PRIOR TO START OF CONSTRUCTION
2. CLEAR AND CUT THE AREA TO THE NECESSARY EXTENT. CONTRACTOR TO PROPERLY DISPOSE OF ALL DEBRIS.
3. ALL SILTATION AND TEMPORARY EROSION CONTROLS MEASURES SHALL BE INSTALLED AS CALLED FOR ON PROJECT PLANS PRIOR TO GRUBBING OF CLEARED AREAS.
4. CONTRACTOR TO COMPLETE GRUBBING AND PROPERLY DISPOSE OF ALL DEBRIS. STOCKPILE ORGANIC MATERIAL SUITABLE FOR USE AS TOPSOIL IN UPLAND AREAS. ALL STOCKPILES TO BE SEEDED AND, IF NECESSARY, SURROUNDED WITH HAY BALES TO PREVENT LOSSES DUE TO EROSION.
5. CONSTRUCT TEMPORARY CULVERTS AS NECESSARY FOR CONSTRUCTION ACTIVITIES. ALL CROSSINGS TO BE PROTECTED BY HAY BALE BARRIERS TO PREVENT EROSION.
6. CONSTRUCT CUT-OFF TRENCH (PART OF ZONE I).
7. CONSTRUCT OUTLET AND OVERFLOW STRUCTURE, CULVERT, ANTI SEEP COLLARS, HEADWALL, AND RIP RAP OUTLET PROTECTION AS SHOWN ON PLANS AND DETAILS.
8. CONSTRUCT ZONE I PORTION OF EARTH EMBANKMENT.
9. CONSTRUCT ZONE II PORTION OF EARTH EMBANKMENT.
10. APPLY TOPSOIL TO SLOPES AND OTHER AREAS OF DISTURBANCE BY CONSTRUCTION. TOPSOIL MAY BE NATIVE ORGANIC MATERIAL SCREENED SO AS TO BE FREE OF ALL DELETERIOUS MATERIAL. TOPSOIL SHALL BE A MINIMUM OF 4-INCHES OF COMPACTED THICKNESS. UPON PLACEMENT ON TOPSOIL, FINISHED AREAS ARE TO BE LIMED, SEEDED AND MULCHED. CONSTRUCTION PERSONNEL SHALL INSPECT COMPLETED SECTIONS OF WORK ON A REGULAR BASIS AND REMEDY ALL PROBLEM AREAS UNTIL GRASS HAS BECOME ESTABLISHED.
11. MAINTAIN, REPAIR AND REPLACE TEMPORARY EROSION CONTROL MEASURES AS NECESSARY UNTIL THE WHOLE CONSTRUCTION ARE HAS BEEN STABILIZED (MINIMUM ONE WINTER).
12. REMOVE AND SUITABLY DISPOSE OF TEMPORARY EROSION CONTROL MEASURES AFTER STABILIZATION.
13. MONITOR CONSTRUCTION ACTIVITIES TO INSURE THEY ARE PERFORMED IN SUCH WAYS AS TO NOT ENDANGER THE INTEGRITY OF EARTH EMBANKMENTS, STORMWATER CONTROL, STRUCTURE, CULVERT AND RIP RAP OUTLET PROTECTION.

OUTLET CONTROL STRUCTURE ELEVATIONS										
POND ID	BASIN NAME	BASIN BOTTOM	SUMP ELEVATION AROUND OCS	TOP BERM ELEVATION	OCS STRUCTURE ID	TOP OF OCS ELEVATION	ORIFICE SIZE	ORIFICE ELEVATION	OUTLET PIPE SIZE	OUTLET PIPE ELEVATION
SF5	SETTLING BASIN #5	1088.00	1087.50	1096.00	OCS #6A	1094.25	6"	1088.00	12"	1088.00
SF6	SETTLING BASIN #6	948.00	947.50	952.00	OCS #7A	951.10	6"	948.00	12"	948.00
SF7	SETTLING BASIN #7	872.00	871.50	880.00	OCS #8A & OCS #9A	877.15	10"	872.00	12"	872.00

MATERIAL TYPE/SPECIFICATIONS

ZONE I:
WELL GRADED MIXTURE OF GRAVEL, SAND, SILT OR CLAY WITH MAX. 6-INCH SIZE STONES AND GRADATION AS INDICATED BELOW. PLACE IN MAX. 12-INCH THICK LIFTS TO 95% OF MAX. DRY DENSITY IN ACCORDANCE WITH ASTM D1557. SCARIFY SURFACE PRIOR TO PLACING SUBSEQUENT LIFT. IN ADDITION REMOVE ORGANIC SOILS.

SIEVE SIZE	% BY WEIGHT PASSING
6-INCH	100
NO. 4	50-100
NO. 40	30-70
NO. 200	20-40

ZONE II:
DRAINAGE LAYER: PLACE IN MAX. 12-INCH THICK LIFTS TO 95% OF MAX DRY DENSITY IN ACCORDANCE WITH ASTM D1557

SIEVE SIZE	% BY WEIGHT PASSING
1-INCH	100
NO. 4	70-100
NO. 200	0-12 (IN SAND PORTION ONLY)

SEDIMENT RETENTION POND DETAIL

NOT TO SCALE

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civil engineering
land planning
municipal services

REVISIONS

No.	DATE	COMMENTS	BY
1	12/20/24	PROJECT SUBMITTAL	JD
2	2/3/25	REVISED PER CITY COMMENTS	JD
3	5/9/25	REVISED PER CITY COMMENTS	JD

OWNER/APPLICANT:
62 HOLDINGS, LLC
250 NORTH STREET
JAFFREY, NH 03452

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civil engineering ● land planning ● municipal services
150 Dow Street, Tower 2, Suite 421
Manchester,
New Hampshire 03101
603.518.8030
www.GraniteEng.com

STAMP:
STATE OF NEW HAMPSHIRE
BRENTON
COLE
No. 14754
2/3/25
LICENSED
PROFESSIONAL ENGINEER

LOCATION:
KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES
KEENE

TITLE:
DETAILS

PROJECT No.	DATE:	SCALE:
23-0201-1	MAY 9, 2025	AS SHOWN
SHEET: 20 OF 23		

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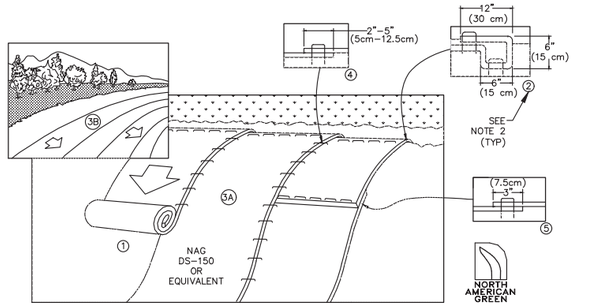
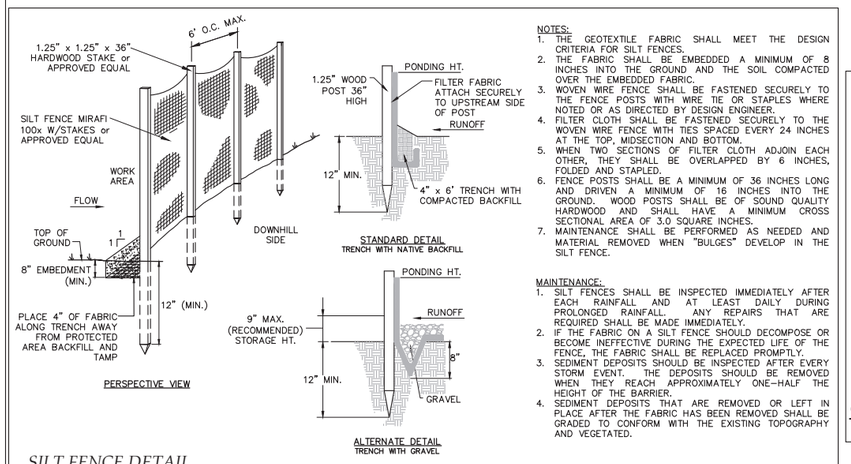


NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP–SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A) DOWN or (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/ STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"–5" (5cm–12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH. NOTE: *IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.
6. THERE SHALL BE NO PLASTIC, OR MULTIFILAMENT OR MONOFILAMENT POLYPROPYLENE NETTING OR MESH WITH AN OPENING SIZE OF GREATER THAN 1/8 INCHES MATERIAL UTILIZED.

EROSION CONTROL BLANKET DETAIL

NOT TO SCALE



NOTES:

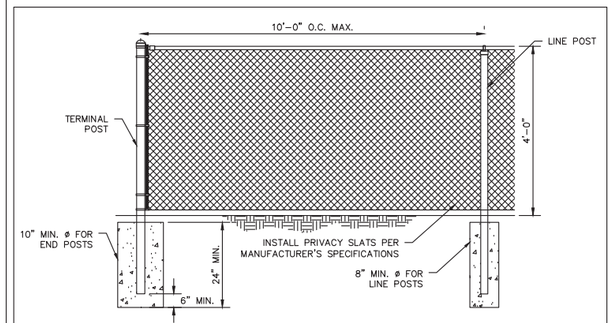
1. THE GEOTEXTILE FABRIC SHALL MEET THE DESIGN CRITERIA FOR SILT FENCES.
2. THE FABRIC SHALL BE EMBEDDED A MINIMUM OF 8 INCHES INTO THE GROUND AND THE SOIL COMPACTED OVER THE EMBEDDED FABRIC.
3. WOVEN WIRE FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIE OR STAPLES WHERE NOTED OR AS DIRECTED BY DESIGN ENGINEER.
4. FILTER CLOTH SHALL BE FASTENED SECURELY TO THE WOVEN WIRE FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP, MIDSECTION AND BOTTOM.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6 INCHES, FOLDED AND STAPLED.
6. FENCE POSTS SHALL BE A MINIMUM OF 36 INCHES LONG AND DRIVEN A MINIMUM OF 16 INCHES INTO THE GROUND. WOOD POSTS SHALL BE OF SOUND QUALITY HARDWOOD AND SHALL HAVE A MINIMUM CROSS SECTIONAL AREA OF 3.0 SQUARE INCHES.
7. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

MAINTENANCE:

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

SILT FENCE DETAIL

NOT TO SCALE



CHAIN LINK FENCE DETAIL

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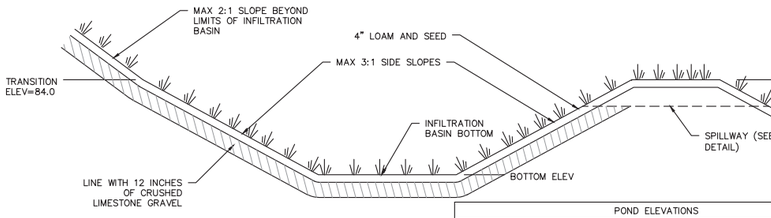


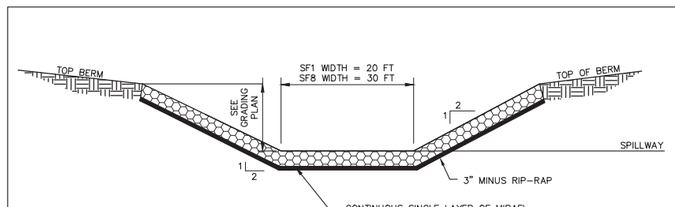
POND ELEVATIONS				
POND ID	BASIN NAME	BASIN BOTTOM	TOP BERM	SPILLWAY
SF1	TEMPORARY SEDIMENTATION AREA IN PERIOD 1	860.00	874.00	873.50
SF8	INFILTRATION POND IN PERIOD 8	842.00	856.00	855.50

NOTES:

1. DO NOT DISCHARGE SEDIMENT–LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF, WATER FROM EXCAVATIONS) TO PERMANENT INFILTRATION BMPS.
2. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.
3. AFTER THE BASIN IS EXCAVATED TO THE FINAL DESIGN ELEVATION, THE FLOOR SHOULD BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW TO RESTORE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.
4. IMMEDIATELY AFTER CONSTRUCTING THE BASIN, STABILIZE ITS BOTTOM AND SIDE SLOPES WITH A DENSE TURF OF WATER–TOLERANT GRASS. USE LOW–MAINTENANCE, RAPIDLY GERMINATING GRASSES, SUCH AS FESCUES.
5. DO NOT PLACE INFILTRATION SYSTEMS INTO SERVICE UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.

ABOVE-GROUND INFILTRATION POND #SF1 AND SF8

NOT TO SCALE



SPILLWAY DETAIL

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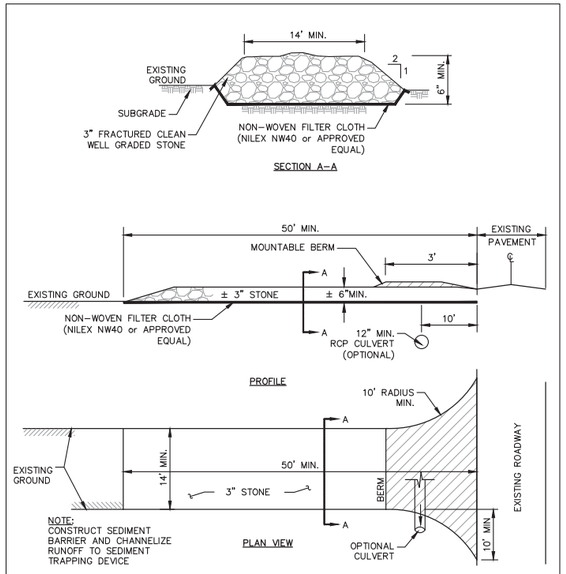
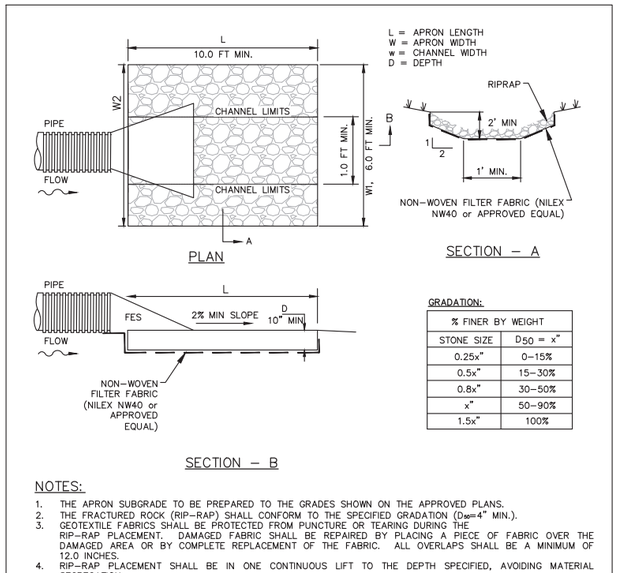


NOTES:

1. STONE FOR A STABILIZED CONSTRUCTION EXIT SHALL BE 3 INCH STONE, RECLAIMED STONE OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED EXIT SHALL NOT BE LESS THAN 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
3. THE THICKNESS OF THE STONE FOR THE STABILIZED EXIT SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE EXIT SHALL NOT BE LESS THAN THE FULL WIDTH OF THE AREA WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICHEVER IS GREATER.
5. GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER CLOTH IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENCE LOT.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION EXIT SHALL BE PIPED BENEATH THE EXIT. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE EXIT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOPDRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED OR TRACKED ONTO PUBLIC RIGHT–OF–WAY MUST BE REMOVED PROMPTLY.
8. WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS–OF–WAY . WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

STABILIZED CONSTRUCTION EXIT DETAIL

NOT TO SCALE



GRADATION:

% FINER BY WEIGHT	
STONE SIZE	D50 = x"
0.25x"	0–15%
0.5x"	15–30%
0.8x"	30–50%
x"	50–90%
1.5x"	100%

NOTES:

1. THE APRON SUBGRADE TO BE PREPARED TO THE GRADES SHOWN ON THE APPROVED PLANS.
2. THE FRACTURED ROCK (RIP–RAP) SHALL CONFORM TO THE SPECIFIED GRADATION (D_{85}=4" MIN.).
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE RIP–RAP PLACEMENT. DAMAGED FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS SHALL BE A MINIMUM OF 12.0 INCHES.
4. RIP–RAP PLACEMENT SHALL BE IN ONE CONTINUOUS LIFT TO THE DEPTH SPECIFIED, AVOIDING MATERIAL SEGREGATION.

MAINTENANCE

THE APRON SHOULD BE INSPECTED AFTER EVERY MAJOR RAIN EVENT (≥ 3"). IF THE RIPRAP HAS BEEN DISPLACED, UNDERMINED OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE VEGETATED CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE PERIODICALLY INSPECTED FOR DEGRADATION. IF DEGRADATION HAS OCCURRED, REPAIR IMMEDIATELY. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS AND SEDIMENT THAT COULD IMPAIR UPSTREAM CHANNEL CHARACTERISTICS. ALL DEBRIS OR SEDIMENT SHOULD BE REMOVED OFF SITE and DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LAWS.

STRUCTURE	LENGTH	W1	W2	D50	DEPTH
HW#1B	12'	16'	4'	4"	10"
HW#2B	15'	18'	4'	6"	15"
HW#3B & HW#4B	25'	31'	6'	12"	30"
HW#5B	9'	13'	4'	4"	10"
HW#6B	9'	12'	3'	4"	10"
HW#7B	9'	12'	3'	4"	10"
HW#8B	17'	10'	3'	4"	10"
HW#10B	16'	10'	4'	4"	10"
HW#11B (FINAL)	12'	9'	4'	4"	10"

OUTLET PROTECTION DETAIL

NOT TO SCALE

REVISIONS

No.	DATE	COMMENTS	BY
1	12/20/24	PROJECT SUBMITTAL	JD
2	2/3/25	REVISED PER CITY COMMENTS	JD
3	5/9/25	REVISED PER CITY COMMENTS	JD

(OWNER/APPLICANT:
G2 HOLDINGS, LLC
250 NORTH STREET
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Manchester,
New Hampshire 03101
603.518.8030
www.GraniteEng.com

STAMP:

STATE OF NEW HAMPSHIRE
ARRENTON
J. ROLE
No. 14744
2/3/25
LICENSED
PROFESSIONAL ENGINEER

LOCATION:
KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES KEENE

TITLE:
DETAILS

PROJECT No.	DATE:	SCALE:
23–0201–1	MAY 9, 2025	AS SHOWN
SHEET: 21 OF 23		

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IF MORE THAN 5000 CUBIC YARDS ARE BLASTED:

IDENTIFY DRINKING WATER WELLS LOCATED WITHIN 1/2 MILE OF THE PROPOSED BLASTING ACTIVITIES. DEVELOP A GROUNDWATER QUALITY SAMPLING PROGRAM TO MONITOR FOR NITRATE 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 SAMPLE PROGRAM MUST BE IMPLEMENTED ONCE APPROVED BY NHDES.

ALL ACTIVITIES RELATED TO BLASTING SHALL FOLLOW BEST MANAGEMENT PRACTICES (BMPS) TO PREVENT CONTAMINATION OF GROUNDWATER INCLUDING PREPARING, REVIEWING AND FOLLOWING AN APPROVED BLASTING PLAN; PROPER DRILLING, EXPLOSIVE HANDING AND LOADING PROCEDURES; OBSERVING THE ENTIRE BLASTING PROCEDURES; EVALUATING BLASTING PERFORMANCE; AND HANDLING AND STORAGE OF BLASTED ROCK.

(1) LOADING PRACTICES. THE FOLLOWING BLASTHOLE LOADING PRACTICES TO MINIMIZE ENVIRONMENTAL EFFECTS SHALL BE FOLLOWED:
- (a) 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.
- (b) 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.
- (c) 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.
- (d) 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.
- (e) 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.
- (f) 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.

(2) EXPLOSIVE SELECTION. THE FOLLOWING BMPS SHALL BE FOLLOWED TO REDUCE THE POTENTIAL FOR GROUNDWATER CONTAMINATION WHEN EXPLOSIVES ARE USED:
- (a) EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT ARE APPROPRIATE FOR SITE CONDITIONS AND SAFE BLAST EXECUTION.
- (b) 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.

(3) PREVENTION OF MISFIRES. APPROPRIATE PRACTICES SHALL BE DEVELOPED AND IMPLEMENTED TO PREVENT MISFIRES.

(4) 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:
- (a) REMOVE THE MUCK PILE FROM THE BLAST AREA AS SOON AS REASONABLY POSSIBLE.
- (b) MANAGE THE INTERACTION OF BLASTED ROCK PILES AND STORMWATER TO PREVENT CONTAMINATION OF WATER SUPPLY WELLS OR SURFACE WATER.

(5) 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:
- (a) THE FUEL STORAGE REQUIREMENTS SHALL INCLUDE
  1. STORAGE OF REGULATED SUBSTANCES ON AN IMPERVIOUS SURFACE.
  2. SECURE STORAGE AREAS AGAINST UNAUTHORIZED ENTRY.
  3. LABEL REGULATED CONTAINERS CLEARLY AND VISIBLY.
  4. INSPECT STORAGE AREAS WEEKLY.
  5. COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS.
  6. 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.
  7. 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
- (a) THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:
  1. EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED.
  2. PLACE DRIP PANS UNDER SPIGOTS, VALVES, AND PUMPS.
  3. HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK AREAS.
  4. USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES.
  5. PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.
- (a) 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.
- (b) FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT WILL COMPLY WITH THE REGULATIONS OF NHDES [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.]

BEST MANAGEMENT PRACTICES FOR BLASTING

1. ALL MEASURES IN THE PLAN SHALL MEET AS A MINIMUM THE BEST MANAGEMENT PRACTICES SET FORTH IN VOLUME 3 OF THE NEW HAMPSHIRE STORMWATER MANUAL "EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION" AS PUBLISHED AND AMENDED BY THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES.
2. THIS PROJECT IS TO BE MANAGED IN A MANOR THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
3. WHENEVER PRACTICAL, NATURAL VEGETATION SHALL BE RETAINED, PROTECTED OR SUPPLEMENTED. THE STRIPPING OF VEGETATION SHALL BE DONE IN A MANNER THAT MINIMIZES SOIL EROSION.
4. APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO LAND DISTURBANCE.
5. THE AREA OF DISTURBANCE SHALL BE KEPT TO A MINIMUM. DISTURBED AREAS REMAINING IDLE FOR MORE THAN 30 DAYS SHALL BE STABILIZED.
6. MEASURES SHALL BE TAKEN TO CONTROL EROSION WITHIN THE PROJECT AREA. SEDIMENT IN RUNOFF WATER SHALL BE TRAPPED AND RETAINED WITHIN THE PROJECT AREA USING APPROVED MEASURES.
7. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN FUNCTIONING CONDITION UNTIL FINAL SITE STABILIZATION IS ACCOMPLISHED.
8. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AFTER FINAL SITE STABILIZATION. TRAPPED SEDIMENT AND OTHER DISTURBED SOIL AREAS RESULTING FROM THE REMOVAL OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED WITHIN 30 DAYS UNLESS CONDITIONS DICTATE OTHERWISE.
9. THE TOWN OF MILFORD SHALL RESERVE THE RIGHT TO REQUIRE FURTHER EROSION CONTROL PRACTICES DURING CONSTRUCTION SHOULD THEY FIND IT NECESSARY.
10. THE RESPONSIBLE PARTY SHALL INSTALL, INSPECT, REPORT, OPERATE, AND MAINTAIN ALL STORMWATER MANAGEMENT AND EROSION CONTROL MEASURES REQUIRED BY THESE PLANS.
11. TEMPORARY EROSION CONTROL MEASURES SHALL BE INSTALLED IN STRICT ACCORDANCE WITH PROJECT PLANS. IN ADDITION, SIMILAR MEASURES SHALL BE INSTALLED WHERE AND WHEN THE FIELD CONDITION, OR FIELD OPERATION OF THE INDIVIDUAL SITE CONTRACTOR, MAY WARRANT.
12. ALL DISTURBED AREAS DESIGNATED TO BE TURF, SHALL RECEIVE A MINIMUM APPLICATION OF 4 INCHES OF LOAM (COMPACTED THICKNESS), PRIOR TO FINAL SEEDING AND MULCHING.
13. IN THE EVENT THAT, DURING CONSTRUCTION OF ANY PORTION OF THIS PROJECT, A WINTER SHUTDOWN IS NECESSARY, THE CONTRACTOR SHALL STABILIZE ALL INCOMPLETE WORK AND PROVIDE FOR SUITABLE METHODS OF DIVERTING RUNOFF IN ORDER TO ELIMINATE SHEET FLOW ACROSS FROZEN SURFACES.
14. DUST SHALL BE CONTROLLED BY THE USE OF WATER AS NECESSARY THROUGHOUT THE CONSTRUCTION PERIOD, IN ACCORDANCE WITH ENV–A 1000.
15. IN NO WAY ARE THOSE TEMPORARY EROSION CONTROL MEASURES INDICATED ON THESE PLANS TO BE CONSIDERED ALL INCLUSIVE. THE CONTRACTOR SHALL USE JUDGEMENT IN INSTALLING SUPPLEMENTARY EROSION CONTROL MEASURES WHERE AND WHEN SPECIFIC SITE CONDITIONS AND/OR CONSTRUCTION METHODOLOGIES MAY WARRANT.
16. EARTHWORK SHALL BE LIMITED TO THE AREAS WITHIN THE LIMITS OF CLEARING AS SHOWN ON THE PLAN. AT NO TIME SHALL MORE THAN FIVE (5) ACRES OF SITE AREA BE IN AN UNSTABLE CONDITION. NO GIVEN AREA OF THE SITE SHALL BE LEFT IN AN UNSTABILIZED CONDITION FOR A PERIOD OF TIME EXCEEDING THIRTY (30) CALENDAR DAYS.
17. 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.
18. PERIMETER CONTROLS MUST BE INSTALLED PRIOR TO EARTHWORK.
19. EROSION CONTROL MEASURES USED SHALL BE INSPECTED AT LEAST WEEKLY AND WITHIN 24 HOURS AFTER 0.25" OF RAINFALL OR MORE. ALL DEFICIENCIES SHALL BE FIXED IN ORDER TO KEEP OPERATION EFFECTIVE. THEY SHALL BE CLEANED AND MAINTAINED AND OTHERWISE KEPT IN AN EFFECTIVE OPERATING MANNER THROUGHOUT THE CONSTRUCTION PERIOD.
20. ALL STORMWATER PRACTICES AND DRAINAGE SWALES ARE TO BE INSTALLED PRIOR TO ROUGH GRADING OF THE SITE. THEY SHOULD BE FULLY STABILIZED PRIOR TO RECEIVING STORMWATER. PERIODIC INSPECTION AND MAINTENANCE TO MAINTAIN DESIGN INTENT IS REQUIRED.
21. ALL DISTURBED AREAS DESIGNATED TO BE TURF, SHALL RECEIVE THE REQUIRED AMOUNT OF LOAM (COMPACTED THICKNESS), PRIOR TO FINAL SEEDING AND MULCHING.
22. IF DURING CONSTRUCTION A WINTER SHUTDOWN IS NECESSARY, THE CONTRACTOR SHALL STABILIZE ALL INCOMPLETE WORK AND PROVIDE FOR SUITABLE METHODS OF DIVERTING RUNOFF IN ORDER TO ELIMINATE SHEET FLOW ACROSS FROZEN SURFACES.
23. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    - A. BASE COURSE GRAVELS ARE INSTALLED IN AREAS TO BE PAVED;
    - B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
    - C. A MINIMUM OF 3" OF NON–EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED; OR
    - D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

23\. ALL DUST SHALL BE CONTROLLED BY THE USE OF WATER IN ACCORDANCE WITH ENV–A 1000.

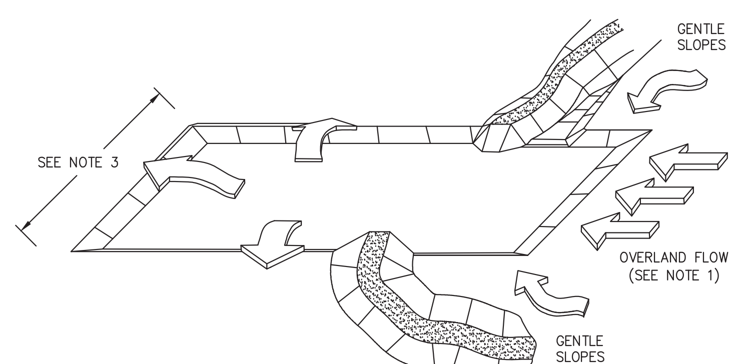
24\. IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT ADDITIONAL EROSION AND SEDIMENT CONTROL DEVICES ARE REQUIRED, THE OWNER SHALL BE REQUIRED TO INSTALL THE NECESSARY DEVICES OR CONSULT WITH THE ENGINEER.

25\. JUTE MATTING INSTALLED TO CONFORM WITH THE RECOMMENDED BEST MANAGEMENT PRACTICE OUTLINED IN VOLUME 3 OF THE NEW HAMPSHIRE STORMWATER MANUAL "EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION" ON ALL 3:1 SLOPES OR GREATER.

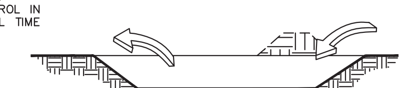
26\. ALL ROADWAYS AND PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS.

27\. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS.

