TOWN OF EXETER, NEW HAMPSHIRE

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

LEGAL NOTICE
EXETER PLANNING BOARD
AGENDA

The Exeter Planning Board will meet on Thursday, May 23, 2024 at 7:00 P.M. in the Nowak Room of the Town Office Building located at 10 Front Street, Exeter, New Hampshire, to consider the following:

APPROVAL OF MINUTES: March 28, 2024

NEW BUSINESS: PUBLIC HEARINGS

The application of Meniscus Financial Holdings, LLC for site plan review and Wetlands and Shoreland Conditional Use Permits for the proposed construction of a commercial vehicle storage area, a 22,500 S.F. accessory storage building and associated site improvements on the property located at 127 Portsmouth Avenue. The property is located in the C-2, Highway Commercial zoning district and is identified as Tax Map Parcel #52-112-2

OTHER BUSINESS

- Election of Officers
- Master Plan Discussion
- Land Use Regulations Review
- Field Modifications
- Bond and/or Letter of Credit Reductions and Releases

EXETER PLANNING BOARD
Langdon J. Plumer, Chairman

Posted 05/10/24: Exeter Town Office and Town of Exeter website

TOWN OF EXETER
PLANNING BOARD
NOWAK MEETING ROOM
10 FRONT STREET
MARCH 28, 2024
DRAFT MINUTES
7:00 PM

I. PRELIMINARIES:

BOARD MEMBERS PRESENT BY ROLL CALL: Vice-Chair Aaron Brown, Gwen English, John Grueter, and Nancy Belanger Select Board Representative

STAFF PRESENT: Town Planner Dave Sharples

II. CALL TO ORDER: Acting Chair Brown called the meeting to order at 7:00 PM and introduced the members.

III. OLD BUSINESS

APPROVAL OF MINUTES

February 22, 2024

Ms. Belanger motioned to approve the February 22, 2024 meeting minutes. Mr. Grueter seconded the motion. A vote was taken, all were in favor, the motion passed 4-0-0.

Acting Chair Plumer indicated with the applicant's approval to switch the agenda around so the lot line adjustments could go ahead of Front Street's application which would take longer.

IV. NEW BUSINESS: PUBLIC HEARINGS

1. The application of W. Robert Kelly and Karen K. Kelly for a lot line adjustment of the common boundary line between the properties at 59 Columbus Avenue and 55 Columbus Avenue (Maxwell property)
   R-2, Single Family Residential zoning district
   Tax Map Parcels #63-60 and #63-61
   Planning Board Case #24-3

Acting Chair Brown read out loud the public hearing notice.

Town Planner Dave Sharples indicated the case was ready for review purposes.

The Board voted unanimously to open Planning Board Case #24-3.

Town Planner Dave Sharples indicated that the proposed lot line adjustment will allow for the conveyance of 2,291 square feet (0.05 acres) of lot area from the Maxwell property at 55 Columbus Avenue to the abutting property owned by the Kellys at 59 Columbus Avenue to provide additional side yard buffer. He indicated there was no TRC review however the materials were reviewed by staff and there were no issues.

Bob Kelly presented the application noting that he was the co-owner of 59 Columbus Avenue and has been neighbors with the Maxwells for over 40 years. He noted they would like to square up the property line which is close to the existing line of the garage.

Acting Chair Brown opened the hearing to comments from the public at 7:10 PM and being none closed public comment for deliberations.

Town Planner Sharples indicated two proposed standard conditions of approval:

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

2. All monumentation shall be set in accordance with Section 9.25 of the Site Plan Review and Subdivision Regulations prior to signing the final plan.

Ms. Belanger motioned that the request of Robert Kelly & Karen Kelly, Planning Board Case #24-3, for a lot line adjustment be approved subject to the conditions stated by the Town Planner Dave Sharples. Mr. Grueter seconded the motion. A vote was taken, all were in favor, the motion passed 4-0-0.

2. The application of Chris Turner for a lot line adjustment of the common boundary line between the properties at 3 Rocky Hill Avenue and 4 Rocky Hill Avenue (Rocco property)
   R-2, Single Family zoning district
   Tax Map Parcels #71-60 and #70-12
   Planning Board Case #24-5

Acting Chair Brown read out loud the public hearing notice.

Town Planner Dave Sharples indicated the case was ready for review purposes.

The Board voted unanimously to open Planning Board Case #24-5.

Mr. Turner presented the application noting the lot line would be moved over approximately 30.' He noted that the property comes close to his property as it is situated now.

Mr. Grueter asked if there would be any change to the driveway and Mr. Turner indicated no, there would be an angle with the frontage.

Acting Chair Brown opened the hearing to the public for comments and questions at 7:14 PM and being none closed public comment to enter deliberations.

Mr. Sharples indicated three waivers were applied for that were not applicable or necessary.

Town Planner Sharples indicated two proposed standard conditions of approval:

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

2. All monumentation shall be set in accordance with Section 9.25 of the Site Plan Review and Subdivision Regulations prior to signing the final plan.

Ms. Belanger motioned that the request of Chris Turner, Planning Board Case #24-5, for a lot line adjustment be approved subject to the conditions stated by the Town Planner Dave Sharples. Ms. English seconded the motion. A vote was taken, all were in favor, the motion passed 4-0-0.

3. The continued public hearing on the application of 81 Front Street LLC for a multi-family site plan review for the proposed conversion of the existing single-family residence at 81 Front Street into six (6) residential condominium unites along with associated parking and site improvements.
   R-2, Single Family Residential zoning district
   Tax Map Parcel #72-195
   Planning Board Case #24-1

Acting Chair Brown read the Public Hearing Notice out loud.

Shane Forsley of New Hampshire Development presented the application on behalf of the owners. He provided full size plans to the Board for review. He noted that when he last appeared before the Board there was discussion about special changes to proposed parking for the 14 spaces provided for the residents. He indicated access, with adequate turning radius, would be by driveway off Front Street rather than off Seminary Lane. Two spaces would be nose in by the Carriage House, six spaces would be nose in by the neighbors, with plantings and there would be six spaces configured as three in the garage and three shown out front. There would be minor changes to pavement to accomplish the swing distance. He indicated working with Henry Boyd at Millenium Engineering.

Ms. English asked him to elaborate on the original design using Seminary Lane. Mr. Forsley indicated they were unable to get an agreement for use from the school. Mr. Brown noted there was no legal easement and access could be terminated at any time. Mr. Sharples noted he also reached out to the school and had no response, they were noticed and have not participated.

Mr. Grueter asked about the fence shown as “new fence” on the plan and Mr. Forsley indicated the intent was to re-use the existing 4-5’ cedar fence with a line of plantings but move the fence over (closer to the neighbor’ house). Mr. Grueter asked if the fence was in good condition and he indicated that it was and was built sometime in the 80s.

Ms. English indicated the parking area was tight and expressed concerns about snow removal and plowing. Mr. Forsley indicated snow removal would be done by snow thrower and that there was a fair amount of room around the old doctor’s office and left side of driveway, Carriage House and to the left

of parking and right of parking garage/former pool. He noted there is good drainage on site due to all the landscaping and vegetation.

Mr. Sharples noted this is not a new structure really and there are no issues impacting Front Street or the right of way. Mr. Brown noted the biggest difference is the additional parking.

Mr. Grueter asked if the enclosed walkway was staying and Mr. Forsley indicated no it would serve as a connector to new entry points.

Ms. English asked about the old doctor's office and Mr. Forsley indicated there were no plans for that at this point.

Ms. Belanger asked about plantings and Mr. Forsley indicated arborvitae or cypress in front of each parking spot along the fence. Ms. Belanger noted that would provide an additional buffer for sound and light.

Acting Chair Brown opened the hearing to the public for comments and questions at 7:33 PM.

Sally Brown Rush of 79 Front Street noted the plan change was significant and her biggest objection is the fence being bumped out a few feet. She noted that where the new fence will be located will be 24' from her house and will prevent going from the back to the front where she had 6' before. She passed out photos. She referenced the regulation she noted at the last meeting about parking not being adverse to other property owners.

Mr. Brown asked if the fence was on her property and whether she was going on the neighbor's property to do that and she indicated it has been that way for 34 years. She noted safety concerns and the problem it would create for her to do maintenance and painting her house. She indicated she wanted to keep the fence where it is.

Mr. Brown asked if the applicant has spoken to the abutter about it and they indicated there had been no discussions between them. Mr. Brown encouraged that discussion should happen. Mr. Brown noted that is a matter of neighbors being neighborly and there was not a lot of legal standing for the request as he was not aware of any easements.

Attorney Cassaza noted he reached out to Mr. Boyd but never connected. He noted the Board could waive the requirement for that sixth space with the condition that the existing fence has to be maintained. He noted the setbacks here predate zoning. Mr. Sharples noted there was no issue with the six spaces and a waiver would not be necessary.

Ms. English agreed that she would like to see a dialogue happen between the two owners.

Mr. Grueter asked if the fence was not moved and the plantings eliminated would that work and Mr. Forsley indicated he liked to cooperate with neighbors but would defer to the engineers and owner on the decision.

Carter Segal of 36 Pine Street asked if the driveway could be located on the west side of the property where there is no abutter. Mr. Sharples explained that the Planning Board does not design plans for people it reacts to the plan presented and whether it meets regulations. He noted that design may not be easily accessible to all of the units. Mr. Forsley pointed out the access to each of the units and three-car garage and the heavy hardscape and landscaping built over time and the loss of character and issues with the Historic District Commission. Ms. Segal asked why the front doors couldn't be moved. Mr. Forsley noted there were no changes proposed to the fascade or historic integrity which is his goal to preserve. Ms. Segal noted the addition was put on in the 80s. Mr. Forsley pointed out the modern addition and pool (being removed) and garage built in 1990.

Josh Segal of 36 Pine Street stated that it sounded like access via Seminary Lane was still up in the air. Mr. Sharples indicated their answer was no. Mr. Brown explained it is not a legally enforceable access. Ms. Belanger noted it was a private road and access could be taken away at any time. Mr. Segal asked if the space could be used until that time. Mr. Brown noted the Board had to uphold regulations and the applicant is required to show on the plan where parking will meet code.

Mr. Brown noted further concerns about this being a condominium and whether the association might see the use by Ms. Rush as an encroachment on their property.

Mr. Grueter asked Ms. Wilson where she parks and she indicated she would like to park on Seminary Lane until someone says she can't.

Mr. Segal proposed removing spaces 14 and 11 to drive to the back and have spaces back there. Mr. Forsley indicated there are condensers and gas meters back there and it would require significant mechanical work and the area is heavily landscaped with existing drainage structures. It would require more pavement. Mr. Segal responded that HVACs and meters could be moved and noted that he believed it was a cost issue.

Mr. Brown noted the property line and abutting fence with plantings is the biggest area of concern with the abutter at this time. Mr. Forsley indicated that he understood whether the fence were moved or not the parking spaces would still work. Mr. Brown indicated it sounded like the abutter did not want the additional screening provided by the plantings and there had been a misunderstanding when she spoke at the last meeting about her view from her bedroom and car lights coming in.

Mr. Sharples noted that the applicant would need a fence permit to move it and does not come to the Planning Board for that. The property owner has the right to put the fence on their property wherever they want. He proposed a condition that the plantings along the easterly side of parking stalls 3-8 shall be removed from the final plan and the fence remain to provide screening to the property to the east. He noted there is no authority in the site plan regulations to dictate where the owner puts a fence on their property. Screening can be done in different ways. The Board can't dictate where or appear to be taking the applicant's property from them. Mr. Brown agreed that was a civil matter between the parties.

Mr. Sharples noted that cars not backing onto Front Street would be an ongoing condition of approval.

Ms. English asked about lighting and Mr. Forsley indicated there was no new lighting proposed.

Mr. Sharples noted there would be an ongoing condition of approval that all outdoor lighting, including security lights, shall be down lit and shielded so no direct light is visible from adjacent properties and/or roadways.

Mr. Sharples read the remaining conditions:

- The plantings along the easterly side of parking stalls 3-8 shall be removed from the final plan and the fence shall remain to provide screening to the property to the east. This condition shall be included in any condominium documents.
- It will be an ongoing condition of approval that all outdoor lighting, including security lights, shall be down lit and shielded so no direct light is visible from adjacent properties and/or roadways.
- A dwg file of the plan shall be provided to the Town Planner showing all property lines and monumentation prior to signing the final plans. This plan must be in NAD 1983 State Plane New Hampshire FIPS 2800 Feet coordinates; and
- All appropriate fees to be paid including but not limited to: sewer/water connection fees, impact fees, and inspection fees (including third party inspection fees) prior to the issuance of a building permit or a certificate of occupancy whichever is applicable as determined by the Town.

Ms. Belanger motioned that the request of 81 Front Street, LLC, Planning Board Case #24-1 for multi-family site plan approval be approve with the conditions stated by the Town Planner Dave Sharples. Mr. Grueter seconded the motion. A vote was taken, all were in favor, the motion passed 4-0-0.

V. OTHER BUSINESS

- Master Plan Discussion

Mr. Sharples noted the Committee met and discussed the Stantec report and analysis and what was left to be done. A graphic designer will work on the plan and come back to the May meeting.

- Field Modifications

- Bond and/or Letter of Credit Reductions and Release

- Ms. English asked about the new bank in the Hannaford Parking lot and Mr. Sharples indicated they didn't have to come before the Board for site plan review. The bank had previously been located within the store and not increasing drainage, pavement or traffic. Access already exists. Mr. Sharples emailed the Chair and Vice-Chair to let them know.

- Mr. Grueter asked about the urbanization exemption application. Mr. Sharples noted that after receiving unanimous recommendation from the Planning Board he went before the Conservation Commission where it was recommended by all but one member. It was not recommended by ESRLAC and the next step would be to go to the Select Board. He noted the application still had to go to the State and they would determine if the exemption applied.

- Mr. Brown noted that more alternates needed to be recruited so if anyone was interested in serving to contact Mr. Sharples or the Board members.

- Mr. Brown reminded that election of officers would be at their first meeting in May.

VII. TOWN PLANNER'S ITEMS

VIII. CHAIRPERSON'S ITEMS

IX. PB REPRESENTATIVE'S REPORT ON "OTHER COMMITTEE ACTIVITY"

X. ADJOURN

Ms. Belanger motioned to adjourn the meeting at 8:58 PM. Mr. Grueter seconded the motion. A vote was taken, all were in favor, the motion passed unanimously.

Respectfully submitted.

Daniel Hoijer,
Recording Secretary
Via Exeter TV

TOWN OF EXETER

Planning and Building Department

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

www.exeternh.gov

Date: **May 15, 2024**

To: **Planning Board**

From: **Dave Sharples, Town Planner**

Re: **Meniscus Financial Holdings LLC – 127 Portsmouth Avenue**
PB Case #24-1

The Applicant is seeking a site plan review and Wetlands/Shoreland permits for the proposed construction of a commercial vehicle storage area, a 22,500 S.F. accessory storage building and associated site improvements on the property located at 127 Portsmouth Avenue. The property is located in the C-2, Highway Commercial zoning district and is identified as Tax Map Parcel #52-112-2.

The Applicant met with the Planning Board and Conservation Commission, in June and July 2023, respectively, for a preliminary review of the project prior to moving forward with a full engineered design. Copies of the minutes from those meetings are enclosed, along with the formal application submission.

Attached please find applications, plans and supporting documents, dated 2/13/24, for your review.

A Technical Review Committee meeting was held on March 7th, 2024; copies of the TRC comment letter, dated 3/12/24 and UEI comment letter, dated 3/8/24 are enclosed. A second TRC meeting was held on April 11th, 2024; TRC and UEI comment letters, dated 3/16/24 and 3/15/24 respectively, are also enclosed for review.

A site walk was conducted by the Conservation Commission prior to their May 14th, 2024 meeting at which the Applicant presented their applications for Wetlands and Shoreland Conditional Use Permits. At the meeting, it was noted that Underwood Engineers, Inc. (UEI) had not yet been provided with the revised plans for review and no review comments were available. The Commission requested that the Applicant return at a future meeting once the plans had been reviewed by UEI.

Revised plans and supporting documents were submitted to our office on May 15th, 2024, and staff is still in the process of reviewing those materials. I will update the Board with my review of the revised plans at the meeting.

The Applicant is requesting a waiver from Section 7.4.7 of the Board's Site Plan Review & Subdivision regulations for relief from the requirement to identify significant trees of 20" or greater in caliper. A copy of the waiver request, dated 2/13/24, is included in the application materials.

The Applicant had acknowledged that both the Planning Board and Conservation Commission would like to schedule a site walk to review the current site and discuss the proposed improvements. I would suggest that the Board schedule a site walk prior to the next meeting and request that the Applicant mark out the important features of the site.

Planning Board Motions:

Table Motion: I move that the application of Meniscus Financial Holdings LLC (PB Case #2-4) be TABLED to the (date/time) Planning Board meeting.

Thank You.

Enclosures

BEALS · ASSOCIATES *PLLC*

70 Portsmouth Avenue
3rd Floor, Suite 2
Stratham, N.H. 03885
603 – 583 - 4860
Fax: 583 - 4863

February 13, 2024

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

RE: Letter of Explanation
Foss Motors
Proposed Vehicle Storage Area & Accessory Storage Use
Tax Map 0052 Lot #: 112.2

Members of the Board:

The applicant is proposing a commercial vehicle storage area at the front of the lot to increase inventory at 127 Portsmouth Avenue, along with a connecting driveway to the existing Foss Motors vehicle display lot. Additionally, an accessory storage use building is proposed towards the rear of the lot to be served by municipal water & sewer. The parcel consists of 6.24-acres which is encumbered by 150-foot and 300-foot municipal Shoreland Protection District (SPD) buffers adjacent to the Exeter Reservoir. Areas of wetland disturbance are proposed (all of which are man-made wetlands). The total wetland disturbance is 6,555 sf, the 150-foot SPD impact area proposed is 18,350+/- sf, the 300-foot SPD impact area is 65,403+/- sf, and a 22,500 sf building if proposed within the SPD. Disturbance and impacts associated with the proposed development requires applications for Conditional Use Permits for both the Wetlands Conservation Overlay District and Shoreland Protection District.

We met with the Planning Board for a preliminary consultation in June 2023 and with the Conservation Commission in July 2023 to review the project and obtain feedback prior to embarking on full engineering design.

We look forward to presenting this project to you in the near future.

Thank you for your consideration.

Very truly yours,
BEALS ASSOCIATES, PLLC

Christian O Smith

Christian O. Smith P.E.
Principal

TOWN OF EXETER, NH
APPLICATION FOR SITE PLAN REVIEW

THIS IS AN APPLICATION FOR:

- (✓) **COMMERCIAL SITE PLAN REVIEW**
- ( ) **INDUSTRIAL SITE PLAN REVIEW**
- ( ) **MULTI-FAMILY SITE PLAN REVIEW**
- ( ) **MINOR SITE PLAN REVIEW**
- ( ) **INSTITUTIONAL/NON-PROFIT SPR**

OFFICE USE ONLY

_____ **APPLICATION #**
_____ **DATE RECEIVED**
_____ **APPLICATION FEE**
_____ **PLAN REVIEW FEE**
_____ **ABUTTERS FEE**
_____ **LEGAL NOTICE FEE**
_____ **TOTAL FEES**

_____ **INSPECTION FEE**
_____ **INSPECTION COST**
_____ **REFUND (IF ANY)**

1. **NAME OF LEGAL OWNER OF RECORD:** Meniscus Financial Holdings, LLC

   _____ **TELEPHONE:** (603) 475-4339

   ADDRESS: 133 Portsmouth Avenue, Exeter, NH 03833

2. **NAME OF APPLICANT:** Same as owner

   ADDRESS: _____

   _____ **TELEPHONE:** ( )_____

3. **RELATIONSHIP OF APPLICANT TO PROPERTY IF OTHER THAN OWNER:** N/A

   _____
   (Written permission from Owner is required, please attach.)

4. **DESCRIPTION OF PROPERTY:** Vacant with drive to 129 & 131 Ports Ave. (access easement)

   ADDRESS: 127 Portsmouth Avenue (131 listed on deed)

   TAX MAP: 52 **PARCEL #:** 112-2 **ZONING DISTRICT:** C-2

   AREA OF ENTIRE TRACT: 6.24 acres **PORTION BEING DEVELOPED:** 2.24 acres

5. **ESTIMATED TOTAL SITE DEVELOPMENT COST $** $800,000

6. **EXPLANATION OF PROPOSAL:**

Proposed paved vehicle storage/display area with an accessory use storage building.

7. **ARE MUNICIPAL SERVICES AVAILABLE?** (YES/NO) Yes

If yes, Water and Sewer Superintendent must grant written approval for connection.
If no, septic system must comply with W.S.P.C.C. requirements.

8. **LIST ALL MAPS, PLANS AND OTHER ACCOMPANYING MATERIAL SUBMITTED WITH THIS APPLICATION:**

ITEM:	NUMBER OF COPIES
A. Full Size Plan Set	7
B. Letter of Explanation	1
C. Applications (Site, Utility Connections)	1
D. Applications (CUP Shoreland & Wetlands)	1
E. Drainage Analysis	2
F. Check for Application Fees, Waiver Request Letter	1
Abutters List / Labels	1 / 3

9. **ANY DEED RESTRICTIONS AND COVENANTS THAT APPLY OR ARE CONTEMPLATED** (YES/NO) No IF YES, ATTACH COPY.

10. **NAME AND PROFESSION OF PERSON DESIGNING PLAN:**

NAME: Christian O Smith, P.E. - Beals Associates, PLLC

ADDRESS: 70 Portsmouth Ave., Stratham, NH 03885

PROFESSION: Civil Engineer **TELEPHONE:** (603) 583-4860

11. **LIST ALL IMPROVEMENTS AND UTILITIES TO BE INSTALLED:**

Proposed paved vehicle storage/display area with an accessory use storage building with associated lighting and stormwater collection and treatment, and a driveway connection to the existing Foss Motors business. Utilities to include water, sewer, gas, electric, and communications.

12. **HAVE ANY SPECIAL EXCEPTIONS OR VARIANCES BEEN GRANTED BY THE ZONING BOARD OF ADJUSTMENT TO THIS PROPERTY PREVIOUSLY?**

IF YES, DESCRIBE BELOW. **(**Please check with the Planning Department Office to verify)

No

13. **WILL THE PROPOSED PROJECT INVOLVE DEMOLITION OF ANY EXISTING BUILDINGS OR APPURTENANCES?** IF YES, DESCRIBE BELOW.
(Please note that any proposed demolition may require review by the Exeter Heritage Commission in accordance with Article 5, Section 5.3.5 of the Exeter Zoning Ordinance).

No

14. **WILL THE PROPOSED PROJECT REQUIRE A "NOTICE OF INTENT TO EXCAVATE" (State of NH Form PA-38)? IF YES, DESCRIBE BELOW.**

No

NOTICE: I CERTIFY THAT THIS APPLICATION AND THE ACCOMPANYING PLANS AND SUPPORTING INFORMATION HAVE BEEN PREPARED IN CONFORMANCE WITH ALL APPLICABLE REGULATIONS; INCLUDING BUT NOT LIMITED TO THE "SITE PLAN REVIEW AND SUBDIVISION REGULATIONS" AND THE ZONING ORDINANCE. FURTHERMORE, IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 15.2 OF THE "SITE PLAN REVIEW AND SUBDIVISION REGULATIONS", I AGREE TO PAY ALL COSTS ASSOCIATED WITH THE REVIEW OF THIS APPLICATION.

DATE 2-13-2024 OWNER'S SIGNATURE 

ACCORDING TO RSA 676.4.I (c), THE PLANNING BOARD MUST DETERMINE WHETHER THE APPLICATION IS COMPLETE WITHIN 30 DAYS OF SUBMISSION. THE PLANNING BOARD MUST ACT TO APPROVE, CONDITIONALLY APPROVE, OR DENY AN APPLICATION WITHIN SIXTY FIVE (65) DAYS OF ITS ACCEPTANCE BY THE BOARD AS A COMPLETE APPLICATION. A SEPARATE FORM ALLOWING AN EXTENSION OR WAIVER TO THIS REQUIREMENT MAY BE SUBMITTED BY THE APPLICANT.

ABUTTERS LIST
FOR
NH- 1471 EXETER, NH - FOSS MOTORS
DATE February 12, 2024

SUBJECT PARCEL

TAX MAP/LOT	OWNER OF RECORD
52-112-2	MENISCUS FINANCIAL HOLDINGS LLC 133 PORTSMOUTH AVE. EXETER, NH 03833

ABUTTERS

TAX MAP/LOT	OWNER OF RECORD
52-112-1	OSRAM SYLVANIA 275 W. MAIN ST. HILLSBORO, NH 03244
52-112	NH EXETER PROPERTIES LLC 120 NORTHWEST BLVD. NASHUA, NH 03063
52-111	LAURENCE & DEBRA FOSS 30 BUNKER HILL AVE. STRATHAM, NH 03885
52-53	EXETER LUMBER 120 PORTSMOUTH AVE. EXETER, NH 03833
52-52	108 HEIGHTS LLC. c/o TWO GUYS SELF STORAGE 65 POST RD. HOOKSETT, NH 03106
52-51	SAF REALTY LLC. c/o STEVES DINNER INC. 100 PORTSMOUTH AVE. EXETER, NH 03833
52-50	AA FIELD REALTY LLC. 98 PORTSMOUTH AVE. EXETER, NH 03833
65-123	TOWN OF EXETER 10 FRONT ST. EXETER, NH 03833
	EXETER SPORTSMANS CLUB PO BOX 1936 EXETER, NH 03833

ABUTTERS LIST
FOR
NH- 1471 EXETER, NH - FOSS MOTORS
DATE February 12, 2024

PROFESSIONALS

ENGINEERING FIRM	BEALS ASSOCIATES, PLLC. 70 PORTSMOUTH AVE. 3RD FLOOR STRATHAM, NH 03885
WETLANDS & SOILS	GOVE ENVIRONMENTAL SERVICES 8 CONTINENTAL DRIVE, UNIT H EXETER, NH 03833
SURVEYOR	DOUCET SURVEY, INC. 102 KENT PLACE NEWMARKET, NH 03857

SITE PLAN REVIEW APPLICATION CHECKLIST

A COMPLETED APPLICATION FOR SITE PLAN REVIEW MUST CONTAIN THE FOLLOWING

1. Application for Hearing (✓)
2. Abutter's List Keyed to Tax Map (✓)
   (including the name and business address of every engineer, architect, land surveyor, or soils scientist whose professional seal appears on any plan submitted to the Board)
3. Completed- " Checklist for Site Plan Review" (✓)
4. Letter of Explanation (✓)
5. Written Request for Waiver (s) from " Site Plan Review and Subdivision Regulations" (if applicable) (✓)
6. Completed "Preliminary Application to Connect and /or Discharge to Town of Exeter- Sewer, Water or Storm Water Drainage System(s)"(if applicable) (✓)
7. Planning Board Fees (✓)
8. Seven (7) full-sized copies of Site Plan (✓)
9. Fifteen (15) 11"x17" copies of the final plan to be submitted **TEN DAYS PRIOR** to the public hearing date. (✓)
10. Three (3) pre-printed 1"x 2 5/8" labels for each abutter, the applicant and all consultants. (✓)

NOTES: All required submittals must be presented to the Planning Department office for distribution to other Town departments. Any material submitted directly to other departments will not be considered.

SITE PLAN REQUIREMENTS

7.4 Existing Site Conditions Plan

Submission of this plan will not be applicable in all cases. The applicability of such a plan will be considered by the TRC during its review process as outlined in Section 6.5 Technical Review Committee (TRC) of these regulations. The purpose of this plan is to provide general information on the site, its existing conditions, and to provide the base data from which the site plan or subdivision will be designed. The plan shall show the following:

APPLICANT	TRC	REQUIRED EXHIBITS
X	☐	7.4.1 Names, addresses, and telephone numbers of the owner, applicant, and person(s) or firm(s) preparing the plan.
X	☐	7.4.2 Location of the site under consideration, together with the current names and addresses of owners of record, of abutting properties and their existing land use.
X	☐	7.4.3 Title, date, north arrow, scale, and Planning Board Case Number.
X	☐	7.4.4 Tax map reference for the site under consideration, together with those of abutting properties.
X	☐	7.4.5 Zoning (including overlay) district references.
X	☐	7.4.6 A vicinity sketch or aerial photo showing the location of the land/site in relation to the surrounding public street system and other pertinent location features within a distance of 2,000-feet, or larger area if deemed necessary by the Town Planner.
W	☐	7.4.7 Natural features including watercourses and water bodies, tree lines, significant trees (20-inches or greater in diameter at breast height) and other significant vegetative cover, topographic features, and any other environmental features that are important to the site design process.
X	☐	7.4.8 Man-made features such as, but not limited to, existing roads, structures, and stonewalls. The plan shall also indicate which features are to be retained and which are to be removed or altered.
X	☐	7.4.9 Existing contours at intervals not to exceed 2-feet with spot elevations provided when the grade is less than 5%. All datum provided shall reference the latest applicable US Coast and Geodetic Survey datum and should be noted on the plan.
X	☐	7.4.10 A High Intensity Soil Survey (HISS) of the entire site, or appropriate portion thereof. Such soil surveys shall be prepared by a certified soil scientist in accordance with the standards established by the Rockingham County Conservation District. Any cover letters or explanatory data provided by the certified soil scientist shall also be submitted.

X	☐	7.4.11 State and Federally designated wetlands, setback information, total wetlands proposed to be filled, other pertinent information and the following wetlands note: “The landowner is responsible for complying with all applicable local, state, and federal wetlands regulations, including any permitting and setback requirements required under these regulations.”
X	☐	7.4.12 Surveyed property lines including angles and bearings, distances, monument locations, and size of the entire parcel. A professional land surveyor licensed in New Hampshire must attest to said plan.
X	☐	7.4.13 The lines of existing abutting streets and driveway locations within 200-feet of the site.
X	☐	7.4.14 The location, elevation, and layout of existing catch basins and other surface drainage features.
X	☐	7.4.15 The shape, size, height, location, and use of all existing structures on the site and approximate location of structures within 200-feet of the site.
X	☐	7.4.16 The size and location of all existing public and private utilities, including off-site utilities to which connection is planned.
X	☐	7.4.17 The location of all existing easements, rights-of-way, and other encumbrances.
X	☐	7.4.18 All floodplain information, including the contours of the 100-year flood elevation, based upon the Flood Insurance Rate Map for Exeter, as prepared by the Federal Emergency Management Agency, dated May 17, 1982.
X	☐	7.4.19 All other features which would fully explain the existing conditions of the site.
X	☐	7.4.20 Name of the site plan or subdivision.