EROSION CONTROL NOTES



NOTES:
1. MAXIMUM AREA FOR OVERFLOW SEDIMENT TRAP IS USUALLY 1 ACRE. MUST HAVE GENTLE SLOPES (LESS THAN 2% GRADUALLY) AND PREDOMINATELY OVERLAND SHEET FLOW.
2. MAXIMUM PERMANENT WET DEPTH IS 2 FEET. OVERFLOW SEDIMENT TRAPS MAY NOT BE EFFECTIVE FOR HIGH GROUNDWATER TABLE AND INFLOWS.
3. USE THE MOST PERMEABLE SEDIMENT CONTROL IN LABELED AREA SO AS TO MAXIMIZE TRAVEL TIME AND SETTLING OF SEDIMENT.



SEDIMENT TRAP DETAIL

NOT TO SCALE

1. CONTACT DIG SAFE AT LEAST 72 HOURS BEFORE ANY EXCAVATION WORK.
2. CUT AND CLEAR TREES AND BRUSH WITHIN LIMITS OF CLEARING SHOWN ON PLAN.
3. INSTALL ALL APPLICABLE TEMPORARY EROSION CONTROL MEASURES PRIOR PRIOR TO COMMENCEMENT OF ANY EARTHMOVING OPERATIONS. THE STABILIZED CONSTRUCTION EXIT SHALL BE IN PLACE AS SHOWN ON THE PROJECT PLANS.
4. REMOVE STUMPS FROM THE SITE FOR SITE GRADING TO COMMENCE. ALL STUMPS AND SIMILAR ORGANIC DEBRIS SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR UNLESS A STUMP DUMP IS NOTED ON THE PLAN. NATIVE ORGANIC SOIL MATERIALS SUITABLE FOR USE AS TOPSOIL SHALL BE STOCKPILED WITHIN AREAS OUT OF THE WAY OF OTHER CONSTRUCTION ACTIVITIES AND DRAINAGE FLOW. STOCKPILES SHALL BE TEMPORARILY SEEDED WITH WINTER RYE AND BE SURROUNDED BY PERIMETER CONTROLS TO PREVENT EROSION.
5. THIS PROJECT IS TO BE MANAGED IN A MANOR THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
6. ALL PERMANENT EROSION CONTROL MEASURES AND DETENTION FACILITIES SHOULD BE INSTALLED PRIOR TO GRADING FOR PROJECT.
7. COMMENCE EARTHWORK OPERATIONS.
8. ALL DRAINAGE SYSTEMS AND OTHER UTILITIES SHOULD BE CONSTRUCTED FROM LOW GRADE TO HIGH GRADE. INCOMPLETE WORK SHALL BE PROTECTED FROM SILTATION BY THE USE OF PERIMETER CONTROLS UNTIL THE SITE HAS BECOME FULLY STABILIZED.
9. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    - A. BASE COURSE GRAVELS ARE INSTALLED IN AREAS TO BE PAVED;
    - B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
    - C. A MINIMUM OF 3" OF NON–EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED; OR EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

9\. IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT ADDITIONAL EROSION AND SEDIMENT CONTROL DEVICES ARE REQUIRED, THE OWNER SHALL BE REQUIRED TO INSTALL THE NECESSARY DEVICES OR CONSULT WITH THE ENGINEER.

10\. ALL STORMWATER FLOWS SHALL NOT BE DIRECTED TO THE STORMWATER MEASURES UNTIL ALL CONTRIBUTING AREAS HAVE BEEN DEEMED STABLE. ALL DITCHES AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.

11\. COMPLETE GRADING ACTIVITIES AND WHEN COMPLETE, BEGIN TOPSOILING PROPOSED TURF AREAS USING STOCKPILED LOAM SUPPLEMENTED WITH BORROW LOAM, IF NECESSARY, TO LEAVE THE SPECIFIED THICKNESS.

12\. FINE GRADE ALL TURF AREAS AND COMPLETE PERMANENT SEEDING AND LANDSCAPING BY HYDROSEEDING WITH THE SPECIFIED SEED MIXTURE IMMEDIATELY AFTER FINE GRADING IS COMPLETED. ALL AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.

13\. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDED AREAS HAVE ESTABLISHED THEMSELVES.

CONSTRUCTION SEQUENCE

1. ALL PROPOSED POST–DEVELOPMENT VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE PLACEMENT OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT BE DONE OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
2. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
3. AFTER OCTOBER 15TH, INCOMPLETE ROAD SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL (NHDOT 304.3).

WINTER CONSTRUCTION NOTES

1. ALL AREAS TO BE SEEDED SHALL BE PREPARED TO PROVIDE A REASONABLY FIRM BUT FRIABLE SEED BED.
2. SLOPED AREAS SHALL NOT BE LEFT TOO SMOOTH; THE SURFACE SHALL BE LEFT IN A RUFFLED CONDITION SUCH AS MAY BE PRODUCED BY THE USE OF TRACKED VEHICLES RUN UP AND DOWN THE SLOPES. SMOOTH, COMPACTED SLOPES, SUCH AS FROM BLADING, WHICH MIGHT ALLOW THE FREE FLOW OF WATER DOWN THEM SHALL BE DISKED, HARROWED, DRAGGED WITH A CHAIN OR MAT, MACHINE–RAKED, OR HAND–WORKED TO GIVE THE EFFECT OF MINIATURE TERRACES, PARTICULARLY IN SILTY OR CLAYEY SOILS. THE SLOPES SHALL BE LEFT SMOOTH ENOUGH TO ENABLE MOWING.
3. LAWN AREAS, SUCH AS WHERE LOAM HAS BEEN SPREAD, SHALL BE PREPARED FOR SEEDING. THE LOAM SHALL BE SPREAD UPON THE PREVIOUSLY PREPARED SUBGRADE SURFACE TO THE DEPTH OF 4" ± 1/2" UNLESS OTHERWISE SPECIFIED AND SHALL BE RAKED CAREFULLY TO REMOVE ALL OBJECTIONABLE MATERIALS. LOAM SHALL BE SPREAD IN SUCH A MANNER AS TO ESTABLISH A LOOSE, FRIABLE SEEDBED. IN ORDER TO MAINTAIN A CONSISTENT GRADE, LOAM PLACED ADJACENT TO LAWNS OR WHERE DIRECTED SHALL BE COMPACTED WITH A ROLLER WEIGHING APPROXIMATELY 100 POUNDS PER FOOT OF ROLLER WIDTH. ALL DEPRESSIONS EXPOSED DURING THE ROLLING PROCEDURE SHALL BE FILLED WITH ADDITIONAL LOAM, AND ROLLED.
4. LOAM SHALL CONSIST OF LOOSE FRIABLE TOPSOIL WITH NO ADMIXTURE OF REFUSE OR MATERIAL TOXIC TO PLANT GROWTH. LOAM SHALL BE FREE OF VIABLE PARTS OF PROHIBITED INVASIVE PLANTS LISTED IN TABLE 3800.1 OF PART AGR 3800. LOAM SHALL BE GENERALLY FREE FROM STONES, LUMPS, STUMPS, OR SIMILAR OBJECTS LARGER THAN 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 3 PERCENT AND A MAXIMUM OF 10 PERCENT OF ORGANIC MATTER AS DETERMINED BY LOSS BY IGNITION. NOT MORE THAN 65 PERCENT SHALL PASS A NO. 200 SIEVE AS DETERMINED BY THE WASH TEST IN ACCORDANCE WITH ASTM D 1140. IN NO INSTANCE SHALL MORE THAN 20% OF THAT MATERIAL PASSING THE NO. 4 SIEVE CONSIST OF CLAY SIZE PARTICLES.
5. ALL AREAS TO BE SEEDED SHALL MEET THE SPECIFIED GRADES AND SHALL BE FREE OF GROWTH AND DEBRIS.
6. CARE SHALL BE TAKEN TO PREVENT THE FORMATION OF LOW PLACES AND POCKETS WHERE WATER WILL STAND.
7. WHERE RYEGRASS HAS BEEN PLANTED FOR TEMPORARY EROSION CONTROL AND HAS NOT BEEN ELIMINATED PRIOR TO THE COMPLETION OF THE WORK, SUCH AREAS SHALL BE DISC–HARROWED AT LEAST 3" DEEP AND SEEDED WITH PERMANENT GRASSES TO PREVENT THE RYEGRASS FROM RESEEDING AND BECOMING COMPETITIVE WITH AND RETARDING DEVELOPMENT OF THE PERMANENT COVER.
8. FERTILIZER SHALL BE UNIFORMLY APPLIED. THE RATE OF APPLICATION SHALL BE A RATE OF 2.0 POUNDS OF NITROGEN PER 1,000 SQUARE FEET. NOT LESS THAN THREE MONTHS SHALL ELAPSE BETWEEN THE INITIAL FERTILIZATION AND THE REFERTILIZATION. NO REFERTILIZATION WILL BE ALLOWED BETWEEN NOVEMBER 1, OR WHEN THE GROUND HAS FROZEN, AND THE FOLLOWING APRIL 1, OR BETWEEN JUNE 1 AND THE FOLLOWING SEPTEMBER 1. REFERTILIZATION WILL BE ALLOWED BETWEEN AUGUST 15 AND 31 ONLY WHEN IT IS DETERMINED THAT THE PERMANENT GRASSES HAVE DEVELOPED WELL AND FEW WEEDS HAVE APPEARED, AND SUCH REFERTILIZATION WILL NOT TEND TO PROMOTE THE GROWTH OF NOXIOUS WEEDS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING AND CARING FOR SEEDED AREAS UNTIL ACCEPTANCE OF THE WORK. CONTRACTOR SHALL REPAIR AT HIS OWN EXPENSE ANY DAMAGE TO SEEDED AREAS CAUSED BY PEDESTRIAN OR VEHICULAR TRAFFIC OR OTHER CAUSES.
10. THE SEEDED AREAS SHALL BE CAREFULLY AND SUITABLY WATERED AS NECESSARY TO PRODUCE A SATISFACTORY GROWTH.
11. AREAS SEEDED WITH PARK SEED SHALL BE MOWED WHENEVER NECESSARY TO KEEP THE GROWTH BETWEEN 3 AND 6" IN ORDER TO ALLOW LIGHT TO PENETRATE TO THE SHORTER, SLOWER GROWING SPECIES IN THE MIXTURE.
12. AREAS SEEDED WITH SLOPE SEED MAY BE ORDERED MOWED WHENEVER THE CONTRACT EXTENDS INTO A SECOND GROWING SEASON. WEEDS GROWING IN AREAS SEEDED WITH THE SLOPE SEED SHALL BE CUT BACK TO PREVENT THEM FROM DOMINATING THE DESIRED GRASS PLANTS
13. SELECT ONE OF THE GRASS/LEGUME MIXES BASED ON THE PERCENT WEIGHT PASSING A NO. 200 SIEVE AS OUTLINED ABOVE. MIX 2 IS RECOMMENDED IF SUPPRESSION OF WOODY GROWTH IS DESIRED AND THERE ARE MORE THAN 15 PERCENT FINES. THE STANDARD CONSERVATION MIXES AVAILABLE FROM LOCAL SEED SUPPLIERS ARE NOT RECOMMENDED ON DROUGHTY SITES. THESE MIXES USUALLY PROVIDE A GREEN COVER VERY QUICKLY, BUT THE PLANT SPECIES BEGIN TO DIE IN 2–4 YEARS ON STERILE AND DROUGHTY SITES.
14. FOR MIX 1, IN LIEU OF A SOIL TEST, LIME AT THE RATE OF 1 TON/ACRE (50 LBS/1,000 SQ FT). FERTILIZE WITH 500 LBS/ACRE (11 LBS/1,000 SQ FT) OF 10–20–20 OR EQUIVALENT. INCORPORATE LIME, FERTILIZER, AND SEED USING RAKES IF SEEDING IS DONE BY HAND. IT IS STRONGLY RECOMMENDED TO USE A BULLDOZER TO "TRACK" THE SITE AFTER SEEDING. TRACKING WILL INCORPORATE THE LIME, FERTILIZER, AND SEED TO PROMOTE SEED GERMINATION. FOR MIXES 2 & 3, IN LIEU OF A SOIL TEST, LIME AT THE RATE OF 2 TONS/ACRE (90 LBS/1,000 SQ FT). FERTILIZE WITH 500 LBS/ACRE (11 LBS/1,000 SQ FT) OF 10–20–20 OR EQUIVALENT. THE SEED NEEDS TO BE INCORPORATED TO ENSURE SUCCESS AND TO SHORTEN ESTABLISHMENT TIME. THIS IS ESPECIALLY TRUE OF MIXES 1 AND 2, AND IS MOST CRITICAL FOR THE LARGE SEEDED LEGUMES IN MIX 2. ON THE FLATTER SLOPES, USE A BULLDOZER TO "TRACK IN" THE SEED.
15. WHEN MULCHING FOR MIX 1, WEED FREE MULCH, CLEAN STRAW IS RECOMMENDED. MULCH AT THE MAXIMUM RATE OF 500–700 LBS/ACRE. HIGHER MULCHING RATES AND MULCH WITH WEED SEED CONTENT WILL INHIBIT SEEDING SUCCESS SIGNIFICANTLY. IF THE EROSION HAZARD IS LOW AND THE SEED IS INCORPORATED, MULCHING IS NOT NECESSARY FOR SEEDING SUCCESS. DO NOT APPLY MULCH PRIOR TO TRACKING WITH A BULLDOZER. WHEN MULCHING FOR MIXES 2 & 3, MULCH WITH WEED FREE HAY OR STRAW AND MULCH AT THE RATE OF 2–3 TONS/ACRE FOR MIX 2 AND 12 TONS/ACRE FOR MIX 3. THE HIGHER MULCHING RATE IS RECOMMENDED WHERE SEED INCORPORATION IS DIFFICULT. THIS IS ESPECIALLY CRITICAL FOR MIX 2.
16. WHEN SEEDING LARGE AREAS AND/OR STEEP SLOPES APPLY LIME, SEED, AND FERTILIZER WITH A HYDROSEEDER AND, DEPENDING ON THE CONSISTENCY OF THE SOIL MATERIAL, STEEPNESS OF SLOPE, AND SEED MIXTURE USED: (A) PRESS THE SEED INTO THE SOIL BY TRACKING WITH A BULLDOZER, OR (B) COVER THE SEED BY WALKING BACK AND FORTH OVER STEEP LOOSE SANDY SLOPES, OR (C) APPLY MULCH AND A TACKIFIER TO HOLD THE MULCH IN PLACE. WHEN SEEDING FLAT TO GENTLY SLOPING AREAS (2:1 SLOPES MAXIMUM) APPLY LIME, SEED AND FERTILIZER USING FARM TYPE SPREADERS AND TRACK THE SITE WITH A BULLDOZER OR APPLY MULCH.
17. PRIMARY SEEDING DATES BEGIN AS SOON AS THE SNOW MELTS IN THE SPRING AND ENDS MAY 15. THE IMPORTANCE OF EARLY SEEDING CANNOT BE OVEREMPHASIZED. THIS IS ESPECIALLY TRUE FOR MIX 1. DEPENDING ON WEATHER CONDITIONS, SUBSTANTIAL FAILURE CAN BE EXPECTED IF SEEDING IS DONE LATER. LATE SUMMER AND EARLY FALL SEEDLINGS ARE NOT RECOMMENDED FOR MIZES 1 AND 2. IF LATE SEEDINGS OF MIXES 1 AND 2 ARE NECESSARY, THEY SHOULD BE DONE AFTER OCTOBER 20 TO PREVENT FALL GERMINATION AND SUBSEQUENT WINTERKILL. MIX 3 CAN ALSO BE SEEDED FROM AUGUST 15 TO SEPTEMBER 1 WITH CONVENTIONAL SEEDING.
18. THE PLANT SPECIES IN MIXES 1 AND 2 GERMINATE AND GROW SLOWLY. COMPLETE COVER MAY NOT OCCUR FOR 2–4 YEARS. HOWEVER, A WELL–ESTABLISHED STAND WILL ENDURE FOR YEARS. FOLLOW–UP SEEDING MAY BE NEEDED TO ESTABLISH VEGETATION ON THE MORE DIFFICULT PARTS OF SOME SITES. THE NEED TO DO FOLLOW–UP SEEDING CAN BE DETERMINED THE YEAR AFTER THE INITIAL PLANTING.

MIX 1 (WARM SEASON GRASSES)	
KIND OF SEED	POUNDS/ACRE
SWITCHGRASS TRAILBLAZER	6
BIG BLUESTEM NIAGARA	4
LITTLE BLUESTEM	2
SAND LOVEGRASS	4

MIX 2 (LEGUMES AND COOL SEASON GRASSES)	
KIND OF SEED	POUNDS/ACRE
FLATPEA	10
PERENNIAL PEA	2
CROWN VETCH	10
TALL FESCUE	10

MIX 3 (COOL SEASON GRASSES AND LEGUMES)	
KIND OF SEED	POUNDS/ACRE
TALL FESCUE	20
REDTOP	2
BIRDSFOOT TREFOIL	8

TURF ESTABLISHMENT SPECIFICATIONS

1. SECONDARY CONTAINMENT EQUIPMENT USED DURING MOBILE FUELING SHOULD BE SIZED TO CONTAIN THE MOST LIKELY VOLUME OF FUEL TO BE SPILLED DURING A FUEL TRANSFER.
2. PORTABLE CONTAINMENT EQUIPMENT SHOULD BE POSITIONED TO CATCH ANY FUEL SPILLS DUE TO OVERFILLING THE EQUIPMENT AND ANY OTHER SPILLS THAT MAY OCCUR AT OR NEAR THE FUEL FILLER PORT TO THAT EQUIPMENT. THE SELECTION OF CONTAINMENT EQUIPMENT AND ITS POSITIONING AND USE SHOULD TAKE INTO ACCOUNT ALL OF THE DRIP POINTS ASSOCIATED WITH THE FUEL FILLING PORT AND THE HOSE FROM THE FUEL DELIVERY TRUCK.
3. PERSONNEL MUST ATTEND TO THE FUELING PROCESS TO ENSURE THAT ANY SPILLS WILL BE OF LIMITED VOLUME.
4. SECONDARY CONTAINMENT FOR OUTDOOR STORAGE AREAS (FOR FUEL OR OTHER REGULATED SUBSTANCES) MUST BE COVERED WITH A ROOF, PLASTIC SHEETING, OR WATERPROOF TARPAULINS TO KEEP CONTAINERS DRY, EXCEPT WHEN MATERIALS ARE BEING ADDED OR REMOVED. THE AREA MUST BE KEPT FREE OF RAIN, SNOW, AND ICE TO ENSURE SUFFICIENT CONTAINMENT VOLUME REMAINS TO CONTAIN A RELEASE FROM THE LARGEST STORAGE TANK. FOR RELATIVELY SMALL STORAGE AREAS, SPILL CONTAINMENT PALLETS AND COVERS ARE COMMERCIALLY AVAILABLE.
5. IF ANY OF THE FOLLOWING OCCURS, THE SPILL MUST BE IMMEDIATELY REPORTED TO THE NHDES AT (603) 271–3899 OR STATE POLICE AT (603) 223–4381 AFTER 4 P.M. ON WEEKDAYS OR ON WEEKENDS:
    - A. THE SPILL IS 25 GALLONS OR MORE.
    - B. THE SPILL IS NOT CONTAINED IMMEDIATELY.
    - C. THE SPILL AND CONTAMINATION ARE NOT COMPLETELY REMOVED WITHIN 24 HOURS.
    - D. THERE IS IMPACT OR POTENTIAL IMPACT TO GROUNDWATER OR SURFACE WATER.

MOBILE FUELING NOTES

GRANITE ENGINEERING
civil engineering
land planning
municipal services

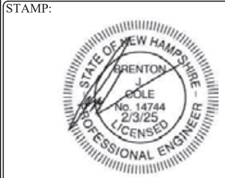
REVISIONS

No.	DATE	COMMENTS	BY
1	12/20/24	PROJECT SUBMITTAL	JD
2	2/3/25	REVISED PER CITY COMMENTS	JD
3	5/9/25	REVISED PER CITY COMMENTS	JD

OWNER/APPLICANT:
G2 HOLDINGS, LLC
250 NORTH STREET
JAFFREY, NH 03452

GRANITE ENGINEERING
civil engineering ● land planning ● municipal services
150 Dow Street, Tower 2, Suite 421
Manchester,
New Hampshire 03101
603.518.8030
www.GraniteEng.com

STAMP:

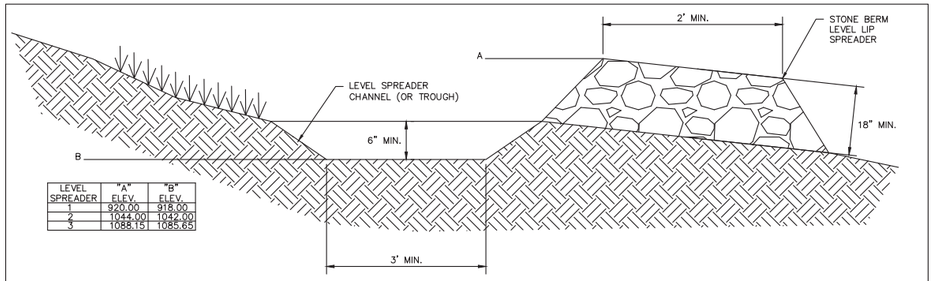


LOCATION:
KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES KEENE

TITLE:
DETAILS

PROJECT No.	DATE:	SCALE:
23–0201–1	MAY 9, 2025	AS SHOWN
SHEET: 22 OF 23		



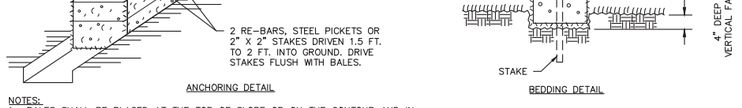
LEVEL SPREADER	"A" ELEV.	"B" ELEV.
1	920.00	918.00
2	1044.00	1042.00
3	1088.15	1085.65

CONSTRUCTION NOTES:
1. IT IS CRITICAL TO INSTALL LEVEL SPREADERS AT A ZERO PERCENT GRADE ALONG THE LENGTH OF THE DISCHARGE LIP. FLOW MUST DISCHARGE UNIFORMLY ALONG THE LENGTH OF THE SPREADER.
2. CARE MUST BE EXERCISED IN SITING THE SPREADER, SO THAT IT DISCHARGES ONTO A GENTLY SLOPING GRADE, WHERE RUNOFF EXITING THE SPREADER WILL NOT RE-CONCENTRATE AND CAUSE EROSION. A SLOPE THAT IS CONCAVE IN SHAPE (SUCH AS A SHALLOW SWALE) IS NOT SUITABLE FOR RECEIVING DISCHARGE FROM A LEVEL SPREADER. SUITABLE SLOPES ARE PLANAR OR CONVEX IN SHAPE, SO THAT FLOW WILL CONTINUE AS DISPERSED SHEET FLOW ACROSS THE SITE.
3. IT IS ESSENTIAL TO STABILIZE THE OUTLET LIP OF THE SPREADER, AND TO DISCHARGE ONTO A WELL STABILIZED RECEIVING AREA (PREFERABLY UNDISTURBED VEGETATION) TO PREVENT EROSION.

MAINTENANCE NOTES:
1. INSPECT AT LEAST ONCE ANNUALLY FOR ACCUMULATION OF SEDIMENT AND DEBRIS AND FOR SIGNS OF EROSION WITHIN APPROACH CHANNEL, SPREADER CHANNEL OR DOWN-SLOPE OF THE SPREADER.
2. REMOVE DEBRIS WHENEVER OBSERVED DURING INSPECTION.
3. REMOVE SEDIMENT WHEN ACCUMULATION EXCEEDS 25% OF SPREADER CHANNEL DEPTH.
4. MOW AS REQUIRED BY LANDSCAPING DESIGN. AT A MINIMUM, MOW ANNUALLY TO CONTROL WOODY VEGETATION WITHIN THE SPREADER.
5. SNOW SHOULD NOT BE STORED WITHIN OR DOWN-SLOPE OF THE LEVEL SPREADER OR ITS APPROACH CHANNEL.
6. REPAIR ANY EROSION AND RE-GRADE OR REPLACE STONE BERM MATERIAL, AS WARRANTED BY INSPECTION.
7. RECONSTRUCT THE SPREADER IF DOWN-SLOPE CHANNELIZATION INDICATES THAT THE SPREADER IS NOT LEVEL OR THAT DISCHARGE HAS BECOME CONCENTRATED AND CORRECTIONS CANNOT BE MADE THROUGH MINOR RE-GRADING.

LEVEL SPREADER DETAIL

NOT TO SCALE



NOTES:
1. BALES SHALL BE PLACED AT THE TOP OF SLOPE OR ON THE CONTOUR AND IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4", AND PLACED SO THAT BINDINGS ARE HORIZONTAL.
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
4. INSPECTION SHALL BE FREQUENT AND REPAIR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
5. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

HAY BALE BARRIER DETAIL

NOT TO SCALE

Wood Turtle

New Hampshire Species of Special Concern

Contact NHFG Wildlife Biologist if observed within your project site:

Josh Megyesy 603-271-1127 or 978-578-0802c (call or text)

- **Turtles may be attracted to disturbed ground during nesting season (May 15th – July 15th)**
- **Turtles are most active from April 15th – October 15th**

Identifying traits

- Neck and forelimbs are orange
- Highly sculpted shell with each large scute taking on an irregular pyramidal shape
- Adults can be 5-8 inches long

Habitat

- Wooded areas near streams
- Uplands surrounding streams
- Stream channel or associated wetland

NOTE: It is illegal to remove a wood turtle from the wild

Immediately report nesting turtles, suspected nesting turtles or suspected nest sites to NHFG Wildlife Biologist.

All other observation of this species shall be reported to NHFG via email at NHFGReview@wildlife.nh.gov. Include in the email subject line: NHBxx-xxx, Project Name, Wildlife Observation. Photo documentation, location, date/time of observation.

State laws pertaining to this species RSA 207:1, FIS 804.02, FIS 1401.03 (a)

RARE TURTLE FLYERS

NOT TO SCALE

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 SCULPTED 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.

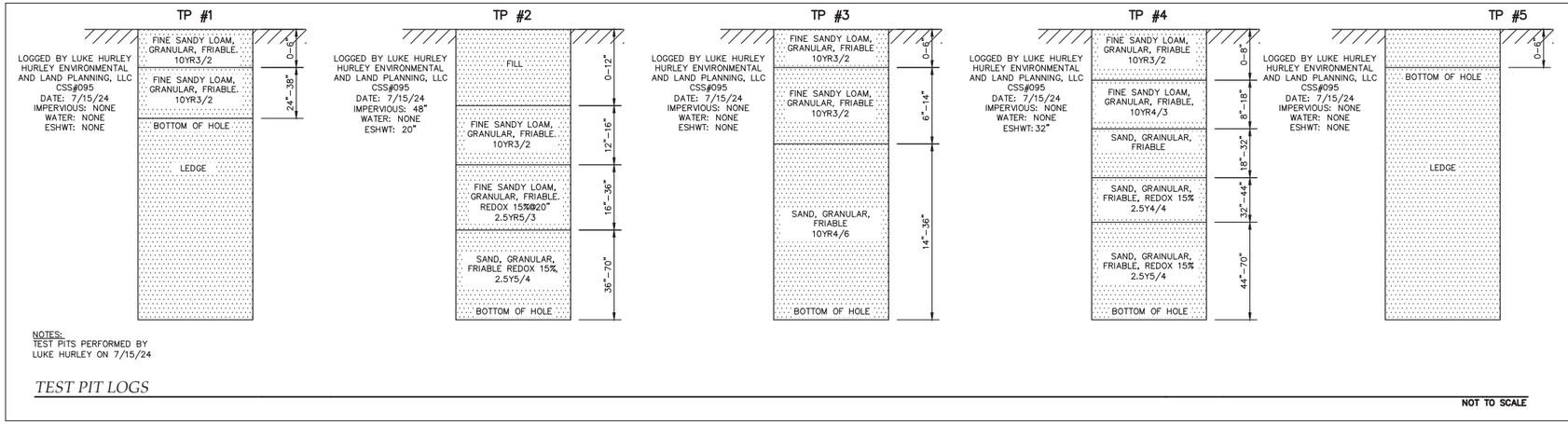
LIFE HISTORY: LAY 4-12 EGGS IN SHALLOW DEPRESSIONS IN SANDY, WELL-DRAINED SOILS. NEST SITES ARE USUALLY NEAR STREAMS BUT MAY ALSO BE IN CLEARINGS, AGRICULTURAL FIELDS, OR OTHER DISTURBED AREAS. HIBERNATE IN SLOW-MOVING STREAMS AND RIVERS UNDER RIVERBANKS, ROOT MASSES, OR WOODY DEBRIS.

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

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 NHFGREVIEW@WILDLIFE.NH.GOV. EMAIL SUBJECT LINE: NHB22-1680, 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.



NOTES:
TEST PITS PERFORMED BY LUKE HURLEY ON 7/15/24

TEST PIT LOGS

NOT TO SCALE

REVISIONS

No.	DATE	COMMENTS	BY
1	12/20/24	PROJECT SUBMITTAL	JD
2	2/3/25	REVISED PER CITY COMMENTS	JD
3	5/9/25	REVISED PER CITY COMMENTS	JD

OWNER/APPLICANT:
62 HOLDINGS, LLC
250 NORTH STREET
JAFFREY, NH 03452

GRANITE ENGINEERING
civil engineering
land planning
municipal services

GRANITE ENGINEERING
civil engineering • land planning • municipal services
150 Dow Street, Tower 2, Suite 421
Manchester,
New Hampshire 03101
603.518.8030
www.GraniteEng.com

STAMP:

LOCATION:
KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES KEENE

TITLE:
DETAILS

PROJECT No.	DATE:	SCALE:
23-0201-1	MAY 9, 2025	AS SHOWN
SHEET:	23 OF 23	

P:\23\2302011\dwg\Production Plan\2302011-DETAILS.dwg, DETAILS 4, 5/7/2025 11:47:04 AM, justind, DWG To PDF.pc3, ANSI full bleed D (34.00 x 22.00 Inches), 1:1

GORDON SERVICES – KEENE PIT
ACID MINE DRAINAGE DETECTION
INITIAL RESPONSE ACTION PLAN

57 Route 9, Keene, New Hampshire
City of Keene Tax Map 215 Block 7
Town of Sullivan Tax Map 583 Lot 46 & 46-1

Prepared For:

Gordon Services
250 North Street
Jaffrey, New Hampshire 03452

Prepared By:

FRONTIER GEOSERVICES
127 OLD WARNER ROAD
BRADFORD, NEW HAMPSHIRE 03221

Joel Banaszak, P.G.
(603) 748-3715
Jbanaszak@frontiergeoservices.com

April 6, 2025
Frontier Project No. 2024012

1.0 INTRODUCTION

Frontier Geoservices, LLC. (Frontier) has completed an acid mine drainage potential investigation at the property located at 57 Route 9, in the City of Keene, Cheshire County, New Hampshire The parcels comprising the Site are identified by the City of Keene's Assessor's office on Tax Map 215 as Block 7 (102.7-acres) and the Town of Sullivan, New Hampshire, Assessor's office on Tax Map 5 Lot 46 (172-acres) and 46-1 (25.82-acres.) The Site is currently owned by G2 Holdings, LLC. of 250 North Street, Jaffrey, New Hampshire. Please refer to **Figure 1** for a **Site Location Map**.

Currently, the Site operates as a gravel and earth removal operation for Gordon Services. The current operations are permitted to only encompass one area, Period 1, of the Site. Gordon Services wishes to expand their current operations to include additional excavation in Period 8 and new excavations in Periods 1 – 7. Please refer to **Figure 2** for a **Site Plan**.

Applicants proposing Earth Excavation are required to provide the information requested in The City of Keene's Article 25 Earth Excavation Regulation. This report provides the information requested in the City of Keene's Article 25.3.6 Toxic or Acid Forming Materials. Investigation activities included the sampling of materials from eight (8) bedrock monitoring wells; BRW-1 through BRW-8. Results from the investigation are included in the *2024 Acid Mine Drainage Potential Report*, drafted by Frontier.

Results from the investigation and analysis identified the potential for acid mine drainage at the Site and as such a surface and groundwater monitoring program is proposed to detect any potential acid mine drainage from the mining area. Additionally, pre-detection mitigation efforts are also proposed.

This document provides initial response actions which will be implemented if there are detections of acid mine drainage in surface and/or groundwater. It should be noted that this document is not intended to provide a complete list of remedial options which may implemented beyond the initial response actions.

2.0 ACID MINE DRAINAGE DEFINITION

Acid mine drainage is defined by highly acidic, low pH water (<6 SU) that is rich in dissolved heavy metals including arsenic, copper, iron, manganese, nickel and lead. The combination of these characteristics will be used to identify acid mine drainage as prescribed in the proposed water quality monitoring program described below. Individual exceedances of standards will not solely be used to identify the presence of acid mine drainage, but rather consistent relationships between field parameters and analytical results which are indicative of acid mine drainage, i.e. low pH water with high concentrations of dissolved heavy metals.

3.0 PROPOSED GROUNDWATER MONITORING PROGRAM

Due to the potential for water at the Site to be affected by acid mine drainage it is proposed that wells SRL-10, SRL-12, BRW-7 and BRW-8 be monitored on a bi-annual basis in the months of April and October. Additionally, samples will be collected from surface water infiltration features constructed throughout the project. All surface water being conveyed from the proposed excavation is to be directed into a surface water infiltration basin. The construction and placement of surface water infiltration features will be iterative based on project progression. Currently there is one surface water infiltration feature located in the western area of Period 8. Infiltration basins are to be lined with 1-foot of 2-inch minus, crushed, limestone gravel as a precautionary measure to neutralize any potential

acid mine drainage. As new infiltration features are constructed at the Site they will be added to the sampling program.

Field parameters including pH, specific conductance, oxidation reduction potential, dissolved oxygen and turbidity and laboratory analysis of dissolved and total metals including arsenic, copper, iron, manganese, nickel and lead will be performed at each sampling location. Baseline, pre-excavation monitoring will consist of the collection of two (2) rounds of samples collected a minimum of 14 calendar days apart. Results will be reviewed in comparison to the New Hampshire Department of Environmental Services (NHDES) Ambient Groundwater Quality Standards (AGQS). All results will be forwarded to the City of Keene Community Development Department within 45 days of sample collection.

Please refer to **Figure 2** for a **Proposed Water Quality Monitoring Location Map**.

4.0 APPICABLE REGULATORY STANDARDS

The water quality monitoring program consists of both surface water monitoring and groundwater monitoring. Applicable standards for surface water monitoring were established from the New Hampshire Department of Environmental Services (NHDES) Env-Wq 1700 Surface Water Quality Regulations.

Analyte	**Standard**
Specific Conductance	No Standard
Oxidation Reduction Potential	No Standard
Dissolved Oxygen	75%/ 5mg/L
Turbidity	10 NTU (beyond naturally occurring conditions)
pH	6.0 SU
Arsenic	150 µg/L, (a,b)
Copper	2.3 µg/L (b,c)
Iron	1,000 µg/L
Manganese	No Standard
Nickel	13.3 µg/L (a,c)
Lead	0.41 µg/L (a,c)

(a) The letter "a" shall indicate that criteria for these metals are expressed as a function of the water effect ratio (WER), and that because the values displayed in Env Wq 1700, Table 1703-1 correspond to a WER of 1.0, metals Adopted Rules 2-25-25 18 18 criteria for different WERs shall be determined using the procedures described in the EPA publication "Interim Guidance on Determination and Use of Water-Effect Ratios for Metals", EPA-823-B-94-001, dated February 1994.

(b) The letter "b" shall indicate that the values presented for aquatic life protection are dissolved metals and for hardness-dependent metals are based on a hardness of 20 mg/L. To convert dissolved to total recoverable metal, the equations and tables in Env-Wq 1703.23 shall be used. To calculate dissolved or total recoverable freshwater criteria for hardness-dependent metals for hardness values other than 20 mg/l, the equations and tables shown in Env-Wq 1703.23 and Env-Wq 1703.24 shall be used.

(c) The letter "c" shall indicate that the freshwater aquatic criteria for these metals are expressed as a function of the total hardness, as mg/L CaCO3 of the surface water, and that because the values displayed in Table 1703-1 correspond to a total hardness of 20 mg/L the aquatic life criteria for other hardness values expressed as calcium carbonate shall be calculated using the equations and tables in Env-Wq 1703.23 and Env-Wq 1703.24.

Applicable standards for groundwater monitoring were established from the NHDES Env-Or 600 Contaminated Site Management, Table 600-1 Ambient Groundwater Quality Standards. It should be noted that the applicable standard for heavy metals will be applied to the dissolved heavy metal concentration in groundwater as dissolved concentrations are a better indicator of bioavailability.

Some heavy metals may naturally occur at concentrations that exceed the applicable standard, as such, baseline sampling will be used to determine the "background" concentrations of metals which exceed the applicable standard but are interpreted to be naturally occurring. In these instances, the determination of the contribution of acid mine drainage to the concentration of heavy metals will be established by the observance of an increasing trend in the concentration of the subject heavy metal.

Analyte	**Standard**
Specific Conductance	No Standard
Oxidation Reduction Potential	No Standard
Dissolved Oxygen	75%/ 5 mg/L
Turbidity	10 NTU (beyond naturally occurring conditions)
pH	6.0 SU
Arsenic	5 µg/L,
Copper	1,300 µg/L
Iron	300 µg/L
Manganese	300 µg/L
Nickel	100 µg/L
Lead	15 µg/L

5.0 PROPOSED INITIAL RESPONSE ACTION – ACID MINE DRAINAGE DETECTION

As previously mentioned, acid mine drainage is defined by highly acidic, low pH water (<6 SU) that is rich in dissolved heavy metals including arsenic, copper, iron, manganese, nickel and lead. The combination of these characteristics will be used to identify acid mine drainage as prescribed in the proposed water quality monitoring program described below. Individual exceedances of standards will not solely be used to identify the presence of acid mine drainage, but rather consistent relationships between field parameters and analytical results which are indicative of acid mine drainage, i.e. low pH water with high concentrations of dissolved heavy metals.

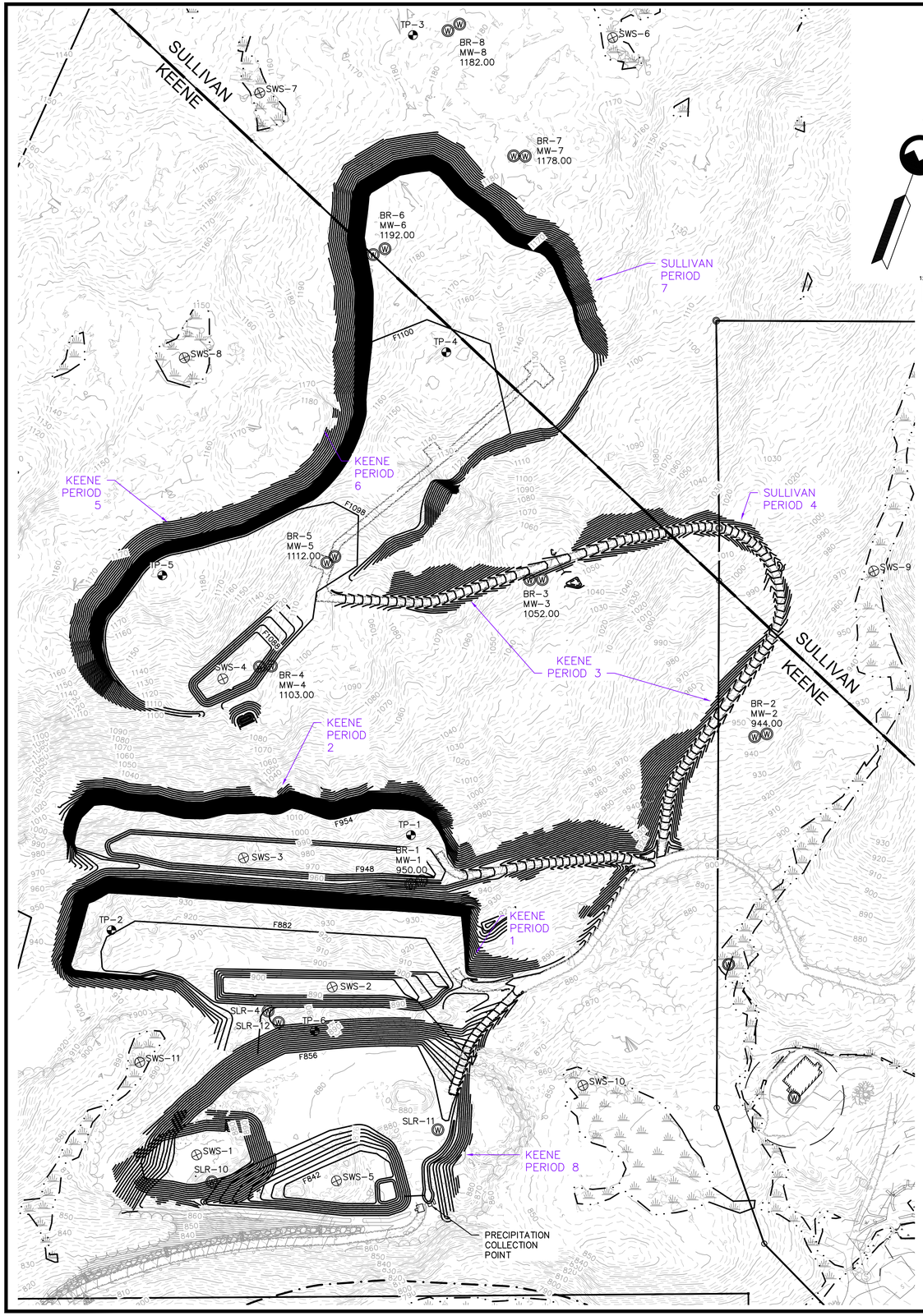
If a surface and/or groundwater sampling location presents results that are indicative of the formation of acid mine drainage NHDES And the City of Keene will be notified immediately. Furthermore, the following immediate initial response actions will be implemented.

1. All active quarrying/mining operations occurring in the affected area will cease and exposed bedrock surfaces shall be expeditiously restored to have a minimum thickness of 3-feet of cover material. The cover material shall consist of a minimum of 30% clay content. Cover

material shall be compacted in 1-foot lifts. The intent of the clay content and compaction is to limit air and surface water contact with the source of the acid mine drainage.

2. Any affected drainages which may be contributing/conveying acid mine drainage shall be armored with 1-foot of 2-inch minus, crushed, limestone gravel.
3. The frequency of surface water and groundwater monitoring for acid mine drainage will be increased to a quarterly basis.
4. All surface water within ½-mile downgradient of the detected acid mine drainage shall be sampled within 2-weeks of the initial detection and be included in the surface water monitoring program.
5. Sampling of all domestic water supply wells within ½-mile of the affected area for acid mine drainage parameters will occur within 2-weeks of the initial detection and continue to be sampled on a quarterly basis.
    a. If acid mine drainage is detected in a domestic water supply well the homeowner shall be offered to have a "point-of-use" water treatment system installed and maintained while a new, unimpacted, domestic water supply is made available at no cost to the homeowner.
6. A groundwater quality assessment in the areas adjected to the detected acid mine drainage will be initiated.
    a. The Groundwater Quality Assessment shall include the installation of a minimum of three (3) monitoring wells; one upgradient of the affected surface water, and two down-gradient of the affected surface water. Additional monitoring wells may be required to determine the horizontal and vertical distribution of the groundwater impacts.
    b. Groundwater samples will be collected within 2 weeks of installation and analyzed for acid mine drainage parameters listed above. A second, confirmatory round of sampling will occur 2-weeks after the initial sampling round. Monitoring wells will be sampled on a quarterly basis if acid mine drainage impacts are detected. If results indicate acid mine drainage may have traveled further downgradient additional monitoring wells may be required.

The proposed initial response actions are not intended to present a complete list of remedial options and mitigation. Additional remedial methods may include the impoundment and chemical neutralization of any surface water being derived from the source area, construction of remedial wetlands, and pumping and treatment of impacted groundwater. These remedial methods, and/or others, may be implemented if the conditions of the initial acid mine drainage dictates.



LEGEND

- ABUTTER LINE
- PROPERTY LINE
- EXCAVATION SETBACK LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- WETLANDS BOUNDARY
- PROPOSED EDGE OF GRAVEL
- EX.TREELINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- PROP. GRADE LINE
- TP — TEST PIT
- SL/BR (W) — MONITORING WELL
- SWS ⊗ — SURFACE WATER SAMPLE LOCATION

GRAPHIC SCALE

125 0 62.5 125 250

(IN FEET)
1 inch = 125 ft.

DIG SAFE
811
RI-ME-MA-VT-NH
CALL TOLL FREE
UTILITIES UNDERGROUND
DAMAGE PREVENTION SYSTEM

TEST PITS

ID	EXISTING GRADE	LEDGE	GROUNDWATER	E.S.H.W.T.
TP-1	986.0	3.1'	NONE FOUND	NONE FOUND
TP-2	926.0	NONE	NONE FOUND	20"
TP-3	1180.0	NONE	NONE FOUND	NONE FOUND
TP-4	1158.0	NONE	NONE FOUND	32"
TP-5	1190.0	0.5'	NONE FOUND	NONE FOUND
TP-6	887.0	873.0	NONE FOUND	NONE FOUND

OVERBURDEN WELLS

WELL	EXISTING GRADE	LEDGE	GROUNDWATER
MW-1	950.0	3.3'	NONE FOUND
MW-2	944.0	12'	NONE FOUND
M3-3	1052.0	14.2'	NONE FOUND
MW-4	1103.0	3.1'	NONE FOUND
MW-5	1112.0	5'	NONE FOUND
MW-6	1192.0	0.9'	NONE FOUND
MW-7	1178.0	1.9'	NONE FOUND
MW-8	1182.0	1.1'	NONE FOUND

Well	Ground Elevation (ft AMSL)	Bedrock Depth (feet)	Depth/Bottom Elevation (feet/ AMSL) ft	Proposed Pit Floor Elevation (ft AMSL)	Groundwater Elevation (ft AMSL)
BRW-1	950	3	54/896	950	DRY
BRW-2	944	12	62/882	940	DRY
BRW-3	1052	14	51/1,001	1,050	DRY
BRW-4	1,103	3	81/1,022	1,098	DRY
BRW-5	1,112	3	141/971	1,098	DRY
BRW-6	1,192	1	142/1,050	1,098	DRY
BRW-7	1,178	1.9	141/1,037	1,098*	1,177.04
BRW-8	1,182	1	141/1,041	1,098*	1,179.16

*Well is located outside of project area. The pit floor elevation that is noted is the proposed elevation of the nearest excavation.

ACID ROCK DRAINAGE (ARD) MONITORING		
MONITORING LOCATION	TESTING MONTHS	FREQUENCY
SLR-10	APRIL & OCTOBER	BI-ANNUALLY
SLR-11	APRIL & OCTOBER	BI-ANNUALLY
SLR-12	APRIL & OCTOBER	BI-ANNUALLY
BR-1	APRIL & OCTOBER	BI-ANNUALLY
BR-2	APRIL & OCTOBER	BI-ANNUALLY
BR-3	APRIL & OCTOBER	BI-ANNUALLY
BR-4	APRIL & OCTOBER	BI-ANNUALLY
BR-5	APRIL & OCTOBER	BI-ANNUALLY
BR-6	APRIL & OCTOBER	BI-ANNUALLY
BR-7	APRIL & OCTOBER	BI-ANNUALLY
BR-8	APRIL & OCTOBER	BI-ANNUALLY
SWS-1	APRIL & OCTOBER	BI-ANNUALLY UNTIL START OF PERIOD 8
SWS-2	APRIL & OCTOBER	BI-ANNUALLY AFTER START OF PERIOD 1
SWS-3	APRIL & OCTOBER	BI-ANNUALLY AFTER START OF PERIOD 21
SWS-4	APRIL & OCTOBER	BI-ANNUALLY AFTER START OF PERIOD 5
SWS-5	APRIL & OCTOBER	BI-ANNUALLY AFTER START OF PERIOD 8

WATER LEVEL MONITORING	
MONITORING LOCATION	FREQUENCY
SLR-10	MONTHLY
SLR-11	MONTHLY
SLR-12	MONTHLY
MW-2	MONTHLY
MW-4	MONTHLY
BR-7	MONTHLY
BR-8	MONTHLY
SWS-6	MONTHLY
SWS-7	MONTHLY
SWS-8	MONTHLY
SWS-9	MONTHLY
SWS-10	MONTHLY
SWS-11	MONTHLY

ON-SITE WATER QUALITY MONITORING NOTES (ARD MONITORING)

1. PH, SPECIFIC CONDUCTANCE, OXIDATION, REDECTION POTENTIAL, DISSOLVED OXYGEN AND TURBITY AND LABRATORY ANALYSIS OF DISSOLVED AND TOTAL METALS INCLUDING; ARSENIC, COPPER, IRON, MAGNESE, NICKEL AND LEAD WILL BE TESTED AT EACH LOCATION

OFF-SITE WATER QUALITY MONITORING NOTES

1. LAND OWNERS WITHIN ½ MILE OF THE EXCAVATION SITE WILL BE OFFERED GROUNDWATER QUALITY MONITORING.
2. NOTIFICATIONS WILL BE MADE TO LANDOWNERS WITH THE OPTION TO ALLOW OR DECLINE MONITORING.

BASELINE MONITORING

3. TWO ROUNDS OF SAMPLING WILL OCCUR A MINIMUM OF 14 CALENDAR DAYS APART.
4. SAMPLES WILL BE ANALYZED FOR VOLATILE ORGANIC COMPOUNDS AND NITRATE.
5. RESULTS WILL BE SENT TO THE LAND OWNER, THE CITY OF KEENE, & TOWN OF SULLIVAN.

ON-GOING MONITORING

6. BI-ANNUAL BASIS OF WELLS DURING THE TERM OF THE PERMIT.
7. BI-ANNUAL BASIS OF WELLS TWO (2) YEARS FOLLOWING THE CEASE OF OPERATIONS AT THE SITE AND RECLAMATION.
4. SAMPLES WILL BE ANALYZED FOR VOLATILE ORGANIC COMPOUNDS AND NITRATE.
5. RESULTS WILL BE SENT TO THE LAND OWNER, THE CITY OF KEENE, & TOWN OF SULLIVAN.

ADVERSE IMPACTS

6. DRINKING WATER RESULTS WILL BE COMPARED TO THE NHDES AMBIENT GROUNDWATER QUALITY STANDARDS (AGQS).
7. IF ADVERSE IMPACTS ARE NOTED, THE APPLICANT WILL IMMEDIATELY BE NOTIFIED TO CEASE BEDROCK EXCAVATION.
8. NHDES, THE CITY OF KEENE, AND TOWN OF SULLIVAN WILL BE NOTIFIED.
9. IF MONITORING INDICATES THE EXCAVATION ACTIVITIES CAUSED THE IDENTIFIED CONTAMINATION, A LICENSED NH WELL CONTRACTOR WILL BE IMMEDIATELY RETAINED FOR INSTALLATION OF A NEW WATER SUPPLY WELL IN AN AREA THAT HAS NOT BEEN IMPACTED BY CONTAMINATION.
10. COST OF WELL WILL BE THE SOLE RESPONSIBILITY OF THE APPLICANT.

BEST MANAGEMENT PRACTICES FOR BLASTING

ALL ACTIVITIES RELATED TO BLASTING SHALL FOLLOW BEST MANAGEMENT PRACTICES (BMPS) TO PREVENT CONTAMINATION OF GROUNDWATER INCLUDING PREPARING, REVIEWING AND FOLLOWING AN APPROVED BLASTING PLAN; PROPER DRILLING, EXPLOSIVE HANDING AND LOADING PROCEDURES; OBSERVING THE ENTIRE BLASTING PROCEDURES; EVALUATING BLASTING PERFORMANCE; AND HANDLING AND STORAGE OF BLASTED ROCK.

(1) LOADING PRACTICES. THE FOLLOWING BLASTHOLE LOADING PRACTICES TO MINIMIZE ENVIRONMENTAL EFFECTS SHALL BE FOLLOWED:
- (a) 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. IF A FRACTURE OR WATER BEARING ZONE IS ENCOUNTERED IN A BOREHOLE, NO BLASTING SHALL OCCUR AT THAT LOCATION.
- (b) 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.
- (c) 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.
- (d) 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.
- (e) 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.
- (f) 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.

(2) EXPLOSIVE SELECTION. THE FOLLOWING BMPS SHALL BE FOLLOWED TO REDUCE THE POTENTIAL FOR GROUNDWATER CONTAMINATION WHEN EXPLOSIVES ARE USED:
- (a) EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT ARE APPROPRIATE FOR SITE CONDITIONS AND SAFE BLAST EXECUTION.
- (b) 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.

(3) PREVENTION OF MISFIRES. APPROPRIATE PRACTICES SHALL BE DEVELOPED AND IMPLEMENTED TO PREVENT MISFIRES.

(4) 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:
- (a) REMOVE THE MUCK PILE FROM THE BLAST AREA AS SOON AS REASONABLY POSSIBLE.
- (b) MANAGE THE INTERACTION OF BLASTED ROCK PILES AND STORMWATER TO PREVENT CONTAMINATION OF WATER SUPPLY WELLS OR SURFACE WATER.

(5) 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:
- (a) THE FUEL STORAGE REQUIREMENTS SHALL INCLUDE
  1. STORAGE OF REGULATED SUBSTANCES ON AN IMPERVIOUS SURFACE.
  2. SECURE STORAGE AREAS AGAINST UNAUTHORIZED ENTRY.
  3. LABEL REGULATED CONTAINERS CLEARLY AND VISIBLY.
  4. INSPECT STORAGE AREAS WEEKLY.
  5. COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS.
  6. 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.
  7. 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
- (a) THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:
  1. EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED.
  2. PLACE DRIP PANS UNDER SPIGOTS, VALVES, AND PUMPS.
  3. HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK AREAS.
  4. USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES.
  5. PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.
- (a) 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.
- (b) FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT WILL COMPLY WITH THE REGULATIONS OF NHDES [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.]

SUBSURFACE DATA

LOG	EXISTING GROUND	PROPOSED GRADE	LEDGE	DEPTH TO GROUNDWATER	WELL BOTTOM	GROUNDWATER ELEV.
SLR-4	888.0	880.0	873.0	NONE FOUND	873.0	NONE FOUND
SLR-10	884.0	855.0	NONE TO 829.0	42.9	828.0	841.1
SLR-11	871.5.0	855.0	NONE TO 795.5	NONE TO 45.2	817.8	826.3
SLR-12	885.0*	885.0	877.5	1.5	850.5	883.5**

SUBSURFACE DATA FROM TEST PIT, BORING, AND WELL INSTALLATION LOGS CONTAINED IN THE LIMITED GEOHYDROLOGIC INVESTIGATION BY SLR INTERNATIONAL CORPORATION, DATED MARCH 25, 2022.

* ELEVATION BASED ON CURRENT SURVEY

REVISIONS

No.	DATE	COMMENTS	BY
1	12/20/24	PROJECT SUBMITTAL	JD
2	2/3/25	REVISED PER CITY COMMENTS	JD

OWNER/APPLICANT:
62 HOLDINGS, LLC
250 NORTH STREET
JAFFREY, NH 03452

GRANITE ENGINEERING
civil engineering
land planning
municipal services

GRANITE ENGINEERING
civil engineering • land planning • municipal services
150 Dow Street, Tower 2, Suite 421
Manchester,
New Hampshire 03101
603.518.8030
www.GraniteEng.com

STAMP:

LOCATION:
KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES KEENE

TITLE:
MONITORING PLAN

PROJECT No.	DATE:	SCALE:
23-0201-1	FEBRUARY 3, 2025	HORIZ. 1"=125'
SHEET:	1 OF 1	

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N

PROPOSED PIT LIMITS

AREA HAS BEEN CUT BUT NOT STUMPED

250' WETLAND SETBACK (TYP.)

150' WETLAND SETBACK (TYP.)

75' WETLAND SETBACK (TYP.)

RESTORED AREA A

RESTORED AREA B

RESTORED AREA C

RESTORED AREA D

RESTORED AREA E

PREVIOUSLY PERMITTED PIT LIMITS

EDGE OF DELINEATED WETLANDS (TYP.)

ACCESS ROADS 150' WETLAND SETBACK (TYP.)

LIMIT OF DISTURBANCE AS OF 5/31/2023

AREA TO BE CLEANED UP AND ESTABLISH A MAXIMUM SLOPE OF 2:1, TO BE SLOPED TOWARD PIT. LOAM AND SEED WITH SLOPE MATTING AND NEW ENGLAND ROADSIDE MATRIX UPLAND SEED MIX AT 35LBS/ACRE.

125' WETLAND SETBACK PER PREVIOUSLY PERMITTED WAIVER

EXISTING VEGETATIVE BUFFER TO REMAIN FOR NOISE AND EROSION CONTROL

EX. GRAVEL DRIVE (WIDTH VARIES)

NH ROUTE 9
(CLASS I)

LEGEND

- ABUTTER LINE
- PROPERTY LINE
- EXCAVATION SETBACK LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- WETLANDS BOUNDARY
- WETLAND BUFFER
- PROPOSED EDGE OF GRAVEL
- EX./PROP. TREELINE
- PROP. GRADE LINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- PREVIOUS PERMITTED PIT LIMITS
- LIMIT OF DISTURBANCE AS OF 5/31/2023
- PREVIOUSLY APPROVED ENCROACHMENTS
- PROPOSED ENCROACHMENTS
- PROPOSED AREA TO BE RESTORED
- AREAS PREVIOUSLY RESTORED

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

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GRANITE ENGINEERING
civil engineering
land planning
municipal services

REVISIONS

No.	DATE	COMMENTS	BY
1	12/20/24	PROJECT SUBMITTAL	JD
2	2/3/25	REVISED PER CITY COMMENTS	JD
3	5/9/25	REVISED PER CITY COMMENTS	JD

OWNER/APPLICANT:
G2 HOLDINGS, LLC
250 NORTH STREET
JAFFREY, NH 03452

GRANITE ENGINEERING
civil engineering ● land planning ● municipal services
150 Dow Street, Tower 2, Suite 421
Manchester,
New Hampshire 03101
603.518.8030
www.GraniteEng.com

STAMP:

STATE OF NEW HAMPSHIRE
BRENTON J. COLE
No. 14744
2/3/25
LICENSED PROFESSIONAL ENGINEER

LOCATION:
KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES KEENE

TITLE:
SURFACE WATER RESOURCES SETBACK PLAN

PROJECT No.	DATE:	SCALE:
23-0201-1	MAY 9, 2025	HORIZ. 1"=50'
SHEET:	1 OF 1	

STORMWATER MANAGEMENT REPORT

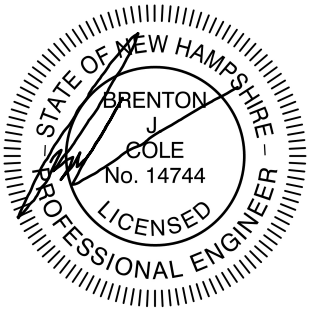
GRANITE ENGINEERING

civil engineering ● land planning ● municipal services

GORDON SERVICES - KEENE

Keene: Map 215; Lots 7 & 8
Sullivan: Map 5; Lots 46 & 46-1
57 Route 9
Keene & Sullivan, New Hampshire
January 22, 2025
Revised: May 8, 2025

PREPARED FOR:
G2 HOLDINGS, LLC
250 NORTH STREET
JAFFREY, NH 03452



PREPARED BY:
GRANITE ENGINEERING, LLC
150 DOW STREET, TOWER 2, SUITE 421
MANCHESTER, NH 03101
603.518.8030

GE Project No. 23-0201-1

I. INTRODUCTION

A. Project Description

The subject properties propose the expansion of an existing gravel and earth removal operation for G2 Holdings, LLC. The properties are located at 57 Route 9 in Keene and Sullivan, New Hampshire. The majority of the site is located within the Keene R (Rural) Zoning District. A proposed gravel road will be constructed to access various points on the site. Stormwater runoff will be managed through a series of sediment basins that connect to an existing infiltration pond.