7.5 Proposed Site Conditions Plan (Pertains to Site Plans Only)

The purpose of this plan is to illustrate and fully explain the proposed changes taking place within the site. The proposed site conditions plan shall depict the following:

APPLICANT	TRC	REQUIRED EXHIBITS
X	☐	7.5.1 Proposed grades and topographic contours at intervals not to exceed 2-feet with spot elevations where grade is less than 5%. All datum provided shall reference the latest applicable US Coast and Geodetic Survey datum and should be noted on the plan.
X	☐	7.5.2 The location and layout of proposed drainage systems and structures including elevations for catch basins.
X	☐	7.5.3 The shape, size, height, and location of all proposed structures, including expansion of existing structures on the site and first floor elevation(s). Building elevation(s) and a rendering of the proposed structure(s).
X	☐	7.5.4 High Intensity Soil Survey (HISS) information for the site, including the total area of wetlands proposed to be filled.
X	☐	7.5.5 State and Federally designated wetlands, setback information, total wetlands proposed to be filled, other pertinent information and the following wetlands note: "The landowner is responsible for complying with all applicable local, state, and federal wetlands regulations, including any permitting and setback requirements required under these regulations."
NA	☐	7.5.6 Location and timing patterns of proposed traffic control devices.
X	☐	7.5.7 The location, width, curbing and paving of all existing and proposed streets, street rights-of-way, easements, alleys, driveways, sidewalks and other public ways. The plan shall indicate the direction of travel for one-way streets. See Section 9.14 – Roadways, Access Points, and Fire Lanes for further guidance.
NA	☐	7.5.8 The location, size and layout of off-street parking, including loading zones. The plan shall indicate the calculations used to determine the number of parking spaces required and provided. See Section 9.13 – Parking Areas for further guidance.
X	☐	7.5.9 The size and location of all proposed public and private utilities, including but not limited to: water lines, sewage disposal facilities, gas lines, power lines, telephone lines, cable lines, fire alarm connection, and other utilities.
X	☐	7.5.10 The location, type, and size of all proposed landscaping, screening, green space, and open space areas.
X	☐	7.5.11 The location and type of all site lighting, including the cone(s) of illumination to a measurement of 0.5-foot-candle.
X	☐	7.5.12 The location, size, and exterior design of all proposed signs to be located on the site.
NA	☐	7.5.13 The type and location of all solid waste disposal facilities and accompanying screening.

X	☐	7.5.14 Location of proposed on-site snow storage.
X	☐	7.5.15 Location and description of all existing and proposed easement(s) and/or right-of-way.
X	☐	7.5.16 A note indicating that: “All water, sewer, road (including parking lot), and drainage work shall be constructed in accordance with Section 9.5 Grading, Drainage, and Erosion & Sediment Control and the Standard Specifications for Construction of Public Utilities in Exeter, New Hampshire”. See Section 9.14 Roadways, Access Points, and Fire Lanes and Section 9.13 Parking Areas for exceptions.
X	☐	7.5.17 Signature block for Board approval

OTHER PLAN REQUIREMENTS (See Section indicated)

☒ 7.7 Construction plan

☒ 7.8 Utilities plan

☒ 7.9 Grading, drainage and erosion & sediment control plan

☒ 7.10 Landscape plan

☒ 7.11 Drainage Improvements and Storm Water Management Plan

na 7.12 Natural Resources Plan

na 7.13 Yield Plan

Town of Exeter

Preliminary Application to Connect and/or Discharge

Town of Exeter Sewer, Water, or Storm Water Drainage System(s)

July 2014

TOWN OF EXETER- DEPARTMENT OF PUBLIC WORKS

PRELIMINARY APPLICATION TO CONNECT AND/OR DISCHARGE TO TOWN OF EXETER SEWER, WATER, OR STORM WATER DRAINAGE SYSTEM(S)

Project Name Foss Motors - Vehicle storage/display with an accessory use storage building.

Project Location 127 Portsmouth Avenue, Exeter, NH

Applicant/Owner Name Meniscus Financial Holdings, LLC

Mailing Address 133 Portsmouth Avenue, Exeter, NH 03833

Phone: ( ) (603) 475-4339

Project Engineer Christian O Smith, PE - Beals Associates, PLLC

Mailing Address 70 Portsmouth Avenue, Stratham, NH 03885

Phone: ( ) (603) 583-4860

Type of Discharge/Connection: Sewer X **Water** X **Storm Water** n/a

X **Estimated sewage discharge quantity based on WS:1008.02 (B)** 100 **G.P.D.**

[Closest Use = Factory/Warehouse @ 10 gpd/ee x 10 ee's = 100 gpd]

New Connections (Complete Section A, and C, if applicable)

(check one) **Change of Building Use Only: Yes**_____ **(If yes, complete Sections B and C) or No** X

Reviewed and verified by Planning & Building Department _____

Town Planner

****

Sewage Disposal

Discharge quantities for various uses should be based upon the "State of New Hampshire Subdivision and Industrial Sewage Disposal System Design Rules, Part WS: 1008.2 (B)" or other methodology which may be deemed acceptable by the Town of Exeter. Please note that the discharge amount for single family homes is 120 gallons per day/bedroom. The minimum fee for single family is two (2) bedrooms, unless the sewer impact fee of $4.85 per gallon of discharge is paid for all new discharge as well as any individual discharge resulting from an expansion or change of current use.

If the proposed discharge is non-residential or is residential but exceeds 5,000 GPD, Section C must be completed. Certain water and sewer discharges must be approved by the State of New Hampshire Department of Environmental Services by way of permit and plan submittals. It is the responsibility of the applicant to ensure submittals are made to the state through the town as necessary. Final town approval cannot be made without the state's approval if required.

APPROVAL VALID FOR PERIOD OF ONE (1) YEAR FROM DATE OF APPROVAL

SECTION A: PROPOSED NEW CONNECTIONS OR REPLACEMENT OF EXISTING LINES

SEWER

SPECIFICATIONS:

DESCRIPTION OF WORK: Proposed 6-inch SDR-35 PVC from proposed building to existing sewer manhole (#1228 on plans).

TITLE OF PLAN: Utility Plan

TOTAL GPD (*) : 100 GPD

(*) FOR ANY NON-RESIDENTIAL DISCHARGE OR RESIDENTIAL DISCHARGE EXEEDING 5,000 GPD, OR FOR A CHANGE OF USE, COMPLETE **SECTION C**.

Approved: _____ Date: _____

W/S Superintendent

WATER

SPECIFICATIONS:

DESCRIPTION OF WORK: Proposed new water line service from existing main in Portsmouth Avenue to proposed building.

TITLE OF PLAN: Utility Plan

TOTAL ESTIMATED GPD (*) : 100 GPD

Approved: _____ Date: _____

W/S Superintendent

STORM WATER

SPECIFICATIONS:

DESCRIPTION OF WORK N/A - Stormwater will not tie into municipal system.

FLOW RATE - CFS: _____

(25 YEAR STORM)

TITLE OF PLAN: _____

Approved: _____ Date: _____

Highway Superintendent

SECTION B: CHANGE OF USE N/A

In order to determine whether or not a sewer impact fee will be required for a change or expansion in building use, the following information must be provided.

CURRENT/PRIOR USE (S): _____

BUILDING SQUARE FOOTAGE_____GALLONS PER DAY _____ (*)

(*) SHOW CALCULATIONS BASED ON STATE OF N.H. DESIGN RULES, PART OF WS:1008.02 (B)

_____

_____

****

PROPOSED USE: _____

BUILDING SQUARE _____ GALLONS PER DAY _____

(*) SHOW CALCULATIONS BASED ON STATE OF N.H. DESIGN RULES, PART WS:1008.02 (B)

(TOWN OF EXETER ASSESSES GALLONS/DISCHARGE UNIT PER DAY X 80% ADJUSTMENT FACTOR)

_____

_____

NET INCREASE/DECREASE _____ GALLONS PER DAY (GPD)

****

If there is a decrease, no sewer impact fee will be charged. If there is an increase, a sewer impact fee will be charged using the following formula:

Increase in GPD _____ x $4.85 = _____ (SEWER IMPACT FEE)

Increase in GPD _____ x $2.00 = _____(WATER IMPACT FEE)

Approved by Town of Exeter: _____ _____

(Town Planner) (Date)

_____ _____

(W/S Superintendent) (Date)

APPROVAL VALID FOR PERIOD OF ONE (1) YEAR FROM DATE OF APPROVAL

SECTION C: Baseline Monitoring and Classification

(NON-RESIDENTIAL OR RESIDENTIAL DISCHARGE OVER 5,000 GPD) N/A

In accordance with Title 40 of the Code of Federal Regulations, Part 403 Section 403.14, information provided herein shall be available to the public without restriction except as specified in 40 CFG Part 2. A discharge permit will be issued on the basis of the information provided in this section.

In accordance with all terms and conditions of the Code of the Town of Exeter, New Hampshire Chapter 1500, all persons discharging wastewater into the town's facilities shall comply with all applicable federal, state and local Industrial Pre-treatment rules.

PART I - USER INFORMATION

COMPANY _____

ADDRESS _____

_____ PHONE (___) _____

OWN_____ RENT_____ (If renting, name of owner) _____

****

PART II - PRODUCT OR SERVICE INFORMATION

PRODUCT(S) MANUFACTURED_____

_____

_____

SERVICES(S) PROVIDED _____

SIC CODE(S) _____ BUILDING SIZE _____ SQ. FT.

NO. OF EMPLOYEES _____ DAYS/WEEK _____ SHIFTS_____

****

PART III - CATEGORY OF SEWER DISCHARGE

TYPE OF DISCHARGE: SEPTIC _____ PROPOSED _____

EXISTING _____ CHANGE OF USE _____

WATER USAGE IN GALLONS PER DAY: _____(From Section A, Total Gallons per day)

CHECK WHICH APPLIES:

DOMESTIC WASTE ONLY (TOILETS & SINKS) _____

DOMESTIC WASTE PLUS SOME PROCESS WASTEWATER _____

FEDERAL PRE-TREATMENT STANDARDS (40 CFR APPLIES) _____

APPROVAL VALID FOR PERIOD OF ONE(1) YEAR FROM DATE OF APPROVAL

PART IV - CLASSIFICATION DETERMINATION * (TO BE COMPLETED BY TOWN)

CLASS 1 - SIGNIFICANT OR CATEGORICAL INDUSTRIAL USER _____

CLASS 2 - MINOR INDUSTRIAL OR COMMERCIAL USER _____

CLASS 3 - INSIGNIFICANT INDUSTRIAL OR COMMERCIAL USER _____

CLASS 4 - NON-SYSTEM USER, OR DISCONTINUED SERVICE _____

DETERMINED BY _____ TITLE _____ DATE _____

*SEE ATTACHED SHEET FOR BASIS OF DETERMINATION

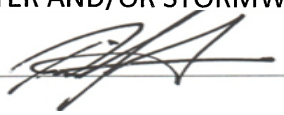
APPROVED _____
W/S SUPERINTENDENT

****

PART V - CERTIFICATION

I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS SECTION FOR THE ABOVE NAME USE. THE INFORMATION PROVIDED IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FROM FEDERAL, STATE AND/OR TOWN REGULATORY AGENCIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND/OR IMPRISONMENT.

I ACKNOWLEDGE AND AGREE TO PAY ALL CHARGES INCURRED FOR MONITORING, TESTING AND SUBSEQUENT ANALYSIS PERFORMED ON THE TOWN OF EXETER'S SEWER, WATER AND/OR STORMWATER DRAINAGE SYSTEM(S), IN THE COURSE OF DETERMINING THE TOWN'S ABILITY TO SERVE THE PROJECT. FURTHER, I ACKNOLEDGE AND AGREE THAT FAILURE TO ACCURATELY DECLARE SAID FLOW REQUIREMENTS SHALL BE SUFFIECIENT CAUSE TO DENY ACCESS TO THE TOWN OF EXETER'S SEWER, WATER AND/OR STORMWATER DRAINAGE SYSTEM(S).

SIGNATURE OF APPLICANT  DATE 2-13-24

NAME OF PROPERTY OWNER Menuscus Financial Holding, LLC

APPROVAL VALID FOR PERIOD OF ONE (1) YEAR FROM DATE OF APPROVAL

BEALS · ASSOCIATES *PLLC*

70 Portsmouth Avenue
Stratham, New Hampshire
03885
603 – 583 - 4860
Fax: 583 - 4863

February 13, 2024

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

RE: Meniscus Financial Holdings, LLC - Proposed Vehicle Storage Site Plan
Waiver Request - Tax Map 52; Lot # 112-2

Dear Members of the Board:

This is written to formalize a request for waiver with regard to the referenced Site Plan Review application.

Your petitioner seeks the following relief:

We respectfully request a waiver to Sections 7.4.7 of the Site Plan Review and Subdivision Regulations that requires all significant trees be survey located and depicted on the plans. We feel the waiver is justified as field locating every 20" caliper tree on the property is a vast undertaking on this parcel. A large portion of the site has been cleared for a historic excavation operation and remains as lawn, and the majority of the area with larger trees remaining is protected by wetlands or Shoreland protection buffers and is not proposed to be disturbed. Finally, as we fully anticipate a site walk with both the Conservation Commission and the Planning Board, no additional information of value would be provided from which to evaluate the proposed development by mandating the requirement as stated in the regulations.

Thank you for your consideration.

Very truly yours,
BEALS ASSOCIATES, PLLC

Christian O. Smith

Christian O. Smith, P.E.
Principal

Maria George Carrasquillo of 77 Jady Hill Avenue expressed concerns with runoff and children playing out front, speeding and beverage consumption. She noted patrons change into their golf clothes out on the street on the public road.

Jacques Wagemaker of 14 Webster Avenue expressed concerns with drainage and hopes it will be addressed.

Alex Pearson of 1 Webster Avenue expressed concerns with existing drainage and doubling the parking lot and adding to the problem. He stated he was not sure the island would work. He also noted the 11 new lights would be 20' up and was unsure how they could be downcast and dark sky compliant.

Mr. McCarthy stated he was also concerned with failure of the system with more frequent, larger storm systems being experienced.

Mr. Sharples read out loud a letter received from Doreen Chester and Sherm Chester of 3 Webster Avenue expressing traffic concerns and requesting a stop sign, as well as concerns with runoff and sewer capacity in the past. Mr. Scammon indicated that the more narrow entrance may help with traffic concerns.

Mr. Sharples questioned whether it was known where the water was coming from and whether the town engineer or UEI could attend the site walk or next planning board meeting to weigh in on that. There may be separate issues.

Mr. Grueter asked about scheduling a site visit. Mr. Grueter proposed June 21st at 8 AM. Ms. English asked that the parking area, storage area and dry well be marked.

Ms. Cameron motioned to table Planning Board Case #23-2 to 7:00 PM on June 22, 2023. Ms. Belanger seconded the motion. A vote was taken, all were in favor, the motion passed 6-0-0.

3. The application of Meniscus Financial Holdings, LLC for a preliminary conceptual review for the proposed construction of a vehicle storage/display area and associated site improvements on the property located at 127 Portsmouth Avenue
C-2, Central Area Commercial zoning district
Tax Map Parcel #52-112-2
Planning Board Case #23-7

Chair Plumer read out loud the Public Hearing Notice.

Mr. Sharples indicated the applicant is requesting a preliminary conceptual consultation (non-binding with no abutter notice) with the Board to discuss the proposed phased development of the property located at 127 Portsmouth Avenue. Letter of explanation, application, conceptual site plan and supporting documents dated May 18, 2023 were provided to the Board.

Christian Smith of Beals Associates presented the conceptual plan on behalf of the applicant. He noted the applicant needed additional inventory storage and display area. The 300' shoreland setback and 150' buffer would be impacted. There were two wetland areas to be filled. They would meet with the Conservation Commission at their July 11th meeting. There would be two acres of shoreland impact and 21,000' of impact to the buffer. The swale was determined to be man made according to wetland scientist Jim Gove.

Ms. Martel recommended the landscape buffer be improved with plantings that would not block the visibility of the vehicles. She noted Hannaford had done something with their frontage.

Lighting and tree cutting were discussed briefly. There could be a site walk scheduled with Conservation in attendance.

VI. OTHER BUSINESS

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

  Mr. Sharples reported that Ray Farm was all done.

VII. TOWN PLANNER'S ITEMS

Mr. Sharples reviewed the June 1st memo discussed with Kristen Murphy concerning the conflicting criteria in the zoning ordinance for the CUP. The site plan and subdivision regulations were to be revised then COVID hit. Currently stricter regulations would apply. He noted there would be a public hearing scheduled in the near future to correct the ordinance.

VIII. CHAIRPERSON'S ITEMS

IX. PB REPRESENTATIVE'S REPORT ON "OTHER COMMITTEE ACTIVITY"

Mr. Mattera seconded the motion. A vote was taken, all were in favor, the motion passed 5-0-0.

4. Minimum Impact Expedited Wetland application for Epping Road Expansion

Greg Backus presented the proposal for extending the center lines on Epping Road and widening on both sides for 1500.' He described the impact as 886 SF permanent and 700+/- SF temporary impact, mostly roadside ditches. There will be sidewalks and drainage improvements. The town project will improve safety and traffic flow. He described an Iris of concern which was found not to be the species of concern and will close the loop with DES on that. He described the sidewalks to Gateway and the Mobil station and one break due to a ROW. He described stormwater management and catch basins. Detention basins will be expanded and have deep sumps in the catch basins.

MOTION: Mr. Koff motioned to sign the expedited application. Mr. Mattera seconded the motion. A vote was taken, all were in favor, the motion passed 5-0-0.

5. Conceptual discussion on the construction of commercial vehicle storage area for Foss Motors at Tax Map 52 Lot 112.2 (Christian Smith)

Brendan Quigley of Gove Environmental presented the application on behalf of Foss Motors and indicated that Tim Foss was present. He indicated the location of the parcel south of the prior Sylvania property. He indicated the reservoir location and location of the brook. He proposed a parking area out front for storage and display of inventory and a potential building to the rear for offices. He described three potential wetland impacts and the location of the 300' and 150' shoreland protection buffers. The impact would be substantial, 80,000 SF. He did not have a lot of detail concerning stormwater management but described it would be robust in this location.

Ms. Murphy reminded this was a non-binding, conceptual, review and the Commission would be entitled to differing opinions when reviewing the final plans.

Mr. Koff indicated he was not in favor of this proposal for the use or the design, due to the sensitive area of the Exeter drinking water source and amount of wetland and shoreland impacts. Mr. Madison agreed and indicated a tree line of some sort should be maintained. Ms. Fanger noted she was no in favor of the proposal either.

Mr. Madison asked the dimensions of the office space – 22,000 SF.

Mr. Mattera described the buffer impacts right next to the reservoir.

Mr. Foss described how long his family had owned the growing business and a desire not to leave Exeter in order to expand but they are maximized and have to grow.

Mr. Mattera described the purpose of the buffer to protect the water quality and indicated he would need to be shown that the water coming out is cleaner than when it started in terms of stormwater management. Mr. Madison agreed. Ms. Fanger was skeptical that anything could be done to protect

Con Com minutes 7/11/23

the water. Mr. Mattera questioned whether they were putting off the invevitable. Mr. Koff asked if they had considered off-site properties and Mr. Foss described the importance of the display location, and off-site security and maintenance concerns.

6. Committee Reports

7. Approval of Minutes

i. June 13, 2023 Meeting

MOTION: Mr. Koff motioned to approve the June 13, 2023 meeting minutes. Mr. Mattera seconded the motion. A vote was taken, all were in favor, the motion passed 5-0-0.

8. Correspondence

9. Other Business

10. Next Meeting: Date Scheduled (8/8/23), Submission Deadline (7/28/23)

11. Adjournment

MOTION: Mr. Koff moved to adjourn the meeting at 9:41 PM seconded by Mr. Madison. A vote was taken, all were in favor, the motion passed unanimously.

Respectfully submitted,

Daniel Hoijer, Recording Secretary
Via Exeter TV
Zoom ID 815 4715 1492

TOWN OF EXETER

Planning and Building Department

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

Date: March 12, 2024

To: Christian Smith, P.E., Beals Associates PLLC
Tim Foss, Meniscus Financial Holdings LLC

From: Dave Sharples, Town Planner

Re: Site Plan Review TRC Comments
PB Case # 24-4 Meniscus Financial Holdings, LLC, 127 Portsmouth Avenue
Tax Map Parcel #52-112-2

The following comments are provided as a follow-up for technical review of the site plans and supporting documents submitted on February 13th, 2024 for the above-captioned project. The TRC meeting was held on March 7th, 2024 and materials were reviewed by Town departments.

TOWN PLANNER COMMENTS

1. Are there any known environmental hazards onsite? Have any environmental studies been completed and, if so, please provide copies;
2. The access from the adjacent lot is close to Portsmouth Ave and it appears that there is a location to the east that minimizes wetland impacts, consider relocating this access;
3. Is pedestrian travel on and to the site anticipated? If so, provide appropriate access.
4. Is the public going to drive in to the site and view the cars?
5. Provide architectural elevations for the structure to determine compliance with Section 9.2 of the Site Plan Review and Subdivision Regulations;
6. Send plan set and supporting materials to UEI for review;
7. Will there be a dumpster on-site? If so, show the location and details. If not, describe how waste removal will be handled;
8. Provide low screening along Portsmouth Ave between pavement and sidewalk to satisfy Section 9.7.5.2;
9. Confirm that all curbing will be either granite or concrete;
10. Provide information on why a 30' access aisle is proposed around the sides of the building;
11. Show how cars will be stored on the storage areas. How many, configuration? This will help determine if the plan meets the requirements of Section 9.7.5;
12. There is no landscaping along the southerly side of the parking area. Suggest a mix of shrubs and deciduous trees along this edge;
13. EV charging readiness should be shown on the plans;

14. Snow storage areas appear inadequate and not where snow would normally be stored. If this is where it will all be stored then provide signage in other areas that prohibit snow storage;
15. Provide information that satisfies the requirements of Section 9.20.4. For example, provide specifications on timer if lights will remain on after 10pm;
16. What is the largest vehicle anticipated to visit the site? Provide turning template around the building to insure adequate access.

Waivers:

I believe you are misinterpreting the significant tree provisions as it only requires identification in the area proposed to be disturbed.

PUBLIC WORKS COMMENTS

No comments received – see UEI review letter dated 3/8/24.

FIRE DEPARTMENT COMMENTS

Comments provided to Applicant's representative by Deputy Fire Chief Jason Fritz at the TRC meeting.

CONSERVATION & SUSTINABILITY PLANNER COMMENTS

- I agree it would be prudent to schedule a site walk before the CC meeting either 5:30p or 6:00p.
- Add State shoreland permit under listing of permits required (cover sheet). Have there been discussions with NHDES regarding this project? What is the timeline for wetland and shoreland applications.
- Sig Tree Waiver: Significant tree documentation requirement only includes areas that will be impacted, not to the whole property and half of the impacted area is already cleared of trees (SS 7.4.7). Support for a waiver is unlikely. Should you continue to seek a waiver, evidence to ZO 13.7 waiver criteria would be needed.
- Please review requirements for a waiver to use fertilizer within the shoreland district and associated restrictions, modify fertilizer specs as necessary (ZO 9.3.4.F.12.C.II).
- Please label buffers on the site plan proposed conditions.

Shoreland CUP

- The application did not include any written findings of fact by the wetland scientist so I am unable to evaluate the responses (ZO 9.3.4.G.2).
- An impervious cover calculation within the shoreland district of 48.1% is dramatically higher than any application I could find. I suspect the CC and PB would have strong concerns about the precedent this could set.

- All snow storage is located within the shoreland protection district. Dumping of snow containing road salt or other de-icing chemicals is prohibited in the ESPD (ZO 9.3.4.F.6). Recommend signage prohibiting snow storage on south side.
- Stormwater management
    - Regulations require 80% TSS, and 60% N & P. The UNH stormwater center's biannual report includes an evaluation of stormtech chambers and confirms 80% TSS removal but indicates 0 DIN, and less than 60% of P with winter removal efficiencies of less than 30%. It is unclear how this meets our stormwater regulations or the CUP criteria.
    - Have you conducted any test pit data to determine estimated seasonal high-water table under parking area? UNH Stormwater Center's report recommends 3-5' separation to avoid groundwater contamination. This area is also within the area modeled to experience sea level rise-induced groundwater rise under a 2' SLR scenario which is within the range the coastal risk and hazards commission indicate could occur by 2050.
- Given the efficiencies reported by the stormwater center and the percent impervious cover proposed for the shoreland district, I do not see how a conclusion this project meets the criteria 2a (will not detrimentally impact surface water quality) can be reached.

Wetland CUP

- The 2017 Wetland CUP application used has since been revised and the criteria modified. Please include a response to the current criteria available on website HERE.
- The application did not include an impact assessment from the wetland scientist so there is no response to current condition #3.
- What will the approach be to restore temporary disturbance (criteria 5 in old list)? If only seeding please consider a New England native mix. CC likely to request additional plantings.
- No evidence is provided to support determination of man-made wetlands (photos, wetland scientist report, etc.)
- Wetlands indicate they were delineated in Oct 2023. Was the site evaluated for the presence of vernal pools? What time of year was this additional review conducted?

Other:

- EV Readiness is 2% of new parking (SS 9.13.8). Please clarify why the number of spaces within the vehicle storage site were not included in the calculation.
- I did not see any parking islands or interior plantings (SS 9.7.5). This plays an important role in reducing heat island effect and runoff temperature which is a water quality component.
- Chanticleer pear is a variety of Bradford pear which is on the watch list for invasive plants due to its invasive qualities. Please consider an alternative.
- Given proximity to reservoir, please use natural materials for erosion control such as woven jute or mulch berms where appropriate.

Please submit revised plans along with a letter responding to these comments (and other review comments, if applicable) **no later than March 28, 2024.** These materials will be reviewed at a second Technical Review meeting scheduled for **Thursday, April 4th, 2024**. A public hearing date for the project to be presented to the Planning Board will be scheduled accordingly.

civil &
environmental
engineering

UNDERWOOD
engineers

3033.00

March 8, 2024

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

Re: ***Foss Motors Expansion***
Design Review Engineering Services
Exeter, New Hampshire

Site Information:

Review No. 1

Tax Map/Lot#:	52 / 112.2
Address:	127 Portsmouth Avenue
Lot Area:	6.24 Acres
Proposed Use:	Commercial
Water:	Town
Sewer:	Town
Zoning District:	C-2 (Highway Commercial)
Applicant:	Meniscus Financial Holdings, LLC
Design Engineer:	Beals Associates

Application Materials Received:

- Site plan set entitled "Commercial Site Plan", undated, prepared by Beals Associates
- Site plan application materials prepared by Beals Associates
- Drainage report prepared by Beals Associates

Dear Mr. Sharples:
Based on our review of the above information, in addition to comments provided by the Town, we offer the following comments in accordance with the Town of Exeter Regulations and standard engineering practice.

General

1. Section C of Exeter's application to connect to water and sewer is applicable, please complete.
2. The use of the proposed building is not yet clearly defined. Please clarify the use and adjust water and sewer flows if necessary.
3. If floor drains are installed in the building, they will need to be registered through NHDES. Information regarding discharge location and/or holding tank specifics should be added to the plans.

ph 603.230.9898
fx 603.230.9899
99 North State Street
Concord, NH 03301
underwoodengineers.com

4. The NHDOT slope easement and the sign easement notes are included on many sheets, many without accompanying leaders. Please correct or remove for clarity if not pertinent to the proposed project.

Cover Sheet

5. The plan set should be dated.
6. A NHDES Shoreland Permit should be added to the list of required permits.

Existing Conditions Plan

7. Existing hand holes are shown on the plan. If the location of existing underground electrical is known or approximated, it should be added to the plan.
8. The approximate location of the existing water main in Route 108 should be shown including the material and size information.

Site Plan

9. The Water Works easement indicated on the existing conditions plan contains a 10" CI water main. The water main should be protected during construction. A note should be added to the plans to mark the location of the water main in the field prior to construction, and to maintain the markings throughout the duration of construction.
10. The proposed usage of vehicle storage near sensitive wetlands areas and in the Shoreland Zone is concerning. Please confirm the entirety of the paved area will be curbed for containment of leaks / spills. Please note vertical granite curb is required. Will there be any other resources kept onsite or procedures in place for immediate spill response?
11. It has been indicated that vehicles may be stored inside the building. No architectural plans have been received. It is unclear how and where the vehicles will be driven into the building.
12. The radii at all driveway entrances should be labeled.
13. The need for 30' wide drive aisles is unclear. It appears there is opportunity to reduce the amount of pavement shown.
14. Indicate the location of the potential EV charging spot.
15. Please clarify the need for 3 access points from the southern side of GTE Road.
16. The description of the project says the lot will be for display and storage of vehicles. Will the lot be open to customers to view the vehicles? If customers and staff will be walking between the existing Foss Motors lot, across GTE Road, is a crosswalk warranted? If this is the case, the proximity of the crossing to the intersection of Route 108 and GTE Road is concerning for pedestrian safety, and consideration should be given to moving the entrance further away from Route 108.
17. If trucks or other vehicles are stacked to make a left-hand turn onto Route 108, visibility of vehicles turning onto GTE Road may be limited for drivers crossing from the existing Foss Motors lot to the new lot.

18. Related to the comment above, please clarify the purpose of the access drive around the building. If the purpose of the access is for emergency vehicles:

- We recommend looking into alternative surfacing to decrease the amount of pavement.
- Provide a fire truck turning movement plan.

19. Please show the location of an enclosed dumpster pad, HVAC pads, and/or generator pad, if applicable.

20. Please note there are restrictions on snow storage in the Shoreland Protection overlay district.

Grading and Drainage Plan

21. Has the existing 36" drainage pipe crossing the lot been inspected to assess condition?

22. The location of CB #1 is in conflict with the existing sewer line.

23. The grade of the short drive between the existing Foss motors lot and GTE Road is 13% and sheets water directly into GTE Road. Crowning of this drive is recommended. Additionally, the rapid grade change may cause some vehicles to bottom out.

24. DMH #8:

- The elevation of the outlet from DMH #8 appears to be in direct conflict with the existing sewer line.
- Two invert ins are listed, for a 4" pipe and a 24" pipe, with one 18" invert out. One 18" invert in is shown. Coordination is needed.

Utility Plan

25. Existing water valves are shown in Route 108, one appears to be a hydrant valve. Is the other a stub for this parcel?

26. Indicate the distance, in both directions, of the nearest inline valves on the Route 108 water main relative to the proposed connection.

27. Please add a note to require the water line be installed under all utility lines with 18" of vertical clearance between utilities at crossings.

28. It is unclear if Note 7 is applicable to this project.

29. Is the entire length of the water service to be 4" DI? Please clarify on the drawings.

30. Coordinate method of water service tie-in with the Exeter DPW.

Landscaping Plan

31. Please show the location of the utility poles, hydrant, water and gas lines on the plan. We defer further comment regarding conflicts with the location of the proposed trees until a revised plan has been received.

32. There are specific fertilizer regulations in the Exeter Shoreland Protection zone. Notes referencing the regulation or conveying the intent should be included on the plans.