B. Existing Site Conditions

Keene Tax Map 215 Lot 7 is approximately 78.4 acres in area. Keene Tax Map 215 Lot 8 is approximately 23.1 acres in area. Sullivan Tax Map 5 Lot 46 is approximately 169.0 acres in area. Tax map 5 Lot 46-1 is approximately 28.1 acres in area. The total area of all four subject properties is therefore 298.6 acres in area. The property is currently developed with a gravel removal operation. There are wetlands on the properties to the north and east. There is an existing, previously permitted, stormwater basin located to the south of the property, closest to Route 9.

According to the Site Specific Soil Survey, the predominant onsite soil types are Sunapee, Tunbridge Lyman Rock Outcrop, and Lyman.

Please refer to sections three (3) and eight (8) of this stormwater report for project specific NRCS soils and SSSS report information.

II. STORM DRAINAGE ANALYSIS & DESIGN

A. Methodology

The purpose of this analysis was to determine if the proposed sediment ponds could capture, detain, and release the stormwater flows through small, controlled, outlet pipes to both the existing infiltration area located currently on-site, as well as the proposed infiltration area to be completed during the final phase of the project (Period 8).

In accordance with generally accepted engineering practice, the 2-year, 10-year, 25-year, 50-year and 100-year frequency storm has been used in the various aspects of analysis and design of stormwater management considerations for the subject site. Stormwater-treatment provisions and all drainage facilities have been designed to be fully functional during a 50-year return frequency storm.

In appreciation of the benefits and limitations related to each of the various methods available to design professionals for estimating peak stormwater discharge rates for use in analysis and design, the TR-20 computer model was used. Values for Time of Concentration used in the analysis were estimated using the methodology contained within USDA-S.C.S. publication Urban Hydrology for Small Watersheds Technical Release No. 55 (TR 55).

All proposed stormwater inlet structures were designed to remain under inlet control throughout a design storm of the return frequency noted. Outlet protection for each discharging culvert was designed in accordance with the methodology for the “best management practice”, in accordance with a publication entitled New Hampshire Stormwater Manual Volume 2: Post-Construction Best Management Practices Selection and Design. In addition, this publication served as the primary reference for the numerous temporary and permanent erosion control methods incorporated into the design of this project.

All design and analysis calculations performed using the referenced methodologies are attached to this report. The minimum time of concentrations used for the analysis is 6 minutes. These calculations document each catchment area, a breakdown of surface type, time of concentration, rainfall intensity, peak discharge volume, Manning’s “n” value, peak velocity, and other descriptive design data for each watershed and pipe segment evaluated. In addition, the “Post Development Drainage Area Plans” graphically define and illustrate the extent of each watershed or catchment area investigated.

B. Post-Development Drainage Conditions

In order to evaluate the impact of the proposed development, two (2) Point of Analysis (POA) was analyzed to demonstrate that the peak rates of runoff would not increase from the site improvements.

The first POA, Link A, is located in the wetlands adjacent to Route 9 and directly south of the proposed project area. Within the wetlands, there is an 18” culvert directing runoff to the southern side of Route 9. This culvert has been shown on DOT Reference plans.

The second POA, Link B, is located in the wetlands directly to the east of the project area. Within the wetlands, there is an box culvert directing runoff to the southern side of Route 9.

Pre-development peak rates of discharge are identified in Table 2. Further explanation of the post-condition hydrology will show a net decrease to the point of analysis.

For a more visual description of the information presented in this section, please refer to the attached “Pre-Development Drainage Areas Plan” attached in the appendix of this report.

The analysis for the development of the site is broken into two segments, Interim and Final. “Interim Development” is in reference to the development of the site from Period 1 through Period 7. Once Period 7 is completed, the project will proceed with Period 8. In this Period, there is an additional excavation in the area of Period 1. For the construction of Period 8, this is viewed as the “Final Development”.

Stormwater from within the project area is managed by multiple sediment basins/detention ponds around each work area. These detention ponds are represented in the HydroCAD model and are denoted as SF 5, SF6, and SF7. The intent of the grading of the pit areas, as well as the haul roads, was to keep the stormwater self-contained, with no runoff during a 50-year, 24-hour storm event.

The detention basins mentioned above are designed to without and slowly discharge stormwater runoff to the infiltration basins near the lower portion of the project. During the project, in Period 1, the Infiltration Basin SF1 will be constructed to handle the runoff from the project site and infiltrate into the soil. Once Period 7 is completed, the project will move forward with Period 8. In this Period, Infiltration Basin SF8 will be constructed and will observe the runoff that originally was directed to SF1.

The proposed infiltration area was designed to use exfiltration though the native soils as its only means of outlet. Infiltration rates for the infiltration ponds were calculated by the default method as set forth in Env-Wq 1054.14. The practice is located in an area identified in the Soil Series Survey as Berkshire, Fine Sandy Loam Soils. Using Ksat values for New Hampshire Soils, Soil Scientists of Northern New England, Special Publications No. 5, September 2009, the lowest value associated with Berkshire soils is 0.6 inches per hour. Using a safety factor of 2, the infiltration rate utilized in the drainage analysis is 0.3 inches per hour.

Test pit data performed by TF Moran were used to determine the floor elevation of the pond, keeping it above the estimated seasonal high-water table.

The results of the drainage analysis determined that the stormwater was infiltrated in its entirety during a 50-year, 24-hour storm event. The self-contained 50-year storm event for both the Interim and Final Development of the project. This was done through capturing stormwater in large

sediment basins with small, controlled outlet devices to release stormwater in a controlled manner and by directing stormwater to the infiltration area.

During the 100-yr, 24-hour storm event, both the Interim and Final Development of the project provide a decrease in peak flow rate that discharge to the two points of analysis.

For a more visual description of the information presented in this section, please refer to the attached "Post-Development Drainage Areas Plan" attached in the appendix of this report.

All of these ponds provide adequate storage to offset the peak rates of runoff for the design storms. The detailed hydrologic and hydraulic relationship of each sub-catchment is described within the HydroCAD stormwater modeling, also contained in the appendix of this report.

The peak stormwater runoff rate for the specific storm frequency is presented and analyzed in the subsequent summary section of this report, for the point of analysis (Table 1).

C. Summary:

TABLE 1: CHANNEL PROTECTION REQUIREMENTS

Site Pre-Development vs. Post-Development (Storm Volume in Acre-Feet)			
Analysis Point	2-Year		
	Pre	Interim	Post
A	**1.011**	0.795	0.795
B	**5.037**	3.902	3.902

III. EROSION & SEDIMENTATION CONTROL PROVISIONS

A. Temporary Erosion Control Measures

Temporary erosion and sediment control measures are indicated on the design plans, construction details, general notes and within the drainage report. Although not integral with this stormwater report, due to the size of the proposed development both temporary and permanent erosion control measures will also be specified within the project's Stormwater Pollution Prevention Plan (SWPPP). All erosion control measures specified are designed to reduce or eliminate potential soil migration and water quality degradation, both during and after the construction period.

The following temporary erosion control measures will be implemented;

- Silt Fence and/or Silt Logs
- Erosion Control Blankets on slopes 3:1 and steeper
- Riprap Aprons & Spillway Stabilization
- Turf Establishment - Hydroseeding with mulch and tackifiers
- Stone Check Dams
- Temporary Sediment Basins

These temporary erosion control measures are also discussed in the projects. Operation and Maintenance plan contained in the appendices of this report.

In addition to the above-listed erosion control measures, references are made throughout the project documents to the New Hampshire Stormwater Manual; Volume 3: Erosion and Sediment Temporary Controls During Construction for additional measures, as necessary.

B. Construction Sequence

A site-specific construction sequence sensitive to limiting soil loss due to erosion and associated water quality degradation was prepared specifically for this project and is shown on the project plans. As pointed out in the erosion control notes, it is important for the contractor to recognize that proper judgment in the implementation of work will be essential if erosion is to be limited and protection of completed work is to be realized. Moreover, any specific changes in sequence and/or field conditions affecting the ability of specific erosion control measures to adequately serve their intended purpose should be reported to this office by the contractor. Furthermore, the contractor is encouraged to supplement specified erosion control measures during the construction period where and when in his/ her best judgment, additional protection is warranted.

C. Permanent Erosion Control Measures

Similar to temporary erosion control measures, all permanent erosion control measures are indicated on the design plans, construction details, general notes, drainage report, SWPPP and O & M project documents.

The following permanent erosion control measures will be implemented;

- Stone-lined ditches
- Inlet & Outlet Protection - Riprap Stabilization
- Stormwater Basins with multi-stage outlets
- Turf Establishment - Hydroseeding with mulch and tackifiers

Each of the above-mentioned permanent erosion control measures are designed in a project-specific manner within both state and local regulatory compliance standards.

Hurley Environmental
AND LAND PLANNING, LLC

SITE-SPECIFIC SOIL SURVEY REPORT
For
21 Route 9 Keene

1. MAPPING STANDARDS

Site-Specific Soil Mapping Standards for New Hampshire and Vermont. SSSNNE Special Publication No. 3, Version 7.0, July 2021. This map product is within the technical standards of the National Cooperative Soil Survey. It is a special product, intended for the submission to NH DES Alteration of Terrain. It was produced by a professional soil scientist and is not a product of the USDA Natural Resource Conservation Service.

Hydrologic Soil Group was determined using SSSNNE Special Publication No. 5.
Scale of soil map:
Approximately 1" equals 100'
Contours:
Intervals of 2 feet

2. DATE SOIL MAP PRODUCED

Date(s) of on-site field work: 7/15/24
Date(s) of test pits: 7/15/24
Test pits recorded by: Luke Hurley, CSS #095

3. GEOGRAPHIC LOCATION AND SIZE OF SITE

City or town where soil mapping was conducted: Keene/Sulivan
Location: Gordon Gravel Pit, 21 Route 9, Keene, Map 215, Lots7 & 8/Sullivan Map 5, Lots 46 & 46-1
Size of area: approximately 25 acres
Was the map for the entire lot? No
The area where the map was created for the proposed area of cut slope as part of the gravel pit expansion to tie into the slopes of the site. Thes mapped area has had some historical logging but is mostly forested with steep rock exposed slopes.

4. PURPOSE OF THE SOIL MAP

Was the map prepared to meet the requirement of Alteration of Terrain? No
If no, what was the purpose of the map? Town of Keene
Who was the map prepared for? Granite Engineering, Inc.

5. SOIL IDENTIFICATION LEGEND

SSSM SYM.	SSS MAP NAME	HISS SYM.	HYDROLOGIC SOIL GRP.
168	Sunapee	321	B
61	Tunbridge Lyman Rock Outcrop	224/227	C
92	Lyman	224	D

SLOPE PHASE:
0-8% B 8-15% C 15-25% D 25%+ E

168 Sunapee 321 B
The Sunapee series consists of very deep, moderately well drained soils formed in loamy melt-out till on hills and mountains in glaciated uplands. Estimated saturated hydraulic conductivity is moderately high or high in the mineral solum and moderately high to very high in the substratum. Slope ranges from 0 to 60 percent. These soils have an ESHWT between 15-40 inches and have no significant ledge within the profile of 40". Thes soils are found in the lower area adjacent to the current access road in an isolated area within the mapped portion, but extend outside of it and are also found in the higher upper flat areas of the mapped portion.
Typical Profile
0-12" Fill Log Landing
12-16" 10YR3/2, FSL, GR, FR
16-36" 2.5Y5/3, FSL, GR, FR Redox 15% @ 20"
36-70" 2.5Y5/4, S, GR, FR Redox 15%
ESHWT 20"
Observed Water None
Refusal None

61 Tunbridge Lyman Rock Outcrop 224/227 C
This series is the dominant series in the mapped area. These soils overlap in such a frequency that they can not be separated out into individual series. The soils are located along the steep exposed rock slopes, as well as some of the upper flat areas. Some portions of this mapped unit have limited soil on top to a depth of approximately 20 inches.

The Tunbridge series consists of moderately deep, well drained soils on glaciated uplands. They formed in loamy supraglacial till. Saturated hydraulic conductivity is moderately high or high throughout the mineral soil. Slope ranges from 0 to 80 percent. These soils have no ESHWT within 40 inches and have ledge between 20-40 inches.

The Lyman series consists of shallow, somewhat excessively drained soils on glaciated uplands. They formed in loamy supraglacial till. Estimated saturated hydraulic conductivity is moderately high or high throughout the mineral soil. Slope ranges from 0 to 80 percent. This series has shallow to exposed ledge less than 20 inches from the surface.

92 Lyman 224 D
The Lyman series consists of shallow, somewhat excessively drained soils on glaciated uplands. They formed in loamy supraglacial till. Estimated saturated hydraulic conductivity is moderately high or high throughout the mineral soil. Slope ranges from 0 to 80 percent.

6. RESPONSIBLE SOIL SCIENTIST
Name: Luke Hurley
Certified Soil Scientist Number: CSS #095

Hurley Environmental
AND LAND PLANNING, LLC

7. OTHER DISTINGUISHING FEATURES OF SITE
Is the site in a natural condition? The current mapping portion, yes.

8. Inclusions
No Inclusions were mapped.

Test Pits:
TP1
0-6” 10YR3/2, FSL, GR, FR
6-14” 10YR3/2, FSL, GR, FR
ESHWT None
Observed Water None
Refusal Ledge @14”

TP2
0-12” Fill, Old Log Landing
12-16” 10YR3/2, FSL, GR, FR
16-36” 2.5Y5/3, FSL, GR, FR Redox 15% @ 20”
36-70” 2.5Y5/4, S, GR, FR Redox 15%
ESHWT 20”
Observed Water None
Refusal None

TP3
0-6” 10YR3/2, FSL, GR, FR
6-14” 10YR4/4, FSL, GR, FR
14-36” 2.5Y5/4, S, GR, FR
ESHWT None
Observed Water None
Refusal 36”

TP4
0-8” 10YR3/2, FSL, GR, FR
8-18” 10YR4/3, FSL, GR, FR
18-32” 7.5YR5/4, S, GR, FR
32-44” 2.5Y4/4, S, GR, FR Redox 15%
44-70” 2.5Y5/4, S, GR, FR Redox 15%
ESHWT 32”
Observed Water None
Refusal 70”

TP5
Ledge @ 6”

Stormwater Management
Operation and Maintenance (O&M) Manual

for:

GORDON SERVICES - KEENE

Located at:

Keene: Map 215; Lots 7 & 8
Sullivan: Map 5; Lots 46 & 46-1
57 Route 9
Keene & Sullivan, New Hampshire

Prepared for:

G2 HOLDINGS, LLC
250 NORTH STREET
JAFFREY, NH 03452

Prepared by:

GRANITE ENGINEERING, LLC
150 DOW STREET, TOWER 2, SUITE 421
MANCHESTER, NH 03101
603.518.8030 | www.GraniteEng.com

Stormwater Management
Operation and Maintenance (O&M) Manual

I. Compliance with Stormwater Facility Maintenance Requirements

The owner of the subject property is responsible for ensuring that stormwater facilities installed on the property are properly maintained and that they function as designed. In some cases, this maintenance responsibility may be assigned to others through special agreements. Any transfer of responsibility for inspection and maintenance activities or transfer of ownership shall be documented in writing. The contract documents will require the contractor to designate a person responsible for maintenance of the sedimentation control features during construction. Long-term operation and maintenance for the stormwater management facilities are presented below.

II. Inspection & Maintenance – Annual Reporting

Requirements for the inspection and maintenance of stormwater facilities, as well as reporting requirements, are included in this Stormwater Management Operation and Maintenance (O&M) Manual.

Verification that the Stormwater facilities have been properly inspected and maintained; copies of the annual report should be documented on site for future reporting upon request.

Copies of the Inspection and Maintenance forms for each of the stormwater facilities are located in Appendix B and C. A standard annual reporting form is provided in Appendix A.

III. Preventative Measures to Reduce Maintenance Costs

The most effective way to maintain your water quality facility is to prevent the pollutants from entering the facility in the first place. Common pollutants include sediment, trash & debris, chemicals, dog wastes, runoff from stored materials, illicit discharges into the storm drainage system and many others. A thoughtful maintenance program will include measures to address these potential contaminants and will save money and time in the long run. Key points to consider in your maintenance program include:

- Educate property owners/residents to be aware of how their actions affect water quality, and how they can help reduce maintenance costs
- Keep properties, streets and gutters, and parking lots free of trash, debris, and lawn clippings
- Ensure the proper disposal of hazardous wastes and chemicals
- Plan lawn care to minimize the use of chemicals and pesticides
- Sweep paved surfaces and put the sweepings back on the lawn
- Be aware of automobiles leaking fluids. Use absorbents such as cat litter to soak up drippings – dispose of properly
- Re-vegetate disturbed and bare areas to maintain vegetative stabilization.
- Clean out the upstream components of the storm drainage system, including inlets, storm sewers, and outfalls
- Do not store materials outdoors (including landscaping materials) unless properly protected from runoff

IV. Access

All stormwater management facilities located on the site have a designated access location. Refer to the Stormwater Plan located in Appendix E for access locations.

V. Safety

Keep safety considerations at the forefront of inspection procedures at all times. Likely hazards should be anticipated and avoided. Never enter confined space (outlet structure, manhole, etc) without proper training or equipment. A confined space should never be entered without at least one additional person present.

If a toxic or flammable substance is discovered, leave the immediate area and contact the local authority at 911.

Potentially dangerous (e.g., fuel, chemicals, hazardous materials) substances found in the areas must be referred to the local authority immediately for response. The emergency contact number is 911.

Vertical drops may be encountered in areas located within and around the facility. Avoid walking on top of retaining walls or other structures that have a significant vertical drop. If a vertical drop is identified within the pond that is greater than 48” in height, make the appropriate note/comment on the maintenance inspection form.

If any hazard is found within the facility area that poses an immediate threat to public safety, contact the local authority immediately.

VI. Field Inspection Equipment

It is imperative that the appropriate equipment is taken to the field with the inspector(s). This is to ensure the safety of the inspector and allow the inspections to be performed as efficiently as possible. Below is a list of the equipment that may be necessary to perform the inspections of all Stormwater Management Facilities:

- Protective clothing and boots
- Safety equipment (vest, hard hat, confined space entry equipment
- Communication equipment
- Operation and Maintenance Manual for the site including stormwater management facility location maps
- Clipboard
- Stormwater Facility Maintenance Inspection Forms (See Appendix B)
- Manhole Lid Remover
- Shovel
- Camera or phone camera

Some of the items identified above need not be carried by the inspector (manhole lid remover, shovel, and confined space entry equipment). However, this equipment should be available in the vehicle driven to the site.

VII. Inspecting Stormwater Management Facilities

The quality of stormwater relies heavily on the proper operation and maintenance of permanent best management practices. Stormwater management facilities must be periodically inspected to ensure that they function as designed. The inspection will determine the appropriate maintenance that is required for the facility.

A. Inspection Procedures

All stormwater management facilities are required to be inspected by a qualified individual. Inspections should follow the inspection guidance found in Appendix B of this manual.

B. Inspection Report

The person(s) conducting the inspection activities shall complete the appropriate inspection report for the specific facility. Inspection reports are located in Appendix B.

A record of inspection and maintenance activities shall be recorded on the Inspection and Maintenance Lot presented below. Photographs of each practice that is subject to the I&M requirement should be taken at each inspection of that practice. Records of Inspection forms, photos and Inspection Maintenance Logs shall be made available to DES and the Town of Bethlehem upon request.

VIII. Maintenance Requirements

Stormwater management facilities must be properly maintained to ensure that they operate correctly and provide the water quality treatment for which they were designed. Routine maintenance performed on a frequently scheduled basis can help avoid more costly rehabilitative maintenance that results when facilities are not adequately maintained.

The Long-Term Inspection and Maintenance Log provides a record of maintenance activities. Maintenance Logs for each facility type are provided in Appendix C.

Infiltration Systems

- Systems should be inspected at least twice annually, and following any rainfall event exceeding 2.5 inches in a 24 hour period, with maintenance or rehabilitation conducted as warranted by such inspection.
- Pretreatment measures should be inspected at least twice annually, and cleaned of accumulated sediment as warranted by inspection, but no less than once annually.

- Trash and debris should be removed at each inspection.
- Remove accumulated sediment based on inspection.
- Periodically mow the embankments and remove woody vegetation.
- Inspect and repair embankments and spillways based on inspection.
- At least once annually, system should be inspected for drawdown time. If bioretention system does not drain within 72-hours following a rainfall event, then a qualified professional should assess the condition of the facility to determine measures required to restore filtration function, including but not limited to removal of accumulated sediments or reconstruction of filter.

Sedimentation Basins

- The bottoms, interior and exterior side slopes, and crests of earthen detention basins should be mowed, and the vegetation maintained in healthy conditions, as appropriate to the function of the facility and type of vegetation.
- Vegetated embankments that serve as “berms” or “dams” that impound water should be mowed at least once annually to prevent the establishment of woody vegetation.
- Embankments should be inspected at least annually by a qualified professional for settlements, erosion, seepage, animal burrows, woody vegetation, and other conditions that could degrade the embankment and reduce its stability for impounding water. Immediate corrective action should be implemented if any such conditions are found.
- Inlet and outlet pipes, inlet and outlet structures, energy dissipation structures or practices, and other structural appurtenances should be inspected at least annually by a qualified professional, and corrective action implemented (e.g., maintenance, repairs, or replacement) as indicated by such inspection.
- Trash and debris should be removed from the basin and any inlet or outlet structures whenever observed by inspection.
- Accumulated sediment should be removed when it significantly affects basin capacity.

Level Spreaders

- Inspect at least once annually for accumulation of sediment and debris and for signs of erosion within approach channel, spreader channel, or down-slope of the spreader.
- Remove debris whenever observed during inspection.
- Remove sediment when accumulation exceeds 25% of level spreader channel depth.
- Mow as required by landscaping design. At a minimum, mow annually to control woody vegetation within the spreader.
- Snow should not be stored within or down-slope of the level spreader or its approach channel.
- Repair any erosion and re-grade or replace stone berm material, as warranted by inspection.
- Reconstruct the spreader if down-slope channelization indicates that the spreader is not level or that discharge has become concentrated, and corrections cannot be made through minor re-grading.

IX. Control of Invasive Species

During maintenance activities, check for the presence of invasive plants and remove in a safe manner as described on the following pages. They should be controlled as described in Appendix D.

Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some exotic plants are imported for human use such as landscaping, erosion control, or food crops. They also can arrive as "hitchhikers" among shipments of other plants, seeds, packing materials, or fresh produce. Some exotic plants become invasive and cause harm by:

- becoming weedy and overgrown;
- killing established shade trees;
- obstructing pipes and drainage systems;
- forming dense beds in water;
- lowering water levels in lakes, streams, and wetlands;
- destroying natural communities;
- promoting erosion on stream banks and hillsides; and
- resisting control except by hazardous chemicals.

SITE SPECIFIC SOIL MAP UNIT KEY

SYMBOL	MAP UNIT	HYDROLOGIC SOIL GROUP
168	SUNAPEE	B
61	TUNBRIDGE LYMAN ROCK OUTCROP	C
92	LYMAN	D

SLOPE PHASE: 0–8%=B, 8–15%=C, 15–25%=D, 25%+=E

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STATE OF NEW HAMPSHIRE — LUKE D HURLEY — NO. 095 — 7/15 — CERTIFIED SOIL SCIENTIST

NOTES:

1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE VARIOUS STORMWATER SUBCATCHMENT AREAS, CORRESPONDING TIMES OF CONCENTRATION, PONDS, AND REACHES ASSOCIATED WITH THE SUBJECT PARCEL PRE-DEVELOPMENT.

SCS LEGEND

60C	TUNBRIDGE–BERKSHIRE COMPLEX, 8–15% SLOPE
60D	TUNBRIDGE–BERKSHIRE COMPLEX, 15–25% SLOPE
61C	TUNBRIDGE–LYMAN–ROCK OUTCROP COMPLEX, 8–15% SLOPE
61D	TUNBRIDGE–LYMAN–ROCK OUTCROP COMPLEX, 15–25% SLOPE
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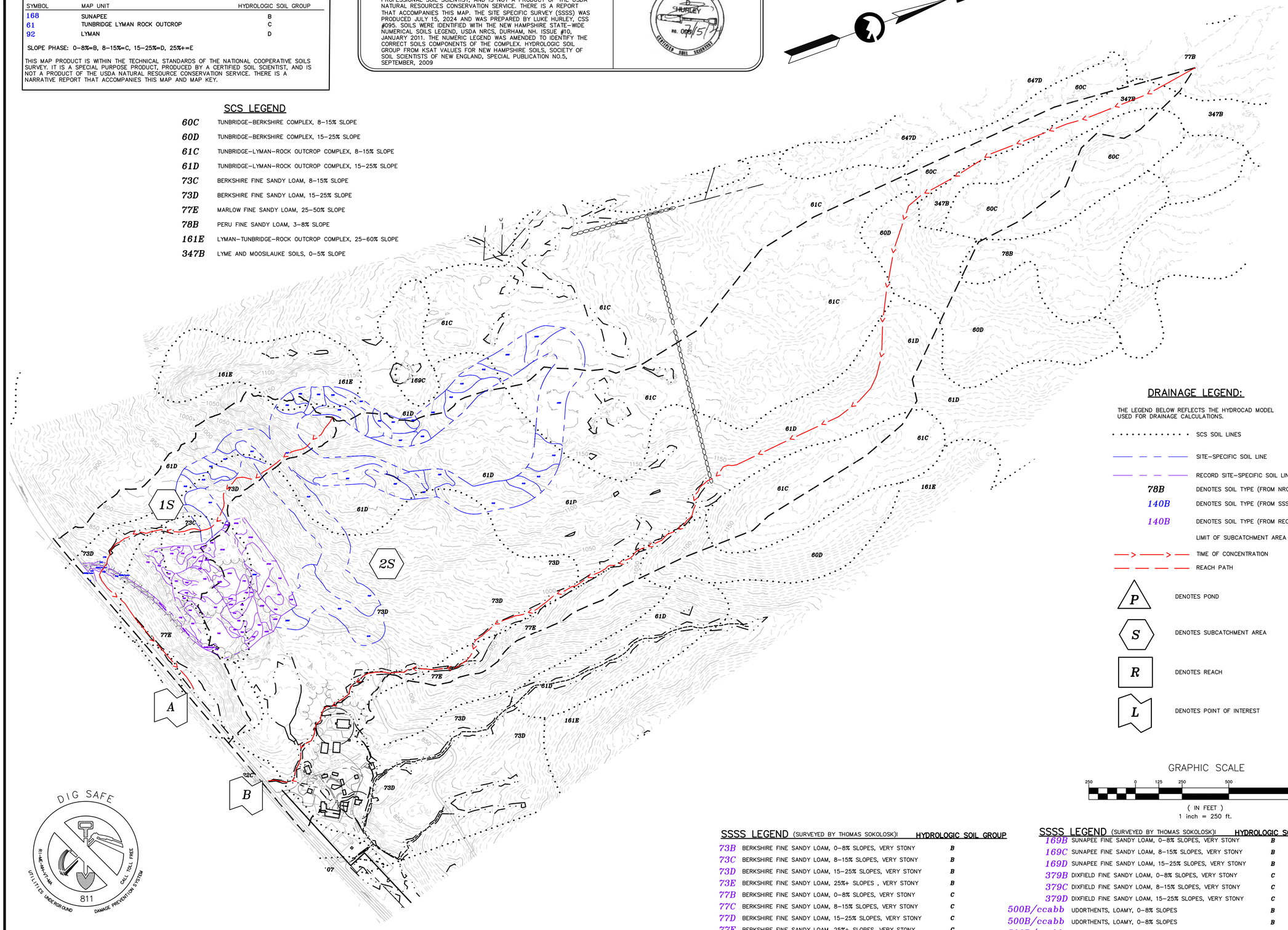
73D	BERKSHIRE FINE SANDY LOAM, 15–25% SLOPE
77E	MARLOW FINE SANDY LOAM, 25–50% SLOPE
78B	PERU FINE SANDY LOAM, 3–8% SLOPE
161E	LYMAN–TUNBRIDGE–ROCK OUTCROP COMPLEX, 25–60% SLOPE
347B	LYME AND MOOSILAUKE SOILS, 0–5% SLOPE



DRAINAGE LEGEND:

THE LEGEND BELOW REFLECTS THE HYDROCAD MODEL USED FOR DRAINAGE CALCULATIONS.