33. Landscaped islands within the lot are required.

Stormwater Design and Modeling

34. Provide a narrative and calculations for pollutant loading and removal volumes. We note the Stormtech (detention) systems do not meet required removals for nitrogen or phosphorous.

35. The volume of water and the rate leaving the site during the 2-year storm is greater in the post-development condition. This is prohibited in the Town of Exeter per the site and subdivision regulations, section 9.3.1.5.

36. The proposed discharge of the site's stormwater directly in front of the inlet to the existing cross-site 36" culvert is akin to discharging downstream of the site for most storm events. Any additional stormwater treatment that the upstream wetland may offer will be largely limited to very large storm events, when treatment is least critical.

37. PTAP Database: This project requires registration with the PTAP Database. The Applicant is requested to enter project related stormwater tracking information contained in the site plan application documents using the Great Bay Pollution Tracking and Accounting Program (PTAP) database (www.unh.edu/unhsc/ptapp) and submit the information with the resubmitted response to comments.

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

Very truly yours,

UNDERWOOD ENGINEERS, INC.

Allison M. Rees, P.E.
Project Manager

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

AMR:scc

BA BEALS ASSOCIATES, PLLC

Land Planning • Civil Engineering
Landscape Architecture • Septic Design & Evaluation
Stratham, NH

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

March 28, 2024

Re: Foss Motors – 127 Portsmouth Avenue – Commercial Site Plan

Dear Mr. Chairman & Members of the Board:

We are in receipt of a review letter from the Town Planner summarizing the Technical Review Committee's comments, dated March 12, 2024 and we offer the following responses to the noted comments. Each comment is followed by our response in **bold**.

TOWN PLANNER COMMENTS

1. Are there any known environmental hazards onsite? Have any environmental studies been completed and, if so, please provide copies;

   Response: There are no know environmental hazards onsite and no environmental studies have been completed at this time.

2. The access from the adjacent lot is close to Portsmouth Ave and it appears that there is a location to the east that minimizes wetland impacts, consider relocating this access;

   Response: The location of the access driveway was reviewed during the design. As shown, there is a 13% slope access drive. Shifting the driveway further to the east increases that slope to over 17% due to the existing grades.

3. Is pedestrian travel on and to the site anticipated? If so, provide appropriate access.

   Response: Pedestrian travel to the site is not anticipated. Customers will be able to drive to the site or be taken by a salesperson's vehicle.

4. Is the public going to drive in to the site and view the cars?

   Response: While the majority of customers will continue to visit the main dealership site, customers would also be welcome at the new site.

5. Provide architectural elevations for the structure to determine compliance with Section 9.2 of the Site Plan Review and Subdivision Regulations;

   Response: Architectural elevations for the proposed building are being prepared and will be submitted under separate cover.

6. Send plan set and supporting materials to UEI for review;
   Response: The plan set and supporting materials have been provided to UEI and they have provided written comments.

7. Will there be a dumpster on-site? If so, show the location and details. If not, describe how waste removal will be handled;
   Response: A dumpster will not be located on-site. The limited amount of waste from the building will be placed out for municipal pickup.

8. Provide low screening along Portsmouth Ave between pavement and sidewalk to satisfy Section 9.7.5.2;
   Response: Additional landscaping along Portsmouth Avenue has been provided.

9. Confirm that all curbing will be either granite or concrete;
   Response: All curbing will be vertical granite.

10. Provide information on why a 30' access aisle is proposed around the sides of the building;
    Response: The 30' wide access aisles have been reduced to 24' wide.

11. Show how cars will be stored on the storage areas. How many, configuration? This will help determine if the plan meets the requirements of Section 9.7.5;
    Response: The vehicle storage areas have been better defined and continue to be meant to be flexible parking depending on the size, type, and style of vehicles.

12. There is no landscaping along the southerly side of the parking area. Suggest a mix of shrubs and deciduous trees along this edge;
    Response: Shrubs and trees have been added to the southern side of the parking area.

13. EV charging readiness should be shown on the plans;
    Response: Conduits for EV charging readiness are shown on the Utility Plan at the western corner of the building.

14. Snow storage areas appear inadequate and not where snow would normally be stored. If this is where it will all be stored then provide signage in other areas that prohibit snow storage;
    Response: Revised snow storage locations have been provided. Additionally, see Town Note #3 on the Site Plan for removal of snow for larger snow events.

15. Provide information that satisfies the requirements of Section 9.20.4. For example, provide specifications on timer if lights will remain on after 10pm;
    Response: See Lighting Note #2 specifying that lighting shall be reduced to security levels by 10pm.

16. What is the largest vehicle anticipated to visit the site? Provide turning template around the building to insure adequate access.

    Response: The Exeter Fire Truck is anticipated to be the largest vehicle to access the site and a turning template has been included on Sheet 11.

Waivers:
I believe you are misinterpreting the significant tree provisions as it only requires identification in the area proposed to be disturbed.

Response: The waiver to identify all trees 20 inches and larger has been removed and Doucet Survey will be locating those trees and revising the Existing Conditions Plan.

PUBLIC WORKS COMMENTS

No comments received – see UEI review letter dated 3/8/24.

Response: Comment noted.

FIRE DEPARTMENT COMMENTS

Comments provided to Applicant's representative by Deputy Fire Chief Jason Fritz at the TRC meeting.

Response: Comments have been addressed.

CONSERVATION & SUSTINABILITY PLANNER COMMENTS

- I agree it would be prudent to schedule a site walk before the CC meeting either 5:30p or 6:00p.
  Response: Comment noted and we will be available for a site walk prior to the Conservation Commission meeting.

- Add State shoreland permit under listing of permits required (cover sheet). Have there been discussions with NHDES regarding this project? What is the timeline for wetland and shoreland applications.
  Response: A NHDES Shoreland Permit requirement has been added to the Cover Sheet. Discussions and submittals to NHDES have been tabled until we get further into the design process with the town, and will likely happen by the beginning of May 2024.

- Sig Tree Waiver: Significant tree documentation requirement only includes areas that will be impacted, not to the whole property and half of the impacted area is already cleared of trees (SS 7.4.7). Support for a waiver is unlikely. Should you continue to seek a waiver, evidence to ZO 13.7 waiver criteria would be needed.
  Response: The waiver to identify all trees 20 inches and larger has been removed.

- Please review requirements for a waiver to use fertilizer within the shoreland district and associated restrictions, modify fertilizer specs as necessary (ZO 9.3.4.F.12.C.II).
  Response: Fertilizer requirements meeting Town regulations have been added to the plans.

- Please label buffers on the site plan proposed conditions.
  Response: Buffer labels have been added to the Site Plan.

Shoreland CUP

- The application did not include any written findings of fact by the wetland scientist so I am unable to evaluate the responses (ZO 9.3.4.G.2).
  Response: A wetland impact assessment by Gove Environmental Services is being prepared and will be provided under separate cover.

- An impervious cover calculation within the shoreland district of 48.1% is dramatically higher than any application I could find. I suspect the CC and PB would have strong concerns about the precedent this could set.
  Response: The impervious cover calculation within the Town's shoreland district has been revised to 44.3% and will likely be reduced further pending discussion with fire department and owner on circulation around the building.

- All snow storage is located within the shoreland protection district. Dumping of snow containing road salt or other de-icing chemicals is prohibited in the ESPD (ZO 9.3.4.F.6). Recommend signage prohibiting snow storage on south side.
  Response: Revised snow storage locations have been provided. Additionally, see Town Note #3 on the Site Plan for removal of snow for larger snow events.

- Stormwater management
  - Regulations require 80% TSS, and 60% N & P. The UNH stormwater center's biannual report includes an evaluation of stormtech chambers and confirms 80% TSS removal but indicates 0 DIN, and less than 60% of P with winter removal efficiencies of less than 30%. It is unclear how this meets our stormwater regulations or the CUP criteria.
  - Have you conducted any test pit data to determine estimated seasonal high-water table under parking area? UNH Stormwater Center's report recommends 3-5' separation to avoid groundwater contamination. This area is also within the area modeled to experience sea level rise-induced groundwater rise under a 2' SLR scenario which is within the range the coastal risk and hazards commission indicate could occur by 2050.

  Response: ADS BayFilters have been added to the outlet control structure along with test results showing at least a 60% removal for total nitrogen and total phosphorous to meet Town regulations. Test pits were performed during the soil mapping. Since we do not have the required separation to groundwater, the stormwater system is lined to prevent infiltration.

- Given the efficiencies reported by the stormwater center and the percent impervious cover proposed for the shoreland district, I do not see how a conclusion this project meets the criteria 2a (will not detrimentally impact surface water quality) can be reached.

Response: The stormwater design has been improved and the percent impervious cover reduced.

Wetland CUP

- The 2017 Wetland CUP application used has since been revised and the criteria modified. Please include a response to the current criteria available on website HERE.
  Response: The July 2023 version of the Wetland CUP application has been provided as part of this response submittal.

- The application did not include an impact assessment from the wetland scientist so there is no response to current condition #3.
  Response: A wetland impact assessment by Gove Environmental Services is being prepared and will be provided under separate cover.

- What will the approach be to restore temporary disturbance (criteria 5 in old list)? If only seeding please consider a New England native mix. CC likely to request additional plantings.
  Response: Restoration of temporary disturbances has been revised to use a New England native mix and additional plantings have been provided.

- No evidence is provided to support determination of man-made wetlands (photos, wetland scientist report, etc.)
  Response: A wetland impact assessment by Gove Environmental Services is being prepared and will be provided under separate cover.

- Wetlands indicate they were delineated in Oct 2023. Was the site evaluated for the presence of vernal pools? What time of year was this additional review conducted?
  Response: Gove Environmental Services is preparing a wetland impact assessment and schedule of review and will be provided under separate cover.

Other:

- EV Readiness is 2% of new parking (SS 9.13.8). Please clarify why the number of spaces within the vehicle storage site were not included in the calculation.
  Response: Cars in storage were not considered for the EV readiness calculation. Future EV charging stations would be for vehicles coming and going on a daily basis, not in storage.

- I did not see any parking islands or interior plantings (SS 9.7.5). This plays an important role in reducing heat island effect and runoff temperature which is a water quality component.
  Response: Parking islands with interior plantings have been added to the plans.

- Chanticleer pear is a variety of Bradford pear which is on the watch list for invasive plants due to its invasive qualities. Please consider an alternative.
  Response: Chanitcleer pear trees have been revised.

- Given proximity to reservoir, please use natural materials for erosion control such as woven jute or mulch berms where appropriate.

  Response: An erosion control mulch berm and coconut erosion control blanket are shown on the plan.

Thank you for your timely and professional review of the submitted plans. We hope the information provided address your concerns. Please feel free to contact our office if you have any additional question and/or comments.

Very Truly Yours,

BEALS ASSOCIATES, PLLC

Christian O. Smith

Christian O. Smith, PE
Principal

BA BEALS ASSOCIATES, PLLC
Land Planning • Civil Engineering
Landscape Architecture • Septic Design & Evaluation
Stratham, NH

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

March 28, 2024

Re: Foss Motors – 127 Portsmouth Avenue – Commercial Site Plan

Dear Mr. Chairman & Members of the Board:

We are in receipt of a review letter from Underwood Engineers, dated March 8, 2024 and we offer the following responses to the noted comments. Each comment is followed by our response in **bold**.

General

1. Section C of Exeter's application to connect to water and sewer is applicable, please complete.
   Response: Section C of the Preliminary Application to Connection and/or Discharge has been completed and resubmitted as part of this response.

2. The use of the proposed building is not yet clearly defined. Please clarify the use and adjust water and sewer flows if necessary.
   Response: The building use is accessory storage to the main dealership lot to the north.

3. If floor drains are installed in the building, they will need to be registered through NHDES. Information regarding discharge location and/or holding tank specifics should be added to the plans.
   Response: The building will not have floor drains.

4. The NHDOT slope easement and the sign easement notes are included on many sheets, many without accompanying leaders. Please correct or remove for clarity if not pertinent to the proposed project.
   Response: These notes have been updated for clarity.

Cover Sheet

5. The plan set should be dated.
   Response: A date along with a revision date have been added to the cover sheet.

6. A NHDES Shoreland Permit should be added to the list of required permits.
   Response: A NHDES Shoreland Permit has been added to the list of required permits.

Existing Conditions Plan

7. Existing hand holes are shown on the plan. If the location of existing underground electrical is known or approximated, it should be added to the plan.

Response: Handhole locations were located by the surveyor, but the locations of the underground electrical is not known.

8. The approximate location of the existing water main in Route 108 should be shown including the material and size information.
Response: The approximate location of the water main in Route 108 is shown on the Utility Plan. We will continue to coordinate with Exeter DPW to define the water connection requirements.

Site Plan

9. The Water Works easement indicated on the existing conditions plan contains a 10" CI water main. The water main should be protected during construction. A note should be added to the plans to mark the location of the water main in the field prior to construction, and to maintain the markings throughout the duration of construction.
Response: The above notes have been added to the Site Plan.

10. The proposed usage of vehicle storage near sensitive wetlands areas and in the Shoreland Zone is concerning. Please confirm the entirety of the paved area will be curbed for containment of leaks / spills. Please note vertical granite curb is required. Will there be any other resources kept onsite or procedures in place for immediate spill response?
Response: The entire vehicle storage area will be paved and surrounded with vertical granite curbing. No other resources will be stored on-site.

11. It has been indicated that vehicles may be stored inside the building. No architectural plans have been received. It is unclear how and where the vehicles will be driven into the building.
Response: Architectural elevations for the proposed building are being prepared and will be submitted under separate cover.

12. The radii at all driveway entrances should be labeled.
Response: Driveway radii have been added to the Site Plan.

13. The need for 30' wide drive aisles is unclear. It appears there is opportunity to reduce the amount of pavement shown.
Response: The 30' wide access aisles have been reduced to 24' wide.

14. Indicate the location of the potential EV charging spot.
Response: Conduits for EV charging readiness are shown on the Utility Plan at the western corner of the building.

15. Please clarify the need for 3 access points from the southern side of GTE Road.
Response: We are continuing to review the requirement for the access road around the building with both the fire department and the owner. This access road will be limited as much as possible.

16. The description of the project says the lot will be for display and storage of vehicles. Will the lot be open to customers to view the vehicles? If customers and staff will be walking between the existing Foss Motors lot, across GTE Road, is a crosswalk warranted? If this is the case, the proximity of the crossing to the intersection of Route 108 and GTE Road is concerning for pedestrian safety, and consideration should be given to moving the entrance further away from Route 108.
Response: While the majority of customers will continue to visit the main dealership site, customers would also be welcome at the new site. Pedestrian travel to the site is not

anticipated. Customers will be able to drive to the site or be taken by a salesperson's vehicle. The location of the access driveway was reviewed during the design. As shown, there is a 13% slope access drive. Shifting the driveway further to the east increases that slope to over 17% due to the existing grades.

17. If trucks or other vehicles are stacked to make a left-hand turn onto Route 108, visibility of vehicles turning onto GTE Road may be limited for drivers crossing from the existing Foss Motors lot to the new lot.
Response: We are expecting very low volume of traffic to this access driveway and do not anticipate an unusual conflict at this location.

18. Related to the comment above, please clarify the purpose of the access drive around the building. If the purpose of the access is for emergency vehicles:

- We recommend looking into alternative surfacing to decrease the amount of pavement.
- Provide a fire truck turning movement plan.

Response: The need for the access drive around the building continues to be verified with the fire department and the owner, and will become alternate surfacing is possible. A fire truck maneuvering plan has been added to the plan set.

19. Please show the location of an enclosed dumpster pad, HVAC pads, and/or generator pad, if applicable.
Response: There will not be a dumpster pad at the site and HVAC and generator equipment will be stored on the roof.

20. Please note there are restrictions on snow storage in the Shoreland Protection overlay district.
Response: Revised snow storage locations have been provided. Additionally, see Town Note #3 on the Site Plan for removal of snow for larger snow events.

Grading and Drainage Plan

21. Has the existing 36" drainage pipe crossing the lot been inspected to assess condition?
Response: A note has been added to the plans indicated the existing 36" drainage pipe shall be inspected.

22. The location of CB #1 is in conflict with the existing sewer line.
Response: CB#1 has been shifted further from the sewer line.

23. The grade of the short drive between the existing Foss motors lot and GTE Road is 13% and sheets water directly into GTE Road. Crowning of this drive is recommended. Additionally, the rapid grade change may cause some vehicles to bottom out.
Response: The access drive has been crowned.

24. DMH #8:

- The elevation of the outlet from DMH #8 appears to be in direct conflict with the existing sewer line.
- Two invert ins are listed, for a 4" pipe and a 24" pipe, with one 18" invert out. One 18" invert in is shown. Coordination is needed.

Response: The outlet from DMH#8 has been revised and the 4" invert has been removed.

Utility Plan

25. Existing water valves are shown in Route 108, one appears to be a hydrant valve. Is the other a stub for this parcel?
Response: We have confirmed with Exeter DPW that one valve is a hydrant valve, the other is an inline valve, and no stub exists to the parcel.

26. Indicate the distance, in both directions, of the nearest inline valves on the Route 108 water main relative to the proposed connection.
Response: We will continue to coordinate with Exeter DPW to define the water connection location and requirements.

27. Please add a note to require the water line be installed under all utility lines with 18" of vertical clearance between utilities at crossings.
Response: This note has been added to the Utility Plan as note #7.

28. It is unclear if Note 7 is applicable to this project.
Response: This note has been removed.

29. Is the entire length of the water service to be 4" DI? Please clarify on the drawings.
Response: We are currently showing a 6" DI from the water main to the building and will confirm with the building requirements and Exeter DPW.

30. Coordinate method of water service tie-in with the Exeter DPW.
Response: The plans have been updated to call out a live tap on the 12" ductile iron water main with a tapping sleeve per Exeter DPW direction.

Landscaping Plan

31. Please show the location of the utility poles, hydrant, water and gas lines on the plan. We defer further comment regarding conflicts with the location of the proposed trees until a revised plan has been received.
Response: The additional site features have been added to the Utility Plan.

32. There are specific fertilizer regulations in the Exeter Shoreland Protection zone. Notes referencing the regulation or conveying the intent should be included on the plans.
Response: Note regarding fertilizers within the Exeter Shoreland Protection zone have been added the Lighting & Landscape Plan.

33. Landscaped islands within the lot are required.
Response: Parking islands with interior plantings have been added to the plans.

Stormwater Design and Modeling

34. Provide a narrative and calculations for pollutant loading and removal volumes. We note the Stormtech (detention) systems do not meet required removals for nitrogen or phosphorous.
Response: ADS BayFilters have been added to the outlet control structure along with test results showing at least a 60% removal for total nitrogen and total phosphorous to meet Town regulations.

35. The volume of water and the rate leaving the site during the 2-year storm is greater in the post-development condition. This is prohibited in the Town of Exeter per the site and subdivision regulations, section 9.3.1.5.
Response: The post-development conditions have been revised to reflect the plan changes.

36. The proposed discharge of the site's stormwater directly in front of the inlet to the existing cross-site 36" culvert is akin to discharging downstream of the site for most storm events. Any additional stormwater treatment that the upstream wetland may offer will be largely limited to very large storm events, when treatment is least critical.
Response: The outlet has been relocated further from the existing 36" pipe.

37. PTAP Database: This project requires registration with the PTAP Database. The Applicant is requested to enter project related stormwater tracking information contained in the site plan application documents using the Great Bay Pollution Tracking and Accounting Program (PTAP) database (www.unh.edu/unhsc/ptapp) and submit the information with the resubmitted response to comments.
Response: Registering with PTAP will occur as the project moves forward.

Thank you for your timely and professional review of the submitted plans. We hope the information provided address your concerns. Please feel free to contact our office if you have any additional question and/or comments.

Very Truly Yours,

BEALS ASSOCIATES, PLLC

Christian O. Smith

Christian O. Smith, PE
Principal

TOWN OF EXETER

Planning and Building Department

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

Date: April 16, 2024

To: Christian Smith, P.E., Beals Associates PLLC
Tim Foss, Meniscus Financial Holdings LLC

From: Dave Sharples, Town Planner

Re: Site Plan Review TRC Comments
PB Case # 24-4 Meniscus Financial Holdings, LLC, 127 Portsmouth Avenue
Tax Map Parcel #52-112-2

The following comments are provided as a follow-up for the second technical review of the site plans and supporting documents submitted on April 11th, 2024 for the above-captioned project. The TRC meeting was held on April 11th, 2024 and materials were reviewed by Town departments.

TOWN PLANNER COMMENTS

No additional comments

PUBLIC WORKS COMMENTS

No comments received – see UEI review letter, dated 4/15/24

FIRE DEPARTMENT COMMENTS

Comments provided to Applicant's representative by Deputy Fire Chief Jason Fritz at the March 7th, 2024 TRC meeting. Requested information regarding the storage of electric vehicles and charging stations.

CONSERVATION & SUSTINABILITY PLANNER COMMENTS

- The project as presented does not meet stormwater requirements. Presented a solution that provides an average of 60% removal efficiency, however our regulations require a min of 60%.
- Please ensure the wetland scientist stamp on the plans and wetland who prepared the report match.

- I can find no record of a project that proposed impervious cover of this amount in our shoreland district after regulations were adopted.
- I would encourage the wetland scientist report be revised removing vague language as it introduces confusion. Example: Unclear if wetlands B4-6 are manmade. If there is not definitive evidence, our buffer requirements must be adhered to. Additionally, it is not clear if all wetlands were surveyed for vernal pool indicator species. The statement "potentially adequate pool" is a value judgement and not a regulatory term. Either VP indicator species were present or not. They should all be checked.
- Not previously shared at the meeting: There is no key to understand the different symbols for the significant trees on the plans submitted today.

In order to be heard at the May 23rd, 2024 Planning Board meeting, please submit any revised plans along with a letter responding to these comments (and other review comments, if applicable) **no later than May 3rd, 2024**, but sooner if possible, to allow staff adequate time to review the revisions and responses prior to the planning board hearing.

civil &
environmental
engineering

UNDERWOOD
engineers

3033.00

April 15, 2024

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

Re: ***Foss Motors Expansion***
Design Review Engineering Services
Exeter, New Hampshire

Site Information:

Review No. 2

Tax Map/Lot#:	52 / 112.2
Address:	127 Portsmouth Avenue
Lot Area:	6.24 Acres
Proposed Use:	Commercial
Water:	Town
Sewer:	Town
Zoning District:	C-2 (Highway Commercial)
Applicant:	Meniscus Financial Holdings, LLC
Design Engineer:	Beals Associates

Application Materials Received:

- Site plan set entitled "Commercial Site Plan", revision date 3/28/24, prepared by Beals Associates
- Response letters prepared by Beals Associates, dated March 28, 2024

Dear Mr. Sharples:

Based on our review of the above information, in addition to comments provided by the Town, we offer the following comments in accordance with the Town of Exeter Regulations and standard engineering practice. Please note comments no longer listed have been addressed satisfactorily.

Site Plan

10. The proposed usage of vehicle storage near sensitive wetlands areas and in the Shoreland Zone is concerning. Please confirm the entirety of the paved area will be curbed for containment of leaks / spills. Please note vertical granite curb is required. Will there be any other resources kept onsite or procedures in place for immediate spill response?

Beals Response: The entire vehicle storage area will be paved and surrounded with vertical granite curbing. No other resources will be stored onsite.

ph 603.230.9898
fx 603.230.9899
99 North State Street
Concord, NH 03301
underwoodengineers.com

While UE recognizes that there are no standard requirements for spill response equipment, we recommend that spill response kits be maintained on site. We defer further comment to the Conservation Commission.

11. It has been indicated that vehicles may be stored inside the building. No architectural plans have been received. It is unclear how and where the vehicles will be driven into the building.

Beals Response: Architectural elevations for the proposed building are being prepared and will be submitted under separate cover.

The original comment still stands.

12. The radii at all driveway entrances should be labeled.

Beals Response: Driveway radii have been added to the plan.

We recommend increasing the radii at the westernmost site entrance to improve access for large vehicles, including fire apparatus.

15. Please clarify the need for 3 access points from the southern side of GTE Road.

Beals Response: We are continuing to review the requirement for the access road around the building with both the fire department and the owner. This access road will be limited as much as possible.

The original comment still stands.

16. The description of the project says the lot will be for display and storage of vehicles. Will the lot be open to customers to view the vehicles? If customers and staff will be walking between the existing Foss Motors lot, across GTE Road, is a crosswalk warranted? If this is the case, the proximity of the crossing to the intersection of Route 108 and GTE Road is concerning for pedestrian safety, and consideration should be given to moving the entrance further away from Route 108.

Beals Response: While the majority of customers will continue to visit the main dealership site, customers would also be welcome at the new site. Pedestrian travel to the site is not anticipated. Customers will be able to drive to the site or ne taken by a salesperson's vehicle. The location of the access driveway was reviewed during the design. Shifting the driveway further to the east increases that slope to over 17% due to the existing grades.

Our original comment still stands.

17. If trucks or other vehicles are stacked to make a left-hand turn onto Route 108, visibility of vehicles turning onto GTE Road may be limited for drivers crossing from the existing Foss Motors lot to the new lot.

Beals Response: We are expecting very low volume of traffic to this access driveway and do not anticipate an unusual conflict at this location.

The original comment still stands. We defer further comment to the Planning Board.

Grading and Drainage Plan

21. Has the existing 36" drainage pipe crossing the lot been inspected to assess condition?

Beals Response: A note has been added to the plans indicated the existing 36" drainage pipe shall be inspected.

The new note should also indicate that any issues found during inspection should be relayed to the design engineer for resolution.

23. The grade of the short drive between the existing Foss motors lot and GTE Road is 13% and sheets water directly into GTE Road. Crowning of this drive is recommended. Additionally, the rapid grade change may cause some vehicles to bottom out.

Beals Response: The access drive has been crowned.

Follow-up comment: Consider improving the transition grades on both ends for a smoother profile.

Utility Plan

26. Indicate the distance, in both directions, of the nearest inline valves on the Route 108 water main relative to the proposed connection.

Beals Response: We will continue to coordinate with Exeter DPW to define the water location and requirements.

Acknowledged. We note the proposed connection shown should be pulled back to the existing water main shown.

Stormwater Design and Modeling

34. Provide a narrative and calculations for pollutant loading and removal volumes. We note the Stormtech (detention) systems do not meet required removals for nitrogen or phosphorous.

Beals Response: ADS BayFilters have been added to the outlet control structure along with test results showing at least a 60% removal for total nitrogen and total phosphorous to meet Town regulations.

Acknowledged. Please see comments regarding the BayFilters below.

35. The volume of water and the rate leaving the site during the 2-year storm is greater in the post-development condition. This is prohibited in the Town of Exeter per the site and subdivision regulations, section 9.3.1.5.

Beals Response: The post-development conditions have been revised to reflect the plan changes.

Acknowledged. Please see the new comment below regarding increased volumes leaving the site.

New Comments

38. Crossing #1, as noted on the Grading, Drainage, and Erosion Control sheet, indicates 4 inches of vertical clearance, with the existing PVC sewer over the proposed HDPE drain line. This clearance conflict will require additional detail and construction measures to attain proper compaction. Notes requiring that the joints of the respective pipes be appropriately staggered and consideration for sleeving the sewer should be given.

39. Revise the label for the DMH labeled as "DMH #XXX" downstream of the outlet control structure on the Grading, Drainage, and Erosion Control Plan.

40. The angle of the sewer service should be revised to direct the flow downstream.

41. The revised location of the Stormtech system, directly over the existing 36" culvert, renders the existing pipe inaccessible for replacement or repair. More importantly, there is no way to know how the existing pipe was installed, or what compaction level the material received during installation or during the years since installation. The cross culvert, like all culverts, is a conduit risk for rapid conveyance of water through the ground. Positioning a detention basin above the culvert presents an increased risk of slope failure should the detained water find a path to the culvert to follow if the membrane layer tears or fails. Please discuss.

42. The Stormtech detail sheets notes several items to be designed/determined by engineer, including manifold and underdrain sizing, depth of stone under the system, the outlet structure with weir and DMH's with elevated bypass manifold. The submission, including the plans as appropriate, should include the required information for those elements.

43. The project will result in a significant increase in stormwater run-off volume leaving the site and onto the adjacent town-owned parcel. Volume increases 45% (or approximately 169,000 gallons) during a 10-year storm. UE notes that the 100-year flood elevation of Wheelwright Creek is elevation 8 and that the downstream culvert inverts are around elevation 7. Modeling the cross-parcel culvert, taking the flood elevation into account and including any tailwater effects from flood water will have on its capacity, is prudent. Please discuss the effect of the increase in volume of stormwater exiting the site on the town-owned parcel.

44. It is unclear what storm the BayFilters are designed for. Please clarify in the stormwater report.

45. We note any pollutant removal capability of the BayFilters is heavily contingent on system maintenance. As the filters clog over time, pollutant removal decreases. The BayFilters are not addressed in the I&M plan. It is noted maintenance requires use of a vacuum truck and filter replacement. What assurances can be provided to the Town that the units will receive proper and timely maintenance?

46. The following details should be added to the plans:

a. BayFilter details

b. Outlet control structure, plan view and elevation, with dimensions

c. Concrete washout pit

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

Very truly yours,

UNDERWOOD ENGINEERS, INC.

Allison M. Rees, P.E.
Project Manager

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

AMR:scc

MATERIALS SUBMITTED 5/15/24 FROM BEALS ASSOC., LLC

BEALS · ASSOCIATES *PLLC*

70 Portsmouth Avenue
3rd Floor, Suite 2
Stratham, N.H. 03885
603 – 583 - 4860
Fax: 583 - 4863

May 15, 2024

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

RE: Letter of Explanation
Foss Motors - Proposed Vehicle Storage Area & Accessory Storage Use
Tax Map 0052 Lot #: 112.2

Members of the Board:

The applicant is proposing a commercial vehicle storage area at the front of the lot to increase inventory at 127 Portsmouth Avenue, along with a connecting driveway to the existing Foss Motors vehicle display lot. Additionally, a 22,500 square foot accessory storage use building is proposed towards the rear of the lot to be served by municipal water & sewer. The parcel consists of 6.24-acres which is encumbered by 150-foot and 300-foot municipal Shoreland Protection District (SPD) buffers adjacent to the Exeter Reservoir as well as wetland pockets and associated buffers. Disturbance and impacts associated with the proposed development requires applications for Conditional Use Permits for both the Wetlands Conservation Overlay District and Shoreland Protection District. Wetland and shoreland impacts are shown on the provided plans and applications.

We met with the Planning Board for a preliminary consultation in June 2023 and with the Conservation Commission in July 2023 to review the project and obtain feedback prior to embarking on full engineering design. Since then, we have completed the site design, attended two rounds of Technical Review Committee (TRC) meetings, and responded to two rounds of comments by both the TRC and Underwood Engineering. Changes associated with these consultations have included the reduction of impervious surfaces, including the removal of a drive aisle around the building and revising the parking area to porous pavement. Additionally, roof runoff is now directed to a stone infiltration trench along the south side of the building.

In terms of stormwater, the entire water quality volume from the proposed parking area and building will be infiltrated into the ground following treatment. In addition to the removal rates associated with an infiltration trench which are 90% of Total Suspended Solids (TSS), 55% of Total Nitrogen (TN), and 60% of Total Phosphorus (60%), a bioretention filter media is provided within the trench to remove an additional 90% of TSS, 65% of TN, and 65% of TP. The porous pavement removal rates are 90% of TSS, 60% of TN, and 65% of TP. These removal efficiencies rates are per the NHDES Stormwater Handbook and meet the Town of Exeter requirements. All treated stormwater from the parking lot will be discharged downstream of the Exeter Reservoir.

We look forward to presenting this project to you in the near future.

Thank you for your consideration.

Very truly yours,
BEALS ASSOCIATES, PLLC

Christian O Smith

Christian O. Smith P.E.
Principal

Town of Exeter

Planning Board Application for Conditional Use Permit:

Wetlands Conservation Overlay District

February 2017

Town of Exeter Planning Board Application

Conditional Use Permit: Wetland Conservation Overlay District
In accordance with Zoning Ordinance Article: 9.1

SUBMITTAL REQUIREMENTS:

1. Fifteen (15) copies of the Application
2. Fifteen (15) 11"x17" and three (3) full sized copies of the plan which must include:
   Existing Conditions
   a. Property Boundaries
   b. Edge of Wetland and associated Buffer (Wetlands Conservation Overlay District – WCOD)
      --Prime wetland: 100' --Very Poorly Drained: 50'
      --Vernal Pool (>200 SF): 75' --Poorly Drained: 40'
      --Exemplary Wetland: 50' --Inland Stream: 25'
   c. Structures, roads/access ways, parking, drainage systems, utilities, wells and wastewater disposal systems and other site improvements

   Proposed Conditions
   a. Edge of Wetlands and Wetland Buffers and distances to the following:
      i. Edge of Disturbance
      ii. Structures, roads/access ways, parking, drainage systems, utilities, wells and wastewater disposal systems and other site improvements
   b. Name and phone number of all individuals whose professional seal appears on the plan
3. If applicant and/or agent is not the owner, a letter of authorization must accompany this application
4. Supporting documents i.e. Letters from the Department of Environmental Services, Standard Dredge and Fill Application and Photos of the property
5. A Town of Exeter Assessors list of names and mailing addresses of all abutters

Required Fees:
Planning Board Fee: **$50.00** Abutter Fee: **$10.00** Recording Fee (if applicable): **$25.00**

The Planning Office must receive the completed application, plans and fees on the day indicated on the Planning Board Schedule of Deadlines and Public Hearings.

APPLICANT	Name:	Meniscus Financial Holdings, LLC
	Address:	133 Portsmouth Avenue, Exeter, NH 03833
	Email Address:	TimFoss@FossCars.com
	Phone:	(603) 475-4339
PROPOSAL	Address:	127 Portsmouth Avenue, Exeter, NH 03833
	Tax Map #_____52_____ Lot#__112-2__ Zoning District: ___C-2_____	
	Owner of Record:	Meniscus Financial Holdings, LLC
Person/Business performing work outlined in proposal	Name:	Same as Applicant
	Address:	
	Phone:	
Professional that delineated wetlands	Name:	Brendan Quigley - Gove Environmental Services, Inc.
	Address:	8 Continental Drive, Building 2 Unit H, Exeter, NH 03833
	Phone:	(603) 778-0644

Town of Exeter
Planning Board Application
Conditional Use Permit: Wetland Conservation Overlay District

Detailed Proposal including intent, project description, and use of property: (Use additional sheet as needed)

Foss Motors proposes to construct a commercial site plan consisting of vehicle storage/display and a 22,500 sf accessory use storage building, along with associated landscaping, drainage, utilities, and lighting on a currently vacant lot bordering Waterworks Pond.

Wetland Conservation Overlay District Impact (in square footage):				
Temporary Impact	Wetland:	(SQ FT.)	Buffer:	(SQ FT.)
	☐ Prime Wetlands	_____	☐ Prime Wetlands	_____
	☐ Exemplary Wetlands	_____	☐ Exemplary Wetlands	_____
	☐ Vernal Pools (>200SF)	_____	☐ Vernal Pools (>200SF)	_____
	☐ VPD	_____	☐ VPD	_____
	☐ PD	_____	☒ PD	304
	☐ Inland Stream	_____	☐ Inland Stream	_____
Permanent Impact	Wetland:		Buffer:	
	☐ Prime Wetlands	_____	☐ Prime Wetlands	_____
	☐ Exemplary Wetlands	_____	☐ Exemplary Wetlands	_____
	☐ Vernal Pools (>200SF)	_____	☐ Vernal Pools (>200SF)	_____
	☐ VPD	_____	☐ VPD	_____
	☒ PD	6,336	☒ PD	45,420
	☐ Inland Stream	_____	☐ Inland Stream	_____

List any variances/special exceptions granted by Zoning Board of Adjustment including dates: N/A

Describe how the proposal meets conditions in **Article 9.1.6.B** of the Zoning Ordinance (attached for reference):

See attached.

ABUTTERS: PLEASE LIST ALL PERSONS WHOSE PROPERTY IS LOCATED IN NEW HAMPSHIRE AND ADJOINS OR IS DIRECTLY ACROSS THE STREET OR STREAM FROM THE LAND UNDER CONSIDERATION BY THE BOARD. THIS LIST SHALL BE COMPILED FROM THE EXETER TAX ASSESSOR'S RECORDS.

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Please attach additional sheets if needed

9.1.6 B. <u>Conditions</u>:

1. That the proposed use is permitted in the underlying zoning district;

2. That the use for which the permit is sought cannot feasibly be carried out on a portion or portions of the lot which are outside the Wetlands Conservation Overlay District;

3. The proposed impact has been evaluated in the context of the relative "value" of the wetland, including its ecological sensitivity, as well as its function within the greater hydrologic system. To the extent feasible, the proposed impact is not detrimental to the value and function of the wetland(s).

4. That the design, construction and maintenance of the proposed use will, to the extent feasible, minimize detrimental impact on the wetland or wetland buffer and that no alternative design which does not impact a wetland or wetland buffer or which has less detrimental impact on the wetland or wetland buffer is feasible;

5. In cases where the proposed use is temporary or where construction activity disturbs areas adjacent to the immediate use, that the landowner agrees to restore the site as nearly as possible to its original grade and condition following construction;

6. That the proposed use will not create a hazard to individual or public health, safety and welfare due to the loss of wetland, the contamination of groundwater, or other reasons;

7. That all required permits shall be obtained from the New Hampshire Department of Environmental Services Water Supply and Pollution Control Division under NH RSA §485-A: 17, the New Hampshire Wetlands Board under NH RSA §483-A, and the United States Army Corps of Engineers under Section 404 of the Clean Water Act.

BEALS · ASSOCIATES *PLLC*

70 Portsmouth Avenue
3rd Floor, Suite 2
Stratham, N.H. 03885
603 – 583 - 4860
Fax: 583 - 4863

May 3, 2024

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

RE: Wetlands Conservation Overlay District Conditional Use Section 9.1.6.B
Foss Motors - Proposed Vehicle Storage Area & Accessory Use Storage Building
Tax Map 0052 Lot #: 112.2

Members of the Board:

As part of the Application for Conditional Use Permit for disturbances within the Wetlands Conservation Overlay District, the following addresses the conditions of Article 9.1.6.B of the Exeter Zoning Ordinance:

9.1.6.B Conditions:

1. The proposed vehicle storage and accessory use storage building are accessory uses to the permitted Auto Dealership in the C-2 Zone.

2. The use cannot be feasibly carried out on portions of the lot completely outside the Wetland Conservation Overlay District (WCOD). Due to wetlands on either side of the long narrow lot, the majority of the lot is within the WCOD and cannot be avoided.

3. The proposed layout has been designed to minimize wetland and WCOD impact to the maximum extent possible, but cannot be configured to be completely outside the WCOD due to the existing wetland boundaries. None of the wetlands being impacted are considered high value. Refer to Gove Environmental Services wetland report for additional information.

4. The design, including construction and maintenance, has been configured to minimize any detrimental impact on the wetlands and buffers where possible. There is not a feasible design layout for this property that would avoid impacting the wetlands or buffers as they extend throughout the parcel.

5. The proposal will not create a hazard to individual, or public health, safety, or welfare due to the loss of the man-made, minimal function & value wetlands, and their associated buffers.

6. There is not an opportunity to increase wetland buffers elsewhere on site as those areas are already developed.

7. Where disturbance is temporary or adjacent to the immediate use, those areas will be restored as nearly as possible to the original grade and condition following construction.

8. NHDES Wetlands Dredge and Fill permit will be filed and will be strictly adhered to throughout construction.

Thank you for your consideration.

Very truly yours,
BEALS ASSOCIATES, PLLC

Christian O Smith

Christian O. Smith P.E.
Principal

Town of Exeter

Planning Board Application for Conditional Use Permit:

Shoreland Protection District

February 2017

Town of Exeter Planning Board Application

Conditional Use Permit: Shoreland Protection District
In accordance with Zoning Ordinance Article: 9.3

SUBMITTAL REQUIREMENTS:

(see Conservation Commission and Planning Board meeting dates and submission deadlines)

1. One (1) electronic copy of full application, including plans (color copy if available)
2. Fifteen (15) copies of the Application
3. Fifteen (15) 11"x17" and three (3) full sized copies of the plan which must include:
   Existing Conditions
   a. Property Boundaries
   b. Edge of Shoreland and associated Buffer (Shoreland Protection District – SPD)
   c. Structures, roads/access ways, parking, drainage systems, utilities, wells and wastewater disposal systems and other site improvements

   Proposed Conditions
   a. Edge of Shoreland and Shoreland Buffers and distances to the following:
      i. Edge of Disturbance
      ii. Structures, roads/access ways, parking, drainage systems, utilities, wells and wastewater disposal systems and other site improvements
   b. Name and phone number of all individuals whose professional seal appears on the plan
4. If applicant and/or agent is not the owner, a letter of authorization must accompany this application
5. Supporting documents i.e. Letters from the Department of Environmental Services, Standard Dredge and Fill Application and Photos of the property
6. A Town of Exeter Assessors list of names and mailing addresses of all abutters

Required Fees:
Planning Board Fee: **$50.00** Abutter Fee: **$10.00** Recording Fee (if applicable): **$25.00**

The Planning Office must receive the completed application, plans and fees on the day indicated on the Planning Board Schedule of Deadlines and Public Hearings.

APPLICANT	Name:	Meniscus Financial Holdings, LLC
	Address:	133 Portsmouth Avenue, Exeter, NH 03833
	Email Address:	TimFoss@FossCars.com
	Phone:	(603) 475-4339
PROPOSAL	Address:	127 Portsmouth Avenue, Exeter, NH 03833
	Tax Map #____52_____ Lot#__112-2__ Zoning District: ___C-2_____	
	Owner of Record:	Meniscus Financial Holdings, LLC
Person/Business performing work outlined in proposal	Name:	Same as Applicant
	Address:	
	Phone:	
Professional that delineated wetlands	Name:	Brendan Quigley - Gove Environmental Services, Inc.
	Address:	8 Continental Drive, Building 2 Unit H, Exeter, NH 03833
	Phone:	(603) 778-0644

Town of Exeter
Planning Board Application
Conditional Use Permit: Shoreland Protection District

Detailed Proposal including intent, project description, and use of property: (Use additional sheet as needed)

Foss Motors proposes to construct a commercial site plan consisting of vehicle storage/display and a 22,500 sf accessory use storage building, along with associated landscaping, drainage, utilities, and lighting on a currently vacant lot bordering the Waterworks Pond.

Shoreland Protection District Impact (in square footage):			
Water Body	Waterworks Pond		
Temporary Impact	☒ 300 Foot SPD	714	
	☐ 150 foot SPD		
	☐ SPD Building Setback		
	☐ 75 Vegetative Buffer		
Permanent Impact	☒ 300 Foot SPD	67,947	
	☒ 150 foot SPD	12,268	
	☒ SPD Building Setback	22,500	
	☐ 75 Vegetative Buffer		
Impervious Lot Coverage	SF of Lot within District	178,758	Excluding Building
	SF of Impervious within District	25,205	2,705
	% of Impervious within District	14.1%	1.5%

List any variances/special exceptions granted by Zoning Board of Adjustment including dates: N/A

Describe how your proposal meets the conditions of Article 9.3.4.G.2 of the Zoning Ordinance (attached for reference): See attached.

ABUTTERS: PLEASE LIST ALL PERSONS WHOSE PROPERTY IS LOCATED IN NEW HAMPSHIRE AND ADJOINS OR IS DIRECTLY ACROSS THE STREET OR STREAM FROM THE LAND UNDER CONSIDERATION BY THE BOARD. THIS LIST SHALL BE COMPILED FROM THE EXETER TAX ASSESSOR'S RECORDS.

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Please attach additional sheets if needed

Conditional Use Permit Criteria
Shoreland Protection District

9.3.4 G Conditional Uses:

2. The Planning Board may grant a Conditional Use Permit for those uses listed above only after written findings of fact are made which have been reviewed by technical experts from the Rockingham Conservation District, if required by the Planning Board, at the cost of the developer, provided that all of the following are true:

a. The proposed use will not detrimentally affect the surface water quality of the adjacent river or tributary, or otherwise result in unhealthful conditions.

b. The proposed use will discharge no waste water on site other than that normally discharged by domestic waste water disposal systems and will not involve on-site storage or disposal of hazardous or toxic wastes as herein defined.

c. The proposed use will not result in undue damage to spawning grounds and other wildlife habitat.

d. The proposed use complies with the use regulations identified in Article 9.3.4 Exeter Shoreland Protection District Ordinance – Use Regulations and all other applicable sections of this article.

e. The design and construction of the proposed use will be consistent with the intent of the purposes set forth in Article 9.3.1 Exeter Shoreland Protection District Ordinance – Authority and Purpose.

BEALS · ASSOCIATES *PLLC*

70 Portsmouth Avenue
3rd Floor, Suite 2
Stratham, N.H. 03885
603 – 583 - 4860
Fax: 583 - 4863

May 3, 2024

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

RE: Shoreland Protection District Conditional Use Section 9.3.4.G.2
Foss Motors - Proposed Vehicle Storage Area & Accessory Storage Use
Tax Map 0052 Lot #: 112.2

Members of the Board:

As part of the Application for Conditional Use Permit for disturbances within the Shoreland Protection District, the following addresses the conditions of Article 9.3.4.G.2 of the Exeter Zoning Ordinance:

9.3.4.G.2. <u>Conditional Uses:</u>

a. The proposed development will not detrimentally affect surface water quality to Water Works Pond or Wheelwright Creek, or result in unhealthful conditions due to the proposed stormwater management system that meets the Town of Exeter's requirements. In addition, no snow will be plowed towards or stored within the Shoreland Protection District (SPD) that does not enter the stormwater system.

b. The project will solely discharge domestic wastewater through the municipal sewer system. There will be no on-site storage or disposal of hazardous or toxic wastes at the project site.

c. The proposed development will not result in any damage to spawning grounds or other habitat. Refer to Gove Environmental Services wetland report for additional information.

d. The layout has been designed to minimize disturbance within the SPD and complies with use regulations identified in Article 9.3.4 with the exception of the following which are part of this Conditional Use Permit request:
    a. <u>Maximum Lot Coverage:</u> The maximum impervious lot coverage is limited to 10% where we are requesting an impervious lot coverage of 15.3%. This is a reduction from the previous design's 44.3% lot coverage with the removal of the access road around the building and the introduction of porous pavement in the main parking area.

b. 300-foot Buildings Setback: The proposed building is within the 300-foot building setback from the shoreland of Water Works Pond.

e. Given the fact that the access road to the reservoir and gun club exists between the proposed development and the river, we feel recreational and aesthetic values associated with the shoreline and river environment are preserved and the intent and purposes cited in Article 9.3.1 are met.

Thank you for your consideration.

Very truly yours,
BEALS ASSOCIATES, PLLC

Christian O Smith

Christian O. Smith P.E.
Principal

COMMERCIAL SITE PLAN
127 PORTSMOUTH AVENUE
(NH ROUTE 108)
TAX MAP 52, LOT 112.2

MAY 3, 2004

NOT FOR CONSTRUCTION

CIVIL ENGINEERS:

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

CHRISTIAN O. SMITH No. 9900 — STATE OF NEW HAMPSHIRE — PROFESSIONAL ENGINEER

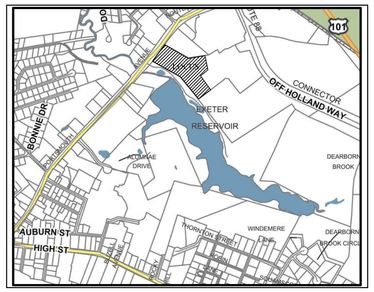
LAND SURVEYORS:

DOUCET SURVEY INC
Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857-0163
Voice (603) 659-6560, Data (603) 659-4118

WETLAND/SOIL CONSULTANT:

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

LOCATION MAP



SCALE: 1"=600'

DRAWING INDEX

PLAN SET LEGEND

5/8" REBAR	●	VGC	VERTICAL GRANITE CURB
DRILL HOLE	◉	OVERHEAD ELEC. LINE	
CONC. BOUND	▫	FENCING	x
UTILITY POLE		DRAINAGE LINE	D
DRAIN MANHOLE	Ⓓ	SEWER LINE	S
SEWER MANHOLE	Ⓢ	GAS LINE	
EXISTING LIGHT POLE	☼	WATER LINE	W
EXISTING CATCH BASIN	□	STONE WALL	
PROPOSED CATCH BASIN	⊞	TREE LINE	
WATER GATE	WV	ABUT. PROPERTY LINES	
WATER SHUT OFF		EXIST. PROPERTY LINES	
HYDRANT		BUILDING SETBACK LINES	
PINES, ETC.		EXIST. CONTOUR	100
MAPLES, ETC.		PROP. CONTOUR	100
EXIST. SPOT GRADE	96x69	SOIL LINES	
PROP. SPOT GRADE	96x69		
DOUBLE POST SIGN			
SINGLE POST SIGN			

RECORD OWNER/APPLICANT

MENISCUS FINANCIAL HOLDINGS, LLC
133 PORTSMOUTH AVE.
(NH ROUTE 108)
EXETER, NEW HAMPSHIRE

REQUIRED STATE AND FEDERAL PERMITS

CONSTRUCTION GENERAL PERMIT
NHDES ALTERATION OF TERRAIN PERMIT
NHDES SHORELAND PERMIT
NHDES WETLANDS BUREAU DREDGE AND FILL

	REVISIONS:	DATE:
1		
2		
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5		

NH-1471 PROPOSED SITE PLAN

NOTES:

1. REFERENCE: TAX MAP 52, LOT 112-2
   127 PORTSMOUTH AVE.
   EXETER, NH
2. TOTAL PARCEL AREA: 271,768 SQ. FT. OR 6.24 AC.
3. OWNER OF RECORD & APPLICANT: MENISCUS FINANCIAL HOLDINGS LLC
   131 PORTSMLUTH AVENUE
   EXETER, NH 03833
   603-772-7777
   R.C.R.D. BOOK 6449 PAGE 841
4. FIELD SURVEY PERFORMED BY M.A.W. & C.J.V. (DOUCET SURVEY) DURING OCTOBER 2023 USING A TOTAL STATION AND A SURVEY GRADE GPS WITH A DATA COLLECTOR AND AN AUTO LEVEL LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.
5. HORIZONTAL DATUM BASED ON NAD83(2011) NEW HAMPSHIRE STATE PLANE COORDINATE ZONE (2800) DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.
6. VERTICAL DATUM IS BASED ON APPROXIMATE NAVD88(GEOID18) (±.2') DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.
7. JURISDICTIONAL WETLANDS DELINEATED BY GOVE ENVIRONMENTAL SERVICES DURING OCTOBER 2023 USING THE FOLLOWING STANDARDS:
   - REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
   - FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.2. UNITED STATES DEPARTMENT OF AGRICULTURE (2018).
   - NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE. 2020 VERSION 4, FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA.
   - U.S. ARMY CORPS OF ENGINEERS NATIONAL WETLAND PLANT LIST, VERSION 3.5. (2020)

   ALSO SEE SEPARATE "SITE SPECIFIC SOIL" NOTE ON THIS SHEET.
8. FLOOD HAZARD ZONE:"X", PER FIRM MAP #33015C0406E, DATED 5/17/05.
9. PROPER FIELD PROCEDURES WERE FOLLOWED IN ORDER TO GENERATE CONTOURS AT 2' INTERVALS. ANY MODIFICATION OF THIS INTERVAL WILL DIMINISH THE INTEGRITY OF THE DATA, AND DOUCET SURVEY WILL NOT BE RESPONSIBLE FOR ANY SUCH ALTERATION PERFORMED BY THE USER.
10. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON OBSERVED PHYSICAL EVIDENCE AND PAINT MARKS FOUND ON-SITE.
11. THE ACCURACY OF MEASURED UTILITY INVERTS AND PIPE SIZES/TYPES IS SUBJECT TO NUMEROUS FIELD CONDITIONS, INCLUDING; THE ABILITY TO MAKE VISUAL OBSERVATIONS, DIRECT ACCESS TO THE VARIOUS ELEMENTS, MANHOLE CONFIGURATION, ETC.
12. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH AND IN RELATION TO THE CURRENT LEGAL DESCRIPTION, AND IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP, OR DEFINE THE LIMITS OF TITLE.
13. ALL UNDERGROUND UTILITIES (ELECTRIC, GAS, TEL. WATER, SEWER DRAIN SERVICES) ARE SHOWN IN SCHEMATIC FASHION, THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATIONS FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE AT 1-888-DIG-SAFE.
14. THE PARCLE IN IN ZONE C-2 (HIGHWAY COMMERCIAL) AND WITHIN THE WETLAND CONSERVATION AND SHORELAND PROTECTION OVERLAY DISTRICTS.

LEGEND

- EXISTING LOT LINE
- APPROXIMATE ABUTTERS LINE
- EXISTING EASEMENT LINE
- 100 MAJOR CONTOUR LINE
- 98 MINOR CONTOUR LINE
- RETAINING WALL
- POST & RAIL FENCE
- GUARDRAIL
- OHW OVERHEAD WIRE
- D DRAIN LINE
- S SEWER LINE
- G GAS LINE
- C CABLE/INTERNET LINE
- TREE LINE
- SHRUB LINE
- WETLAND BUFFER 40'
- WETLAND BUFFER 75'
- 300' SHORELAND PROTECTION DISTRICT LINE (WATERWORKS POND SETBACK)
- 150' SHORELAND SETBACK (STREAM BUFFER)
- PROTECTED SHORELAND AREA
- EDGE OF DELINEATED WETLAND
- WETLAND AREA
- SOIL LINE-SEE NOTE
- LANDSCAPED AREA
- CRUSHED STONE
- PILE
- BOUND FOUND (BND. FND.)
- DRILL HOLE FOUND (D.H.F.)
- PIPE/ROD FOUND
- 4"X4" GRANITE BOUND SET
- 5/8" REBAR W/ID CAP SET
- UTILITY POLE
- UTILITY POLE & GUY WIRE
- LIGHT POLE W/ARM
- LIGHT POLE (MULTI-ARMS)
- CATCH BASIN
- FES FLARED END SECTION
- SEWER MANHOLE
- FIRE HYDRANT
- WATER GATE VALVE
- HH HAND HOLE
- UNIDENTIFIED UTILITY BOX
- SIGN
- SIGN (TWO POSTS)
- BOLLARD
- DECIDUOUS TREE
- DECIDUOUS BUSH
- WETLAND FLAG
- CONC. CONCRETE
- D.H. DRILL HOLE
- DSWL DASHED SINGLE WHITE LINE
- DYL DOUBLE YELLOW LINE
- EP EDGE OF PAVEMENT
- GRAN. GRANITE
- HDPE HIGH DENSITY POLYETHYLENE PIPE
- HDWL HEADWALL
- I.P.F. IRON PIPE FOUND
- NHHB NEW HAMPSHIRE HIGHWAY BOUND
- PVC POLYVINYL CHLORIDE PIPE
- RET. WALL RETAINING WALL
- SGC SLOPED GRANITE CURB
- SWL SINGLE WHITE LINE
- TOP TOP OF PIPE
- TYP. TYPICAL
- UNK UNKNOWN
- (X) INVERT I.D. CONNECTION UNKNOWN
- (TBR) TREE TO BE REMOVED
- 600B/ffccc SOIL TYPE-SEE NOTE

ADDITIONAL ABUTTERS ACROSS ROUTE 108:

TAX MAP 52 LOT 53
EXETER LUMBER
120 PORTSMOUTH AVE.
EXETER, NH 03833

TAX MAP 52 LOT 52
108 HEIGHTS LLC.
c/o TWO GUYS SELF STORAGE
65 POST RD.
HOOKSETT, NH 03106

TAX MAP 52 LOT 51
SAF REALTY LLC.
c/o STEVES DINNER INC.
100 PORTSMOUTH AVE.
EXETER, NH 03833

TAX MAP 52 LOT 50
AA FIELD REALTY LLC.
98 PORTSMOUTH AVE.
EXETER, NH 03833

TAX MAP 65 LOT 123
TOWN OF EXETER
10 FRONT ST.
EXETER, NH 03833

TAX MAP 65 LOT 123-1
EXETER SPORTSMANS CLUB
PO BOX 1936
EXETER, NH 03833

REFERENCE PLANS:

1. "PLAN OF LAND FOR SYLVANIA ELECTRIC PRODUCTS INC EXETER NEW HAMPSHIRE" DATED DECEMBER 1962 BY G. L. DAVIS & ASSOCIATES R.C.R.D. PLAN DRAWER III, SEC. H., PLAN #1.
2. "THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY PLANS PROPOSED FEDERAL AID PROJECT STP-X-5153(005) N.H. PROJECT NO. 10025B NH ROUTE 108 TOWN OF EXETER COUNTY OF ROCKINGHAM" DATED 9/25/02 ON FILE AT THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION.
3. "ALTA/NSPS LAND TITLE SURVEY FOR TIGHE & BOND OF OSRAM SYLVANIA INC. ROUTE 108 (PORTSMOUTH AVENUE), HOLLAND WAY & ROUTE 101 EXETER, NEW HAMPSHIRE" DATED OCTOBER 31, 2019 BY DOUCET SURVEY, LLC, NOT RECORDED.
4. "SUBDIVISION PLAN OF OSRAM SYLVANIA INC. ROUTE 108 (PORTSMOUTH AVENUE), ROUTE 88 CONNECTOR (HOLLAND WAY) & ROUTE 101 TAX MAP 51 LOT 17 & TAX MAP 51 LOT 112 EXETER, NEW HAMPSHIRE" DATED OCTOBER 20, 2020 BY DOUCET SURVEY, LLC, R.C.R.D. PLAN D-42514.
5. "CORRECTIVE LOT LINE ADJUSTMENT PLAN (SEE NOTE 11) OF TAX MAP 51 LOT 112 AND TAX MAP 51 LOT 112-1 FOR OSRAM SYLVANIA, INC. ROUTE 108 (PORTSMOUTH AVENUE) & ROUTE 88 CONNECTOR (HOLLAND WAY) EXETER, NEW HAMPSHIRE" DATED JUNE 25, 2021 BY DOUCET SURVEY, LLC, R.C.R.D. PLAN D-42853.
6. "SUBDIVISION PLAN FOR 131 PORTSMOUTH AVENUE, LLC OF TAX MAP 52 LOT 112 131 PORTSMOUTH AVENUE ROUTE 108 (PORTSMOUTH AVENUE) & ROUTE 88 CONNECTOR (HOLLAND WAY) EXETER, NEW HAMPSHIRE" DATE OCTOBER 4, 2022 BY DOUCET SURVEY, R.C.R.D. PLAN D-43579.
7. "STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS PLANS OF PROPOSED FEDERAL AID PRIMARY PROJECT F018-2(1) N.H. NO. P-2428 SOUTH SIDE ROAD TOWNS OF EXETER AND STRATHAM COUNTY OF ROCKINGHAM" DATED 4-14-55 ON FILE AT THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION.
8. "ALTA/NSPS LAND TITLE SURVEY FOR 131 PORTSMOUTH AVE, LLC" REVISED THROUGH OCTOBER 25, 2022 BY DOUCET SURVEY, INC., NOT RECORDED.
9. "EASEMENT PLAN TO BENEFIT TAX MAP 51 LOT 112 AND TAX MAP 51 LOT 112-1 FOR OSRAM SYLVANIA, INC." DATED APRIL 2021 BY DOUCET SURVEY, R.C.R.D. PLAN D-42854.
10. "EASEMENT PLAN TO BENEFIT TAX MAP 51 LOT 112A & TAX MAP 51 LOT 112B FOR 131 PORTSMOUTH AVE, LLC" REVISED THROUGH SEPTEMBER 14, 2022 BY DOUCET SURVEY, R.C.R.D. PLAN D-43581.