- SCS SOIL LINES
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- RECORD SITE–SPECIFIC SOIL LINE
- 78B — DENOTES SOIL TYPE (FROM NRCS)
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- 140B — DENOTES SOIL TYPE (FROM RECORD SSSS)
- LIMIT OF SUBCATCHMENT AREA
- TIME OF CONCENTRATION
- REACH PATH
- P — DENOTES POND
- S — DENOTES SUBCATCHMENT AREA
- R — DENOTES REACH
- L — DENOTES POINT OF INTEREST

GRAPHIC SCALE

250 0 125 250 500 1,000

(IN FEET)
1 inch = 250 ft.

SSSS LEGEND (SURVEYED BY THOMAS SOKOLOSK)I

		HYDROLOGIC SOIL GROUP
73B	BERKSHIRE FINE SANDY LOAM, 0–8% SLOPES, VERY STONY	B
73C	BERKSHIRE FINE SANDY LOAM, 8–15% SLOPES, VERY STONY	B
73D	BERKSHIRE FINE SANDY LOAM, 15–25% SLOPES, VERY STONY	B
73E	BERKSHIRE FINE SANDY LOAM, 25%+ SLOPES , VERY STONY	B
77B	BERKSHIRE FINE SANDY LOAM, 0–8% SLOPES, VERY STONY	C
77C	BERKSHIRE FINE SANDY LOAM, 8–15% SLOPES, VERY STONY	C
77D	BERKSHIRE FINE SANDY LOAM, 15–25% SLOPES, VERY STONY	C
77E	BERKSHIRE FINE SANDY LOAM, 25%+ SLOPES, VERY STONY	C

SSSS LEGEND (SURVEYED BY THOMAS SOKOLOSK)I

		HYDROLOGIC SOIL GROUP
169B	SUNAPEE FINE SANDY LOAM, 0–8% SLOPES, VERY STONY	B
169C	SUNAPEE FINE SANDY LOAM, 8–15% SLOPES, VERY STONY	B
169D	SUNAPEE FINE SANDY LOAM, 15–25% SLOPES, VERY STONY	B
379B	DIXFIELD FINE SANDY LOAM, 0–8% SLOPES, VERY STONY	C
379C	DIXFIELD FINE SANDY LOAM, 8–15% SLOPES, VERY STONY	C
379D	DIXFIELD FINE SANDY LOAM, 15–25% SLOPES, VERY STONY	C
500B/ccabb	UDORTHENTS, LOAMY, 0–8% SLOPES	B
500B/ccabb	UDORTHENTS, LOAMY, 0–8% SLOPES	B
500B/ccabb	URBAN LAND, 8–15% SLOPES	B

DIG SAFE — NH ALWAYS DIG — CALL TOLL FREE — 811 — UTILITIES UNDERGROUND — DAMAGE PREVENTION SYSTEM

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REVISIONS

No.	DATE	COMMENTS	BY
1	12/20/24	PROJECT SUBMITTAL	JD
2	2/3/25	REVISED PER CITY COMMENTS	JD
3	5/9/25	REVISED PER CITY COMMENTS	JD

OWNER/APPLICANT:
62 HOLDINGS, LLC
250 NORTH STREET
JAFFREY, NH 03452

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New Hampshire 03101
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STAMP:

LOCATION:
KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES KEENE

TITLE:
PRE-DEVELOPMENT DRAIN AREAS PLAN

PROJECT No.	DATE:	SCALE:
23-0201-1	MAY 9, 2025	HORIZ. 1"=250'
SHEET:	1 OF 5	

SITE SPECIFIC SOIL MAP UNIT KEY

SYMBOL	MAP UNIT	HYDROLOGIC SOIL GROUP
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STATE OF NEW HAMPSHIRE · LUKE D HURLEY · NO. 095 · CERTIFIED SOIL SCIENTIST

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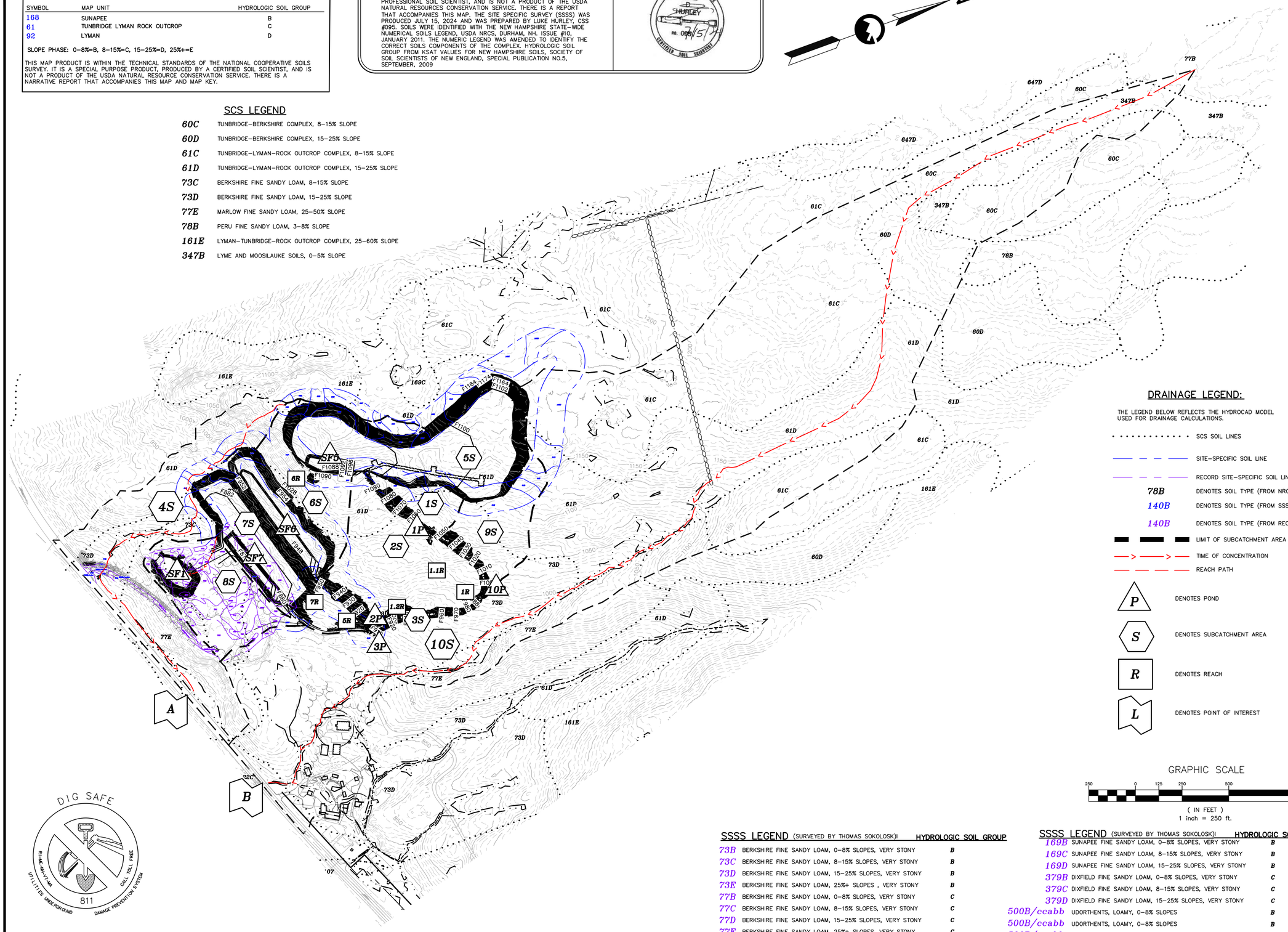

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GRAPHIC SCALE

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(IN FEET)
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No.	DATE	COMMENTS	BY
1	12/20/24	PROJECT SUBMITTAL	JD
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New Hampshire 03101
603.518.8030
www.GraniteEng.com

STAMP:

STATE OF NEW HAMPSHIRE · BRENTON J COLE · No. 14744 · 2/3/25 · LICENSED PROFESSIONAL ENGINEER

LOCATION:
KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES KEENE

TITLE:
INTERIM POST-DEVELOPMENT DRAIN AREAS PLAN

PROJECT No.	DATE:	SCALE:
23-0201-1	MAY 9, 2025	HORIZ. 1"=250'
SHEET: 2 OF 5		

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SCS LEGEND

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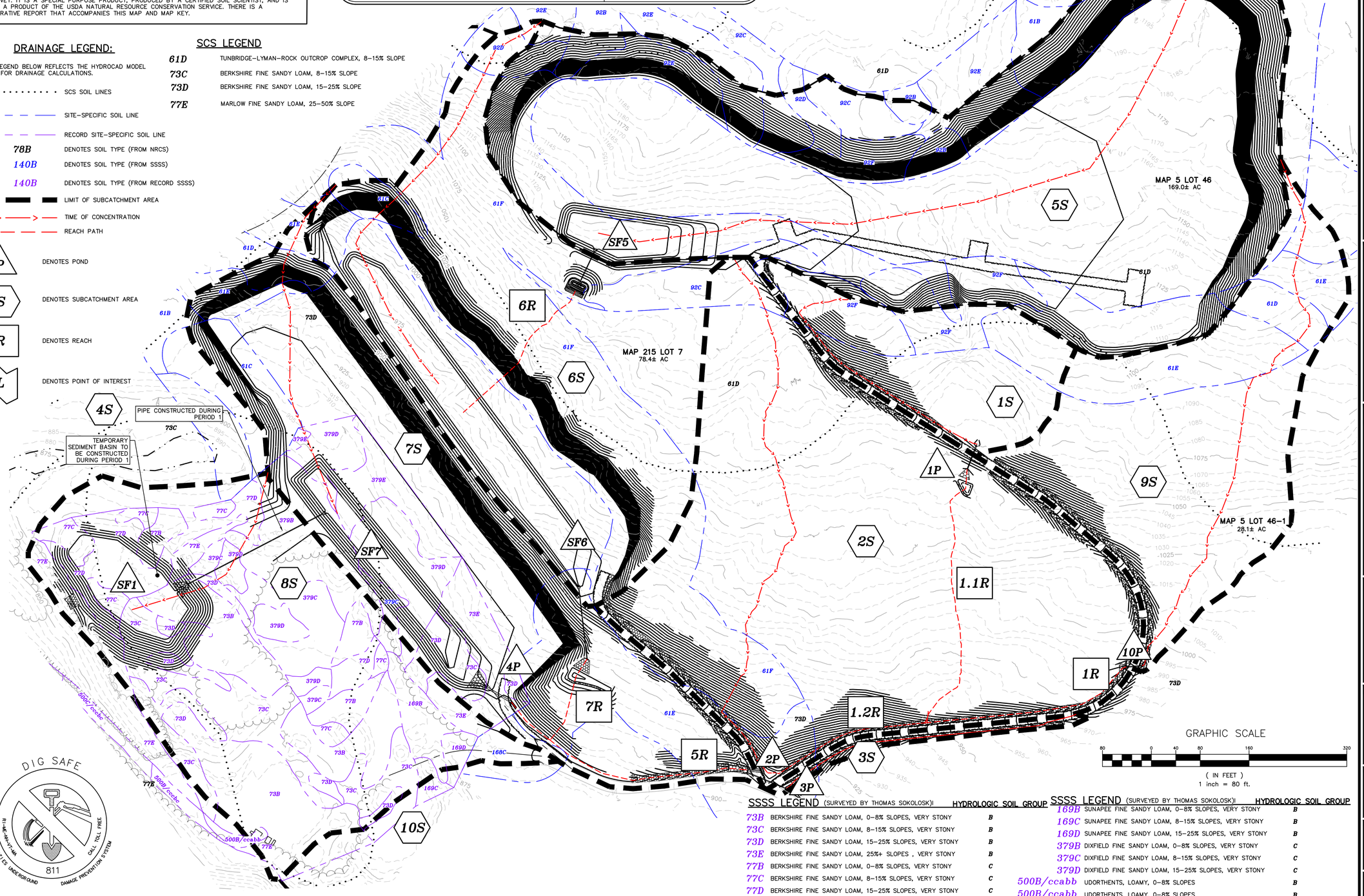

DIG SAFE — 811 — DIAL 811 OR 1-888-DIG-SAFE — CALL TOLL FREE — UTILITIES UNDERGROUND — DAMAGE PREVENTION SYSTEM

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REVISIONS

No.	DATE	COMMENTS	BY
1	12/20/24	PROJECT SUBMITTAL	JD
2	2/3/25	REVISED PER CITY COMMENTS	JD
3	5/9/25	REVISED PER CITY COMMENTS	JD

OWNER/APPLICANT:
62 HOLDINGS, LLC
250 NORTH STREET
JAFFREY, NH 03452

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New Hampshire 03101
603.518.8030
www.GraniteEng.com

STAMP:

STATE OF NEW HAMPSHIRE — BRENTON J. BOLE — No. 14744 — 2/3/25 — LICENSED PROFESSIONAL ENGINEER

LOCATION:
KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES KEENE

TITLE:
INTERIM DRAIN AREAS PLAN

PROJECT No.	DATE:	SCALE:
23-0201-1	MAY 9, 2025	HORIZ. 1"=80'
SHEET:	3 OF 5	

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SITE SPECIFIC SOIL MAP UNIT KEY

SYMBOL	MAP UNIT	HYDROLOGIC SOIL GROUP
168	SUNAPEE	B
61	TUNBRIDGE LYMAN ROCK OUTCROP	C
92	LYMAN	D

SLOPE PHASE: 0–8%=B, 8–15%=C, 15–25%=D, 25%+=E

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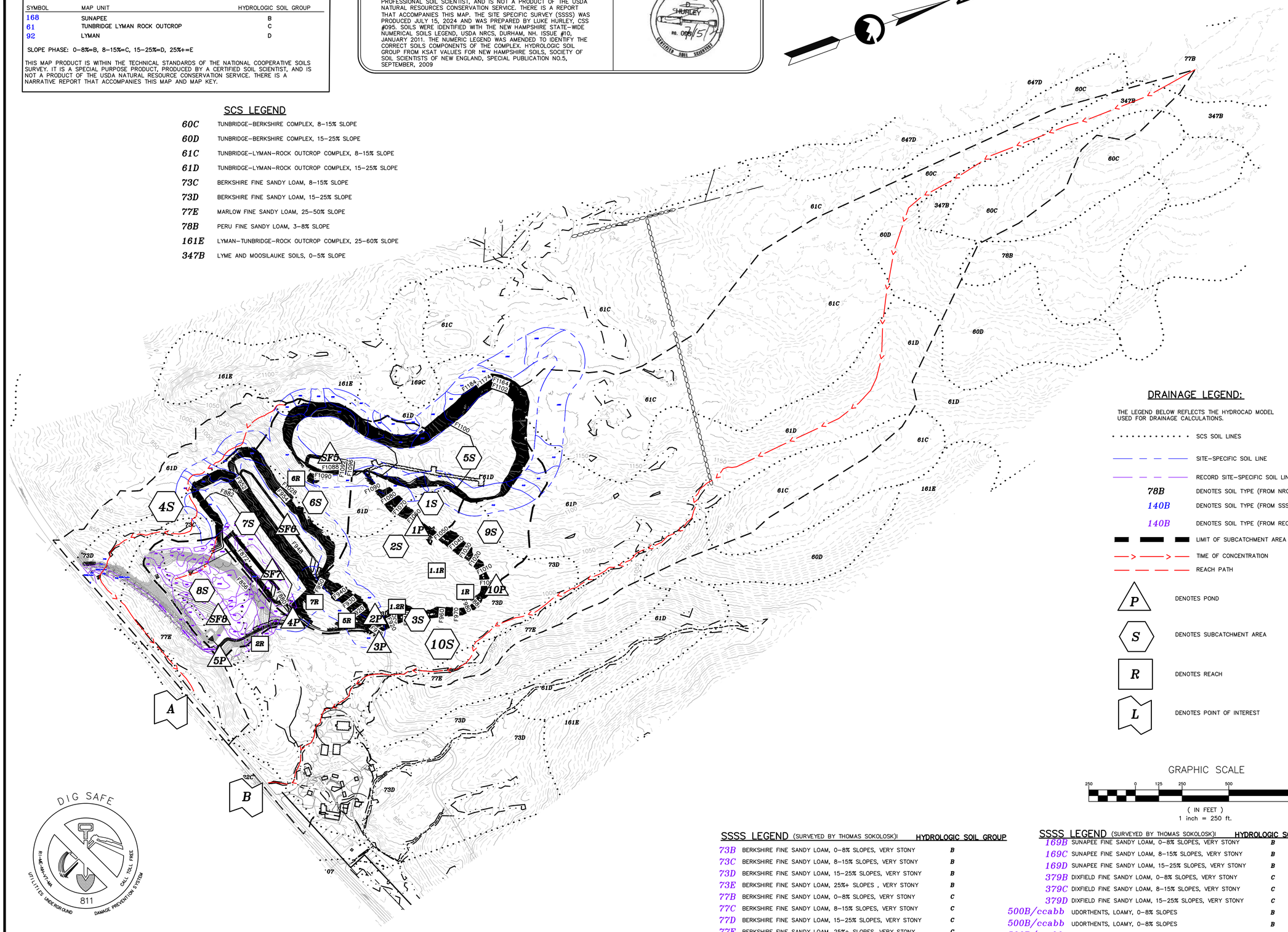
STATE OF NEW HAMPSHIRE · LUKE D HURLEY · NO. 095 · CERTIFIED SOIL SCIENTIST

SCS LEGEND

60C	TUNBRIDGE–BERKSHIRE COMPLEX, 8–15% SLOPE
60D	TUNBRIDGE–BERKSHIRE COMPLEX, 15–25% SLOPE
61C	TUNBRIDGE–LYMAN–ROCK OUTCROP COMPLEX, 8–15% SLOPE
61D	TUNBRIDGE–LYMAN–ROCK OUTCROP COMPLEX, 15–25% SLOPE
73C	BERKSHIRE FINE SANDY LOAM, 8–15% SLOPE
73D	BERKSHIRE FINE SANDY LOAM, 15–25% SLOPE
77E	MARLOW FINE SANDY LOAM, 25–50% SLOPE
78B	PERU FINE SANDY LOAM, 3–8% SLOPE
161E	LYMAN–TUNBRIDGE–ROCK OUTCROP COMPLEX, 25–60% SLOPE
347B	LYME AND MOOSILAUKE SOILS, 0–5% SLOPE

NOTES:

1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE VARIOUS STORMWATER SUBCATCHMENT AREAS, CORRESPONDING TIMES OF CONCENTRATION, PONDS, AND REACHES ASSOCIATED WITH THE SUBJECT PARCEL POST–DEVELOPMENT.



DRAINAGE LEGEND:

THE LEGEND BELOW REFLECTS THE HYDROCAD MODEL USED FOR DRAINAGE CALCULATIONS.

- SCS SOIL LINES
- SITE–SPECIFIC SOIL LINE
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- LIMIT OF SUBCATCHMENT AREA
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- REACH PATH
- P — DENOTES POND
- S — DENOTES SUBCATCHMENT AREA
- R — DENOTES REACH
- L — DENOTES POINT OF INTEREST

GRAPHIC SCALE

250 0 125 250 500 1,000

(IN FEET)
1 inch = 250 ft.

SSSS LEGEND (SURVEYED BY THOMAS SOKOLOSK)I

		HYDROLOGIC SOIL GROUP
73B	BERKSHIRE FINE SANDY LOAM, 0–8% SLOPES, VERY STONY	B
73C	BERKSHIRE FINE SANDY LOAM, 8–15% SLOPES, VERY STONY	B
73D	BERKSHIRE FINE SANDY LOAM, 15–25% SLOPES, VERY STONY	B
73E	BERKSHIRE FINE SANDY LOAM, 25%+ SLOPES , VERY STONY	B
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169D	SUNAPEE FINE SANDY LOAM, 15–25% SLOPES, VERY STONY	B
379B	DIXFIELD FINE SANDY LOAM, 0–8% SLOPES, VERY STONY	C
379C	DIXFIELD FINE SANDY LOAM, 8–15% SLOPES, VERY STONY	C
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500B/ccabb	UDORTHENTS, LOAMY, 0–8% SLOPES	B
500B/ccabb	UDORTHENTS, LOAMY, 0–8% SLOPES	B
500B/ccabb	URBAN LAND, 8–15% SLOPES	B

DIG SAFE — CALL TOLL FREE 811 — UTILITIES UNDERGROUND — DAMAGE PREVENTION SYSTEM

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KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES KEENE

TITLE:
FINAL POST-DEVELOPMENT DRAIN AREAS PLAN

PROJECT No.	DATE:	SCALE:
23-0201-1	MAY 9, 2025	HORIZ. 1"=250'
SHEET:	4 OF 5	

SITE SPECIFIC SOIL MAP UNIT KEY

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SLOPE PHASE: 0–8%=B, 8–15%=C, 15–25%=D, 25%+=E

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STATE OF NEW HAMPSHIRE — LUKE D HURLEY — NO. 095 — CERTIFIED SOIL SCIENTIST

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SCS LEGEND

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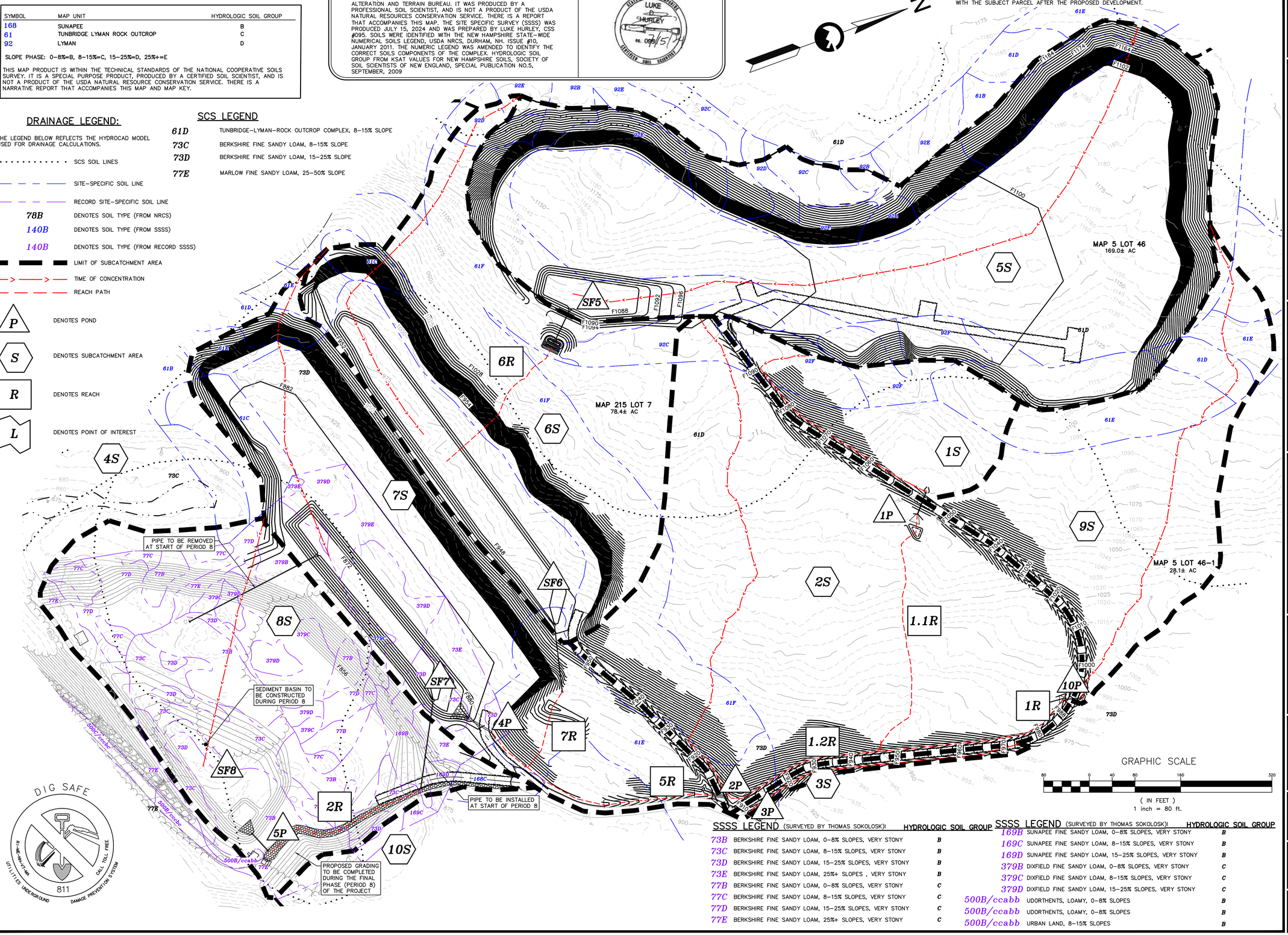
77E	MARLOW FINE SANDY LOAM, 25-50% SLOPE



GRAPHIC SCALE

80 0 40 80 160 320

(IN FEET)
1 inch = 80 ft.

DIG SAFE — CALL TOLL FREE 811 — DAMAGE PREVENTION SYSTEM — UTILITIES UNDERGROUND

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SULLIVAN TAX MAP 5 LOTS 46 & 46-1
57 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES KEENE

TITLE:
FINAL DRAIN AREAS PLAN

PROJECT No.	DATE:	SCALE:
23-0201-1	MAY 9, 2025	HORIZ. 1"=80'
SHEET:	5 OF 5	

Stormwater Pollution Prevention Plan (SWPPP)

For Construction Activities At:

Gordon Services Excavation Site - Keene
Route 9
Keene, New Hampshire 03431
(603) 325-8457

SWPPP Prepared For:

Gordon Services Property Management, LLC
250 North Street
Jaffrey, New Hampshire 03452
(603) 325-8457
cody@mygordonservices.com

SWPPP Prepared By:

GRANITE ENGINEERING, LLC
civil engineering ● land planning ● municipal services
150 Dow Street, Suite 421
Manchester, New Hampshire 03101
Brenton Cole, P.E.
603.518.8030
bcole@graniteeng.com

SWPPP Preparation Date:

01/31/2023

Estimated Project Dates

Project Start Date: 07/20/2023

Project Completion Date: 07/20/2028

Stormwater Team Members Who Conduct Inspections Pursuant to CGP Part 4

Name and/or Position and Contact	Training(s) Received	Date Training(s) Completed	If Training is a Non-EPA Training, Confirm that it Satisfies the Minimum Elements of CGP Part 6.3.b
Gordon Services Property Management, LLC Cody Gordon Owner (603) 325-8457 cody@mygordonservices.com		Date:	☐ Principles and practices of erosion and sediment control and pollution prevention practices at construction sites ☐ Proper installation and maintenance of erosion and sediment controls and pollution prevention practices used at construction sites ☐ Performance of inspections, including the proper completion of required reports and documentation, consistent with the requirements of Part 4

SECTION 2: SITE EVALUATION, ASSESSMENT, AND PLANNING

2.1 Project/Site Information

Project Name and Address

Project/Site Name: Excavation Site – Keene
Street/Location: Route 9
City: Keene
State: New Hampshire
ZIP Code: 03452
County or Similar Government Division: Cheshire County

Project Latitude/Longitude

Latitude: 42.969521° N
(decimal degrees)

Longitude: 72.226364 ° W
(decimal degrees)

Latitude/longitude data source: ☒ Map ☐ GPS ☐ Other (please specify): _____

Horizontal Reference Datum: ☐ NAD 27 ☐ NAD 83 ☒ WGS 84

Additional Site Information

Is your site located on Indian country lands, or on a property of religious or cultural significance to an Indian Tribe? ☐ Yes ☒ No

If yes, provide the name of the Indian Tribe associated with the area of Indian country (including the name of Indian reservation if applicable), or if not in Indian country, provide the name of the Indian Tribe associated with the property:

2.2 Discharge Information

Does your project/site discharge stormwater into a Municipal Separate Storm Sewer System (MS4)? ☐ Yes ☒ No

Are there any waters of the U.S. within 50 feet of your project's earth disturbances? ☐ Yes ☒ No

For each point of discharge, provide a point of discharge ID (a unique 3-digit ID, e.g., 001, 002), the name of the first receiving water that receives stormwater directly from the point of discharge and/or from the MS4 that the point of discharge discharges to, and the following receiving water information, if applicable:

Point of Discharge ID	Name of receiving water that receives stormwater discharge:	Is the receiving water impaired (on the CWA 303(d) list)?	If yes, list the pollutants that are causing the impairment:	Has a TMDL been completed for this receiving waterbody?	If yes, list TMDL Name and ID:	Pollutant(s) for which there is a TMDL:	Is this receiving water designated as a Tier 2, Tier 2.5, or Tier 3 water?	If yes, specify which Tier (2, 2.5, or 3)?
001	Unnamed Wetlands	☐ Yes ☒ No		☐ Yes ☒ No			☐ Yes ☒ No	

2.3 Nature of the Construction Activities

General Description of Project

This project proposes the expansion of an existing gravel excavation operation.

Business days and hours for the project: M-F 8am-5pm

Size of Construction Site

Size of Property	85 Acres
Total Area Expected to be Disturbed by Construction Activities	9.75 Acres
Maximum Area Expected to be Disturbed at Any One Time, Including On-site and Off-site Construction Support Areas	9.75 Acres

Type of Construction Site *(check all that apply):*

☐ Single-Family Residential ☐ Multi-Family Residential ☐ Commercial ☒ Industrial

☐ Institutional ☐ Highway or Road ☐ Utility ☐ Other _____

Will you be discharging dewatering water from your site? ☐ Yes ☒ No

If yes, will you be discharging dewatering water from a current or former Federal or State remediation site? ☐ Yes ☒ No

Pollutant-Generating Activities

List and describe all pollutant-generating activities and indicate for each activity the associated pollutants or pollutant constituents that could be discharged in stormwater from your construction site. Take into account where potential spills and leaks could occur that contribute pollutants to stormwater discharges, and any known hazardous or toxic substances, such as PCBs and asbestos, that will be disturbed during construction.

Pollutant-Generating Activity (e.g., paving operations; concrete, paint, and stucco washout and waste disposal; solid waste storage and disposal; and dewatering operations)	**Pollutants or Pollutant Constituents** (e.g., sediment, fertilizers, pesticides, paints, caulks, sealants, fluorescent light ballasts, contaminated substrates, solvents, fuels)
Construction Site Exit	Sediment transport by tracking into roadway.
Cleared and Graded Areas	Soil erosion is more prominent in these areas, as well as fertilizer and pesticides. Ruts can occur if tracked over and can prevent vegetation establishment from occurring.

Pollutant-Generating Activity (e.g., paving operations; concrete, paint, and stucco washout and waste disposal; solid waste storage and disposal; and dewatering operations)	**Pollutants or Pollutant Constituents** (e.g., sediment, fertilizers, pesticides, paints, caulks, sealants, fluorescent light ballasts, contaminated substrates, solvents, fuels)
Construction Staging Areas	Hydraulic oil, gasoline, antifreeze, soil erosion, fertilizers, and pesticides. Spills can occur while fueling equipment in these areas.

Construction Support Activities

Onsite Material Staging and Stockpiling Area: A staging and stockpiling area of different aggregates will be used onsite. The staging and stockpiling area shall be set up in an organized manner, classified accordingly, and protected from erosion and loss of material. The material can be trucked off site or used on site for construction purposes.

Contact information for construction support activity:
Gordon Services Property Management, LLC
(603) 325-8457
cody@mygordonservices.com
250 North Street, Jaffrey, NH 03452

2.4 Sequence and Estimated Dates of Construction Activities

Phase I

Tree Clearing • Remove existing trees/vegetation up to the proposed limits of clearing shown on the plans	
Estimated Start Date of Construction Activities for this Phase	7/20/2023
Estimated End Date of Construction Activities for this Phase	7/28/2023
Estimated Date(s) of Application of Stabilization Measures for Areas of the Site Required to be Stabilized	6/20/2028
Estimated Date(s) when Stormwater Controls will be Removed	7/20/2028

Phase II

Prior to Site Grading Activities • Install SiltSoxx at locations designated on the plans • Install storm drain inlet protection, construct rip rap outlet protection • Construct stabilized construction exit • Install erosion control blankets where slope exceeds 3:1 • Furnish temporary Dandy Bags at specified locations • Install temporary stone check dams if necessary	
Estimated Start Date of Construction Activities for this Phase	7/28/2023
Estimated End Date of Construction Activities for this Phase	8/11/2023
Estimated Date(s) of Application of Stabilization Measures for Areas of the Site Required to be Stabilized	6/20/2028
Estimated Date(s) when Stormwater Controls will be Removed	7/20/2028

Phase III

Earthwork • Remove existing infrastructure accordingly. • Stake limits of clearing and identify areas not to be disturbed. • Identify areas for staging & stockpiling • Install temporary erosion control measures around stockpiles • Begin earthmoving operations until subgrade is achieved • Install drainage systems and other utilities from low to high • Complete backfill operations, place gravel, and crushed gravel. • Install binder course of pavement	
Estimated Start Date of Construction Activities for this Phase	8/18/2023
Estimated End Date of Construction Activities for this Phase	6/13/2028
Estimated Date(s) of Application of Stabilization Measures for Areas of the Site Required to be Stabilized	6/20/2028
Estimated Date(s) when Stormwater Controls will be Removed	7/20/2028

Phase IV

Stabilization & Landscaping • Install wearing course of pavement • Remove temporary BMPs and stabilize any areas disturbed by their removal • Seeding & Landscaping • Monitor areas of stabilization	
Estimated Start Date of Construction Activities for this Phase	6/20/2028
Estimated End Date of Construction Activities for this Phase	7/20/2028
Estimated Date(s) of Application of Stabilization Measures for Areas of the Site Required to be Stabilized	6/20/2028
Estimated Date(s) when Stormwater Controls will be Removed	7/20/2028

2.5 Authorized Non-Stormwater Discharges

List of Authorized Non-Stormwater Discharges Present at the Site

Authorized Non-Stormwater Discharge	Will or May Occur at Your Site?
Discharges from emergency fire-fighting activities	☐ Yes ☒ No
Fire hydrant flushings	☐ Yes ☒ No
Landscape irrigation	☒ Yes ☐ No
Water used to wash vehicles and equipment	☒ Yes ☐ No
Water used to control dust	☒ Yes ☐ No
Potable water including uncontaminated water line flushings	☐ Yes ☒ No
External building washdown (soaps/solvents are not used and external surfaces do not contain hazardous substances)	☐ Yes ☒ No
Pavement wash waters	☐ Yes ☒ No
Uncontaminated air conditioning or compressor condensate	☐ Yes ☒ No
Uncontaminated, non-turbid discharges of ground water or spring water	☐ Yes ☒ No
Foundation or footing drains	☐ Yes ☒ No
Uncontaminated construction dewatering water	☐ Yes ☒ No

2.6 Site Maps

Site maps in accordance with Part 7.2.4 of the CGP can be found in Appendix A.

SECTION 3: DOCUMENTATION OF COMPLIANCE WITH OTHER FEDERAL REQUIREMENTS

3.1 Endangered Species Protection

Eligibility Criterion

Following the process outlined in Appendix D, under which criterion are you eligible for coverage under this permit?

☒ **Criterion C:** Discharges not likely to result in any short- or long-term adverse effects to ESA-listed species and/or designated critical habitat. ESA-listed species and/or designated critical habitat(s) under the jurisdiction of the USFWS and/or NMFS are likely to occur in or near your site's "action area," and you certify to EPA that your site's discharges and discharge-related activities are not likely to result in any short- or long-term adverse effects to ESA-listed threatened or endangered species and/or designated critical habitat. This certification may include consideration of any stormwater controls and/or management practices you will adopt to ensure that your discharges and discharge-related activities are not likely to result in any short- or long-term adverse effects to ESA-listed species and/or designated critical habitat. To certify your eligibility under this criterion, indicate 1) the ESA-listed species and/or designated habitat located in your "action area" using the process outlined in Appendix D of this permit; 2) the distance between the site and the listed species and/or designated critical habitat in the action area (in miles); and 3) a rationale describing specifically how short- or long-term adverse effects to ESA-listed species will be avoided from the discharges and discharge-related activities. (Note: You must include a copy of your site map from your SWPPP showing the upland and in-water extent of your "action area" with your NOI.)

☒ Check to confirm you have provided documentation in your SWPPP as required by CGP Appendix D.

Documentation: Official Species List attached in Appendix K.

3.2 Historic Property Screening Process

Appendix E, Step 1

Do you plan on installing any stormwater controls that require subsurface earth disturbance, including, but not limited to, any of the following stormwater controls at your site? Check all that apply below, and proceed to Appendix E, Step 2.

☐ Dike

☐ Berm

☒ Catch Basin

☒ Pond

☐ Constructed Site Drainage Feature (e.g., ditch, trench, perimeter drain, swale, etc.)

☒ Culvert

☒ Channel

☐ Other type of ground-disturbing stormwater control:

Appendix E, Step 2

If you answered yes in Step 1, have prior professional cultural resource surveys or other evaluations determined that historic properties do not exist, or have prior disturbances at the site have precluded the existence of historic properties? ☐ YES ☒ NO

- If yes, no further documentation is required for Section 3.2 of the Template and you may provide the prior documentation in your SWPPP.
- If no, proceed to Appendix E, Step 3.

Appendix E, Step 3

If you answered no in Step 2, have you determined that your installation of subsurface earth-disturbing stormwater controls will have no effect on historic properties? ☐ YES ☒ NO

- If yes, provide documentation of the basis for your determination.
- If no, proceed to Appendix E, Step 4.

Appendix E, Steps 4 and 5

If you answered no in Step 3, did the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Office (THPO), or other Tribal representative (whichever applies) respond to you within 15 calendar days to indicate their views as to the likelihood that historic properties are potentially present on your site and may be impacted by the installation of stormwater controls that require subsurface earth disturbance? ☒ YES ☐ NO

- If yes, describe the nature of their response:
  - ☒ Written indication that no historic properties will be affected by the installation of stormwater controls.
  - ☐ Written indication that adverse effects to historic properties from the installation of stormwater controls can be mitigated by agreed upon actions.
  - ☐ No agreement has been reached regarding measures to mitigate effects to historic properties from the installation of stormwater controls.
  - ☐ Other:
- If no, no further documentation is required for Section 3.2 of the Template.

3.3 Safe Drinking Water Act Underground Injection Control Requirements

Do you plan to install any of the following controls? Check all that apply below.

- ☐ Infiltration trenches (if stormwater is directed to any bored, drilled, driven shaft or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system)
- ☐ Commercially manufactured pre-cast or pre-built proprietary subsurface detention vaults, chambers, or other devices designed to capture and infiltrate stormwater flow
- ☐ Drywells, seepage pits, or improved sinkholes (if stormwater is directed to any bored, drilled, driven shaft or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system)

SECTION 4: EROSION AND SEDIMENT CONTROLS AND DEWATERING PRACTICES

Good Grading Practices: In areas where gravel and earth material are being extracted, the method of grading and excavation will be such that the open areas and exposed slopes are draining to contained areas that will not result in stormwater discharge.

Vegetation: Areas and slopes are to be seeded where it is known that no further extraction is expected.

Gravel Access Drive: Gravel access drive to be maintained with a stable, non-erosive surface that is graded to ensure water will flow to vegetated areas.

Dust Control: Dust control of the excavated area shall be utilized on an as-needed basis. When temporary dust control measures are used, repetitive treatment should be applied as needed to accomplish control.

Sediment Basin: All onsite stormwater runoff will be directed to an onsite sediment basin. Sediment basin shall be cleaned out on a periodic basis.

SiltSoxx: Perimeter SiltSoxx shall be installed as illustrated on the plan. SiltSoxx to be inspected, cleaned, and repaired to ensure proper function.

Perimeter Mulch Berm: In areas where disturbance is located within 50 feet of adjacent wetlands, perimeter mulch berm in addition to SiltSoxx will be installed. Periodic inspection of the mulch berm shall be conducted. Accumulated silt and any evidence of washout shall be immediately fixed.

Construction Exits: Construction exits shall be installed in accordance with project details. Exits shall be inspected and stone surface replaced or top dressed with additional stone as conditions demand.

Soil Stockpile Practices: Soil stockpile practices include measures to locate, manage, and protect stockpiled earth materials, to reduce or eliminate wind and water erosion, and prevent resulting air and water pollution from displaced sediment. Stockpile practices apply to topsoil, excavated materials, borrow materials imported to the site, and construction aggregates that are stockpiled on the site. Inspect all soil stockpiles immediately after storm events and at the frequencies specified in the project erosion and sediment control plan and in applicable permits. At a minimum, inspect weekly during wet weather periods to verify that erosion and sediment control measures are in place and functioning properly. Repair and/or replace perimeter controls and stockpile coverings as needed to keep them functioning properly

Erosion Control Blankets: All slopes 3:1 or steeper shall be lined with erosion control blankets as specified on the plans. All blanket and mats should be inspected weekly during the construction period, and after any rainfall event exceeding ½ inch in a 24-hour period. Any failure should be repaired immediately. If washout of the slope, displacement of the mat, or damage to the mat occurs, the affected slope shall be repaired and reseeded, and the affected area of mat shall be re-installed or replaced.

Permanent Vegetation: Permanent vegetative cover should be established on disturbed areas where permanent, long-lived vegetative cover is needed to stabilize the soil, to reduce damages from sediment and runoff, and to enhance the environment. Runoff and sheet erosion caused by splash erosion (raindrop impact on bare soil) is the source of most fine particles in sediment. To reduce the sediment load in runoff, the soil surface itself should be protected. The

most effective and economical means of controlling sheet and rill erosion is to establish a vegetative cover. Permanent seeded areas should be inspected at least monthly during the course of construction. Seeded areas should be mowed as required to maintain a healthy stand of vegetation, with mowing height and frequency dependent on type of grass cover. Based on inspection, areas should be reseeded to achieve full stabilization of exposed soils. At a minimum, 85% of the soil surface should be covered by vegetation. If any evidence of erosion or sedimentation is apparent, repairs should be made and areas should be reseeded, with other temporary measures (e.g., mulch) used to provide erosion protection during the period of vegetation establishment.

Terraced slopes or Benching: The land grading practice of providing terraced slopes or benching consists of shaping disturbed land surfaces to control the length of flow down steep slopes. Intermediate terraces (or benches) are incorporated into slopes that exceed 4:1 gradient. These terraces are then used to convey runoff laterally to a safe discharge (or to a constructed drainage system). The purpose of this practice is to provide for erosion control and vegetative establishment on those areas where the existing land surface is to be reshaped by grading. Grassed slopes should be mowed to grass height and frequency specified by design. Vegetated slopes should be inspected periodically for signs of vegetation loss or damage, with restoration as needed. Terraces and slopes should be inspected periodically for any sign of rill or gully erosion, and if such conditions are noted, the area should be immediately investigated and repaired as needed.

4.1 Natural Buffers or Equivalent Sediment Controls

Buffer Compliance Alternatives

Are there any receiving waters within 50 feet of your project's earth disturbances? ☐ YES ☒ NO

Check the compliance alternative that you have chosen:

- ☒ (i) I will provide and maintain a 50-foot undisturbed natural buffer.
- ☐ (ii) I will provide and maintain an undisturbed natural buffer that is less than 50 feet and is supplemented by additional erosion and sediment controls that achieve, in combination, the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.
- ☐ (iii) It is infeasible to provide and maintain an undisturbed natural buffer of any size, therefore I will implement erosion and sediment controls that achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.
- ☐ I qualify for one of the exceptions in Part 2.2.1.b. (If you have checked this box, provide information on the applicable buffer exception that applies, below.)

Buffer Exceptions

Which of the following exceptions to the buffer requirements applies to your site?

- ☒ There is no discharge of stormwater to waters of the U.S. through the area between the disturbed portions of the site and any waters of the U.S. located within 50 feet of your site.
- ☐ No natural buffer exists due to preexisting development disturbances (e.g., structures, impervious surfaces) that occurred prior to the initiation of planning for this project.
- ☐ For "linear construction sites" (defined in Appendix A), site constraints (e.g., limited right-of-way) make it infeasible to meet any of the CGP Part 2.2.1.a compliance alternatives, provided that, to the extent feasible, you limit disturbances within 50 feet of the receiving water.
- ☐ The project qualifies as "small residential lot" construction (defined in Appendix A as "a lot being developed for residential purposes that will disturb less than 1 acre of land, but is part of a larger residential project that will ultimately disturb greater than or equal to 1 acre") (see Appendix F, Part F.3.2).
    - ☐ For Alternative 1:
    - ☐ For Alternative 2:
- ☐ Buffer disturbances are authorized under a CWA Section 404 permit.
- ☐ Buffer disturbances will occur for the construction of a water-dependent structure or water access area (e.g., pier, boat ramp, and trail).

4.2 Perimeter Controls

General

- SiltSoxx shall be furnished and installed at all perimeter areas that are expected to receive pollutant discharge, particularly around the limits of earthwork. SiltSoxxs shall also be installed around the staging and stockpile area.

Specific Perimeter Controls

SiltSoxx	
Description: SiltSoxx	
Installation	7/28/2023
Maintenance Requirements	SiltSoxx should be inspected and maintained immediately after each rainfall and at least daily during prolonged rainfall. Sediment deposition should be removed, at a minimum, when deposition accumulates to one-half the height of the SiltSoxx, and moved to an appropriate location so the sediment is not readily transported back toward the SiltSoxx. SiltSoxx should be repaired immediately if there are any signs of erosion or sedimentation below them. If there are signs of undercutting at the center or the edges of the barrier, or impounding of large volumes of water behind them, sediment barriers should be replaced with a temporary check dam. Should the fabric on a SiltSoxx decompose or become ineffective prior to the end of the expected usable life and the barrier still is necessary, the fabric should be replaced promptly. Any sediment deposits remaining in place after the SiltSoxx is no longer required should be dressed to conform to the existing grade, prepared and seeded. If there is evidence of end flow on properly installed barriers, extend barriers uphill or consider replacing them with other measures, such as temporary diversions and sediment traps. SiltSoxx have a useful life of one season. On longer construction projects, SiltSoxx should be replaced periodically as required to maintain effectiveness.
Design Specifications	The maximum contributing drainage area above the SiltSoxx should be less than ¼ acre per 100 linear feet of SiltSoxx. The maximum length of slope above the SiltSoxx should be 100 feet. Perimeter control should be installed parallel to the base of the slope or other disturbed area. In challenging conditions (i.e., 2:1 slopes), a second perimeter control shall be constructed at the top of the slope, or staking may be increased. Effective Soxx height in the field should be as follows: 5" diameter Soxx = 4" high; 8" diameter Soxx = 6.5" high; 12" diameter Soxx = 9.5" high; 18" diameter Soxx = 14.5" high; 24" diameter Soxx = 19" high. Stakes should be installed through the middle of the perimeter control on 10 ft (3m) centers, using nominal 2 in (50mm) by 2 in (50mm) by 3 ft (1m) wooden stakes. 5" diameter Soxx may use 1" (25 mm) x 1" (25 mm) x 18 " (0.5 m) wooden stakes. In the event staking is not possible, i.e., when perimeter control is used on highly compacted soils or impervious surfaces, sand bags (or equivalent) may be used to stabilize Soxx, as long as effective height is not compromised. On impervious surfaces, concrete blocks (or equivalent) may be used behind the perimeter control to help stabilize during rainfall/runoff events. Alternatively, stakes may be installed directly behind the Soxx at a 90-degree angle to level ground (regardless of slope angle), where stakes are in direct contact with the downslope side of Soxx. If high runoff or sediment accumulation is expected, staking through the Soxx may be required.

4.3 Sediment Track-Out

General

- Contractor will construct and install temporary construction exists as shown on the erosion & sediment control plans.

Specific Track-Out Controls

Stabilized Temporary Construction Exit	
Description: Temporary Construction Exit	
Installation	7/28/2023
Maintenance Requirements	The exit should be maintained in a condition that will prevent tracking of sediment onto public rights-of-way. When the control pad becomes ineffective, the stone should be removed along with the collected soil material, regraded on site, and stabilized. The entrance should then be reconstructed. The contractor should sweep the pavement at exits whenever soil materials are tracked onto the adjacent pavement or traveled way. When wheel washing is required, it should be conducted on an area stabilized with aggregate, which drains into an approved sediment-trapping device. All sediment should be prevented from entering storm drains, ditches, or waterways. Where sediment has been tracked-out from the site onto paved roads, sidewalks, or other paved areas outside of the site, remove the deposited sediment by the end of the same business day in which the track-out occurs or by the end of the next business day if track-out occurs on a non-business day. Remove the track-out by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal. No hosing or sweeping tracked-out sediment into any stormwater conveyance, storm drain inlet, or water of the U.S.
Design Specifications	Temporary construction exits should meet the following requirements: • The minimum stone used should be 3-inch crushed stone. • The minimum length of the pad should be 75 feet, except that the minimum length may be reduced to 50 feet if a 3-inch to 6-inch high berm is installed at the entrance of the project site. • The pad should extend the full width of the construction access road or 10 feet, whichever is greater. • The pad should slope away from the existing roadway. • The pad should be at least 6 inches thick. • A geotextile filter fabric should be placed between the stone pad and the earth surface below the pad. The pad should be maintained or replaced when mud and soil particles clog the voids in the stone such that mud and soil particles are tracked off-site. Natural drainage that crosses the location of the stone pad should be intercepted and piped beneath the pad, as necessary, with suitable outlet protection.

4.4 Stockpiles or Land Clearing Debris Piles Comprised of Sediment or Soil

General

- Designated Staging & Stockpile Area. Measures to locate, manage, and protect stockpiled materials, such as soils. Used to reduce or eliminate wind and water erosion, and prevent resulting air and water pollution from displaced sediment.

Specific Stockpile Controls

Staging & Stockpile Practices	
Description: Designated Staging & Stockpile Area. Measures to locate, manage, and protect stockpiled materials, such as soils. Used to reduce or eliminate wind and water erosion, and prevent resulting air and water pollution from displaced sediment.	
Installation	7/28/2023
Maintenance Requirements	• Inspect all stockpiles immediately after storm events and at the frequencies specified in the project erosion and sediment control plan and in applicable permits. At a minimum, inspect weekly during wet weather periods to verify that erosion and sediment control measures are in place and functioning properly. • Repair and/or replace perimeter controls and stockpile coverings as needed to keep them functioning properly. Contractor is prohibited from hosing down or sweeping soil or sediment accumulated on pavement or other impervious surfaces into any stormwater conveyance, storm drain inlet, or water of the U.S.
Design Specifications	• Locate stockpiles a minimum of 50 feet away from concentrated flows of stormwater, drainage courses, and inlets. • Protect all stockpiles from stormwater run-on using temporary perimeter measures such as diversions, berms, sandbags, or other approved practice. • Implement wind erosion control practices as appropriate on all stockpiled material. • Inactive soil stockpiles should be protected with soil stabilization measures (temporary seed and mulch or other temporary stabilization practice) and temporary perimeter sediment barriers at all times. • Perimeter sediment barriers can be omitted if the stockpile are located in an area that drains to the onsite sediment basin.

4.5 Minimize Dust

General

- Contractor will utilize dust control as needed and in accordance with the following:

Specific Dust Controls

Dust Control	
Description: Dust control consists of applying various measures to prevent blowing and movement of dust from exposed soil surfaces. This practice is applicable to areas subject to dust blowing and soil movement where on-site and off-site damage is likely to occur if preventive measures are not taken. Typical dust control measures include traffic control, Construction phasing, and maintenance of existing vegetation to limit exposure of soils and prevent conditions that result in dry soils and dust; application of water, calcium chloride, and temporary stabilization practices to control mobilization of dust by equipment operation or wind; and pavement sweeping to prevent accumulation of dust-producing sediment. Dusty conditions occur when a disturbed site, soil stockpiles, or unpaved road surfaces dry out. Soil fines can actually shrink due to moisture loss that, in turn, loosens and weakens the soil surface. The dust becomes mobilized by equipment trafficking or by wind action. Dust can also become mobilized from construction equipment spilling or tracking soil materials onto paved surfaces, as well as from the operation of stationary equipment such as rock crushers. Dust can cause off-site damage, be a health hazard to humans, wildlife and plant life, or become a traffic safety hazard.	
Installation	7/28/2023
Maintenance Requirements	When temporary dust control measures are used, repetitive treatment should be applied as needed to accomplish control.
Design Specifications	• Moisten exposed soil surfaces periodically with adequate water to control dust. • Avoid excessive application of water that would result in mobilizing sediment and subsequent deposition in natural waterbodies

4.6 Minimize Steep Slope Disturbances

General

- Contractor to utilize Temporary Erosion Control Blankets as specified on the erosion & sediment control plans. Erosion control blankets shall be installed where slope exceeds 3:1.

Specific Steep Slope Controls

Temporary Erosion Control Blankets	
Description: Erosion control blankets or mats consist of protective manufactured mulch blankets, installed on prepared soil surfaces to provide erosion protection and surface stability on steep slopes, vegetated channels, or shorelines during vegetation establishment. Erosion control blankets temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion. Like other types of mulch, the blankets help increase infiltration, decrease compaction and soil crusting, and conserve soil moisture. Erosion control blankets increase the germination rates for grasses and legumes and promote vegetation establishment. Erosion control blankets also protect seeds from predators and reduce desiccation and evaporation by insulating the soil and seed environment. Erosion control blankets generally consist of machine-made mats made of organic, biodegradable mulch such as straw, curled wood fiber (excelsior), coconut fiber or a combination thereof, evenly distributed on or between manufactured netting. Netting is typically composed of photodegradable polypropylene or biodegradable natural fiber. The blankets are provided in rolls for ease of handling and installation.	
Installation	7/28/2023
Maintenance Requirements	All blanket and mats should be inspected weekly during the construction period, and after any rainfall event exceeding ½ inch in a 24-hour period. • Any failure should be repaired immediately. If washout of the slope, displacement of the mat, or damage to the mat occurs, the affected slope shall be repaired and reseeded, and the affected area of mat shall be re-installed or replaced.

Design Specifications	• Proper site preparation is essential to ensure complete contact of the protection matting with the soil. • Grade and shape area of installation. • Remove all rocks, clods, trash, vegetative or other obstructions so that the installed blankets will have direct contact with the soil. • Prepare seedbed by loosening 2-3 inches of topsoil above final grade. • Incorporate amendments, such as lime and fertilizer, into soil according to soil test and the seeding plan. • Seed area before blanket installation for erosion control and revegetation. Seeding after mat installation is often specified for turf reinforcement application. When seeding prior to blanket installation, all check slots and other areas disturbed during installation must be reseeded. • Where soil filling is specified, seed the matting and the entire disturbed area after installation and prior to filling the mat with soil. Blankets shall be installed and anchored per the manufacturer's specifications. If the manufacturer's instructions differ from those listed below, the manufacturer's instructions should be followed. • Blankets shall be placed within 24 hours after sowing seed in that area. • U-shaped wire staples, metal geotextile stake pins, or triangular wooden stakes can be used to anchor mats to the ground surface. • Wire staples should be a minimum gauge as specified by the manufacturer. • Metal stake pins should be 3/16-inch diameter steel with a 1 1/2 inch steel washer at the head of the pin, or as specified by the manufacturer. • Wire staples and metal stakes should be driven flush to the soil surface. All anchors should have sufficient ground penetration to resist pullout. Longer anchors may be required for loose soils. • Blankets shall be installed on slopes per the manufacturer's specifications. If the manufacturer's instructions differ from those listed below, the manufacturer's instructions should be followed. • Blankets shall be laid loosely over the soils, maintaining contact with the soil, and not stretched. • Blankets shall be anchored at the top of the slope in a trench to prevent runoff from undermining the mat. Subsequent mats should be overlapped by the upslope mat. Backfill trench and tamp earth firmly. • Blankets shall be unrolled in the direction of the water flow, overlapping the edges by a minimum of 4 inches and stapling the edges, as directed by the manufacturer. • When blankets must be spliced, place blankets end over end (shingle style) with 6-inch minimum overlap. Staple through overlapped area, approximately 12 inches apart, or as specified by manufacturer. • Lay blankets loosely and maintain direct contact with the soil - do not stretch. • Blankets shall be stapled sufficiently to anchor blanket and maintain contact with the soil. Staples shall be placed down the center and staggered with the staples placed along the edges. Stapling pattern and number of staples will depend on steepness of slope and manufacturer's anchoring methods; follow manufacturer's instructions.

4.7 Topsoil

General

- Contractor shall preserve topsoil onsite. Preservation of existing topsoil will help to maintain the soil structure on the construction site, as well as provide a growing medium for vegetative stabilization measures. Better vegetative stabilization reduces erosion rates of the underlying soil and also increases the infiltrative capacity of the soil, thereby reducing the amount of sediment transported to downslope sediment and perimeter controls. Topsoil can be preserved by stockpiling the native topsoil on the site for later use (e.g., for vegetative stabilization), or by limiting disturbance and removal of the topsoil and associated vegetation. For example, topsoil can be preserved by limiting clearing and grading to only those areas where necessary to accommodate work area or the building footprint. EPA notes that some projects may be designed to be highly impervious after construction, and therefore little or no vegetation is intended to remain. In these cases, EPA recognizes that preserving topsoil at the site would not be feasible or desirable. In addition, some sites may not have space to stockpile topsoil on site for later use, in which case, it may also not be feasible to preserve topsoil. EPA is aware that stockpiling of topsoil in off-site locations, or transfer of topsoil to other locations, is frequently used in these situations and EPA would view this as acceptable practice.