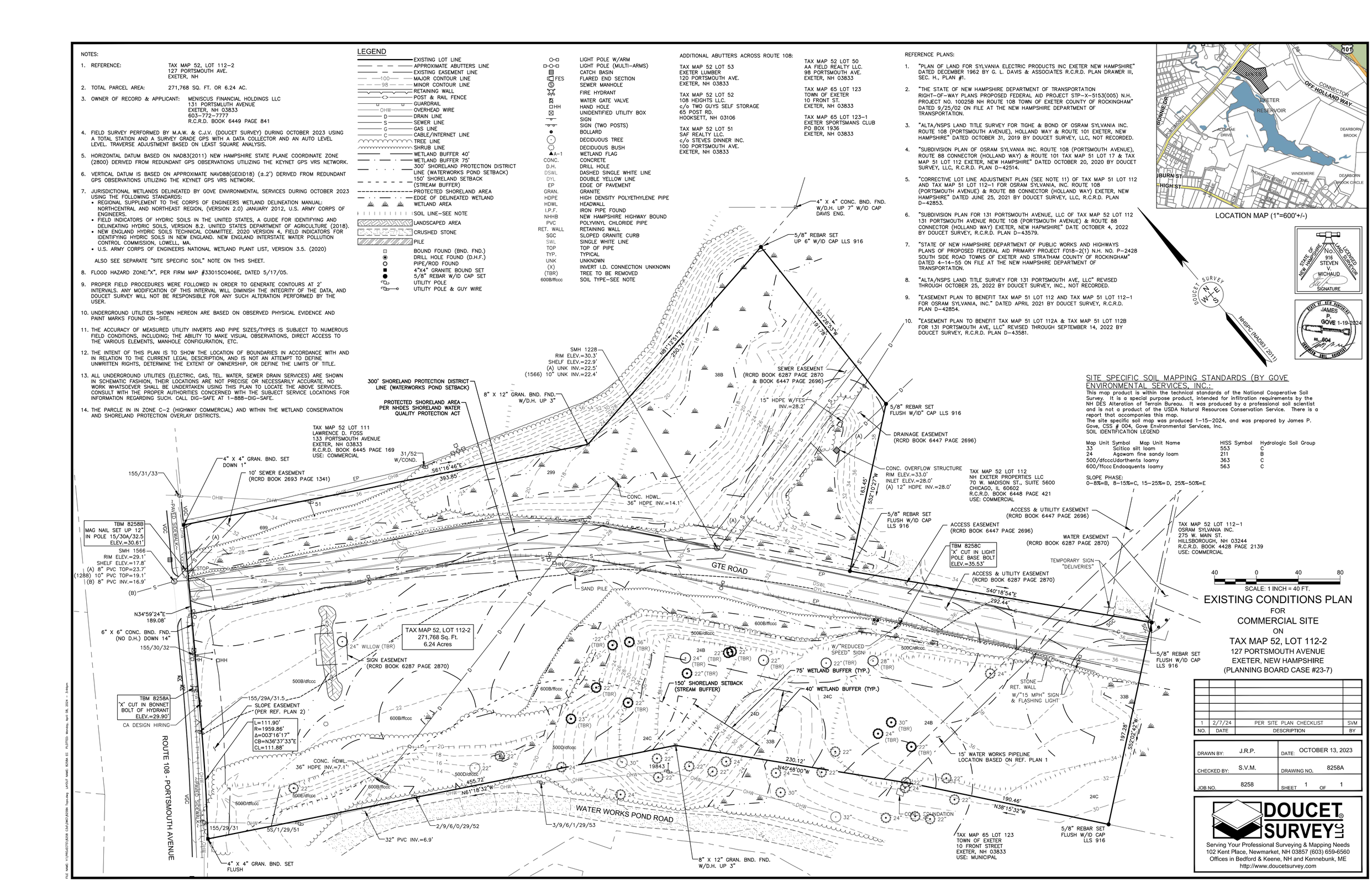
LOCATION MAP (1"=600'+/-)

SITE SPECIFIC SOIL MAPPING STANDARDS (BY GOVE ENVIRONMENTAL SERVICES, INC.):

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 map was produced 1-15-2024, and was prepared by James P. Gove, CSS # 004, Gove Environmental Services, Inc.
SOIL IDENTIFICATION LEGEND

Map Unit Symbol	Map Unit Name	HISS Symbol	Hydrologic Soil Group
33	Scitico silt loam	553	C
24	Agawam fine sandy loam	211	B
500/dfcccUdorthents loamy		363	C
600/ffccc Endoaquents loamy		563	C

SLOPE PHASE:
0-8%=B, 8-15%=C, 15-25%=D, 25%-50%=E



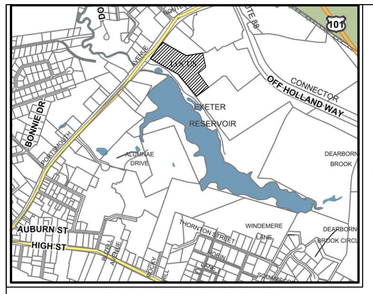
40 0 40 80
SCALE: 1 INCH = 40 FT.

EXISTING CONDITIONS PLAN
FOR
COMMERCIAL SITE
ON
TAX MAP 52, LOT 112-2
127 PORTSMOUTH AVENUE
EXETER, NEW HAMPSHIRE
(PLANNING BOARD CASE #23-7)

NO.	DATE	DESCRIPTION	BY
1	2/7/24	PER SITE PLAN CHECKLIST	SVM

DRAWN BY: J.R.P.	DATE: OCTOBER 13, 2023
CHECKED BY: S.V.M.	DRAWING NO. 8258A
JOB NO. 8258	SHEET 1 OF 1

DOUCET SURVEY LLC
Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857 (603) 659-6560
Offices in Bedford & Keene, NH and Kennebunk, ME
http://www.doucetsurvey.com



LOCATION MAP
1"=1500'

SITE DATA:

LOCATION:	127 PORTSMOUTH AVENUE, EXETER, NEW HAMPSHIRE
ZONING DISTRICTS:	HIGHWAY COMMERCIAL (C-2) WETLANDS CONSERVATION OVERLAY SHORELAND PROTECTION
EXISTING USE:	ACCESS ROAD & LANDSCAPED AREA
PROPOSED USE:	ACCESS ROAD, VEHICLE STORAGE/DISPLAY, & ACCESSORY USE STORAGE BUILDING

PARKING REQUIREMENTS:

MIN. PARKING SPACE SIZE:	9'x19'
MIN. AISLE WIDTH:	22 FT (90-DEGREE PARKING)
MIN. ADA SPACES:	2 (1 VAN ACCESSIBLE)

REQUIRED PARKING RATIO:
STORAGE/WAREHOUSE = 1 SPACE FOR EACH EMPLOYEE AT MAXIMUM SHIFT
(TOTAL PARKING AREA SHALL NOT BE LESS THAN 25% OF THE BUILDING FLOOR AREA)
REQUIRED = 25% OF 22,500 SF = 5,625 SF OF PARKING
PROVIDED = 33 SPACES (33 SPACES X 9'X19' = 5,643 SF OF PARKING)
EV SPACES = MIN. 2% = 1 SPACE WITH EV CHARGING READINESS

DIMENSIONAL REQUIREMENTS

MINIMUM LOT DIMENSIONS	ALLOWED/REQUIRED
LOT AREA	20,000 SF
LOT WIDTH	150 FT
LOT DEPTH	100 FT
FRONTAGE	150 FT

MINIMUM YARD SETBACKS	ALLOWED/REQUIRED
FRONT	50 FT
SIDE - ONE/BOTH	20/40 FT
REAR	50 FT

MISCELLANEOUS STANDARDS	
MAXIMUM BUILDING HEIGHT	35 FT
MAXIMUM BUILDING COVERAGE	30 %
MINIMUM OPEN SPACE	15 %

PAVEMENT LEGEND

POROUS PAVEMENT

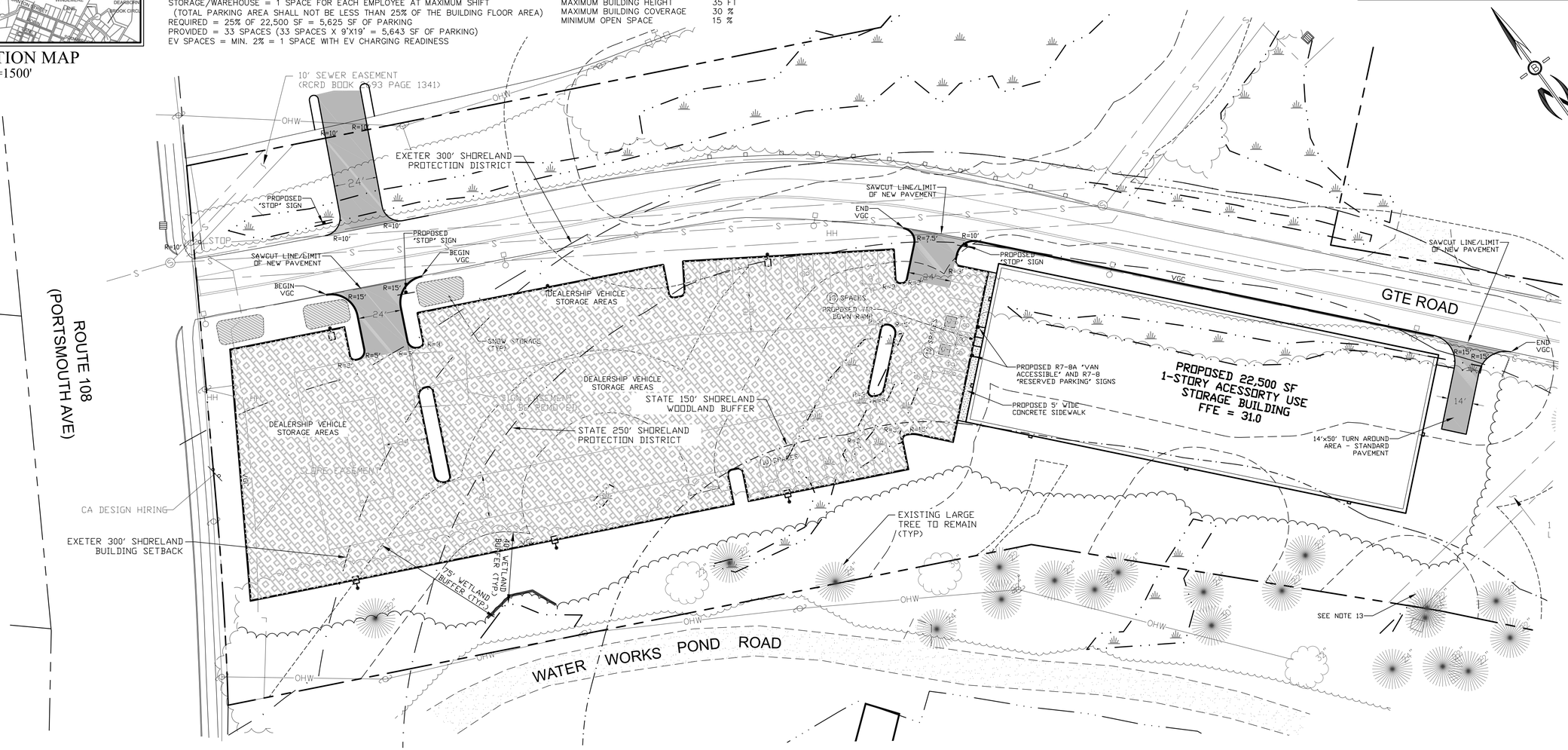
STANDARD PAVEMENT

TOWN NOTES

1. THE LANDOWNER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL WETLANDS REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
2. THE APPLICANT HAS DESIGNED THIS SITE TO SAFELY ACCOMMODATE MAXIMUM SIZE VEHICLES AND TRUCKS, (DESIGN VEHICLE IS THE EXETER LADDER TRUCK OR 35' BOX TRUCK) EITHER DELIVERING TO, OR USING THE PROPERTY.
3. ALL SNOW SHALL BE STORED IN THE AREA(S) DEPICTED ON THIS PLAN AS SNOW STORAGE AREAS. IN THE EVENT THAT THE AREA(S) APPROVED FOR SNOW STORAGE BECOME FULL, THE OWNER SHALL REASONABLY REMOVE EXCESS SNOW FROM THE SITE, AND SHALL NOT ALLOW SNOW TO BE STORED WITHIN TRAVEL AISLES.
4. ALL WASTE MATERIALS AND RECYCLABLE SHALL BE CONTAINED WITHIN THE BUILDING(S) OR APPROVED STORAGE FACILITIES AND SHALL NOT BE OTHERWISE STORED ON THE PROPERTY. REFUSE COLLECTION WILL BE BY DUMPSTER AS NEEDED.
5. ALL WATER, SEWER, ROAD (INCLUDING PARKING LOT), AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 9.5 GRADING, DRAINAGE, AND EROSION & SEDIMENT CONTROL AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER, NEW HAMPSHIRE.

PREPARED FOR:
FOSS MOTORS
133 PORTSMOUTH AVE.
(NH ROUTE 108)
EXETER, NEW HAMPSHIRE

BA BEALS ASSOCIATES, PLLC
70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX. 603-583-4863



NOTES:

1. THE PURPOSE OF THIS PLAN IS TO SHOW A 22,500 SF ACCESSORY USE STORAGE BUILDING WITH ASSOCIATED PARKING SPACES AND VEHICLE STORAGE/DISPLAY AREA.
2. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF EXETER STANDARDS AND REGULATIONS.
3. ALL WATER, SEWER, ROAD (INCLUDING PARKING LOT), AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 9.3 STORMWATER MANAGEMENT STANDARDS, STORMWATER MANAGEMENT PLAN, STORMWATER POLLUTION PREVENTION PLAN, AND EROSION AND SEDIMENT CONTROL STANDARDS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER, NEW HAMPSHIRE", SEE SECTION 9.14 ROADWAYS, ACCESS POINTS, AND FIRE LANES AND SECTION 9.13 PARKING AREAS FOR EXCEPTIONS.
4. IN ACCORDANCE WITH SITE PLAN REVIEW & SUBDIVISION REGULATIONS SECTIONS 7.15.10 AND 9.3.4 THE APPLICANT SHALL PROVIDE THE TOWN WITH THREE COPIES OF THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND ALSO ENSURE THAT ONE COPY REMAINS ON SITE.
5. ALL PROPOSED SIGNAGE SHALL CONFORM WITH THE TOWN ZONING REGULATIONS UNLESS A VARIANCE IS OTHERWISE REQUESTED.
6. TOTAL PROPOSED DISTURBANCE FOR CONSTRUCTION = 2.7± ACRES.
7. UPON COMPLETION OF CONSTRUCTION AND PRIOR TO RELEASE OF BOND, THE APPLICANT SHALL SUBMIT A LETTER TO THE TOWN, SIGNED AND STAMPED BY THE DESIGN ENGINEER, WHO MUST BE A LICENSED PROFESSIONAL ENGINEER IN NH, STATING CONSTRUCTION HAS BEEN COMPLETED IN CONFORMANCE WITH THE APPROVED PLANS.
8. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN LOCATED FROM FIELD OBSERVATIONS AND THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. BEALS ASSOCIATES OR ANY OF THEIR EMPLOYEES TAKE NO RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES OR UTILITIES NOT SHOWN, THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND UTILITIES OR STRUCTURES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 1-888-DIG-SAFE.
9. THIS PLAN HAS BEEN PREPARED FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
10. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
11. THIS SITE IS NOT LOCATED IN THE 100 YEAR FLOOD ZONE.
12. ALL PROPOSED CURBING SHALL BE VERTICAL GRANITE.
13. WATER MAIN WITHIN THE WATER WORKS EASEMENT SHALL BE MARKED OUT PRIOR TO CONSTRUCTION AND MARKINGS MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION. WATER MAIN SHALL BE PROTECTED DURING CONSTRUCTION.

STATE OF NEW HAMPSHIRE
CHRISTIAN O. SMITH
No. 9900
PROFESSIONAL ENGINEER

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

REVISIONS:	DATE:
REVISED PER REVIEW COMMENTS	5/3/24
REVISED PER REVIEW COMMENTS	4/9/24
REVISED PER REVIEW COMMENTS	3/28/24

SITE PLAN

COMMERCIAL DEVELOPMENT
ROUTE 108
EXETER, NH
TAX MAP 52, LOT 112.2

DATE: FEBRUARY 2024	SCALE: 1" = 30'
PROJ. NO: NH-1471	SHEET NO. 2

SITE SPECIFIC SOIL MAPPING STANDARDS:

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 WAS PRODUCED JANUARY 15, 2024, AND WAS PREPARED BY JAMES P. GOVE, CSS #004, GOVE ENVIRONMENTAL SERVICES, INC.

SOIL IDENTIFICATION LEGEND:

MAP UNIT SYMBOL	MAP UNIT NAME	HISS SYMBOL	HYDROLOGIC SOIL GROUP
24	ACAWAM FINE SANDY LOAM	211	B
33	SCITICO SILT LOAM	553	C
500/dfccc	UDORTHENTS LOAMY	363	C
600/ffccc	ENDOAQUENTS LOAMY	563	C

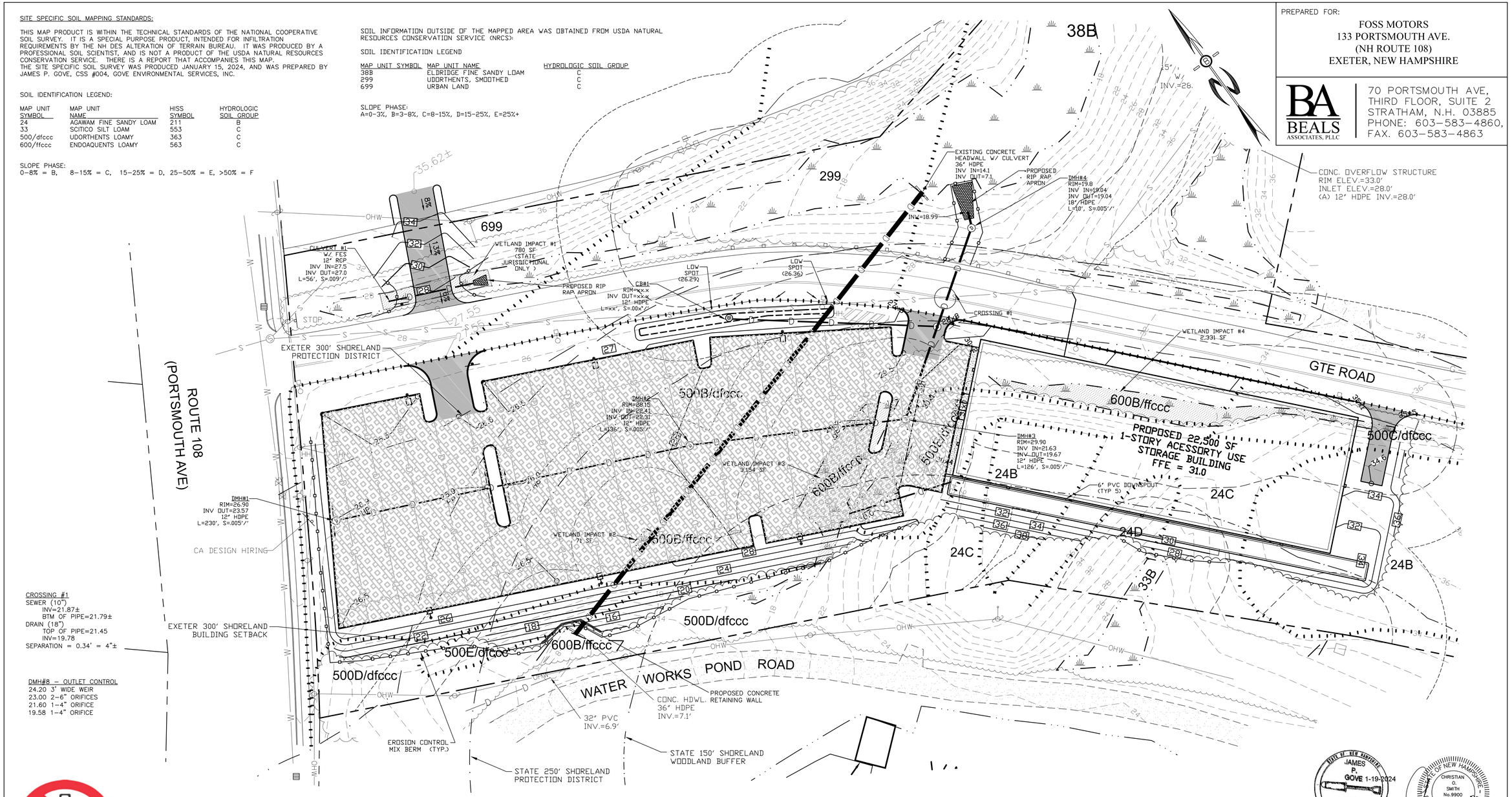
SLOPE PHASE:
0–8% = B, 8–15% = C, 15–25% = D, 25–50% = E, >50% = F

SOIL INFORMATION OUTSIDE OF THE MAPPED AREA WAS OBTAINED FROM USDA NATURAL RESOURCES CONSERVATION SERVICE (NRCS):

SOIL IDENTIFICATION LEGEND

MAP UNIT SYMBOL	MAP UNIT NAME	HYDROLOGIC SOIL GROUP
38B	ELDRIDGE FINE SANDY LOAM	C
299	UDORTHENTS, SMOOTHED	C
699	URBAN LAND	C

SLOPE PHASE:
A=0–3%, B=3–8%, C=8–15%, D=15–25%, E=25%+



PREPARED FOR:
FOSS MOTORS
133 PORTSMOUTH AVE.
(NH ROUTE 108)
EXETER, NEW HAMPSHIRE

BA BEALS ASSOCIATES, PLLC
70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603–583–4860,
FAX. 603–583–4863

UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER BEALS ASSOCIATES, NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 1–888–DIG–SAFE (1–888–344–7233) AND EXETER DPW (603) 773–6157.

NOTES:

1. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER SO THAT EROSION AND AIR AND WATER POLLUTION WILL BE MINIMIZED.
2. STRAW BALES SHALL BE ANCHORED INTO THE SOIL USING 2" X 2" STAKES DRIVEN THROUGH THE BALES AND AT LEAST 18 INCHES IN TO THE SOIL.
3. SEEDING, FERTILIZING, AND MULCHING SHALL CONFORM TO THE RECOMMENDATIONS IN THE APPROPRIATED VEGETATIVE BMP.
4. THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES THE CONTRACTOR SHALL TAKE PRECAUTIONS AND INSTRUCTIONS FROM THE PLANNING DEPARTMENT IN ORDER TO PREVENT, ABATE AND CONTROL THE EMISSION OF FUGITIVE DUST INCLUDING BUT NOT LIMITED TO WETTING, COVERING, SHIELDING, OR VACUUMING.
5. THE NH COMMISSIONER OF AGRICULTURE PROHIBITS THE COLLECTION, POSSESSION, IMPORTATION, TRANSPORTATION, SALE, PROPAGATION, TRANSPLANTATION, OR CULTIVATION OF PLANTS BANNED BY NH LAW RSA 430:53 AND NH CODE ADMINISTRATIVE RULES AGR 3800. THE PROJECT SHALL MEET ALL REQUIREMENTS AND THE INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
6. THE CONSTRUCTION SITE OPERATOR AND OWNER SHALL SUBMIT A NOTICE OF INTENT (NOI) TO USEPA, WASHINGTON, DC, STORMWATER NOTICE PROCESSING CENTER AT LEAST FORTEEN DAYS PRIOR TO COMMENCEMENT OF WORK ON SITE. EPA WILL POST THE NOI AT http://cfpubl.epa.gov/npdes/stormwater/noi/noisearch.cfm. AUTHORIZATION IS GRANTED UNDER THE PERMIT ONCE THE NOI IS SHOWN IN "ACTIVE STATUS".
7. ALL DRAINAGE STRUCTURES AND SWALES SHALL BE BUILT AND STABILIZED PRIOR TO HAVING RUNOFF DIRECTED TO THEM.
8. PRIOR TO THE START OF CONSTRUCTION, THE EXISTING 36–INCH HDPE DRAIN LINE THROUGH THE SITE SHALL BE INSPECTED TO VERIFY CONDITION. RESULTS SHALL BE PROVIDED TO THE DESIGN ENGINEER TO DETERMINE IF ISSUES NEED TO BE RESOLVED.

PERMANENT WETLAND IMPACT =	5,556 SF (TOWN)
PERMANENT WETLAND IMPACT =	6,336 SF (STATE)
TEMPORARY BUFFER IMPACT =	304 SF
PERMANENT BUFFER IMPACT =	45,420 SF
TEMPORARY SHORELAND PROTECTION IMPACT =	19,857 SF
PERMANENT SHORELAND PROTECTION IMPACT =	79,589 SF
SHORELAND PROTECTION IMPERVIOUS AREA =	79,589 SF (44.3%)

STATE OF NEW HAMPSHIRE JAMES P. GOVE 1-19-2024 No. 004 CERTIFIED SOIL SCIENTIST

STATE OF NEW HAMPSHIRE CHRISTIAN O. SMITH No.9900 PROFESSIONAL ENGINEER

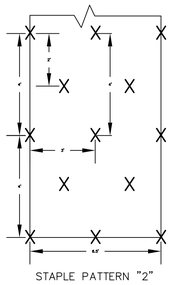
GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

REVISIONS:	DATE:
REVISED PER REVIEW COMMENTS	5/3/24
REVISED PER REVIEW COMMENTS	4/9/24
REVISED PER REVIEW COMMENTS	3/28/24

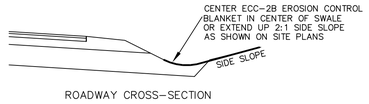
GRADING, DRAINAGE, & EROSION CONTROL PLAN

COMMERCIAL DEVELOPMENT
ROUTE 108
EXETER, NH
TAX MAP 52, LOT 112.2

DATE: FEBRUARY 2024	SCALE: 1" = 30'
PROJ. NO: NH-1471	SHEET NO. 3



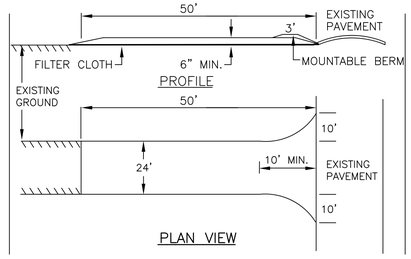
PHYSICAL SPECIFICATIONS
(ROLL)
WIDTH = 7.5'
LENGTH = 120.0'
WEIGHT = 37 LBS.
AREA = 100 SQUARE YARDS



ROADWAY CROSS-SECTION

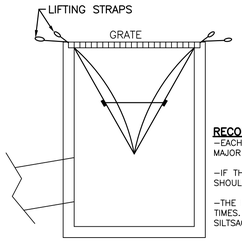
STAPLE PATTERN "2"

East Coast Erosion Blanket ECC-2B
(Double Net Coconut)
INSTALLATION DETAIL



1. STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 3 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE 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 ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICH EVER IS GREATER. 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 ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.

STABILIZED CONSTRUCTION ENTRANCE

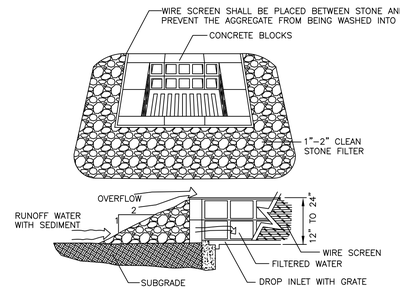


RECOMMENDED MAINTENANCE SCHEDULE
-EACH SILTSACK SHOULD BE INSPECTED AFTER EVERY MAJOR RAIN EVENT

-IF THERE HAVE BEEN NO MAJOR EVENTS, SILTSACK SHOULD BE INSPECTED EVERY 2-3 WEEKS

-THE RESTRAINT CORD SHOULD BE VISIBLE AT ALL TIMES. IF CORD IS COVERED WITH SEDIMENT, THE SILTSACK SHOULD BE EMPTIED.

SILTSACK DETAIL
NOT TO SCALE



MAINTENANCE NOTE:

1. ALL STRUCTURES SHOULD BE INSPECTED AFTER EVERY RAINFALL AND REPAIRS MADE AS NECESSARY. SEDIMENT SHOULD BE REMOVED FROM TRAPPING DEVICES AFTER THE SEDIMENT HAS REACHED A MAXIMUM OF ONE HALF THE DEPTH OF THE TRAP. THE SEDIMENT SHOULD BE DISPOSED IN A SUITABLE UPLAND AREA AND PROTECTED FROM EROSION BY EITHER STRUCTURE OR VEGETATIVE MEANS. THE TEMPORARY TRAPS SHOULD BE REMOVED AND THE AREA REPAIRED AS SOON AS THE CONTRIBUTING DRAINAGE AREA TO THE INLET HAS BEEN COMPLETELY STABILIZED.

TEMPORARY CATCH BASIN INLET PROTECTION
(Block and Gravel Drop Inlet Sediment Filter)
NOT TO SCALE

** WITHIN 50 FEET DISTURBANCE TO ANY WETLAND, A DOUBLE ROW OF EROSION BARRIER (SILT FENCE, SILT SOCK, OR MULCH BERM) SHALL BE INSTALLED.

TEMPORARY EROSION CONTROL MEASURES

1. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT NO MORE THAN 5 ACRES OF LAND SHALL BE EXPOSED BEFORE DISTURBED AREAS ARE STABILIZED*.
2. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED OR DIRECTED BY THE ENGINEER ALL DISTURBED AREAS SHALL BE RETURNED TO ORIGINAL GRADES AND ELEVATIONS.
3. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 4" OF LOAM AND SEEDED WITH NOT LESS THAN 1.10 POUNDS OF SEED PER 1000 SQUARE FEET OF AREA. (48 POUNDS PER ACRE) SEE SEED SPECIFICATIONS THIS SHEET.
4. SILT FENCES AND OTHER EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY RAIN EVENT GREATER THAN 0.25" DURING THE LIFE OF THE PROJECT. ALL DAMAGED AREAS SHALL BE REPAIRED, SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
5. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION CONTROL MEASURES ARE TO BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND RE-VEGETATED.
6. AREAS MUST BE SEEDED AND MULCHED WITHIN 3 DAYS OF FINAL GRADING, PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF SOIL.

* AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
- BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED.
- A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED.
- A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS RIPRAP HAS BEEN INSTALLED.
- EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

CONSTRUCTION SPECIFICATIONS

1. STRUCTURES SHALL BE INSTALLED ACCORDING TO THE DIMENSIONS SHOWN ON THE PLANS AT THE APPROPRIATE SPACING.
2. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER SO THAT EROSION AND AIR AND WATER POLLUTION WILL BE MINIMIZED.
3. WHEN TIMBER STRUCTURES ARE USED, THE TIMBER SHALL EXTEND AT LEAST 18" INTO THE SOIL.
4. STRAW BALES SHALL BE ANCHORED INTO THE SOIL USING 2" X 2" STAKES DRIVEN THROUGH THE BALES AND AT LEAST 18 INCHES IN TO THE SOIL.
5. SEEDING, FERTILIZING, AND MULCHING SHALL CONFORM TO THE RECOMMENDATIONS IN THE APPROPRIATED VEGETATIVE BMP.
6. STRUCTURES SHALL BE REMOVED FROM THE CHANNEL WHEN THEIR USEFUL LIFE HAS BEEN COMPLETED.
7. THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES THE CONTRACTOR SHALL TAKE PRECAUTIONS AND INSTRUCTIONS FROM THE PLANNING DEPARTMENT IN ORDER TO PREVENT, ABATE AND CONTROL THE EMISSION OF FUGITIVE DUST INCLUDING BUT NOT LIMITED TO WETTING, COVERING, SHIELDING, OR VACUUMING.
8. THE NH COMMISSIONER OF AGRICULTURE PROHIBITS THE COLLECTION, POSSESSION, IMPORTATION, TRANSPORTATION, SALE, PROPAGATION, TRANSPLANTATION, OR CULTIVATION OF PLANTS BANNED BY NH LAW RSA 430:53 AND NH CODE ADMINISTRATIVE RULES AGR 3800. THE PROJECT SHALL MEET ALL REQUIREMENTS AND THE INTENT OF . RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES
9. THE CONSTRUCTION SITE OPERATOR AND OWNER SHALL SUBMIT A NOTICE OF INTENT (NOI) TO USEPA, WASHINGTON, DC, STORMWATER NOTICE PROCESSING CENTER AT LEAST FORTEEN DAYS PRIOR TO COMMENCEMENT OF WORK ON SITE. EPA WILL POST THE NOI AT http://cfpubl.epa.gov/npdes/stormwater/noi/noisearch.cfm. AUTHORIZATION IS GRANTED UNDER THE PERMIT ONCE THE NOI IS SHOWN IN "ACTIVE STATUS".

CONSTRUCTION SEQUENCE

1. CUT AND REMOVE TREES IN CONSTRUCTION AREAS AS REQUIRED OR DIRECTED.
2. CONSTRUCT AND/OR INSTALL TEMPORARY AND PERMANENT SEDIMENT EROSION AND DETENTION CONTROL FACILITIES AS REQUIRED. EROSION, SEDIMENT AND DETENTION CONTROL FACILITIES SHALL BE INSTALLED AND STABILIZED PRIOR TO ANY EARTH MOVING OPERATION AND PRIOR TO DIRECTING RUNOFF TO THEM.
3. CLEAR, CUT, GRUB AND DISPOSE OF DEBRIS IN APPROVED FACILITIES. STUMPS AND DEBRIS ARE TO BE REMOVED FROM SITE AND DISPOSED OF PER STATE AND LOCAL REGULATIONS.
4. EXCAVATE AND STOCKPILE TOPSOIL /LOAM. ALL AREAS SHALL BE STABILIZED IMMEDIATELY AFTER GRADING.
5. CONSTRUCT TEMPORARY CULVERTS AS REQUIRED OR DIRECTED.
6. CONSTRUCT THE ROADWAY/DRIVEWAYS AND ITS ASSOCIATED DRAINAGE STRUCTURES. ALL ROADWAYS, PARKING AREAS, AND CUT/FILL SLOPES SHALL BE STABILIZED AND/OR LOAMED AND SEEDED WITHIN 72-HOURS OF ACHIEVING FINISH GRADE AS APPLICABLE.
7. INSTALL PIPE AND CONSTRUCTION ASSOCIATED APPURTENANCES AS REQUIRED OR DIRECTED. ALL DISTURBED AREAS SHALL STABILIZED IMMEDIATELY AFTER GRADING.
8. BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES AND DISTURBED AREAS SHALL BE SEEDED OR MULCHED AS REQUIRED, OR DIRECTED.
9. DAILY OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINAGE CHECK DAMS, DITCHES, SEDIMENT TRAPS, ETC. TO PREVENT EROSION ON THE SITE AND PREVENT ANY SILTATION OF ABUTTING WATERS OR PROPERTY.
10. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION
11. COMPLETE PERMANENT SEEDING AND LANDSCAPING
12. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE ESTABLISHED THEMSELVES AND SITE IMPROVEMENTS ARE COMPLETE. SMOOTH AND REVEGETATE ALL DISTURBED AREAS.
13. ALL SWALES AND DRAINAGE STRUCTURES WILL BE CONSTRUCTED AND STABILIZED PRIOR TO HAVING RUNOFF DIRECTED TO THEM.
14. FINISH PAVING ALL ROADWAYS/DRIVEWAYS.
15. LOT DISTURBANCE OTHER THAN THAT SHOWN ON THE APPROVED PLANS SHALL NOT COMMENCE UNTIL THE ROADWAY HAS THE BASE COURSE TO DESIGN ELEVATION AND THE ASSOCIATED DRAINAGE IS COMPLETE AND STABLE.

WINTER MAINTENANCE

1. ALL DISTURBED AREAS THAT DO NOT HAVE AT LEAST 85% VEGETATIVE COVERAGE PRIOR TO OCTOBER 15TH, SHALL BE STABILIZED BY APPLYING MULCH AT A RATE OF 3-4 TONS PER ACRE. ALL SIDE SLOPES, STEEPER THAN 4:1, THAT ARE NOT DIRECTED TO SWALES OR DETENTION BASINS, SHALL BE LINED WITH BIODEGRADABLE/PHOTODEGRADABLE "JUTE MATTING" (EXCELSIOR'S CURLEX II OR EQUAL). ALL OTHER SLOPES SHALL BE MULCHED AND TACKED AT A RATE OF 3-4 TONS PER ACRE. THE APPLICATION OF MULCH AND/OR JUTE MATTING SHALL NOT OCCUR OVER EXISTING SNOW COVER. IF THE SITE IS ACTIVE AFTER OCTOBER 15TH, ANY SNOW THAT ACCUMULATES ON DISTURBED AREAS SHALL BE REMOVED. PRIOR TO SPRING THAW ALL AREAS WILL BE STABILIZED, AS DIRECTED ABOVE.

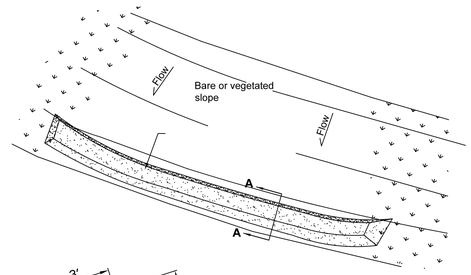
2. ALL SWALES THAT DO NOT HAVE FULLY ESTABLISHED VEGETATION SHALL BE EITHER LINED WITH TEMPORARY JUTE MATTING OR TEMPORARY STONE CHECK DAMS (APPROPRIATELY SPACED). STONE CHECK DAMS WILL BE MAINTAINED THROUGHOUT THE WINTER MONTHS. IF THE SWALES ARE TO BE MATTED WITH PERMANENT LINERS OR RIPRAP WITH ENGINEERING FABRIC, THIS SHALL BE COMPLETED PRIOR TO WINTER SHUTDOWN OR AS SOON AS THEY ARE PROPERLY GRADED AND SHAPED.

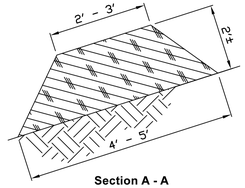
3. PRIOR TO OCT. 15TH ALL ROADWAY AND PARKING AREAS SHALL BE BROUGHT UP TO AND THROUGH THE BANK RUN GRAVEL APPLICATION. IF THESE AREAS' ELEVATIONS ARE PROPOSED TO REMAIN BELOW THE PROPOSED SUBGRADE ELEVATION, THE SUBGRADE MATERIAL SHALL BE ROUGHLY CROWNED AND A 3" LAYER OF CRUSHED GRAVEL SHALL BE PLACED AND COMPACTED. THIS WILL ALLOW THE SUBGRADE TO SHED RUNOFF AND WILL REDUCE ROADWAY EROSION. THIS CRUSHED GRAVEL DOES NOT HAVE TO CONFORM TO NH DOT 304.3, BUT SHALL HAVE BETWEEN 15-25% PASSING THE #200 SIEVE AND THE LARGEST STONE SIZE SHALL BE 2". IF THE SITE IS ACTIVE AFTER NOVEMBER 15TH, ANY ACCUMULATED SNOW SHALL BE REMOVED FROM ALL ROADWAY AND PARKING AREAS.

4. AFTER OCTOBER 15TH, THE END OF NEW HAMPSHIRE'S AVERAGE GROWING SEASON, NO ADDITIONAL LOAM SHALL BE SPREAD ON SIDE SLOPES AND SWALES. THE STOCKPILES THAT WILL BE LEFT UNDISTURBED UNTIL SPRING SHALL BE SEEDED BY THIS DATE. AFTER OCTOBER 15TH, ANY NEW OR DISTURBED PILES SHALL BE MULCHED AT A RATE OF 3-4 TONS PER ACRE. ALL STOCKPILES THAT WILL REMAIN THROUGHOUT THE WINTER SHALL BE SURROUNDED WITH SILT FENCING.

SEEDING SPECIFICATIONS

1. GRADING AND SHAPING
   A. SLOPES SHALL NOT BE STEEPER THAN 2:1;3:1 SLOPES OR FLATTER ARE PREFERRED. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
2. SEEDBED PREPARATION
   A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
   B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND MIX FERTILIZER AND LIME INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
3. ESTABLISHING A STAND
   A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL KINDS AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. REFER TO LIGHTING & LANDSCAPE PLAN FOR FERTILIZER REQUIREMENTS.
   B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
   C. A NEW ENGLAND NATIVE SEED MIXTURE SHALL BE USED. REFER TO MANUFACTURER'S SPECIFICATIONS FOR RATES OF SEEDING.
   D. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 10 TO SEPTEMBER 1.
4. MULCH
   A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
   B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90 LBS PER 1000 SQ. FT.
5. MAINTENANCE TO ESTABLISH A STAND
   A. PLANTED AREA SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
   B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIAL STAKE 2 TO 3 YEARS TO BECOME ESTABLISHED.
   C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, OCCASIONAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.





Section A - A

Mix material should consist of 30-50% large (1-3") particles. The organic matter content should be 25%-65%, dry weight basis. The organic matter may originate from a variety of vegetative sources, but needs to be fibrous and elongated. The mix shall be free of silt, clay, fine sand, refuse and contaminants or any material toxic to plant growth. Erosion Control Mix berms are effective filters for overland flow conditions and should not be used to filter concentrated flow such as that found in drainage ditchs, streams, etc.

Erosion Control Mix Berm

REVISED PER REVIEW COMMENTS	3/28/24
REVISIONS:	DATE:

EROSION & SEDIMENT CONTROL DETAILS

COMMERCIAL DEVELOPMENT
ROUTE 108
EXETER, NH
TAX MAP 52, LOT 112.2

DATE:	FEB, 2024	SCALE:	NTS
PROJ. N0:	NH-1471	SHEET NO.	4

CONSTRUCTION SPECIFICATIONS FOR POROUS ASPHALT
THE UNH STORM WATER CENTER
INSTALLATION RECOMMENDATIONS

INSTALLATION
A. PERCOLATION BEDS (REFERS TO NO 57 STONE)
I. OWNER SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO ALL PERCOLATION BED AND POROUS PAVING WORK.
2. SUB GRADE PREPARATION
A. EXISTING SUB GRADE UNDER BED AREAS SHALL NOT BE COMPACTED OR SUBJECT TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC PRIOR TO STONE BED PLACEMENT.
B. WHERE EROSION OF SUB GRADE HAS CAUSED ACCUMULATION OF FINE MATERIALS AND/OR SURFACE PONDING, THIS MATERIAL SHALL BE REMOVED WITH LIGHT EQUIPMENT AND THE UNDERLYING SOILS SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES WITH A YORK RAKE OR EQUIVALENT AND LIGHT TRACTOR.
C. BRING SUB GRADE OF STONE PERCOLATION BED TO LINE, GRADE, AND ELEVATIONS INDICATED. FILL AND LIGHTLY REGRADE ANY AREAS DAMAGED BY EROSION, PONDING, OR TRAFFIC COMPACTION BEFORE THE PLACING OF STONE. ALL BED BOTTOMS ARE LEVEL GRADE.
3. RECHARGE BED INSTALLATION (REFERS TO NO 3 STONE)
A. UPON COMPLETION OF SUB GRADE WORK, THE ENGINEER SHALL BE NOTIFIED AND SHALL INSPECT AT HIS DISCRETION BEFORE PROCEEDING WITH PERCOLATION BED INSTALLATION.
B. PERCOLATION BED AGGREGATE SHALL BE PLACED IMMEDIATELY AFTER APPROVAL OF SUB GRADE PREPARATION. ANY ACCUMULATION OF DEBRIS OR SEDIMENT WHICH HAS TAKEN PLACE AFTER APPROVAL OF SUB GRADE SHALL BE REMOVED PRIOR TO INSTALLATION OF AGGREGATE AT NO EXTRA COST TO THE OWNER.
C. INSTALL COARSE AGGREGATE NO. 3 (1 1/2" STONE) IN 8-INCH MAXIMUM LIFTS. LIGHTLY COMPACT EACH LAYER WITH EQUIPMENT, KEEPING EQUIPMENT MOVEMENT OVER STORAGE BED SUBGRADES TO A MINIMUM. INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
D. INSTALL 3" LIFT PEA GRAVEL LAYER TO PREVENT MIGRATION OF FINES FROM THE FILTER COARSE (NHDOT 304.1)
E. INSTALL FILTER COARSE (NHDOT 304.1 SAND LESS THAN 2% FINES) IN 2, 4" LIFTS. LIGHTLY COMPACT EACH LAYER WITH EQUIPMENT, KEEPING EQUIPMENT MOVEMENT OVER STORAGE BED SUBGRADES TO A MINIMUM. INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
F. INSTALL CHOKER BASE COURSE (AASHTO # 57 STONE) AGGREGATE EVENLY OVER SURFACE OF STONE BED, SUFFICIENT TO ALLOW PLACEMENT OF PAVEMENT, AND NOTIFY ENGINEER FOR APPROVAL. CHOKER BASE COURSE SHALL BE SUFFICIENT TO ALLOW FOR EVEN PLACEMENT OF ASPHALT BUT NO THICKER THAN 4-INCH IN DEPTH.
4. SURROUNDING AREAS
A. BEFORE THE POROUS PAVEMENT IS INSTALLED, ADJACENT SOIL AREAS SHOULD BE SLOPED AWAY FROM ALL PAVEMENT EDGES, TO PREVENT POTENTIAL SEDIMENT FROM WASHING ONTO THE PAVEMENT SURFACE.
B. TO ACCOMPLISH THIS, A SEQUENCE OF SWALES SHOULD BE EXCAVATED INTO ALL EARTHEN (UNPAVED) AREAS AT LEAST ON THE UPHILL SIDES OF THE PAVEMENT, AND WHERE NECESSARY, TO BELOW THE CURB OR PAVEMENT ELEVATION. ITS SHAPE AND PAINTINGS CAN BE INTEGRATED WITH THE PROJECT'S ARCHITECTURE AND LANDSCAPE, AND DESIGNED TO MAXIMIZE INFILTRATION. SWALE OVERFLOW, WHEN IT OCCURS, CAN BE DISCHARGED FROM ONE SWALE TO ANOTHER BY CONNECTING PIPES UNDER DRIVEWAYS.
C. BUILDING BASEMENTS AND FOUNDATIONS SHOULD BE WATERPROOFED AS NECESSARY, WHERE THE POROUS PAVEMENT ABUTS BUILDINGS.
B. POROUS ASPHALT
1. TRANSPORTING MATERIAL
A. TRANSPORTING OF MIX TO THE SITE SHALL BE IN VEHICLES WITH SMOOTH, CLEAN DUMP BEDS THAT HAVE BEEN SPRAYED WITH A NON-PETROLEUM RELEASE AGENT.
B. THE MIX SHALL BE COVERED DURING TRANSPORT TO CONTROL COOLING.
2. POROUS BITUMINOUS ASPHALT SHALL NOT BE STORED IN EXCESS OF 90 MINUTES BEFORE PLACEMENT.
3. ASPHALT PLACEMENT
A. THE POROUS BITUMINOUS SURFACE COURSE SHALL BE LAID IN ONE LIFT DIRECTLY OVER THE CHOKER COARSE, FILTER COARSE, AND CRUSHED STONE BASE COURSE TO A 4-INCH FINISHED THICKNESS. THE SURFACE CAN BE LAID IN TWO LIFTS IF SECOND LIFT IS DONE WITHIN 10 BUSINESS DAYS AND THE INITIAL COURSE IS CLEAN AND FREE OF SEDIMENT.
B. THE LAYING TEMPERATURE OF THE BITUMINOUS MIX SHALL BE BETWEEN 300 DEGREES FAHRENHEIT AND 350 DEGREES FAHRENHEIT (BASED ON THE RECOMMENDATIONS OF THE ASPHALT SUPPLIER).
C. INSTALLATION SHALL TAKE PLACE WHEN AMBIENT TEMPERATURES ARE 55 DEGREES FAHRENHEIT OR ABOVE, WHEN MEASURED IN THE SHADE AWAY FROM ARTIFICIAL HEAT.
D. THE USE OF A REMIXING MATERIAL TRANSFER DEVICE BETWEEN THE TRUCKS AND THE PAVER IS HIGHLY RECOMMENDED TO ELIMINATE COLD LUMPS IN THE MIX.
E. THE POLYMER-MODIFIED ASPHALT IS VERY DIFFICULT TO RAKE, A WELL-HEATED SCREED SHOULD BE USED TO MINIMIZE THE NEED FOR RAKING.
F. COMPACTION OF THE SURFACE COURSE SHALL TAKE PLACE WHEN THE SURFACE IS COOL ENOUGH TO RESIST A 10-TON ROLLER. (140°F. SURFACE TEMPERATURE) ONE OR TWO PASSES IS ALL THAT IS REQUIRED FOR PROPER COMPACTION. MORE ROLLING COULD CAUSE A REDUCTION IN THE SURFACE POROSITY WHICH IS UNACCEPTABLE.
4. IN THE EVENT CONSTRUCTION SEDIMENT IS INADVERTENTLY DEPOSITED ON THE FINISHED POROUS SURFACE, IT MUST BE IMMEDIATELY REMOVED BY VACUUMING.
5. AFTER FINAL ROLLING, NO VEHICULAR TRAFFIC OF ANY KIND SHALL BE PERMITTED ON THE SURFACE UNTIL COOLING AND HARDENING HAS TAKEN PLACE, AND IN NO CASE WITHIN THE FIRST 48 HOURS. PROVIDE BARRIERS AS NECESSARY AT NO EXTRA COST TO THE OWNER TO PREVENT VEHICULAR USE; REMOVE AT THE DISCRETION OF THE ENGINEER.
6. STRIPING PAINT FOR TRAFFIC LANES AND PARKING BAYS SHALL BE CHLORINATED RUBBER BASE, FACTORY MIXED, NON-BLEEDING, FAST DRYING, BEST QUALITY, WHITE TRAFFIC PAINT WITH A LIFE EXPECTANCY OF TWO YEARS UNDER NORMAL TRAFFIC USE.
A. PAVEMENT-MARKING PAINT; LATEX, WATER-BASE EMULSION, READY-MIXED, COMPLYING WITH PS TT-P-1952.
B. SWEEP AND CLEAN SURFACE TO ELIMINATE LOOSE MATERIAL AND DUST.
C. PAINT 4 INCH WIDE TRAFFIC LANE STRIPING IN ACCORDANCE WITH LAYOUTS OF PLAN. APPLY PAINT WITH MECHANICAL EQUIPMENT TO PRODUCE UNIFORM STRAIGHT EDGES. APPLY IN TWO COATS AT MANUFACTURER'S RECOMMENDED RATES. PROVIDE CLEAR, SHARP LINES USING WHITE TRAFFIC PAINT, INSTALLED IN ACCORDANCE WITH NHDOT SPECIFICATIONS.
6. WORK SHALL BE DONE EXPERTLY THROUGHOUT, WITHOUT STAINING OR INJURY TO OTHER WORK. TRANSITION TO ADJACENT IMPERVIOUS BITUMINOUS PAVING SHALL BE MERGED NEATLY WITH FLUSH, CLEAN LINE. FINISHED PAVING SHALL BE EVEN, WITHOUT POCKETS, AND GRADED TO ELEVATIONS SHOWN ON DRAWING.
7. POROUS PAVEMENT BEDS SHALL NOT BE USED FOR EQUIPMENT OR MATERIALS STORAGE DURING CONSTRUCTION, AND UNDER NO CIRCUMSTANCES SHALL VEHICLES BE ALLOWED TO DEPOSIT SOIL ON PAVED POROUS SURFACES.
8. REPAIR OF DAMAGED PAVING
A. ANY EXISTING PAVING ON OR ADJACENT TO THE SITE THAT HAS BEEN DAMAGED AS A RESULT OF CONSTRUCTION WORK SHALL HE REPAIRED TO THE SATISFACTION OF THE OWNER WITHOUT ADDITIONAL COST TO THE OWNER.
9. FIELD QUALITY CONTROL
A. THE FULL PERMEABILITY OF THE PAVEMENT SURFACE SHALL BE TESTED BY APPLICATION OF CLEAN WATER AT THE RATE OF AT LEAST 5 GPM OVER THE SURFACE, USING A HOSE OR OTHER DISTRIBUTION DEVISE. WATER USED FOR THE TEST SHALL BE CLEAN, FREE OF SUSPENDED SOLIDS AND DELETERIOUS LIQUIDS AND WILL BE PROVIDED AT NO EXTRA COST TO THE OWNER. ALL APPLIED WATER SHALL INFILTRATE DIRECTLY WITHOUT PUDDLE FORMATION OR SURFACE RUNOFF, AND SHALL BE OBSERVED BY THE ENGINEER AND OWNER.
B. TEST IN-PLACE BASE AND SURFACE COURSE FOR COMPLIANCE WITH REQUIREMENTS FOR THICKNESS AND SURFACE SMOOTHNESS. REPAIR OR REMOVE AND REPLACE UNACCEPTABLE WORK AS DIRECTED BY THE OWNER.
C. SURFACE SMOOTHNESS: TEST FINISHED SURFACE FOR SMOOTHNESS AND EVEN DRAINAGE, USING A TEN-FOOT TO CENTERLINE OF PAVED AREA. SURFACE WILL NOT BE ACCEPTED IF GAPS OR RIDGES EXCEED 3116 OF AN INCH.

MIX SUMMARY
POROUS ASPHALT PAVEMENT MIX
THE UNH STORM WATER CENTER
WEDNESDAY, NOVEMBER 01, 2006

POROUS ASPHALT SHALL BE FOUR INCHES THICK WITH A BITUMINOUS MIX OF 6% TO 6.5% BY WEIGHT DRY AGGREGATE AND AIR VOIDS OF 18-22% IN ACCORDANCE WITH ASTM D6390, DRAIN DOWN OF THE BINDER SHALL BE NO GREATER THAN 0.3%. IF MORE ABSORPTIVE AGGREGATES, SUCH AS LIMESTONE, ARE USED IN THE MIX, THEN THE AMOUNT OF BITUMEN IS TO BE BASED ON THE TESTING PROCEDURES OUTLINED IN THE NATIONAL ASPHALT PAVEMENT ASSOCIATION'S INFORMATION SERIES 131 – "PERVIOUS ASPHALT PAVEMENTS" (2003) OR NHDOT EQUIVALENT. MIX SUPPLIERS MAY HAVE A SUITABLE IN-HOUSE SPECIFICATION FOR OPEN GRADED FRICTION COURSE (OGFC) THAT CAN BE USED.

USE NEAT ASPHALT BINDER MODIFIED WITH AN ELASTOMERIC POLYMER TO PRODUCE A BINDER MEETING THE REQUIREMENTS OF PG 76-22 AS SPECIFIED IN AASHTO MP- I. THE ELASTOMER POLYMER SHALL BE STYRENE-BUTADIENE-STYRENE (SBS), OR APPROVED EQUAL, APPLIED AT A RATE OF 3% BY WEIGHT OF THE TOTAL BINDER. THE COMPOSITE MATERIALS SHALL BE THOROUGHLY BLENDED AT THE ASPHALT REFINERY OR TERMINAL PRIOR TO BEING LOADED INTO THE TRANSPORT VEHICLE. THE POLYMER MODIFIED ASPHALT BINDER SHALL BE HEAT AND STORAGE STABLE.

AGGREGATE SHALL BE MINIMUM 90% CRUSHED MATERIAL AND HAVE A GRADATION OF:

COMPOSITION OF MIXTURE
SIEVE SIZE (INCH/MM)PERCENT PASSING0.75/191000.50/12.585-1000.375/9.555-75NO.4/4.7510-25NO.8/2.365-10NO.200/0.0752-4TOTAL AGGREGATE93-.5-94% ASPHALT OF TOTAL MIX6-6.5
ADD HYDRATED LIME AT A DOSAGE RATE OF 1.0% BY WEIGHT OF THE TOTAL DRY AGGREGATE TO MIXES CONTAINING GRANITE. HYDRATED LIME SHALL MEET THE REQUIREMENTS OF ASTM C 977. THE ADDITIVE MUST BE ABLE TO PREVENT THE SEPARATION OF THE ASPHALT BINDER FROM THE AGGREGATE AND ACHIEVE A REQUIRED TENSILE STRENGTH RATIO (TSR) OF AT LEAST 80% ON THE ASPHALT MIX WHEN TESTED IN ACCORDANCE WITH AASHTO T 283. THE ASPHALTIC MIX SHALL BE TESTED FOR ITS RESISTANCE TO STRIPPING BY WATER IN ACCORDANCE WITH ASTM D-1664. IF THE ESTIMATED COATING AREA IS NOT ABOVE 95 PERCENT, ANTI-STRIPPING AGENTS SHALL BE ADDED TO THE ASPHALT.

NO WORK SHALL BE STARTED UNTIL THE CONTRACTOR HAS SUBMITTED AND THE ENGINEER HAS APPROVED A MIX DESIGN INCLUDING THE PERCENTAGE OF EACH INGREDIENT INCLUDING BINDER, POLYMER, AND THE JOB-MIX FORMULA FROM SUCH A COMBINATION. THE JOB-MIX FORMULA SHALL ESTABLISH A SINGLE PERCENTAGE OF AGGREGATE PASSING SIEVE AND A SINGLE PERCENTAGE OF BITUMINOUS MATERIAL TO BE ADDED TO THE AGGREGATE. NO CHANGE IN THE JOB-MIX FORMULA MAY BE MADE WITHOUT WRITTEN APPROVAL OF THE ENGINEER. THE JOB-MIX FORMULA MUST FALL WIT H THE MASTER RANGE SPECIFIED IN COMPOSITION OF MIXTURE TABLE.

TRANSPORTING MATERIAL: SEE CONSTRUCTION AND INSTALL SPECIFICATIONS

FOR QUESTIONS ON MIX SPECIFICATIONS CONTACT ROBERT ROSEEN, PHD, AT THE UNH STORM WATER CENTER. 603-862-4024.

MAINTENANCE SPECIFICATIONS FOR POROUS ASPHALT PARKING LOT AREAS AND LOW VOLUME ROADS
THE UNH STORM WATER CENTER
WEDNESDAY, NOVEMBER 01, 2006

THE FOLLOWING RECOMMENDATIONS WILL HELP ASSURE THAT THE PAVEMENT IS MAINTAINED TO PRESERVE ITS HYDROLOGIC EFFECTIVENESS.

WINTER MAINTENANCE:

1. SANDING FOR WINTER TRACTION IS PROHIBITED. DEICING IS PERMITTED (NAC1, MGC12, OR EQUIVALENT). REDUCED SALT APPLICATION IS POSSIBLE AND CAN BE A COST SAVINGS FOR WINTER MAINTENANCE. NONTOXIC, ORGANIC DEICERS, APPLIED EITHER AS BLENDED, MAGNESIUM CHLORIDE-BASED LIQUID PRODUCTS OR AS PRETREATED SALT, ARE PREFERABLE.
2. PLOWING IS ALLOWED, BLADE SHOULD BE SET APPROXIMATELY 1" ABOVE ROAD SURFACE. ICE AND LIGHT SNOW ACCUMULATION ARE GENERALLY NOT AS PROBLEMATIC AS FOR STANDARD ASPHALT. SNOW WILL ACCUMULATE DURING HEAVIER STORMS AND SHOULD BE PLOWED.

ROUTINE MAINTENANCE;

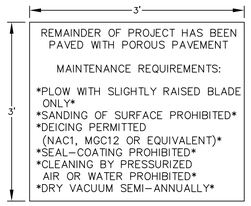
1. ASPHALT SEAL COATING MUST BE ABSOLUTELY FORBIDDEN. SURFACE SEAL COATING IS NOT REVERSIBLE.
2. THE PAVEMENT SURFACE SHOULD BE VACUUMED 2 OR 3 TIMES PER YEAR, AND AT ANY ADDITIONAL TIMES SEDIMENT IS SPILLED, ERODED, OR TRACKED ONTO THE SURFACE.
3. PLANTED AREAS ADJACENT TO PERVIOUS PAVEMENT SHOULD BE WELL MAINTAINED TO PREVENT SOIL WASHOUT ONTO THE PAVEMENT. IF ANY BARE SPOTS OR ERODED AREAS ARE OBSERVED WITHIN THE PLANTED AREAS, THEY SHOULD BE REPLANTED AND/OR STABILIZED AT ONCE.
4. IMMEDIATELY CLEAN ANY SOIL DEPOSITED ON PAVEMENT. SUPERFICIAL DIRT DOES NOT NECESSARILY CLOG THE PAVEMENT VOIDS. HOWEVER, DIRT THAT IS GROUND IN REPEATEDLY BY TIRES CAN LEAD TO CLOGGING. THEREFORE, TRUCKS OR OTHER HEAVY VEHICLES SHOULD BE PREVENTED FROM TRACKING OR SPILLING DIRT ONTO THE PAVEMENT.
5. DO NOT ALLOW CONSTRUCTION STAGING, SOIL/MULCH STORAGE, ETC. ON UNPROTECTED PAVEMENT SURFACE
6. REPAIRS: POTHOLES OF LESS THAN 50 SQUARE FEET CAN BE PATCHED BY ANY MEANS SUITABLE WITH STANDARD PAVEMENT OR A PERVIOUS MIX IS PREFERRED. FOR AREAS GREATER THAN 50 SQ. FT. IN NEED OF REPAIR, APPROVAL OF PATCH TYPE SHOULD BE SOUGHT FROM A QUALIFIED ENGINEER. ANY REQUIRED REPAIR OF DRAINAGE STRUCTURES SHOULD BE DONE PROMPTLY TO ENSURE CONTINUED PROPER FUNCTIONING OF THE SYSTEM.
7. WRITTEN AND VERBAL COMMUNICATION TO THE POROUS PAVEMENT'S FUTURE OWNER SHOULD MAKE CLEAR THE PAVEMENT'S SPECIAL PURPOSE AND SPECIAL MAINTENANCE REQUIREMENTS SUCH AS THOSE LISTED HERE.
8. A PERMANENT SIGN SHOULD BE ADDED AT THE ENTRANCE AND END OF THE POROUS ASPHALT AREA TO INFORM RESIDENTS AND MAINTENANCE STAFF OF THE SPECIAL NATURE AND PURPOSE OF THE PAVEMENT, AND ITS SPECIAL MAINTENANCE REQUIREMENTS.

SIGNAGE SHOULD READ AS FOLLOWS:

REMAINDER OF PROJECT HAS BEEN
PAVED WITH POROUS PAVEMENT

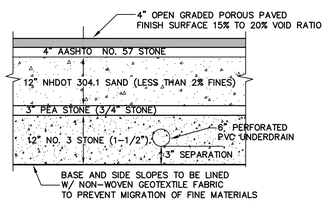
MAINTENANCE REQUIREMENTS:

1. PLOW WITH SLIGHTLY RAISED BLADE ONLY
2. SANDING OF SURFACE PROHIBITED
3. DEICING PERMITTED (NAC1, MGC12 OR EQUIVALENT)
4. SEAL-COATING PROHIBITED
5. CLEANING BY PRESSURIZED AIR OR WATER PROHIBITED
6. DRY VACUUM SEMI-ANNUALLY



SIGN DETAIL

NOT TO SCALE



NOTES:
1. 4" FRICTION COARSE CONSISTS OF COARSER AGGREGATE AND STIFFER BINDER. SEE TABLE
2. A WORKING COURSE 4" THICK CONSISTS OF AASHTO NO. 57 STONE.
3. 6" UNDERDRAIN TO BE SET ABOVE CRUSHED GRAVEL BOTTOM TO ALLOW FOR STORAGE AND INFILTRATION. 2.4" OF WATER CAN BE DETAINED UNDER THE UNDERDRAIN.
4. TOP COAT SHOULD BE VACUUMED A MINIMUM OF TWICE A YEAR.
5. ADJACENT AREAS TO POROUS PAVEMENT SHOULD BE GRADED AWAY FROM PAVEMENT TO PREVENT SEDIMENT FROM RUNNING ONTO POROUS AREA AND CLOGGING PORES. ROOF RUNOFF CAN FLOW ONTO PAVEMENT OR INTO SUBBASE MATERIAL.