Specific Topsoil Controls

Onsite Stockpiling of Native Topsoil	
Description: Retention of native topsoil by onsite stockpiling.	
Installation	7/28/2023
Maintenance Requirements	• Inspect all soil stockpiles immediately after storm events and at the frequencies specified in the project erosion and sediment control plan and in applicable permits. At a minimum, inspect weekly during wet weather periods to verify that erosion and sediment control measures are in place and functioning properly. • Repair and/or replace perimeter controls and stockpile coverings as needed to keep them functioning properly
Design Specifications	• Locate stockpiles a minimum of 50 feet away from concentrated flows of stormwater, drainage courses, and inlets. • Protect all stockpiles from stormwater run-on using temporary perimeter measures such as diversions, berms, sandbags, or other approved practice. • Stockpiles should be surrounded by sediment barriers as described in this manual, to prevent migration of material beyond the immediate confines of the stockpiles. • Implement wind erosion control practices as appropriate on all stockpiled material

4.8 Soil Compaction

General

- Reducing stormwater discharges reduces erosion and therefore reduces the amount of sediment and other pollutants discharged from the site. Contractor may either restrict vehicle and equipment use on areas that will be vegetatively stabilized or where infiltration practices will be installed, or use soil conditioning techniques to decompact soils to support vegetative growth. Specific types of soil conditioning techniques could include deep-ripping and decompaction or sub-soiling. EPA also notes that the proposed requirement to minimize soil compaction will not apply to areas that will not be used for final vegetative stabilization or for areas where infiltration practices will not be installed. For example, the proposed requirements will not apply to disturbed areas that will become paved surfaces, such as roads, foundations, footings, or on embankments, or on areas where soil compaction is necessary by design. The requirement to use soil conditioning techniques is not required in any area where it would not be feasible, such as on steep slope areas or any other areas where it is not safe for the required equipment.

4.9 Storm Drain Inlets

General

- Block and Gravel Sediment Control Barriers shall be constructed at all proposed catch basin drains. Dandy Bags® shall be furnished and installed at all existing catch basins.

Specific Storm Drain Inlet Controls

Temporary Block and Gravel Sediment Barrier	
Description: Construct a temporary sediment barrier and channelize runoff to sediment trapping device.	
Installation	N/A
Maintenance Requirements	• Inspect barrier after each rainfall event of 0.25" or greater and make any necessary repairs immediately. • Remove sediment promptly after a storm to sustain adequate storage volume for subsequent rainfall, and to prevent additional sediment from entering the storm drain. • If the barrier no longer drains properly because the gravel has become clogged with sediment, remove the existing gravel. Replace with clean gravel of the same gradation. • When the drainage area has been sufficiently stabilized, remove all materials and any sediment accumulation. The disturbed area shall be brought to proper grade and stabilized with vegetation or other materials. Stabilize areas only with vegetation shown on the landscaping plan.

Design Specifications	• Prior to beginning construction activities, determine the exact location of any nearby underground utilities. • Ensure topography in the field is consistent with topography shown on the plans. If field observations indicate the inlet protection will not function as intended, do not perform any construction activities until the plans have been revised. • Clear the area of all debris (rocks, clods, trash, vegetation etc.) that may hinder excavation and disposal/relocation of soil. • Uniformly grade the approach to the storm drain inlet such that the top elevation of the structure is lower than the ground elevation downslope from the inlet. • The installation of temporary dikes may be necessary to prevent incoming flow from bypassing the structure. • Place concrete blocks around each side of the structure. Ensure at least one block on each side its laid on its side to allow for pool drainage. The foundation should be excavated below the crest of the storm drain. The bottom row of concrete blocks should be placed right up against the edge of the storm drain to provide lateral support. This will also help prevent washouts in the event of an overflow. 2" x 4" wooden studs may be placed through block openings in the event extra lateral support is required. • Place wire screen/wire mesh with ½" openings over all block openings to hold the gravel filter in place. • Place gravel around the concrete blocks. The gradation of the stone shall match the gradation shown on the plans. Once all gravel has been placed, smooth to an even grade. • Once construction of the temporary barrier is complete, verify finished grades and dimensions are consistent with those shown on the plans. Ensure all materials used comply with the plans and the specifications.

4.10 Constructed Site Drainage Feature

General

- Temporary check dams shall be constructed across the regraded swale to reduce the velocity of concentrated stormwater flow.

Specific Conveyance Channel Controls

Temporary Check Dam	
Description: Construct temporary check dams at the locations shown on the erosion control plan to reduce the velocity of concentrated stormwater flow through the swale.	
Installation	N/A
Maintenance Requirements	• Inspect check dams after each rainfall and at least daily during prolonged rainfall. Make necessary repairs immediately. • Inspections should verify that the center of the dam is lower than the edges. • Erosion caused by high flows around the edges of the dam must be corrected immediately. • If evidence of siltation in the water is apparent downstream from the check dam, the check dam should be inspected and adjusted immediately. • Check dams should be checked for sediment accumulation after each significant rainfall. Sediment must be removed when it reaches one half of the original height or before.
Design Specifications	• Check dams must be installed before runoff is directed to the swale or drainage ditch. • The maximum contributing drainage area to the dam should be less than one (1) acre. • The maximum height of the dam should be two (2) feet. • The center of the dam should be at least 6 inches lower than the outer edges. • The maximum spacing between the dams should be such that the toe of the upstream dam is at the same elevation as the outflow elevation of the downstream dam. • The check dam should not be used in a flowing stream. • Stone check dams should be constructed of a well-graded angular 2-inch to 3-inch stone. 3/4" stone on the upgradient face is recommended for better filtering. • If carefully installed and monitored, timber check dams may be used, and should be constructed of 4-inch to 6-inch logs embedded at least 18 inches deep into the soil. However, stone check dams are generally preferred. The stone has the ability to conform to the channel and settle if scour occurs, rendering stone check dams less susceptible to scour around the ends and downstream of the devices. • Temporary structures should be removed once the swale or ditch has been stabilized. In temporary ditches and swales, check dams should be removed and the ditch filled in when it is no longer needed. In permanent structures, check dams should be removed when a permanent lining has been established. If the permanent lining is vegetation, then the check dam should be retained until the grass has matured to protect the ditch or swale. The area beneath the check dam must be seeded and mulched immediately after removal.

4.11 Sediment Basins or Similar Impoundments

General

- Temporary sediment trap shall be constructed upstream of the proposed infiltration pond to reduce the amount of sediment discharged to the pond.

Sediment Trap	
Description: Construct temporary sediment trap at the location of the proposed sediment forebay shown on the erosion control plans to catch sediment before entering the infiltration practice. At the end of construction, clean out and re-stabilize to ensure long-term performance.	
Installation	7/28/2023
Maintenance Requirements	• Inspect sediment traps after each rainfall and at least daily during prolonged rainfall. Make necessary repairs immediately. • Sediment traps should be checked for sediment accumulation after each significant rainfall. Sediment must be removed when it reaches one half of the original height or before. • Accumulated sediment shall be moved to an appropriate location so the sediment is not readily transported back toward the sediment trap.
Design Specifications	• Maximum area for overflow sediment trap is usually 1 acre. • Must have gentle slopes (less than 2% gradually) and predominantly overland sheet flow. • Maximum permanent water depth is 2 feet. Overflow sediment traps may not be effective for high groundwater table and inflows. • Use the most permeable sediment control in labeled area so as to maximize travel time and settling sediment.

4.12 Chemical Treatment

No chemical treatment of onsite soils is proposed for this project.

4.13 Dewatering Practices

No dewatering is proposed for this project.

4.14 Other Stormwater Controls

General

- In addition to the previously mentioned stormwater controls, an above ground infiltration system is proposed. This proposed location for this infiltration system is in the south-east portion of the site adjacent to the existing wetlands and east to the proposed roadway. Water quality treatment is provided by runoff pollutants binding to soil particles beneath the basin as water percolates into the subsurface. As will all impoundment BMPs above ground infiltration basins should be designed with an outlet structure to pass peak flows during a range of storm events, as well as with an emergency spillway to pass peak flows around the embankment during extreme storm events that exceed the combined infiltration capacity and outlet structure capacity of the facility. As indicated on the plans, sediment-laden water must not be discharged to the above ground infiltration system.

Specific Stormwater Control Practices

Above-Ground Infiltration System	
Description: Above ground infiltration systems are a type of infiltration BMP designed to temporarily store runoff, allowing all or a portion of the water to infiltrate the ground. An infiltration basin is designed to completely drain between storm events. An infiltration basin is specifically designed to retain and infiltrate the entire Water Quality Volume. Some infiltration basins may infiltrate additional volumes during larger storm events, but many will be designed to release stormwater exceeding the water quality volume from the larger storms. In a properly sited and designed infiltration basin, water quality treatment is provided by runoff pollutants binding to soil particles beneath the basin as water percolates into the subsurface. Biological and chemical processes occurring in the soil also contribute to the breakdown of pollutants. Infiltrated water is u sed by plants to support growth or it is recharged to the underlying groundwater.	
Installation	TBD
Maintenance Requirements	• Remove accumulated sediment and/or debris from inlet and outlet structures frequently. Do not discharge sediment-laden water into the aboveground infiltration system. • Outlet structures should be inspected frequently, and if there are visual signs of damage during the inspection, the outlet structures should be repaired immediately. • Inspections of infiltration components shall occur at least twice annually and following any rainfall event exceeding 2.5 inches in a 24-hour period, with maintenance or rehabilitation conducted as warranted by such inspection. • Pretreatment measures should be inspected at least twice annually, and the removal of accumulated settlement should occur as soon as possible following the inspection. • If an infiltration system does not drain within 72-hours following a rainfall event, then a qualified professional should assess the condition of the facility to determine measures required to restore infiltration function, including by not limited to removal of accumulated sediment or reconstruction of the infiltration trench. • Periodic mowing of embankments. • Removal of woody vegetation from embankments.
Design Specifications	• Pretreatment is essential to the long-term function of infiltration systems. • Preservation of infiltration function of underlying soils requires careful consideration during construction. To prevent degradation of the infiltration system: - Do not discharge sediment-laden waters from construction activities (runoff, water from excavations) to permanent infiltration BMPs - Do not traffic exposed soil surface with construction equipment. If feasible, perform excavations with equipment positioned outside the limits of the infiltration components of the system. - Do not place infiltration systems into service until the contributing areas have been fully stabilized. - Vegetation should be established immediately.

4.15 Site Stabilization

Total Amount of Land Disturbance Occurring at Any One Time

☐ *Five Acres or less*

X *More than Five Acres*

Permanant Vegetative Buffer	
X *Vegetative* ☐ *Non-Vegetative* ☐ *Temporary* X *Permanent*	
Description: ▪ Permanent vegetative cover should be established on disturbed areas where permanent, long-lived vegetative cover is needed to stabilize the soil, to reduce damages from sediment and runoff, and to enhance the environment. ▪ Runoff and sheet erosion caused by splash erosion (raindrop impact on bare soil) is the source of most fine particles in sediment. To reduce the sediment load in runoff, the soil surface itself should be protected. The most effective and economical means of controlling sheet and rill erosion is to establish a vegetative cover.	
Installation	7/28/2023
Completion	7/20/2028
Maintenance Requirements	• Permanent seeded areas should be inspected at least monthly during the course of construction. Inspections, maintenance, and corrective actions should continue until the owner assumes permanent operation of the site. • Seeded areas should be mowed as required to maintain a healthy stand of vegetation, with mowing height and frequency dependent on type of grass cover. • Based on inspection, areas should be reseeded to achieve full stabilization of exposed soils. • At a minimum, 85% of the soil surface should be covered by vegetation. • If any evidence of erosion or sedimentation is apparent, repairs should be made and areas should be reseeded, with other temporary measures (e.g. mulch) used to provide erosion protection during the period of vegetation establishment.

Design Specifications	Site Preparation: • Install needed erosion and sediment control measures such as siltation barriers, diversions, and sediment traps. • Grade as needed for the access of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. • Runoff should be diverted from the seeded area. • On slopes 4:1 or steeper, the final preparation should include creating horizontal grooves perpendicular to the direction of the slope to catch seed and reduce runoff. Seedbed Preparation: • Work lime and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, spring tooth harrow or other suitable equipment. The final harrowing operation should be on the general contour. Continue tillage until a reasonably uniform, fine seedbed is prepared. All but clay or silty soils and coarse sands should be rolled to firm the seedbed wherever feasible. • Remove from the surface all stones 2 inches or larger in any dimension. Remove all other debris, such as wire, cable, tree roots, concrete, clods, lumps, trash, or other unsuitable material. • Inspect seedbed just before seeding, If traffic has left the soil compacted; the area must be tilled and firmed as above. • Where the soil has been compacted by construction operations, loosen soil to a depth of 2 inches before applying fertilizer, lime and seed. • If applicable, fertilizer and organic soil amendments should be applied during the growing season. • Apply limestone and fertilizer according to soil test recommendations. If soil testing is not feasible on small or variable sites, or where timing is critical, fertilizer may be applied at the rate of 600 pounds per acre or 13.8 pounds per 1,000 square feet of low phosphate fertilizer (N-P205-K20) or equivalent. Apply limestone (equivalent to 50 percent calcium plus magnesium oxide) at a rate of 3 tons per acre (138 lb. per 1,000 square feet). • Fertilizer should be restricted to a low phosphate, slow release nitrogen fertilizer when applied to areas between 25 feet and 250 feet from a surface water body. No fertilizer except limestone should be applied within 25 feet of the surface water. These limitations are requirements for any water body protected by the Comprehensive Shoreland Protection Act. Seeding: • Select a seed mixture in Table 4-2 that is appropriate for the soil type and moisture content as found at the site, for the amount of sun exposure and for level of use. • Select seed from recommendations in Table 4-3. • Inoculate all legume seed with the correct type and amount of inoculant. • Apply seed uniformly by hand, cyclone seeder, drill, cultipacker type seeder or hydroseeder (slurry including seed and fertilizer). Normal seeding depth is from 1/4 to 1/2 inch. Hydroseeding that includes mulch may be left on soil surface. Seeding operations should be on the contour.

	• Where feasible, except where either a cultipacker type seeder or hydroseeder is used, the seedbed should be firmed following seeding operations with a roller, or light drag. • Spring seeding usually gives the best results for all seed mixes or with legumes. Permanent seeding should be completed 45 days prior to the first killing frost. When crown vetch is seeded in later summer, at least 35% of the seed should be hard seed (unscarified). If seeding cannot be done within the specified seeding dates, mulch according to the "Temporary and Permanent Mulching practice" and delay seeding until the next recommended seeding period. • Temporary seeding should typically occur prior to September 15th. • Areas seeded between May 15th and August 15th should be covered with hay or straw mulch, according to the "Temporary and Permanent Mulching" practice. • Vegetated growth covering at least 85% of the disturbed area should be achieved prior to October 15th. If this condition is not achieved, implement temporary stabilization measures for overwinter protection, and complete permanent seed stabilization during the next growing season. Hydroseeding: • When hydroseeding (hydraulic application), prepare the seedbed as specified above or by hand raking to loosen and smooth the soil to remove surface stones larger than 2 inches in diameter. • Slopes must be no steeper than 2 to 1 (2 feet horizontally to 1 foot vertically). • Lime and fertilizer may be applied simultaneously with the seed. The use of fiber mulch on critical areas is not recommended (unless it is used to hold straw or hay). Better protection is gained by using straw mulch and holding it with adhesive materials or 500 pounds per acre of wood fiber mulch. • Seeding rates must be increased 10% when hydroseeding.

SECTION 5: POLLUTION PREVENTION CONTROLS

5.1 Potential Sources of Pollution

Construction Site Pollutants

Pollutant-Generating Activity	**Pollutants or Pollutant Constituents** (That could be discharged if exposed to stormwater)	**Location on Site** (Or reference SWPPP site map where this is shown)
Outdoor Stockpile Storage	Sediment	Within limits of work area
Vehicle/Equipment Parking	Fuels, Oils, Petroleum Products	Within limits of work area
Earthwork Activities	Sediment, Calcium, Hydrocarbons	Within limits of work area
Material Processing	Sediment, Dust	Within limits of work area
Site Restoration Activities	Sediment, Fertilizers, Pesticides, Herbicides	Within limits of work area

5.2 Spill Prevention and Response

Construction activity spill prevention and response shall be the Construction Manager and Site Contractors responsibility. Site construction activity pollution prevention measures typically focus on minimizing land disturbance, temporary site stabilization and construction litter control, containment and responsible disposal.

Employees expected to handle or work with chemicals or be in the vicinity of stored chemicals shall be trained. Training shall include chemical familiarity, MSDS sheet knowledge, container and secondary containment recognition, spill or compromised storage conditions and appropriate spill/leak containment/clean up. Employees may not be qualified to contain and clean-up chemical spills. However, all trained employees are expected to know the difference and respond or react accordingly. In all cases, trained employees are responsible to document and notify management of improper chemical storage/spill conditions.

Secondary containment devices shall be maintained in an empty condition at all times. In the unlikely event a chemical spill or primary containment breach occurs, the secondary containment device shall be promptly (within 24 hours) inspected, cleaned out if possible or immediately replaced by a trained professional. All used or ineffective spill kits or containment devices shall be disposed of offsite in a legal manner, by a licensed vendor.

In case of reportable discharge of petroleum based product, call the NHDES Waste Management Division immediately at (603) 271-3899 or the New Hampshire Department of Safety at (603)223-4381. In case of reportable discharge: Call 911. The 911 dispatcher will contact the Local Fire Department and/or HAZ-MAT team.

A "Reportable Discharge," as it relates to petroleum (diesel fuel, oil), is the discharge of any measurable volume into a catch basin, pipe, or other stormwater conveyances, if/when spill control methods have failed.

If a spill or leak is observed onsite that does not meet "reportable discharge" criteria, a trained employee is responsible to complete a spill report in accordance with the spill prevention plan and corrective action log contained in the SWPPP. All construction activity related spills or leaks are to be reported to and documented by the Construction Manager.

5.3 Fueling and Maintenance of Equipment or Vehicles

General

- Vehicle fueling will be conducted onsite. Onsite fuel tank will consist of a double-wall flameshield tank.
- Env-Wq 401, Best Management Practices for Groundwater Protection, applies to a variety of businesses and activities considered potential contamination sources under the Groundwater Protection Act, RSA 485C. If you fuel or maintain excavation or earthmoving equipment in the field, this fact sheet explains how to meet the requirements of the best management practices (BMP) rules. The BMP rules apply to "regulated containers" holding five or more gallons of a regulated substance, which include motor fuels, lubricants, hydraulic fluids, other petroleum products, degreasers, and other substances that are capable of contaminating drinking water. The rules do not apply to petroleum storage tanks regulated under Env-Wm 1401 Underground Storage Facilities (USTs) or Env-Wm 1402 Control of Aboveground Petroleum Storage Facilities (ASTs), but may apply to the transfer of fuel or other petroleum products between ASTs/ USTs and equipment or portable containers.

- Store fuels and regulated substances in sealed, clearly labeled containers. Regulated containers must be labeled (specifying contents), closed and sealed at all times, except to add or remove fluids.
- Store regulated containers on a stable, level, impervious surface. Regulated containers must be stored in such a way that they will not easily tip over. Fueling, fuel storage, and maintenance areas, where transfers of fuel/fluids or work on equipment or vehicles that might result in spills, must be located on level ground with an impervious floor surface constructed of concrete, asphalt, chemically compatible polymer material or any other impervious surface that will contain gas, oil or other fluids in use. If the facility is subject to EnvWm 1402 (AST rules; see above) the impervious surface must be concrete. Impervious surfaces together with secondary containment barriers (e.g., tank vaults, positive limiting barriers, containment berms) can effectively contain spills or tank failures. Containers must not be stored on pervious surfaces (wood, soil) or otherwise come in contact with moist earth.
- Provide secondary containment around fuel storage containers and during transfers. Secondary containment must be provided for all regulated containers and be in place during refueling activities involving transfers of fuel from "on-road" delivery trucks, "off-road" tank trucks (referred to as "mobile refuelers") or portable containers to field equipment.
- Option 1 (Mobile Fueling):
  This involves fueling earthmoving or excavation equipment from a tank truck or some other container that is moved around the site. Secondary containment equipment used during mobile fueling should be sized to contain the most likely volume of fuel to be spilled during a fuel transfer. Portable containment equipment should be positioned to catch any fuel spills due to overfilling the equipment and any other spills that may occur at or near the fuel filler port to that equipment. The selection of containment equipment and its positioning and use should take into account all of the drip points associated with the fuel filling port and the hose from the fuel delivery truck. Personnel must attend to the fueling process to ensure that any spills will be of limited volume. See the diagram in Figure 1A and Attachment 1, photos A and B for examples of portable spill containment that may be used during mobile fuel transfers.
- Option 2 (Fuel Storage and Transfer Areas):
  This involves fueling equipment in a fixed location on the site. Refueling containers (skid-mounted tanks, drums, five-gallon cans) must have secondary containment. Secondary containment areas for fuel storage tanks must be able to contain 110 percent of the volume of the largest fuel storage container and have an impervious floor. Tanks may be placed within a metal, plastic, polymer or pre-cast concrete vault providing 110 percent of the volume of the largest fuel storage container. For smaller volumes stored in fuel drums, containment pallets provide suitable secondary containment. See Attachment 1, photos E and F. Fuel transfer should be done over a flat, impervious fuel transfer area adjacent to the fuel storage tank(s). The impervious fuel transfer area should extend beyond the full reach (length) of the fuel hose to avoid spills directly onto a pervious surface. See Figure 1B. Portable containment equipment may provide both secondary containment for the fuel storage tank (110 percent of the volume) and the required impervious area (typically raised at the perimeter) necessary for conducting fuel transfers. See Attachment 1, photos C and, D. Tank storage and fuel transfers may also be within secondary containment areas constructed by forming a basin sloped down to a central low point or bermed along the perimeter, lined with a continuous sheet of 20 mil (or greater) polymer material or appropriate geomembrane liner 4, and backfilled with at least six inches of sand.

Figure 1A
Containment with Impervious Surface (in grey)
for Mobile Fuel Transfers

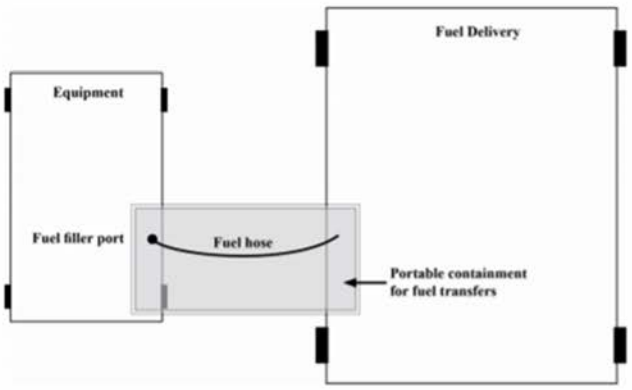
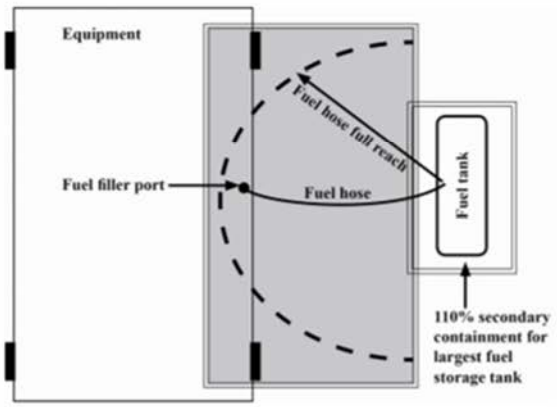


Figure 1B
Tank Containment with Impervious Surface
(in grey) for Fuel Transfers



- Keep secondary containment area covered and dry. Secondary containment for outdoor storage areas (for fuel or other regulated substances) must be covered with a roof, plastic sheeting, or waterproof tarpaulins to keep containers dry, except when materials are being added or removed. The area must be kept free of rain, snow, and ice to ensure sufficient containment volume remains to contain a release from the largest storage tank. For relatively small storage areas, spill containment pallets and covers are commercially available. (See Attachment 1, photos E and F) If the water collected from the containment area has a visible sheen, DES must be contacted at (603) 2713644 before disposal of the water.
- Comply with Related State and Federal Requirements Construction, installation or use of aboveground tanks storing petroleum products with a capacity greater than 660 gallons in any one tank, or a combined volume of petroleum products tanks on a site greater than 1,320 gallons, must be preapproved and registered with DES per Env-Wm 1402. (Contact the AST Program at 271-3644) Sites storing more than a total of 1,320 gallons (in containers 55-gallons or larger) of oil products are also regulated under the federal Spill Prevention Control and Countermeasure (SPCC) Rule, 40 CFR 112. In addition to secondary containment requirements for "bulk storage" these sites must also provide spill containment during mobile fuel transfers complying with the rule's provisions. Both fuel trucks that come to the site to deliver fuel (e.g. "on-road") and vehicles only used at the site to dispense fuel to equipment (e.g., "mobile refuelers") are subject to the SPCC rules involving secondary containment during fuel transfers. Guidance on the SPCC rule with examples of secondary containment options may be found within EPA's Spill Prevention, Control, and Countermeasure (SPCC) Guidance for Regional Inspectors. For a copy of this guide, please see www.epa.gov/OEM/content/spcc/spcc_guidance.htm#Content
- Stationary fuel tanks over 60 gallons and portable containers under 60 gallons that provide fuel to off-road vehicles (e.g. excavators) must also comply with National Fire Protection Association (NFPA) standards, specifically NFPA 30 Flammable and Combustible Liquids Code, and, if fueling "on-road" vehicles, NFPA 30A Motor Fuel Dispensing Facilities and Repair Garages. NFPA standard 30 establishes minimum fabrication standards for tanks and containers holding flammable and combustible liquids, limits on the amount of materials that can

be stored in any one pile or rack, distances between piles or racks, property line setbacks and accessibility.

- Any fuel container larger than 60 gallons must meet UL standard 142, Steel Aboveground Tanks for Flammable and Combustible Liquids establishing minimum requirements for fabrication, installation and inspection for aboveground storage tanks.
- Train employees to prevent, contain, and clean up spills. Train employees in all aspects of proper storage and handling of fuel or other regulated substances. Instruct employees to use spill prevention equipment (e.g., drip pans, etc.), be present during all fuel transfers, and immediately clean up spills and contaminated soil. Absorbents to pick up spills and leaks must be located in the immediate area where fuels are transferred, used, or stored. In addition, spill response information must be posted at all storage areas (poster available from DES).
- Immediately report significant or uncontrolled spills. Small spills that are quickly cleaned up do not need to be reported. However, if any of the following occurs, the spill must be immediately reported to the N.H. Department of Environmental Services at (603) 271-3899 or (603) 271-3636 after 4 p.m. on weekdays or on weekends:
    - ✓ The spill is 25 gallons or more.
    - ✓ The spill is not contained immediately.
    - ✓ The spill and contamination are not completely removed within 24 hours.
    - ✓ There is impact or potential impact to groundwater or surface water.
- Properly store and dispose of contaminated soil and materials. Store small quantities of contaminated soil, leaking drums/cans or used absorbent materials in covered, water-tight containers. If you are going to transport contaminated absorbents or leaking drums/cans, they must be shipped in a DOT or UN Salvage Drum that complies with DOT 49 CFR 173.3 (c). Do not mix absorbents contaminated with different petroleum products or other regulated substances. This can create a hazardous waste that requires disposal by a licensed hauler. If wastes with petroleum or other regulated substances are mixed, contact DES to determine whether it is necessary to manage the waste as a hazardous or solid waste. Determining whether the waste is hazardous may require lab testing. Contact the Hazardous Waste Management Bureau's Compliance Section at (603) 271-2942 for more information. Information concerning proper disposal of petroleum contaminated solid wastes (e.g., absorbents) is available from the Solid Waste Bureau's Compliance Section at (603) 271-2925.
- Keep storage areas secure. Fuel storage areas must be kept secure. Employ a locked gate at the entrance to the site, a SiltSoxx and a locked gate around the storage area, and/or store regulated substances in a locked trailer or shed. Access to storage areas must be under lock whenever the site is unattended. If the site is inactive for a period, the storage area must be inspected weekly for leaks and security. To keep storage areas secure from collision damage, berms or boulders should be used and the storage area should be located away from the active portion of the site.
- Keep containers away from surface waters, catch basins (stormwater), private and public water supply wells. Containers must be kept at least 50 feet from catch basins and surface waters, 75 feet from private wells, and outside the sanitary radius (varies from 150 to 400 feet) of a public well Contact the local public water supplier or DES (271-0688) to determine the sanitary radius for the well.

5.4 Washing of Equipment and Vehicles

General
No onsite washing of equipment and/or vehicles is proposed as part of this project. Rather, all equipment/vehicles will be washed off site at an approved location. Wastewater discharge from vehicle washing shall be done in accordance with NHDES regulations:

Water used in washing cars, trucks, and other vehicles may contain a wide range of contaminants. These contaminants can include oil, fuels and other hydrocarbons, metals, detergents, road salt and grit. Discharged into surface waters, these contaminants can degrade water quality and harm aquatic life. Discharged into groundwater, they can make water unfit for drinking. To avoid these problems and the legal consequences that may result, the following guidelines apply to facilities where vehicles are washed on a regular basis and the wash water is collected by a conveyance such as a drain, catch basin, ditch or swale and infiltrated to the ground or groundwater. Owners of facilities that conduct washing activities have four options for their wastewater discharges:

1. Operate a closed system with wastewater recycling (no discharge of wastewater).
2. Discharge to a municipal sanitary sewer.
3. Obtain a groundwater discharge permit.
4. Obtain registration to wash fewer than 30 vehicles per week and discharge to the ground surface only.