POROUS PAVEMENT

NOT TO SCALE

PREPARED FOR:
FOSS MOTORS
133 PORTSMOUTH AVE.
(NH ROUTE 108)
EXETER, NEW HAMPSHIRE

BA BEALS ASSOCIATES, PLLC
70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX. 603-583-4863

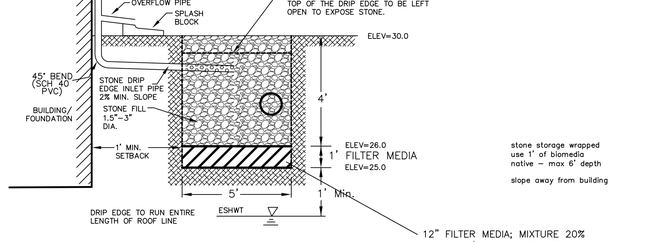
MINIMUM COMPACTION REQUIREMENTS

COMPACTION SHALL BE PERFORMED TO NOT LESS THAN NINETY-FIVE PERCENT (95%) MAXIMUM DENSITY AS DETERMINED IN A LABORATORY COMPACTION TEST, PERFORMED UNDER THE SPECIFICATIONS OF ASTM D1557-64T, METHOD "A", (BACK FILL MATERIAL OF A STONY NATURE SHALL BE TESTED UNDER METHOD "C" OR "D" OF THE SAME ASTM DESIGNATION) OR OTHER APPROVED ASTM OR AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) SPECIFICATIONS. SUCH TEST SHALL ALSO BE USED FOR ESTABLISHING THE OPTIMUM MOISTURE CONTENT OF THE MATERIALS. THE IN-PLACE DRY UNIT WEIGHT OF THE COMPACTED MATERIALS SHALL BE DETERMINED BY METHODS SPECIFIED UNDER ASTM "D" 1556-58T OR OTHER APPROVED ASTM OR AASHTO SPECIFICATIONS. THE IN-PLACE COMPACTION TEST TO BE CONSISTENT WITH THE APPROVED LABORATORY COMPACTION TEST.

TABLE 5. POROUS ASPHALT MIX DESIGN CRITERIA.

SIEVE SIZE (INCH/MM)	PERCENT PASSING (%)
0.75/19	100
0.50/12.5	85-100
0.375/9.5	55-75
NO.4/4.75	10-25
NO.8/2.36	5-10
NO.200/0.075 (#200)	2-4
BINDER CONTENT (AASHTO T164)	6.0-6.5%
AIR VOID CONTENT BY CORELOK (ASTM D6752)*	16.0-20.0%
AIR VOID CONTENT BY PARAFFIN WAX (AASHTO T275)*1	8.0-22.0%
DRAINDOWN (ASTM D6390)**	<= 0.3 %
RETAINED TENSILE STRENGTH (AASHTO 283)***	>= 80 %

* EITHER METHOD IS ACCEPTABLE
**CELLULOSE OR MINERAL FIBERS MAY BE USED TO REDUCE DRAINDOWN.
***IF THE TSR (RETAINED TENSILE STRENGTH) VALUES FALL BELOW 80% WHEN TESTED PER NAPA IS 131 (WITH A SINGLE FREEZE THAW CYCLE RATHER THAN 5). STEP 4, THE CONTRACTOR SHALL EMPLOY AN ANTISTRIP ADDITIVE, SUCH AS HYDRATED LIME (ASTM C977) OR A FATTY AMINE, TO RAISE THE TSR VALUE ABOVE 80%.



STONE DRIP EDGE SECTION

NOT TO SCALE

REVISIONS:	DATE:

POROUS PAVEMENT & INFILTRATION TRENCH DETAILS

COMMERCIAL DEVELOPMENT
ROUTE 108
EXETER, NH
TAX MAP 52, LOT 112.2

DATE:	MAY 3, 2024	SCALE:	NTS
PROJ. NO:	NH-1471	SHEET NO.	5

PREPARED FOR:

FOSS MOTORS
133 PORTSMOUTH AVE.
(NH ROUTE 108)
EXETER, NEW HAMPSHIRE

BA BEALS ASSOCIATES, PLLC
70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX. 603-583-4863

GTE ROAD

PROPOSED 22,500 SF
1-STORY ACESSORTY USE
STORAGE BUILDING
FFE = 31.0

STONE RET. WALL

HH

40' WETLAND BUFFER (TYP.)

75' WETLAND BUFFER (TYP.)

WATER WORKS POND ROAD

WHEELWRIGHT CREEK

APPROX. LOCATION OF DAM

WATER WORKS POND

LEGEND

PERMANENT WETLAND IMPACT
5,556 SF

TEMPORARY WETLAND BUFFER IMPACT
304 SF

PERMANENT WETLAND BUFFER IMPACT
45,420 SF

STATE OF NEW HAMPSHIRE
CHRISTIAN O. SMITH
No. 9900
PROFESSIONAL ENGINEER

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

REVISIONS:	DATE:

WETLAND IMPACT PLAN

COMMERCIAL DEVELOPMENT
ROUTE 108
EXETER, NH
TAX MAP 52, LOT 112.2

DATE: MAY 3, 2024	SCALE: 1" = 30'
PROJ. NO: NH-1471	SHEET NO. 6

PREPARED FOR:
FOSS MOTORS
133 PORTSMOUTH AVE.
(NH ROUTE 108)
EXETER, NEW HAMPSHIRE

BA BEALS ASSOCIATES, PLLC
70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
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PHONE: 603-583-4860,
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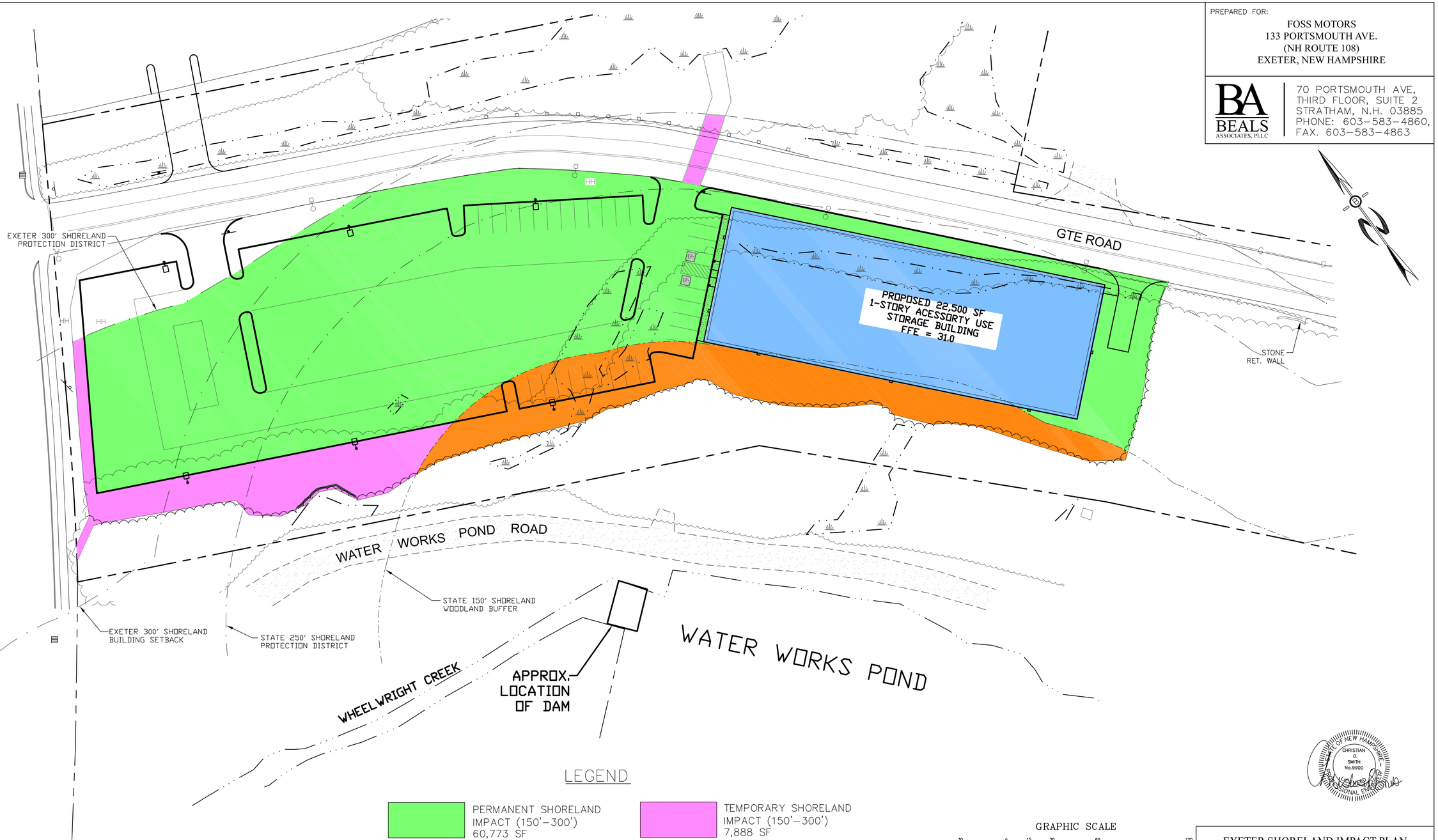


LEGEND

- PERMANENT SHORELAND IMPACT (150'-300') 60,773 SF
- TEMPORARY SHORELAND IMPACT (150'-300') 7,888 SF
- PERMANENT SHORELAND IMPACT (0'-150') 12,268 SF
- SPD BUILDING SETBACK 22,500 SF

STATE OF NEW HAMPSHIRE
CHRISTIAN O. SMITH No.9900
PROFESSIONAL ENGINEER

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

REVISIONS:	DATE:

EXETER SHORELAND IMPACT PLAN

COMMERCIAL DEVELOPMENT
ROUTE 108
EXETER, NH
TAX MAP 52, LOT 112.2

DATE: MAY 3, 2024	SCALE: 1" = 30'
PROJ. NO: NH-1471	SHEET NO. 7

BA BEALS ASSOCIATES, PLLC
Land Planning • Civil Engineering
Landscape Architecture • Septic Design & Evaluation
Stratham, NH

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

May 15, 2024

Re: Foss Motors – 127 Portsmouth Avenue – Commercial Site Plan
Response to Second Round of TRC Comments

Dear Mr. Chairman & Members of the Board:

We are in receipt of a second review letter from the Town Planner summarizing the Technical Review Committee's comments, dated April 16, 2024 and we offer the following responses to the noted comments. Each comment is followed by our response in **bold**.

FIRE DEPARTMENT COMMENTS

Comments provided to Applicant's representative by Deputy Fire Chief Jason Fritz at the March 7th, 2024 TRC meeting. Requested information regarding the storage of electric vehicles and charging stations.
Response:

CONSERVATION & SUSTINABILITY PLANNER COMMENTS

- The project as presented does not meet stormwater requirements. Presented a solution that provides an average of 60% removal efficiency, however our regulations require a min of 60%.
  Response: We have revised the design to use porous pavement which removes 60% of Total Nitrogen per NHDES when greater than 75 feet from surface water.

- Please ensure the wetland scientist stamp on the plans and wetland who prepared the report match.
  Response: The wetland scientist stamps have been coordinated to match.

- I can find no record of a project that proposed impervious cover of this amount in our shoreland district after regulations were adopted.
  Response: Comment noted.

- I would encourage the wetland scientist report be revised removing vague language as it

introduces confusion. Example: Unclear if wetlands B4-6 are manmade. If there is not definitive evidence, our buffer requirements must be adhered to. Additionally, it is not clear if all wetlands were surveyed for vernal pool indicator species. The statement "potentially adequate pool" is a value judgement and not a regulatory term. Either VP indicator species were present or not. They should all be checked.

Response: The language in the wetland report has been revised and the revised report is submitted as part of this response.

- Not previously shared at the meeting: There is no key to understand the different symbols for the significant trees on the plans submitted today.

  Response: Large trees are all shown on the Existing Conditions Plan. Those to be removed are coded with (TBR) after the size of the tree while those to remain just contain the size. The TBR abbreviation is listed in the legend.

Thank you for your timely and professional review of the submitted plans. We hope the information provided address your concerns. Please feel free to contact our office if you have any additional question and/or comments.

Very Truly Yours,

BEALS ASSOCIATES, PLLC

Christian O. Smith

Christian O. Smith, PE
Principal

BA BEALS ASSOCIATES, PLLC
Land Planning • Civil Engineering
Landscape Architecture • Septic Design & Evaluation
Stratham, NH

Exeter Planning Board, May 15, 2024
David Sharples, Town Planner
Town Planning Office, Town of Exeter
10 Front Street
Exeter, NH 03833

Re: Foss Motors – 127 Portsmouth Avenue – Commercial Site Plan
Response to Second Round of Underwood Engineers Comments

Dear Mr. Chairman & Members of the Board:

We are in receipt of a 2nd review letter from Underwood Engineers, dated March 8, 2024 and we offer the following responses to the noted comments. Each comment is followed by our response in ***italicized bold***.

Site Plan

10. The proposed usage of vehicle storage near sensitive wetlands areas and in the Shoreland Zone is concerning. Please confirm the entirety of the paved area will be curbed for containment of leaks / spills. Please note vertical granite curb is required. Will there be any other resources kept onsite or procedures in place for immediate spill response?

Beals Response: The entire vehicle storage area will be paved and surrounded with vertical granite curbing. No other resources will be stored onsite.

While UE recognizes that there are no standard requirements for spill response equipment, we recommend that spill response kits be maintained on site. We defer further comment to the Conservation Commission.

Response: We have added note #14 to the Site Plan (Sheet 3) indicating that a spill response kit be maintained on site.

11. It has been indicated that vehicles may be stored inside the building. No architectural plans have been received. It is unclear how and where the vehicles will be driven into the building.

Beals Response: Architectural elevations for the proposed building are being prepared and will be submitted under separate cover.

The original comment still stands.

Response: Elevations and a floor plan have been provided as part of this submission.

12. The radii at all driveway entrances should be labeled.

Beals Response: Driveway radii have been added to the plan.

We recommend increasing the radii at the westernmost site entrance to improve access for large vehicles, including fire apparatus.

Response: Radii at the westernmost site entrance has been increased from 10-feet to 15-feet.

15. Please clarify the need for 3 access points from the southern side of GTE Road.

Beals Response: We are continuing to review the requirement for the access road around the building with both the fire department and the owner. This access road will be limited as much as possible.

The original comment still stands.

Response: The easternmost access point behind the building has been removed, leaving 2 access points to the project site.

16. The description of the project says the lot will be for display and storage of vehicles. Will the lot be open to customers to view the vehicles? If customers and staff will be walking between the existing Foss Motors lot, across GTE Road, is a crosswalk warranted? If this is the case, the proximity of the crossing to the intersection of Route 108 and GTE Road is concerning for pedestrian safety, and consideration should be given to moving the entrance further away from Route 108.

Beals Response: While the majority of customers will continue to visit the main dealership site, customers would also be welcome at the new site. Pedestrian travel to the site is not anticipated. Customers will be able to drive to the site or ne taken by a salesperson's vehicle. The location of the access driveway was reviewed during the design. Shifting the driveway further to the east increases that slope to over 17% due to the existing grades.

Our original comment still stands.

Response: This will be discussed with the Planning Board.

17. If trucks or other vehicles are stacked to make a left-hand turn onto Route 108, visibility of vehicles turning onto GTE Road may be limited for drivers crossing from the existing Foss Motors lot to the new lot.

Beals Response: We are expecting very low volume of traffic to this access driveway and do not anticipate an unusual conflict at this location.

The original comment still stands. We defer further comment to the Planning Board.

Response: This will be discussed with the Planning Board.

Grading and Drainage Plan

21. Has the existing 36" drainage pipe crossing the lot been inspected to assess condition?

Beals Response: A note has been added to the plans indicated the existing 36" drainage pipe shall be inspected.

The new note should also indicate that any issues found during inspection should be relayed to the design engineer for resolution.

Response: Note 8 on the Grading, Drainage, & Erosion Control Plan (Sheet 3) has been revised to include the above comment.

23. The grade of the short drive between the existing Foss motors lot and GTE Road is 13% and sheets water directly into GTE Road. Crowning of this drive is recommended. Additionally, the rapid grade change may cause some vehicles to bottom out.

Beals Response: The access drive has been crowned.

Follow-up comment: Consider improving the transition grades on both ends for a smoother profile.

Response: The transition grades at the top and bottom of the access drive have been smoothed for more gentle transitions.

Utility Plan

26. Indicate the distance, in both directions, of the nearest inline valves on the Route 108 water main relative to the proposed connection.

Beals Response: We will continue to coordinate with Exeter DPW to define the water location and requirements.

Acknowledged. We note the proposed connection shown should be pulled back to the existing water main shown.

Response: The water line connection has been pulled back to the existing main.

Stormwater Design and Modeling

34. Provide a narrative and calculations for pollutant loading and removal volumes. We note the Stormtech (detention) systems do not meet required removals for nitrogen or phosphorous.

Beals Response: ADS BayFilters have been added to the outlet control structure along with test results showing at least a 60% removal for total nitrogen and total phosphorous to meet Town regulations.

Acknowledged. Please see comments regarding the BayFilters below.

Response: The BayFilters have been removed from the drainage design in lieu of porous pavement.

35. The volume of water and the rate leaving the site during the 2-year storm is greater in the post-development condition. This is prohibited in the Town of Exeter per the site and subdivision regulations, section 9.3.1.5.

Beals Response: The post-development conditions have been revised to reflect the plan changes.

Acknowledged. Please see the new comment below regarding increased volumes leaving the site.

Response: The volume and rate of water leaving the site now comply to the Town of Exeter regulations.

New Comments

38. Crossing #1, as noted on the Grading, Drainage, and Erosion Control sheet, indicates 4 inches of vertical clearance, with the existing PVC sewer over the proposed HDPE drain line. This clearance conflict will require additional detail and construction measures to attain proper compaction. Notes requiring that the joints of the respective pipes be appropriately staggered and consideration for sleeving the sewer should be given.

Response: Note #21 on the Utility Plan (Sheet 4) has been added to provide additional notes regarding the crossing.

39. Revise the label for the DMH labeled as "DMH #XXX" downstream of the outlet control structure on the Grading, Drainage, and Erosion Control Plan.

Response: This has been revised as part of the new drainage layout.

40. The angle of the sewer service should be revised to direct the flow downstream.

Response: The angle of the sewer line has been revised.

41. The revised location of the Stormtech system, directly over the existing 36" culvert, renders the existing pipe inaccessible for replacement or repair. More importantly, there is no way to know how the existing pipe was installed, or what compaction level the material received during installation or during the years since installation. The cross culvert, like all culverts, is a conduit risk for rapid conveyance of water through the ground. Positioning a detention basin above the culvert presents an increased risk of slope failure should the detained water find a path to the culvert to follow if the membrane layer tears or fails. Please discuss.

Response: The StormTech system has been removed from the drainage design in lieu of porous pavement.

42. The Stormtech detail sheets notes several items to be designed/determined by engineer, including manifold and underdrain sizing, depth of stone under the system, the outlet structure with weir and DMH's with elevated bypass manifold. The submission, including the plans as appropriate, should include the required information for those elements.

Response: The StormTech system has been removed from the drainage design in lieu of porous pavement.

43. The project will result in a significant increase in stormwater run-off volume leaving the site and onto the adjacent town-owned parcel. Volume increases 45% (or approximately 169,000 gallons) during a 10-year storm. UE notes that the 100-year flood elevation of Wheelwright Creek is elevation 8 and that the downstream culvert inverts are around elevation 7. Modeling the cross-parcel culvert, taking the flood elevation into account and including any tailwater effects from flood water will have on its capacity, is prudent. Please discuss the effect of the increase in volume of stormwater exiting the site on the town-owned parcel.

Response: The stormwater volume leaving the site is now being reduced in all storm events with the introduction of porous pavement and the stone infiltration trench, along with the removal of the access driveway around the building.

44. It is unclear what storm the BayFilters are designed for. Please clarify in the stormwater report.

Response: The BayFilters have been removed from the drainage design in lieu of porous pavement.

45. We note any pollutant removal capability of the BayFilters is heavily contingent on system maintenance. As the filters clog over time, pollutant removal decreases. The BayFilters are not addressed in the I&M plan. It is noted maintenance requires use of a vacuum truck and filter replacement. What assurances can be provided to the Town that the units will receive proper and timely maintenance?

Response: The BayFilters have been removed from the drainage design in lieu of porous pavement.

46. The following details should be added to the plans:

a. BayFilter details

b. Outlet control structure, plan view and elevation, with dimensions

c. Concrete washout pit

Responses:

a. The BayFilters have been removed from the drainage design in lieu of porous pavement.

b. The outlet control structure has been removed from the drainage design.

c. Rather than proposing a concrete washout pit within the shoreland district, note #15 has been added to the Site Plan (Sheet 3) to remove excess concrete from the site.

Thank you for your timely and professional review of the submitted plans. We hope the information provided address your concerns. Please feel free to contact our office if you have any additional question and/or comments.

Very Truly Yours,

BEALS ASSOCIATES, PLLC

Christian O. Smith

Christian O. Smith, PE
Principal

COMMERCIAL SITE PLAN
127 PORTSMOUTH AVENUE
(NH ROUTE 108)
TAX MAP 52, LOT 112.2

FEBRUARY 13, 2004

NOT FOR CONSTRUCTION

CIVIL ENGINEERS:

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

STATE OF NEW HAMPSHIRE
CHRISTIAN O. SMITH
No. 9900
PROFESSIONAL ENGINEER

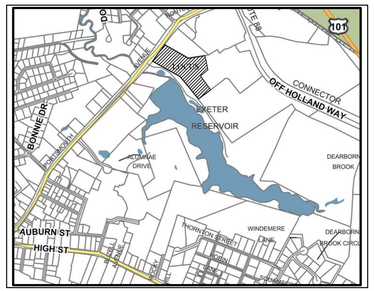
LAND SURVEYORS:

DOUCET SURVEY INC
Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857-0163
Voice (603) 659-6560, Data (603) 659-4118

WETLAND/SOIL CONSULTANT:

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

LOCATION MAP



SCALE: 1"=600'

DRAWING INDEX

PLAN SET LEGEND

5/8" REBAR	●	VGC	VERTICAL GRANITE CURB
DRILL HOLE	◉	OVERHEAD ELEC. LINE	
CONC. BOUND	⊡	FENCING	x
UTILITY POLE		DRAINAGE LINE	D
DRAIN MANHOLE	Ⓓ	SEWER LINE	S
SEWER MANHOLE	Ⓢ	GAS LINE	
EXISTING LIGHT POLE	☼	WATER LINE	W
EXISTING CATCH BASIN	□	STONE WALL	
PROPOSED CATCH BASIN	⊞	TREE LINE	
WATER GATE	W	ABUT. PROPERTY LINES	
WATER SHUT OFF	W	EXIST. PROPERTY LINES	
HYDRANT		BUILDING SETBACK LINES	
PINES, ETC.		EXIST. CONTOUR	100
MAPLES, ETC.		PROP. CONTOUR	100
EXIST. SPOT GRADE	96x69	SOIL LINES	
PROP. SPOT GRADE	96x69		
DOUBLE POST SIGN			
SINGLE POST SIGN			

RECORD OWNER/APPLICANT

MENISCUS FINANCIAL HOLDINGS, LLC
133 PORTSMOUTH AVE.
(NH ROUTE 108)
EXETER, NEW HAMPSHIRE

REQUIRED STATE AND FEDERAL PERMITS

CONSTRUCTION GENERAL PERMIT
NHDES ALTERATION OF TERRAIN PERMIT
NHDES SHORELAND PERMIT
NHDES WETLANDS BUREAU DREDGE AND FILL

PB CASE # 23-7
CHAIRMAN SIGNATURE:

	REVISIONS:	DATE:
1	REVISED PER REVIEW COMMENTS	3/28/24
2	REVISED PER REVIEW COMMENTS	5/15/24
3		
4		
5		

NH-1471 PROPOSED SITE PLAN

NOTES:

1. REFERENCE: TAX MAP 52, LOT 112-2
   127 PORTSMOUTH AVE.
   EXETER, NH
2. TOTAL PARCEL AREA: 271,768 SQ. FT. OR 6.24 AC.
3. OWNER OF RECORD & APPLICANT: MENISCUS FINANCIAL HOLDINGS LLC
   131 PORTSMLUTH AVENUE
   EXETER, NH 03833
   603-772-7777
   R.C.R.D. BOOK 6449 PAGE 841
4. FIELD SURVEY PERFORMED BY M.A.W. & C.J.V. (DOUCET SURVEY) DURING OCTOBER 2023 USING A TOTAL STATION AND A SURVEY GRADE GPS WITH A DATA COLLECTOR AND AN AUTO LEVEL LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.
5. HORIZONTAL DATUM BASED ON NAD83(2011) NEW HAMPSHIRE STATE PLANE COORDINATE ZONE (2800) DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.
6. VERTICAL DATUM IS BASED ON APPROXIMATE NAVD88(GEOID18) (±.2') DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.
7. JURISDICTIONAL WETLANDS DELINEATED BY GOVE ENVIRONMENTAL SERVICES DURING OCTOBER 2023 USING THE FOLLOWING STANDARDS:
   - REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
   - FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.2. UNITED STATES DEPARTMENT OF AGRICULTURE (2018).
   - NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE. 2020 VERSION 4, FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA.
   - U.S. ARMY CORPS OF ENGINEERS NATIONAL WETLAND PLANT LIST, VERSION 3.5. (2020)

   ALSO SEE SEPARATE "SITE SPECIFIC SOIL" NOTE ON THIS SHEET.
8. FLOOD HAZARD ZONE:"X", PER FIRM MAP #33015C0406E, DATED 5/17/05.
9. PROPER FIELD PROCEDURES WERE FOLLOWED IN ORDER TO GENERATE CONTOURS AT 2' INTERVALS. ANY MODIFICATION OF THIS INTERVAL WILL DIMINISH THE INTEGRITY OF THE DATA, AND DOUCET SURVEY WILL NOT BE RESPONSIBLE FOR ANY SUCH ALTERATION PERFORMED BY THE USER.
10. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON OBSERVED PHYSICAL EVIDENCE AND PAINT MARKS FOUND ON-SITE.
11. THE ACCURACY OF MEASURED UTILITY INVERTS AND PIPE SIZES/TYPES IS SUBJECT TO NUMEROUS FIELD CONDITIONS, INCLUDING; THE ABILITY TO MAKE VISUAL OBSERVATIONS, DIRECT ACCESS TO THE VARIOUS ELEMENTS, MANHOLE CONFIGURATION, ETC.
12. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH AND IN RELATION TO THE CURRENT LEGAL DESCRIPTION, AND IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP, OR DEFINE THE LIMITS OF TITLE.
13. ALL UNDERGROUND UTILITIES (ELECTRIC, GAS, TEL. WATER, SEWER DRAIN SERVICES) ARE SHOWN IN SCHEMATIC FASHION, THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATIONS FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE AT 1-888-DIG-SAFE.
14. THE PARCLE IN IN ZONE C-2 (HIGHWAY COMMERCIAL) AND WITHIN THE WETLAND CONSERVATION AND SHORELAND PROTECTION OVERLAY DISTRICTS.