- Closed System with No Discharge
  This does not require a permit. However, it may require a "Holding Tank Registration" if the treatment system has a grit and oil tank that is pumped out. The water and sludge that are pumped from the tank must be collected and disposed of at an approved disposal facility, i.e., a wastewater treatment plant or hazardous waste disposal facility, depending on the nature of the material.
- Discharge to Municipal Sanitary Sewer
  Connections to your municipal sanitary sewer are controlled by the local sewer authority. Contact the local authority regarding restrictions. Some local sewer authorities do not allow connection of floor drains, while others allow connection only with adequate pretreatment, e.g., an oil/grit separator, or other controls. If you connect an existing floor drain to a municipal sanitary sewer, you still need to notify NHDES.
- Obtain a Groundwater Discharge Permit
  You may discharge vehicle wash water directly to the ground if both of the following are true:
  a. A groundwater discharge permit is obtained in accordance with Env-Wq 402.11; and
  b. The wash water is treated to ambient groundwater quality standards (Env-Or 600, Table 600-1) using best available technology (typically granular activated carbon).
- Wash Fewer than 30 Vehicles per Week
  If you wash fewer than 30 vehicles per week, you may be able to discharge indirectly to groundwater without obtaining a groundwater discharge permit. However, you need to follow Env-Wq, 401 Best Management Practices for Groundwater Protection to avoid contamination of your wash water with regulated substances. You also need to register your discharge and floor drain, if any. To avoid having to obtain a groundwater discharge permit, you must meet all of the following conditions:
  a. Best Management Practices for Groundwater Protection are followed.
  b. The floor drain is not in an area where regulated contaminants are used or stored.
  c. The wastewater: Is not from power washing, steam cleaning, engine cleaning or undercarriage cleaning; Is not from a chemical or acid wash; Does not contain soaps

or other products that contain regulated contaminants; Does not result in a surface water discharge; Discharges to the ground surface; Contains only approved detergents; Leads to an oil/water separator or other pretreatment method prior to infiltration; Is registered with NHDES in accordance with Env-Wq 402.33.

Owners of facilities with these discharges are responsible for ensuring that regulated contaminants are not discharged and that groundwater is suitable for drinking without treatment. NHDES reserves the right to verify compliance by requiring the collection and analysis of soil samples from the discharge area(s) under Env-Wq 402.33.

5.5 Storage, Handling, and Disposal of Building Products, Materials, and Wastes

5.5.1 Building Materials and Building Products

General

- This project does not anticipate the need for the storage, handling, and disposal of building products, materials and wastes.

Specific Pollution Prevention Practices

STORAGE, CONTAINMENT, HANDLING OF MATERIALS	
Description: • Contractor shall designate a waste collection area on site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a water body. • Ensure that containers have lids so they can be covered before periods of rain, and keep containers in a covered area whenever possible. • Schedule waste collection to prevent the containers from overfilling. • Cleanup spills immediately. For hazardous materials, follow cleanup instructions on the package. Use an absorbent material such as sawdust or kitty litter to contain the spill. • During the demolition phase of construction, provide extra containers and schedule more frequent pickups. • Collect, remove and dispose of all construction site wastes at authorized disposal areas. Contact a local environmental agency to identify these disposal sites	
Installation	N/A
Maintenance Requirements	N/A
Design Specifications	N/A

5.5.2 Pesticides, Herbicides, Insecticides, Fertilizers, and Landscape Materials

General

- Fertilizers will be used on the landscape areas throughout the project site. Contractor shall follow all regulations that apply to the use, handling, or disposal of pesticides and fertilizers. Contractor shall store fertilizers and pesticides in a dry, covered area and will take precautions to minimize the exposure of these chemicals to precipitation and to stormwater.

Specific Pollution Prevention Practices

PROPER HANDLING AND APPLICATION OF MATERIALS	
Description: • Contractor shall follow all Federal, State, and Local regulations that apply to the use, handling, or disposal of pesticides and fertilizers. • Contractor shall not handle the materials any more than necessary. • Contractor shall store pesticides and fertilizers in a dry, covered area. • Contractor shall construct berms or dikes to contain stored pesticides and fertilizers in case of spillage. • Contractor shall follow the recommended application rates and methods for the products. • Contractor shall have equipment and absorbent materials available in storage and application areas to contain and cleanup any spills that occur.	
Installation	TBD
Maintenance Requirements	N/A
Design Specifications	N/A

5.5.3 Diesel Fuel, Oil, Hydraulic Fluids, Other Petroleum Products, and Other Chemicals

General

- On-site fueling shall be limited to the few vehicles that are to remain onsite. Limited other fluids shall be stored on-site with all major maintenance on vehicles being completed at off-site locations. Should storage of materials on site be required, Contractor shall store materials in water-tight containers and provide cover to minimize the exposure of these products to precipitation and stormwater.

Specific Pollution Prevention Practices

MATERIAL HANDLING	
Description: Contractor shall store new and used petroleum products for vehicles in covered areas with berms or dikes in place to contain any spills. Immediately contain and cleanup any spills with absorbent materials. Have equipment available in fuel storage areas and in vehicles to contain and cleanup any spills that occur.	
Installation	TBD
Maintenance Requirements	Contractor shall clean up spills immediately, using dry clean-up methods where possible, and dispose of used materials properly. Contractor is prohibited from hosing down areas to clean surfaces or spills. Contractor shall eliminate the source of the spill to prevent a discharge or a furtherance of an ongoing discharge.
Design Specifications	N/A

5.5.4 Hazardous or Toxic Waste

General

- It is anticipated that the project will result in minimal amounts of toxic or hazardous waste. Should such wastes be produced, the contractor shall store materials in containers which constructed to prevent leakage and corrosion.

Specific Pollution Prevention Practices

MATERIAL HANDLING	
Description: • Contractor shall consult with local waste management authorities about the requirements for disposing of hazardous materials. • To prevent leaks, empty and clean hazardous waste containers before disposing of them. • Never remove the original product label from the container because it contains important safety information. Follow the manufacturer's recommended method of disposal, which should be printed on the label. • Never mix excess products when disposing of them, unless specifically recommended by the manufacturer. • Contractor shall separate hazardous or toxic waste from construction and domestic waste. • Waste shall be stored in sealed containers, which are constructed of suitable materials to prevent leakage and corrosion, and which are labeled in accordance with applicable Resource Conservation and Recovery Act (RCRA) requirements and all other applicable Federal, State, or Local requirements. • All outside containers shall be stored within appropriately-sized secondary containment (spill berms, decks, spill containment pallets) to prevent spills from being discharged. • Contractor shall clean up spills immediately, using dry clean-up methods, and dispose of used materials properly. Contractor is prohibited from hosing the area down to clean surfaces or spills. Contractor shall eliminate the source of the spill to prevent a discharge or furtherance of an ongoing discharge. • To ensure the proper disposal of any contaminated soils that have been exposed to and still contain hazardous substances, the contractor shall consult with State or Local solid waste regulatory agencies tor private firms, Some landfills might accept contaminated soils, but they require laboratory tests first. Any disposal of contaminated soils shall be coordinated with the Project Engineer, PE and shall conform to all State and Local regulations.	
Installation	TBD
Maintenance Requirements	Review Only
Design Specifications	N/A

5.5.5 Construction and Domestic Waste

General

- This project will generate minimal amounts of construction and domestic waste.
- An onsite designated dumpster shall be provided for the construction and domestic waste.

Specific Pollution Prevention Practices

WASTE CONTAINERS	
Description: • Contractor shall designate a waste collection area on site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a water body. • Contractor shall provide waste containers of sufficient size and number to contain construction and domestic wastes. • Contractor shall ensure that containers have lids so they can be covered before periods of rain, and shall keep containers in a covered area whenever possible. • Contractor shall schedule waste collection to prevent the containers from overfilling. • Contractor shall cleanup spills immediately. • Contractor shall collect, remove and dispose of all construction site wastes at authorized disposal areas. Contact a local environmental agency to identify these disposal sites.	
Installation	TBD
Maintenance Requirements	Review Daily
Design Specifications	N/A

5.5.6 Sanitary Waste

General

- Temporary facilities shall be provided by the contractor for on-site use by employees.

Specific Pollution Prevention Practices

TEMPORARY FACILITIES	
Description: Temporary facilities shall be provided by the contractor.	
Installation	Temporary facilities will be installed at the beginning of the project. Facilities shall be positioned so that they are secure and will not be tipped or knocked over. Temporary facilities shall be located away from the waters of the U.S. and stormwater inlets and conveyances.
Maintenance Requirements	Temporary facilities shall have routine inspections and shall be scheduled for waste collection as needed.
Design Specifications	N/A

5.6 Washing of Applicators and Containers used for Stucco, Paint, Concrete, Form Release Oils, Cutting Compounds, or Other Materials

General
Concrete washout areas shall be designated for the project. Should washout of paint of other materials be required, contractor shall direct wash water into leak-proof containers or lined pit designed so that no overflows can occur due to inadequate sizing or precipitation.

Specific Pollution Prevention Practices

WASHOUT CONTAINER	
Description: Contractor shall direct wash water into a leak-proof container or leak-proof and lined pit designed so that no overflows can occur due to inadequate sizing or precipitation. • Contractor shall handle washout or cleanout wastes as follows: • Contractor shall not dump liquid wastes in storm sewers or waters of the U.S. • Contractor shall dispose of liquid wastes in accordance with applicable requirements in Part 2.3.3 of the 2022 CGP.	
Installation	Washout container will be installed as required for the project. Any washout or cleanout activities will be located as far away as possible from the waters of the U.S. and stormwater inlets or conveyances, and, to the extent feasible, the contractor shall designated the washout areas to be used for washout or cleanout only.
Maintenance Requirements	Maintenance of the washout is to include removal of hardened concrete. The facility shall have sufficient volume to contain all the concrete waste resulting from washout and a minimum freeboard of 1 foot. Facility shall not be filled beyond 95% capacity and shall be cleaned out once 75% full unless a new facility is constructed.
Design Specifications	N/A

5.7 Application of Fertilizers

General

- Fertilizers will be used on the landscape areas throughout the project site. Contractor shall follow all regulations that apply to the use, handling, or disposal of fertilizers. Contractor shall store fertilizers in a dry, covered area and will take precautions to minimize the exposure of these chemicals to precipitation and to stormwater.

Specific Pollution Prevention Practices

APPROPRIATE USE	
Description: Type and amount of fertilizer is to be determined by the final plantings determined for the site.	
Installation	Fertilizer shall be applied at the appropriate time of year to coincide as closely as possible to the period of maximum vegetation uptake and growth. Contractor shall apply fertilizer at a rate in amounts consistent with manufacturer's specifications. Contractor shall avoid applying fertilizers before heavy rains that could cause excess nutrients to be discharged. Contractor shall never apply fertilizers to frozen ground. Contractor shall never apply fertilizers to stormwater conveyance channels. Contractor shall follow all Federal, State, and Local requirements regarding fertilizer application.
Maintenance Requirements	N/A
Design Specifications	N/A

5.8 Other Pollution Prevention Practices

General

- Contractor shall provide information below about any other pollution prevention practices that are implemented during construction that are not described above.

SECTION 6: INSPECTION, MAINTENANCE, AND CORRECTIVE ACTION

6.1 Inspection Personnel and Procedures

Site Inspection Schedule

Select the inspection frequency(ies) that applies, based on CGP Parts 4.2, 4.3, or 4.4

Standard Frequency:

☒ Every 7 calendar days

☐ Every 14 calendar days and within 24 hours of either:

- A storm event that produces 0.25 inches or more of rain within a 24-hour period (including when there are multiple, smaller storms that alone produce less than 0.25 inches but together produce 0.25 inches or more in 24 hours), or
- A storm event that produces 0.25 inches or more of rain within a 24-hour period on the first day of a storm and continues to produce 0.25 inches or more of rain on subsequent days (you conduct an inspection within 24 hours of the first day of the storm and within 24 hours after the last day of the storm that produces 0.25 inches or more of rain (i.e., only two inspections would be required for such a storm event)), or
- A discharge caused by snowmelt from a storm event that produces 3.25 inches or more of snow within a 24-hour period.

Increased Frequency (if applicable):

For areas of sites discharging to sediment or nutrient-impaired waters or to waters designated as Tier 2, Tier 2.5, or Tier 3

☐ Every 7 days and within 24 hours of either:

- A storm event that produces 0.25 inches or more of rain within a 24-hour period, or
- A discharge caused by snowmelt from a storm event that produces 3.25 inches or more of snow within a 24-hour period.

Reduced Frequency (if applicable)

For stabilized areas

☐ Twice during first month, no more than 14 calendar days apart; then once per month after first month until permit coverage is terminated consistent with Part 9 in any area of your site where the stabilization steps in 2.2.14.a have been completed.

For stabilized areas on "linear construction sites" (as defined in Appendix A)

☐ Twice during first month, no more than 14 calendar days apart; then once more within 24 hours of a storm event that produces 0.25 inches or more of rain within a 24-hour period, or within 24 hours of a snowmelt discharge from a storm event that produces 3.25 inches or more of snow within a 24-hour period

For arid, semi-arid, or drought-stricken areas during seasonally dry periods or during drought

☐ Once per month and within 24 hours of either:

- A storm event that produces 0.25 inches or more of rain within a 24-hour period, or
- A snowmelt discharge from a storm event that produces 3.25 inches or more of snow within a 24-hour period.

Insert beginning and ending month identified as the seasonally dry period for your area or the valid period of drought:

- Beginning month of the seasonally dry period:
- Ending month of the seasonally dry period:

For frozen conditions where construction activities are being conducted ☐ Once per month Insert beginning and ending dates of frozen conditions on your site: ▪ Beginning date of frozen conditions: 12/15/2023 ▪ Ending date of frozen conditions: 3/15/2024
For frozen conditions where construction activities are suspended ☐ Inspections are temporarily suspended Insert beginning and ending dates of frozen conditions on your site: ▪ Beginning date of frozen conditions: 12/15/2023 ▪ Ending date of frozen conditions: 3/15/2024

Dewatering Inspection Schedule

Select the inspection frequency that applies based on CGP Part 4.3.2

Dewatering Inspection
☐ Once per day on which the discharge of dewatering water occurs.

Rain Gauge Location (if applicable)
N/A

Inspection Report Forms
See Appendix D for the inspection report form.

6.2 Corrective Action

Personnel Responsible for Corrective Actions
The owner, Gordon Services Property Management, LLC , is responsible for corrective actions. The primary contact is Cody Gordon.

Corrective Action Logs
See Appendix E for the corrective action form.

6.3 Delegation of Authority

Duly Authorized Representative(s) or Position(s):

SECTION 7: TURBIDITY BENCHMARK MONITORING FOR DEWATERING DISCHARGES

Procedures:

Collecting and evaluating samples	N/A
Reporting results and keeping monitoring information records	N/A
Taking corrective action when necessary	N/A

Turbidity Meter:

Type of turbidity meter	N/A

Turbidity meter manuals and manufacturer instructions
N/A

Coordinating Arrangements for Turbidity Monitoring (if applicable):

Permitted operator name	N/A
Permitted operator NPDES ID	N/A
Coordinating Arrangement	N/A

Alternate turbidity benchmark (if applicable):

Alternate turbidity benchmark (NTU)	N/A
Data and documentation used to request the alternate benchmark	N/A

SECTION 8: CERTIFICATION AND NOTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: _____ Title: _____

Signature: _____ Date: _____

Name: _____ Title: _____

Signature: _____ Date: _____

Name: _____ Title: _____

Signature: _____ Date: _____

New Hampshire Natural Heritage Bureau
NHB DataCheck Results Letter

To: Jeffrey Merritt, Granite Engineering, LLC
150 Dow Street
Suite 421
Manchester, NH 03101

From: NH Natural Heritage Bureau
Date: 11/1/2022 (valid until 11/1/2023)
Re: Review by NH Natural Heritage Bureau of request submitted 10/26/2022
Permits: MUNICIPAL POR - Keene, Sullivan, NHDES - Alteration of Terrain Permit, USEPA - Stormwater Pollution Prevention

NHB ID: **NHB22-3432** **Applicant:** Jeffrey Merritt

Location: Keene and Sullivan
21 Route 9

Project Description: Razing and renovating existing structures on property, expanding current footprint for landscaping company operations.

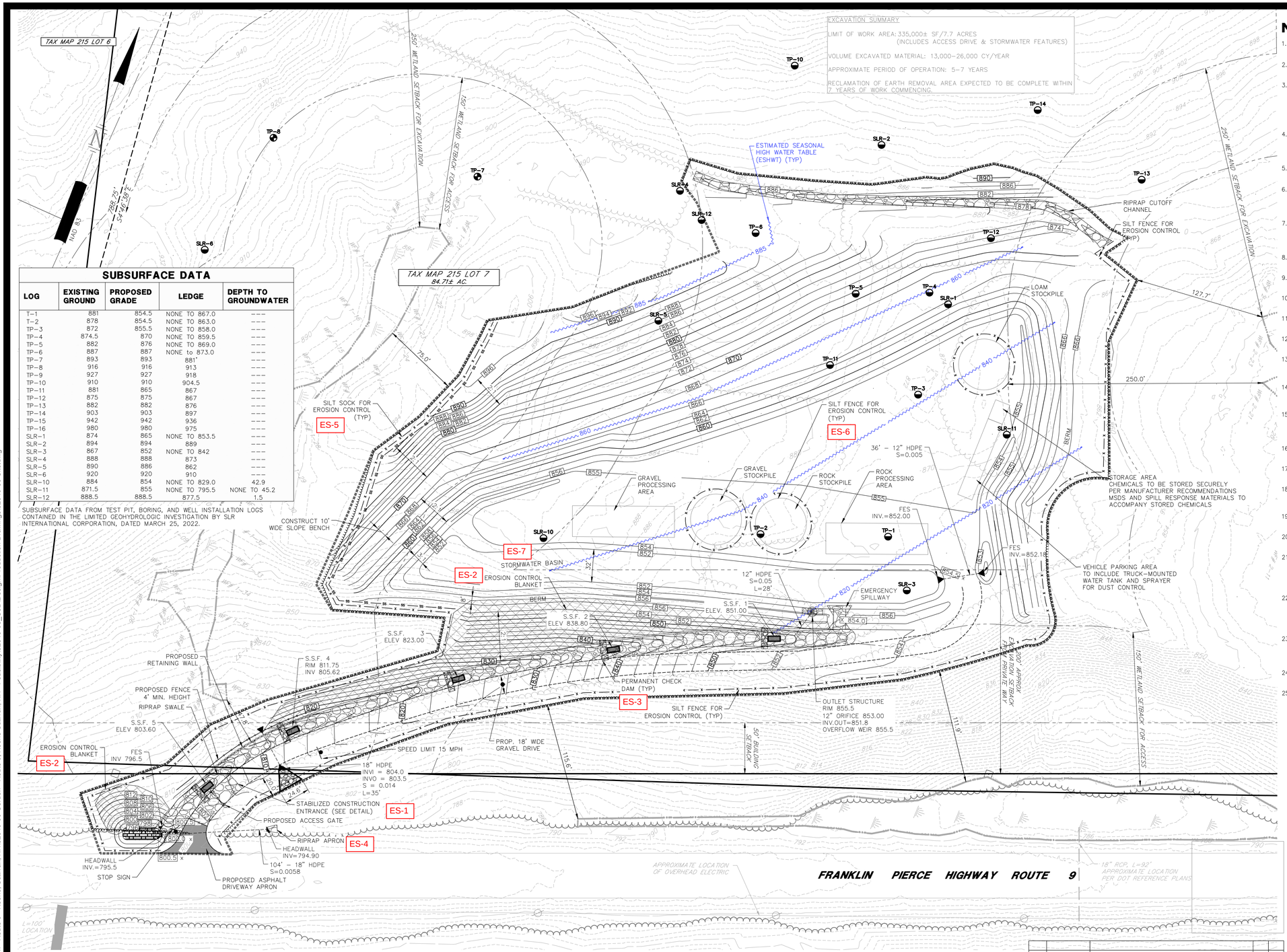
The NH Natural Heritage database has been checked by staff of the NH Natural Heritage Bureau and/or the NH Nongame and Endangered Species Program for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government.

It was determined that, although there was a NHB record (e.g., rare wildlife, plant, and/or natural community) present in the vicinity, we do not expect that it will be impacted by the proposed project. This determination was made based on the project information submitted via the NHB Datacheck Tool on 10/26/2022 9:23:13 AM, and cannot be used for any other project.

Based on the information submitted, no further consultation with the NH Fish and Game Department pursuant to Fis 1004 is required.

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301



SUBSURFACE DATA

LOG	EXISTING GROUND	PROPOSED GRADE	LEDGE	DEPTH TO GROUNDWATER
T–1	881	854.5	NONE TO 867.0	---
T–2	878	854.5	NONE TO 863.0	---
TP–3	872	855.5	NONE TO 858.0	---
TP–4	874.5	870	NONE TO 859.5	---
TP–5	882	876	NONE TO 869.0	---
TP–6	887	887	NONE to 873.0	---
TP–7	893	893	881'	---
TP–8	916	916	913	---
TP–9	927	927	918	---
TP–10	910	910	904.5	---
TP–11	881	865	867	---
TP–12	875	875	867	---
TP–13	882	882	876	---
TP–14	903	903	897	---
TP–15	942	942	936	---
TP–16	980	980	975	---
SLR–1	874	865	NONE TO 853.5	---
SLR–2	894	894	889	---
SLR–3	867	852	NONE TO 842	---
SLR–4	888	888	873	---
SLR–5	890	886	862	---
SLR–6	920	920	910	---
SLR–10	884	854	NONE TO 829.0	42.9
SLR–11	871.5	855	NONE TO 795.5	NONE TO 45.2
SLR–12	888.5	888.5	877.5	1.5

SUBSURFACE DATA FROM TEST PIT, BORING, AND WELL INSTALLATION LOGS CONTAINED IN THE LIMITED GEOHYDROLOGIC INVESTIGATION BY SLR INTERNATIONAL CORPORATION, DATED MARCH 25, 2022.

NOTES

1. ALL WORK SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS OF THE CITY OF KEENE, AND SHALL BE BUILT IN A WORKMANLIKE MANNER IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE HIMSELF WITH THE SITE AND ALL SURROUNDING CONDITIONS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND DETERMINING THE LOCATION, SIZE AND ELEVATION OF ALL EXISTING UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS, PRIOR TO THE START OF ANY CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION BE AGREED TO BY THE ENGINEER BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT "DIGSAFE" (811) AT LEAST 72 HOURS BEFORE DIGGING.
4. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES OWNING UTILITIES, EITHER OVERHEAD OR UNDERGROUND, WITHIN THE CONSTRUCTION AREA AND SHALL COORDINATE AS NECESSARY WITH THE UTILITY COMPANIES OF SAID UTILITIES. THE PROTECTION OR RELOCATION OF UTILITIES IS ULTIMATELY THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE CONTRACTOR SHALL COORDINATE MATERIALS AND INSTALLATION SPECIFICATIONS WITH THE INDIVIDUAL UTILITY AGENCIES/COMPANIES, AND ARRANGE FOR ALL INSPECTIONS.
6. ROAD AND DRAINAGE CONSTRUCTION SHALL CONFORM TO THE TYPICAL SECTIONS AND DETAILS SHOWN ON THE PLANS, AND SHALL MEET LOCAL STANDARDS AND THE REQUIREMENTS OF THE LATEST NHDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGE CONSTRUCTION AND THE NHDOT STANDARD STRUCTURE DRAWINGS UNLESS OTHERWISE NOTED.
7. STORM DRAINAGE SYSTEM SHALL BE CONSTRUCTED TO LINE AND GRADE AS SHOWN ON THE PLANS. CONSTRUCTION METHODS SHALL CONFORM TO NHDOT STANDARD SPECIFICATIONS, SECTION 603. CATCH BASINS AND DRAIN MANHOLES SHALL CONFORM TO SECTION 604. ALL CATCH BASIN GRATES SHALL BE TYPE B AND CONFORM TO NHDOT STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE NOTED.
8. ALL EXCAVATIONS SHALL BE THOROUGHLY SECURED ON A DAILY BASIS BY THE CONTRACTOR AT THE COMPLETION OF CONSTRUCTION OPERATIONS IN THE IMMEDIATE AREA.
9. THE SITE CONTRACTOR SHALL PREPARE, MAINTAIN, AND EXECUTE A S.W.P.P.P. IN ACCORDANCE WITH EPA REGULATIONS AND THE CONSTRUCTION GENERAL PERMIT.
10. THE SITE CONTRACTOR SHALL COORDINATE WITH THE OWNER TO SUBMIT AN eNOI AT LEAST 14 DAYS IN ADVANCE OF ANY EARTHWORK ACTIVITIES AT THE SITE.
11. THE EROSION CONTROL PRACTICES SHOWN ON THESE PLANS ARE ILLUSTRATIVE ONLY AND SHALL BE SUPPLEMENTED BY THE SITE CONTRACTOR AS NEEDED.
12. LIMITS OF WORK ARE SHOWN AS APPROXIMATE. THE CONTRACTOR SHALL COORDINATE ALL WORK TO PROVIDE SMOOTH TRANSITIONS.
13. THE OPERATOR SHALL REFER TO THE GEOTECHNICAL REPORT FOR INFORMATION ABOUT GROUNDWATER CONDITIONS. THE CONTRACTOR SHALL FOLLOW THE GEOTECHNICAL ENGINEER'S RECOMMENDED METHODS TO ADDRESS ANY GROUNDWATER ISSUES THAT ARE FOUND ON SITE.
14. THE OPERATOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR THE CONDITIONS AT THE SITE. WRITTEN DIMENSIONS HAVE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND REPORT DISCREPANCIES TO THE ENGINEER.
15. IT SHALL BE THE RESPONSIBILITY OF THE OPERATOR TO CHECK THE ACCURACY OF THE TOPOGRAPHY AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO ANY EARTHWORK BEING PERFORMED ON THE SITE. NO CLAIM FOR EXTRA WORK WILL BE CONSIDERED FOR PAYMENT AFTER EARTHWORK HAS COMMENCED.
16. IN THE EVENT OF A CONFLICT BETWEEN PLANS, SPECIFICATIONS, AND DETAILS, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY FOR CLARIFICATION.
17. IF CONDITIONS AT THE SITE ARE DIFFERENT THAN SHOWN THE ENGINEER SHALL BE NOTIFIED PRIOR TO PROCEEDING WITH THE AFFECTED WORK.
18. THESE PLANS WERE PREPARED UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER. TFMORAN INC. ASSUMES NO LIABILITY AS A RESULT OF ANY CHANGES OR NON-CONFORMANCE WITH THESE PLANS EXCEPT UPON THE WRITTEN APPROVAL OF THE ENGINEER OF RECORD.
19. TFMORAN INC. ASSUMES NO LIABILITY FOR WORK PERFORMED WITHOUT AN ACCEPTABLE PROGRAM OF TESTING AND INSPECTION AS APPROVED BY THE ENGINEER OF RECORD.
20. THE SITE CONTRACTOR SHALL ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF NHDES ENV-WQ 1500 AS APPLICABLE.
21. AT COMPLETION OF CONSTRUCTION, THE SITE CONTRACTOR SHALL PROVIDE A LETTER CERTIFYING THAT THE PROJECT WAS COMPLETED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS, AND A LETTER STAMPED BY A QUALIFIED ENGINEER THAT THEY HAVE OBSERVED ALL UNDERGROUND DETENTION SYSTEMS, INFILTRATION SYSTEMS, OR FILTERING SYSTEMS PRIOR TO BACKFILL, AND THAT SUCH SYSTEMS CONFORM TO THE APPROVED PLANS AND SPECIFICATIONS.
22. IF ANY DEVIATIONS FROM THE APPROVED PLANS AND SPECIFICATIONS HAVE BEEN MADE, THE SITE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS STAMPED BY A LICENSED SURVEYOR OR QUALIFIED ENGINEER ALONG WITH A LETTER STAMPED BY A QUALIFIED ENGINEER DESCRIBING ALL SUCH DEVIATIONS, AND BEAR ALL COSTS FOR PREPARING AND FILING ANY NEW PERMITS OR PERMIT AMENDMENTS THAT MAY BE REQUIRED.
23. HOURS OF OPERATION ARE PROPOSED AS FOLLOWS:
MONDAY–FRIDAY: 7AM–5PM
SATURDAY: 7AM–12PM
SUNDAY: CLOSED
24. CONSTRUCTION SHALL PROCEED SUCH THAT THERE IS NO RUNOFF LEAVING THE SITE FROM THE EXCAVATION AREA UNTIL THE STORMWATER BASIN IS CONSTRUCTED.
25. ALL CHECK DAMS SHOWN ARE PERMANENT.

STATE OF NEW HAMPSHIRE – ROBERT E. DUVAL No. 7105 LICENSED PROFESSIONAL ENGINEER – 3-24-2022

THERE SHALL BE NO BLASTING OF LEDGE AT THIS SITE.

HORIZONTAL SCALE 1"=50'
50 25 0 50

REV	DATE	DESCRIPTION	DR	CK
6	9/29/2022	UPDATE PER AOT RESPONSE	JED	JK
5	8/25/2022	UPDATE PER AOT RESPONSE	JED	JK
4	8/1/2022	UPDATE PER COMPLETENESS COMMENTS	JED	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

GRADING AND DRAINAGE PLAN

EXCAVATION SITE

RTE. 9, KEENE/SULLIVAN/ROXBURY, NH

OWNED BY/PREPARED FOR

G2 HOLDINGS LLC

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

DIG SAFE – CALL 811 OR 1-888-DIG-SAFE – CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

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

FILE		DR	SRP	FB	–	SHEET 8 OF 15
	82549.00	CK	JK	CADFILE	82549-00 SITE	