LEGEND

- EXISTING LOT LINE
- APPROXIMATE ABUTTERS LINE
- EXISTING EASEMENT LINE
- 100 MAJOR CONTOUR LINE
- 98 MINOR CONTOUR LINE
- RETAINING WALL
- POST & RAIL FENCE
- GUARDRAIL
- OHW OVERHEAD WIRE
- D DRAIN LINE
- S SEWER LINE
- G GAS LINE
- C CABLE/INTERNET LINE
- TREE LINE
- SHRUB LINE
- WETLAND BUFFER 40'
- WETLAND BUFFER 75'
- 300' SHORELAND PROTECTION DISTRICT LINE (WATERWORKS POND SETBACK)
- 150' SHORELAND SETBACK (STREAM BUFFER)
- PROTECTED SHORELAND AREA
- EDGE OF DELINEATED WETLAND
- WETLAND AREA
- SOIL LINE-SEE NOTE
- LANDSCAPED AREA
- CRUSHED STONE
- PILE
- BOUND FOUND (BND. FND.)
- DRILL HOLE FOUND (D.H.F.)
- PIPE/ROD FOUND
- 4"X4" GRANITE BOUND SET
- 5/8" REBAR W/ID CAP SET
- UTILITY POLE
- UTILITY POLE & GUY WIRE
- LIGHT POLE W/ARM
- LIGHT POLE (MULTI-ARMS)
- CATCH BASIN
- FES FLARED END SECTION
- SEWER MANHOLE
- FIRE HYDRANT
- WATER GATE VALVE
- HH HAND HOLE
- UNIDENTIFIED UTILITY BOX
- SIGN
- SIGN (TWO POSTS)
- BOLLARD
- DECIDUOUS TREE
- DECIDUOUS BUSH
- WETLAND FLAG
- CONC. CONCRETE
- D.H. DRILL HOLE
- DSWL DASHED SINGLE WHITE LINE
- DYL DOUBLE YELLOW LINE
- EP EDGE OF PAVEMENT
- GRAN. GRANITE
- HDPE HIGH DENSITY POLYETHYLENE PIPE
- HDWL HEADWALL
- I.P.F. IRON PIPE FOUND
- NHHB NEW HAMPSHIRE HIGHWAY BOUND
- PVC POLYVINYL CHLORIDE PIPE
- RET. WALL RETAINING WALL
- SGC SLOPED GRANITE CURB
- SWL SINGLE WHITE LINE
- TOP TOP OF PIPE
- TYP. TYPICAL
- UNK UNKNOWN
- (X) INVERT I.D. CONNECTION UNKNOWN
- (TBR) TREE TO BE REMOVED
- 600B/ffccc SOIL TYPE-SEE NOTE

ADDITIONAL ABUTTERS ACROSS ROUTE 108:

TAX MAP 52 LOT 53
EXETER LUMBER
120 PORTSMOUTH AVE.
EXETER, NH 03833

TAX MAP 52 LOT 52
108 HEIGHTS LLC.
c/o TWO GUYS SELF STORAGE
65 POST RD.
HOOKSETT, NH 03106

TAX MAP 52 LOT 51
SAF REALTY LLC.
c/o STEVES DINNER INC.
100 PORTSMOUTH AVE.
EXETER, NH 03833

TAX MAP 52 LOT 50
AA FIELD REALTY LLC.
98 PORTSMOUTH AVE.
EXETER, NH 03833

TAX MAP 65 LOT 123
TOWN OF EXETER
10 FRONT ST.
EXETER, NH 03833

TAX MAP 65 LOT 123-1
EXETER SPORTSMANS CLUB
PO BOX 1936
EXETER, NH 03833

REFERENCE PLANS:

1. "PLAN OF LAND FOR SYLVANIA ELECTRIC PRODUCTS INC EXETER NEW HAMPSHIRE" DATED DECEMBER 1962 BY G. L. DAVIS & ASSOCIATES R.C.R.D. PLAN DRAWER III, SEC. H., PLAN #1.
2. "THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY PLANS PROPOSED FEDERAL AID PROJECT STP-X-5153(005) N.H. PROJECT NO. 10025B NH ROUTE 108 TOWN OF EXETER COUNTY OF ROCKINGHAM" DATED 9/25/02 ON FILE AT THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION.
3. "ALTA/NSPS LAND TITLE SURVEY FOR TIGHE & BOND OF OSRAM SYLVANIA INC. ROUTE 108 (PORTSMOUTH AVENUE), HOLLAND WAY & ROUTE 101 EXETER, NEW HAMPSHIRE" DATED OCTOBER 31, 2019 BY DOUCET SURVEY, LLC, NOT RECORDED.
4. "SUBDIVISION PLAN OF OSRAM SYLVANIA INC. ROUTE 108 (PORTSMOUTH AVENUE), ROUTE 88 CONNECTOR (HOLLAND WAY) & ROUTE 101 TAX MAP 51 LOT 17 & TAX MAP 51 LOT 112 EXETER, NEW HAMPSHIRE" DATED OCTOBER 20, 2020 BY DOUCET SURVEY, LLC, R.C.R.D. PLAN D-42514.
5. "CORRECTIVE LOT LINE ADJUSTMENT PLAN (SEE NOTE 11) OF TAX MAP 51 LOT 112 AND TAX MAP 51 LOT 112-1 FOR OSRAM SYLVANIA, INC. ROUTE 108 (PORTSMOUTH AVENUE) & ROUTE 88 CONNECTOR (HOLLAND WAY) EXETER, NEW HAMPSHIRE" DATED JUNE 25, 2021 BY DOUCET SURVEY, LLC, R.C.R.D. PLAN D-42853.
6. "SUBDIVISION PLAN FOR 131 PORTSMOUTH AVENUE, LLC OF TAX MAP 52 LOT 112 131 PORTSMOUTH AVENUE ROUTE 108 (PORTSMOUTH AVENUE) & ROUTE 88 CONNECTOR (HOLLAND WAY) EXETER, NEW HAMPSHIRE" DATE OCTOBER 4, 2022 BY DOUCET SURVEY, R.C.R.D. PLAN D-43579.
7. "STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS PLANS OF PROPOSED FEDERAL AID PRIMARY PROJECT F018-2(1) N.H. NO. P-2428 SOUTH SIDE ROAD TOWNS OF EXETER AND STRATHAM COUNTY OF ROCKINGHAM" DATED 4-14-55 ON FILE AT THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION.
8. "ALTA/NSPS LAND TITLE SURVEY FOR 131 PORTSMOUTH AVE, LLC" REVISED THROUGH OCTOBER 25, 2022 BY DOUCET SURVEY, INC., NOT RECORDED.
9. "EASEMENT PLAN TO BENEFIT TAX MAP 51 LOT 112 AND TAX MAP 51 LOT 112-1 FOR OSRAM SYLVANIA, INC." DATED APRIL 2021 BY DOUCET SURVEY, R.C.R.D. PLAN D-42854.
10. "EASEMENT PLAN TO BENEFIT TAX MAP 51 LOT 112A & TAX MAP 51 LOT 112B FOR 131 PORTSMOUTH AVE, LLC" REVISED THROUGH SEPTEMBER 14, 2022 BY DOUCET SURVEY, R.C.R.D. PLAN D-43581.

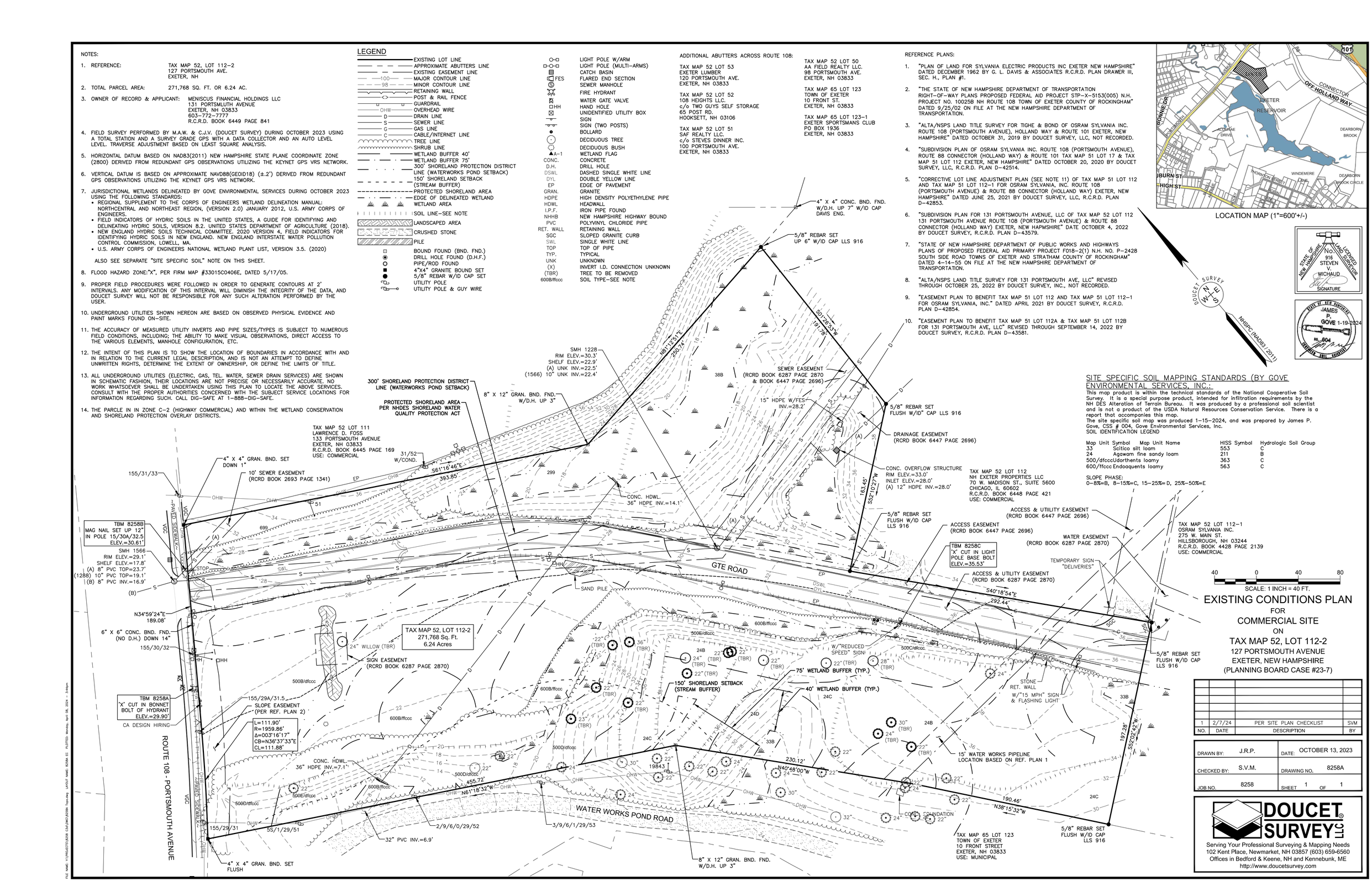
LOCATION MAP (1"=600'+/-)

SITE SPECIFIC SOIL MAPPING STANDARDS (BY GOVE ENVIRONMENTAL SERVICES, INC.):

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 map was produced 1-15-2024, and was prepared by James P. Gove, CSS # 004, Gove Environmental Services, Inc.
SOIL IDENTIFICATION LEGEND

Map Unit Symbol	Map Unit Name	HISS Symbol	Hydrologic Soil Group
33	Scitico silt loam	553	C
24	Agawam fine sandy loam	211	B
500/dfcccUdorthents loamy		363	C
600/ffccc Endoaquents loamy		563	C

SLOPE PHASE:
0-8%=B, 8-15%=C, 15-25%=D, 25%-50%=E



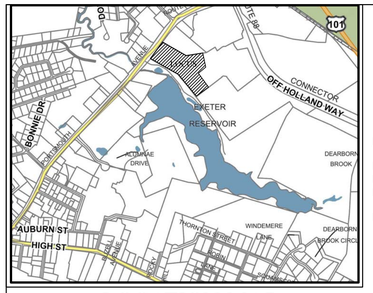
40 0 40 80
SCALE: 1 INCH = 40 FT.

EXISTING CONDITIONS PLAN
FOR
COMMERCIAL SITE
ON
TAX MAP 52, LOT 112-2
127 PORTSMOUTH AVENUE
EXETER, NEW HAMPSHIRE
(PLANNING BOARD CASE #23-7)

NO.	DATE	DESCRIPTION	BY
1	2/7/24	PER SITE PLAN CHECKLIST	SVM

DRAWN BY: J.R.P.	DATE: OCTOBER 13, 2023
CHECKED BY: S.V.M.	DRAWING NO. 8258A
JOB NO. 8258	SHEET 1 OF 1

DOUCET SURVEY LLC
Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857 (603) 659-6560
Offices in Bedford & Keene, NH and Kennebunk, ME
http://www.doucetsurvey.com



LOCATION MAP
1"=1500'

SITE DATA:

LOCATION:	127 PORTSMOUTH AVENUE, EXETER, NEW HAMPSHIRE
ZONING DISTRICTS:	HIGHWAY COMMERCIAL (C-2) WETLANDS CONSERVATION OVERLAY SHORELAND PROTECTION
EXISTING USE:	ACCESS ROAD & LANDSCAPED AREA
PROPOSED USE:	ACCESS ROAD, VEHICLE STORAGE/DISPLAY, & ACCESSORY USE STORAGE BUILDING

PARKING REQUIREMENTS:

MIN. PARKING SPACE SIZE:	9'x19'
MIN. AISLE WIDTH:	22 FT (90-DEGREE PARKING)
MIN. ADA SPACES:	2 (1 VAN ACCESSIBLE)

REQUIRED PARKING RATIO:
STORAGE/WAREHOUSE = 1 SPACE FOR EACH EMPLOYEE AT MAXIMUM SHIFT
(TOTAL PARKING AREA SHALL NOT BE LESS THAN 25% OF THE BUILDING FLOOR AREA)
REQUIRED = 25% OF 22,500 SF = 5,625 SF OF PARKING
PROVIDED = 33 SPACES (33 SPACES X 9'X19' = 5,643 SF OF PARKING)
EV SPACES = MIN. 2% = 1 SPACE WITH EV CHARGING READINESS

DIMENSIONAL REQUIREMENTS

MINIMUM LOT DIMENSIONS	ALLOWED/REQUIRED
LOT AREA	20,000 SF
LOT WIDTH	150 FT
LOT DEPTH	100 FT
FRONTAGE	150 FT

MINIMUM YARD SETBACKS	ALLOWED/REQUIRED
FRONT	50 FT
SIDE - ONE/BOTH	20/40 FT
REAR	50 FT

MISCELLANEOUS STANDARDS	
MAXIMUM BUILDING HEIGHT	35 FT
MAXIMUM BUILDING COVERAGE	30 %
MINIMUM OPEN SPACE	15 %

LEGEND

POROUS PAVEMENT

STANDARD PAVEMENT

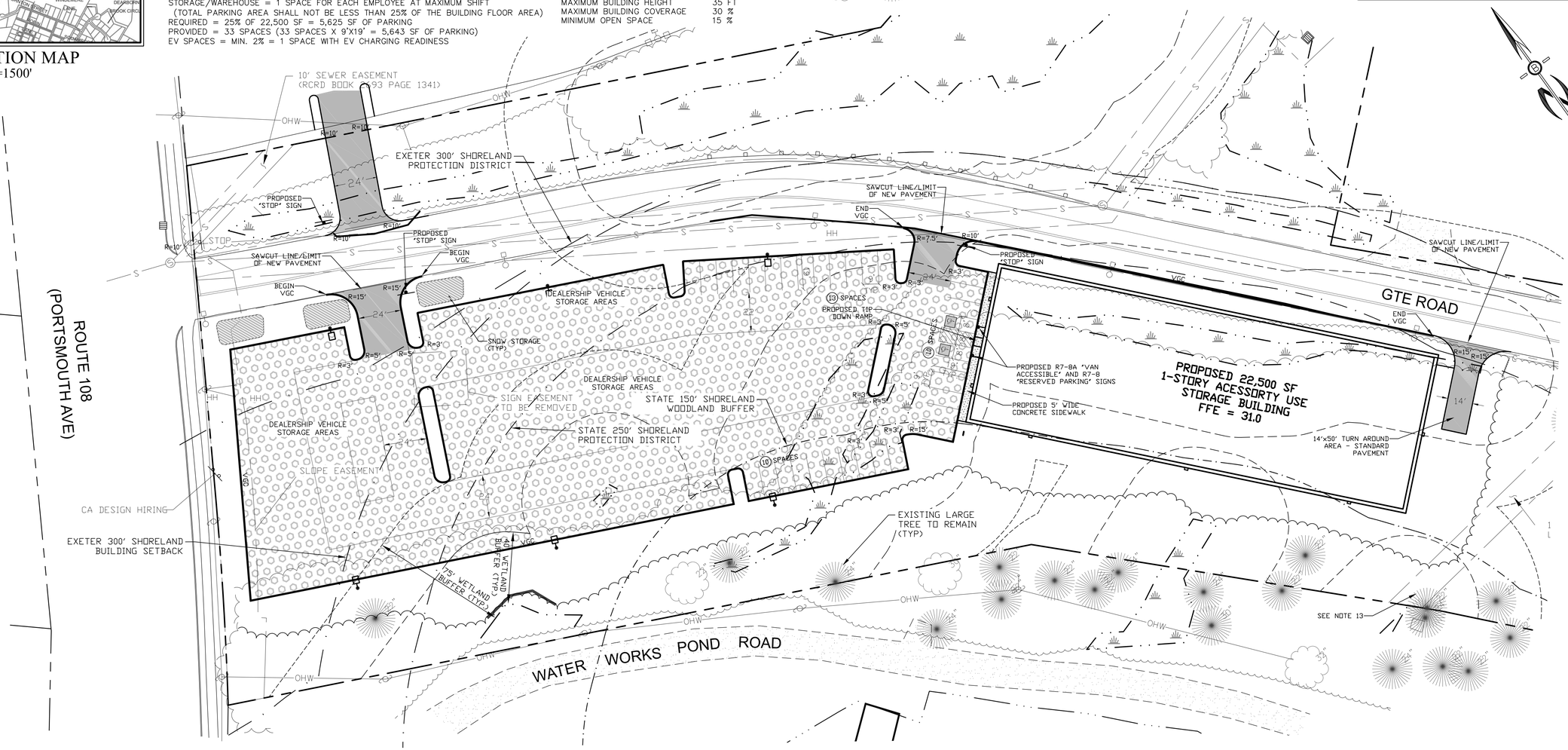
LARGE TREES TO REMAIN

TOWN NOTES

1. THE LANDOWNER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL WETLANDS REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
2. THE APPLICANT HAS DESIGNED THIS SITE TO SAFELY ACCOMMODATE MAXIMUM SIZE VEHICLES AND TRUCKS, (DESIGN VEHICLE IS THE EXETER LADDER TRUCK OR 35' BOX TRUCK) EITHER DELIVERING TO, OR USING THE PROPERTY.
3. ALL SNOW SHALL BE STORED IN THE AREA(S) DEPICTED ON THIS PLAN AS SNOW STORAGE AREAS. IN THE EVENT THAT THE AREA(S) APPROVED FOR SNOW STORAGE BECOME FULL, THE OWNER SHALL REASONABLY REMOVE EXCESS SNOW FROM THE SITE, AND SHALL NOT ALLOW SNOW TO BE STORED WITHIN TRAVEL AISLES.
4. ALL WASTE MATERIALS AND RECYCLABLE SHALL BE CONTAINED WITHIN THE BUILDING(S) OR APPROVED STORAGE FACILITIES AND SHALL NOT BE OTHERWISE STORED ON THE PROPERTY. REFUSE COLLECTION WILL BE BY DUMPSTER AS NEEDED.
5. ALL WATER, SEWER, ROAD (INCLUDING PARKING LOT), AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 9.5 GRADING, DRAINAGE, AND EROSION & SEDIMENT CONTROL AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER, NEW HAMPSHIRE.

PREPARED FOR:
FOSS MOTORS
133 PORTSMOUTH AVE.
(NH ROUTE 108)
EXETER, NEW HAMPSHIRE

BA BEALS ASSOCIATES, PLLC
70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX. 603-583-4863



NOTES:

1. THE PURPOSE OF THIS PLAN IS TO SHOW A 22,500 SF ACCESSORY USE STORAGE BUILDING WITH ASSOCIATED PARKING SPACES AND VEHICLE STORAGE/DISPLAY AREA.
2. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF EXETER STANDARDS AND REGULATIONS.
3. ALL WATER, SEWER, ROAD (INCLUDING PARKING LOT), AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 9.3 STORMWATER MANAGEMENT STANDARDS, STORMWATER MANAGEMENT PLAN, STORMWATER POLLUTION PREVENTION PLAN, AND EROSION AND SEDIMENT CONTROL STANDARDS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER, NEW HAMPSHIRE", SEE SECTION 9.14 ROADWAYS, ACCESS POINTS, AND FIRE LANES AND SECTION 9.13 PARKING AREAS FOR EXCEPTIONS.
4. IN ACCORDANCE WITH SITE PLAN REVIEW & SUBDIVISION REGULATIONS SECTIONS 7.15.10 AND 9.3.4 THE APPLICANT SHALL PROVIDE THE TOWN WITH THREE COPIES OF THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND ALSO ENSURE THAT ONE COPY REMAINS ON SITE.
5. ALL PROPOSED SIGNAGE SHALL CONFORM WITH THE TOWN ZONING REGULATIONS UNLESS A VARIANCE IS OTHERWISE REQUESTED.
6. TOTAL PROPOSED DISTURBANCE FOR CONSTRUCTION = 2.7± ACRES.
7. UPON COMPLETION OF CONSTRUCTION AND PRIOR TO RELEASE OF BOND, THE APPLICANT SHALL SUBMIT A LETTER TO THE TOWN, SIGNED AND STAMPED BY THE DESIGN ENGINEER, WHO MUST BE A LICENSED PROFESSIONAL ENGINEER IN NH, STATING CONSTRUCTION HAS BEEN COMPLETED IN CONFORMANCE WITH THE APPROVED PLANS.
8. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN LOCATED FROM FIELD OBSERVATIONS AND THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. BEALS ASSOCIATES OR ANY OF THEIR EMPLOYEES TAKE NO RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES OR UTILITIES NOT SHOWN, THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND UTILITIES OR STRUCTURES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 1-888-DIG-SAFE.
9. THIS PLAN HAS BEEN PREPARED FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
10. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
11. THIS SITE IS NOT LOCATED IN THE 100 YEAR FLOOD ZONE.
12. ALL PROPOSED CURBING SHALL BE VERTICAL GRANITE.
13. WATER MAIN WITHIN THE WATER WORKS EASEMENT SHALL BE MARKED OUT PRIOR TO CONSTRUCTION AND MARKINGS MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION. WATER MAIN SHALL BE PROTECTED DURING CONSTRUCTION.
14. A SPILL RESPONSE KIT SHALL BE MAINTAINED ON SITE.
15. ALL EXCESS CONCRETE FROM SLAB POUR SHALL BE REMOVED FROM THE SITE AND DISPOSED OF ACCORDING TO LOCAL, STATE, AND FEDERAL REGULATIONS.
16. JURISDICTIONAL WETLANDS DELINEATED BY GOVE ENVIRONMENTAL SERVICES DURING OCTOBER 2023 USING THE FOLLOWING STANDARDS:
    - REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0), JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
    - FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.2, UNITED STATES DEPARTMENT OF AGRICULTURE (2018).
    - NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE, 2020 VERSION 4, FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA.
    - U.S. ARMY CORPS OF ENGINEERS NATIONAL WETLAND PLANT LIST, VERSION 3.5 (2020).

STATE OF NEW HAMPSHIRE
BRENDAN J. QUIGLEY
No. 249
CERTIFIED WETLAND SCIENTIST
5-13-24

STATE OF NEW HAMPSHIRE
CHRISTIAN O. SMITH
No. 9900
PROFESSIONAL ENGINEER

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

REVISIONS:	DATE:
REVISED PER REVIEW COMMENTS	5/15/24
REVISED PER REVIEW COMMENTS	5/3/24
REVISED PER REVIEW COMMENTS	4/9/24
REVISED PER REVIEW COMMENTS	3/28/24

SITE PLAN

COMMERCIAL DEVELOPMENT
ROUTE 108
EXETER, NH
TAX MAP 52, LOT 112.2

DATE: FEBRUARY 2024	SCALE: 1" = 30'
PROJ. NO: NH-1471	SHEET NO. 2

SITE SPECIFIC SOIL MAPPING STANDARDS:

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 WAS PRODUCED JANUARY 15, 2024, AND WAS PREPARED BY JAMES P. GOVE, CSS #004, GOVE ENVIRONMENTAL SERVICES, INC.

SOIL IDENTIFICATION LEGEND:

MAP UNIT SYMBOL	MAP UNIT NAME	HISS SYMBOL	HYDROLOGIC SOIL GROUP
24	AGAWAM FINE SANDY LOAM	211	B
33	SCITICO SILT LOAM	553	C
500/dfccc	UDORTHENTS LOAMY	363	C
600/ffccc	ENDOAQUENTS LOAMY	563	C

SLOPE PHASE:
0-8% = B, 8-15% = C, 15-25% = D, 25-50% = E, >50% = F

SOIL INFORMATION OUTSIDE OF THE MAPPED AREA WAS OBTAINED FROM USDA NATURAL RESOURCES CONSERVATION SERVICE (NRCS):

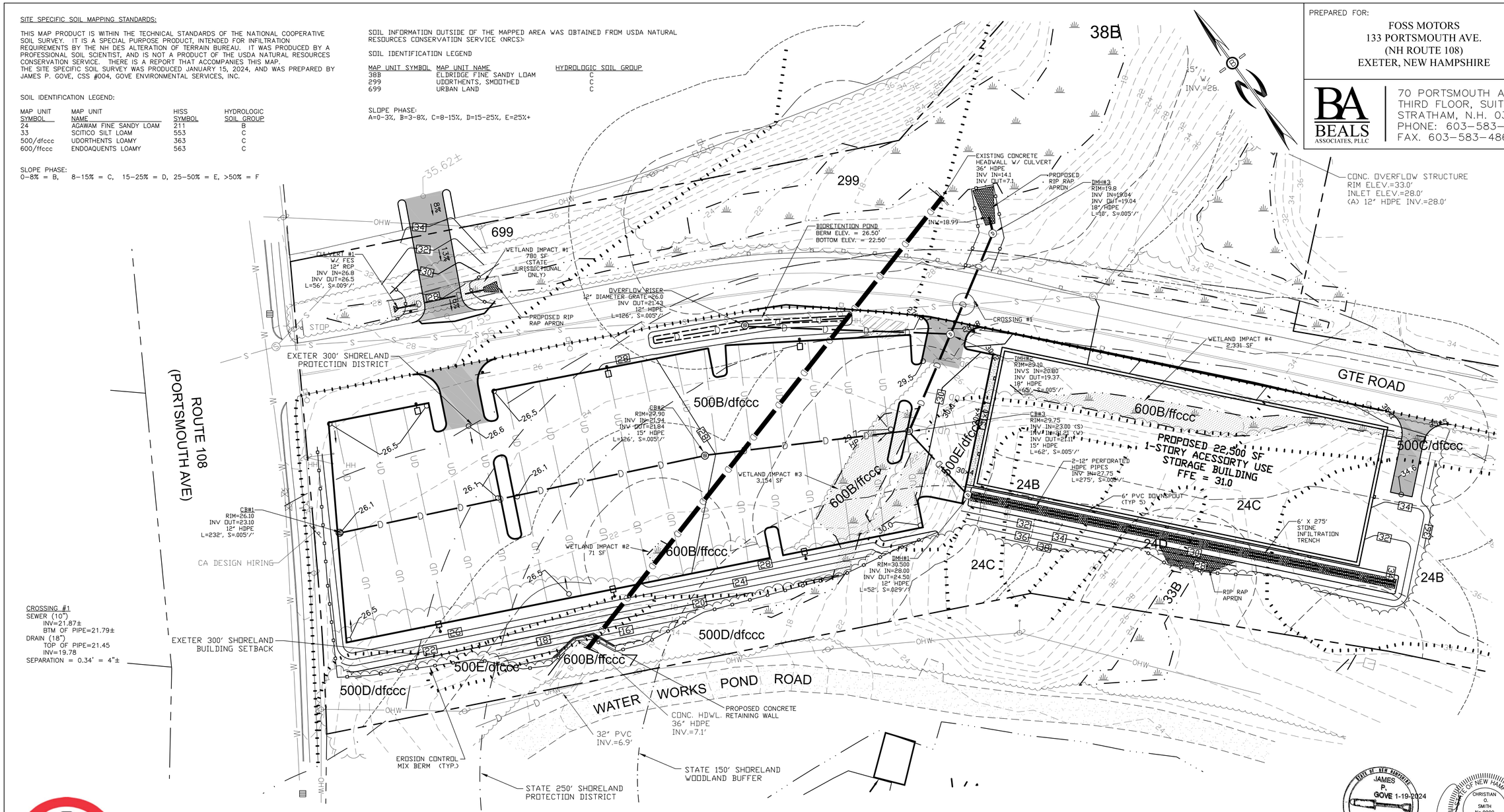
SOIL IDENTIFICATION LEGEND

MAP UNIT SYMBOL	MAP UNIT NAME	HYDROLOGIC SOIL GROUP
38B	ELDRIDGE FINE SANDY LOAM	C
299	UDORTHENTS, SMOOTHED	C
699	URBAN LAND	C

SLOPE PHASE:
A=0-3%, B=3-8%, C=8-15%, D=15-25%, E=25%+

PREPARED FOR:
FOSS MOTORS
133 PORTSMOUTH AVE.
(NH ROUTE 108)
EXETER, NEW HAMPSHIRE

BA BEALS ASSOCIATES, PLLC
70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX. 603-583-4863



UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER BEALS ASSOCIATES, NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 1-888-DIG-SAFE (1-888-344-7233) AND EXETER DPW (603) 773-6157.

NOTES:

1. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER SO THAT EROSION AND AIR AND WATER POLLUTION WILL BE MINIMIZED.
2. STRAW BALES SHALL BE ANCHORED INTO THE SOIL USING 2" X 2" STAKES DRIVEN THROUGH THE BALES AND AT LEAST 18 INCHES IN TO THE SOIL.
3. SEEDING, FERTILIZING, AND MULCHING SHALL CONFORM TO THE RECOMMENDATIONS IN THE APPROPRIATED VEGETATIVE BMP.
4. THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES THE CONTRACTOR SHALL TAKE PRECAUTIONS AND INSTRUCTIONS FROM THE PLANNING DEPARTMENT IN ORDER TO PREVENT, ABATE AND CONTROL THE EMISSION OF FUGITIVE DUST INCLUDING BUT NOT LIMITED TO WETTING, COVERING, SHIELDING, OR VACUUMING.
5. THE NH COMMISSIONER OF AGRICULTURE PROHIBITS THE COLLECTION, POSSESSION, IMPORTATION, TRANSPORTATION, SALE, PROPAGATION, TRANSPLANTATION, OR CULTIVATION OF PLANTS BANNED BY NH LAW RSA 430:53 AND NH CODE ADMINISTRATIVE RULES AGR 3800. THE PROJECT SHALL MEET ALL REQUIREMENTS AND THE INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
6. THE CONSTRUCTION SITE OPERATOR AND OWNER SHALL SUBMIT A NOTICE OF INTENT (NOI) TO USEPA, WASHINGTON, DC, STORMWATER NOTICE PROCESSING CENTER AT LEAST FORTEEN DAYS PRIOR TO COMMENCEMENT OF WORK ON SITE. EPA WILL POST THE NOI AT http://cfpubl.epa.gov/npdes/stormwater/noi/noisearch.cfm. AUTHORIZATION IS GRANTED UNDER THE PERMIT ONCE THE NOI IS SHOWN IN "ACTIVE STATUS".
7. ALL DRAINAGE STRUCTURES AND SWALES SHALL BE BUILT AND STABILIZED PRIOR TO HAVING RUNOFF DIRECTED TO THEM.
8. PRIOR TO THE START OF CONSTRUCTION, THE EXISTING 36-INCH HDPE DRAIN LINE THROUGH THE SITE SHALL BE INSPECTED TO VERIFY CONDITION. RESULTS SHALL BE PROVIDED TO THE DESIGN ENGINEER TO DETERMINE IF ISSUES NEED TO BE RESOLVED.

PERMANENT WETLAND IMPACT =	5,556 SF (TOWN)
PERMANENT WETLAND IMPACT =	6,336 SF (STATE)
TEMPORARY BUFFER IMPACT =	304 SF
PERMANENT BUFFER IMPACT =	45,420 SF
TEMPORARY SHORELAND PROTECTION IMPACT =	19,857 SF
PERMANENT SHORELAND PROTECTION IMPACT =	79,589 SF
SHORELAND PROTECTION IMPERVIOUS AREA =	79,589 SF (44.3%)

STATE OF NEW HAMPSHIRE JAMES P. GOVE 1-19-2024 No. 004 CERTIFIED SOIL SCIENTIST

STATE OF NEW HAMPSHIRE CHRISTIAN O. SMITH No.9900 PROFESSIONAL ENGINEER

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

REVISIONS:	DATE:
REVISED PER REVIEW COMMENTS	5/15/24
REVISED PER REVIEW COMMENTS	5/3/24
REVISED PER REVIEW COMMENTS	4/9/24
REVISED PER REVIEW COMMENTS	3/28/24

GRADING, DRAINAGE, & EROSION CONTROL PLAN

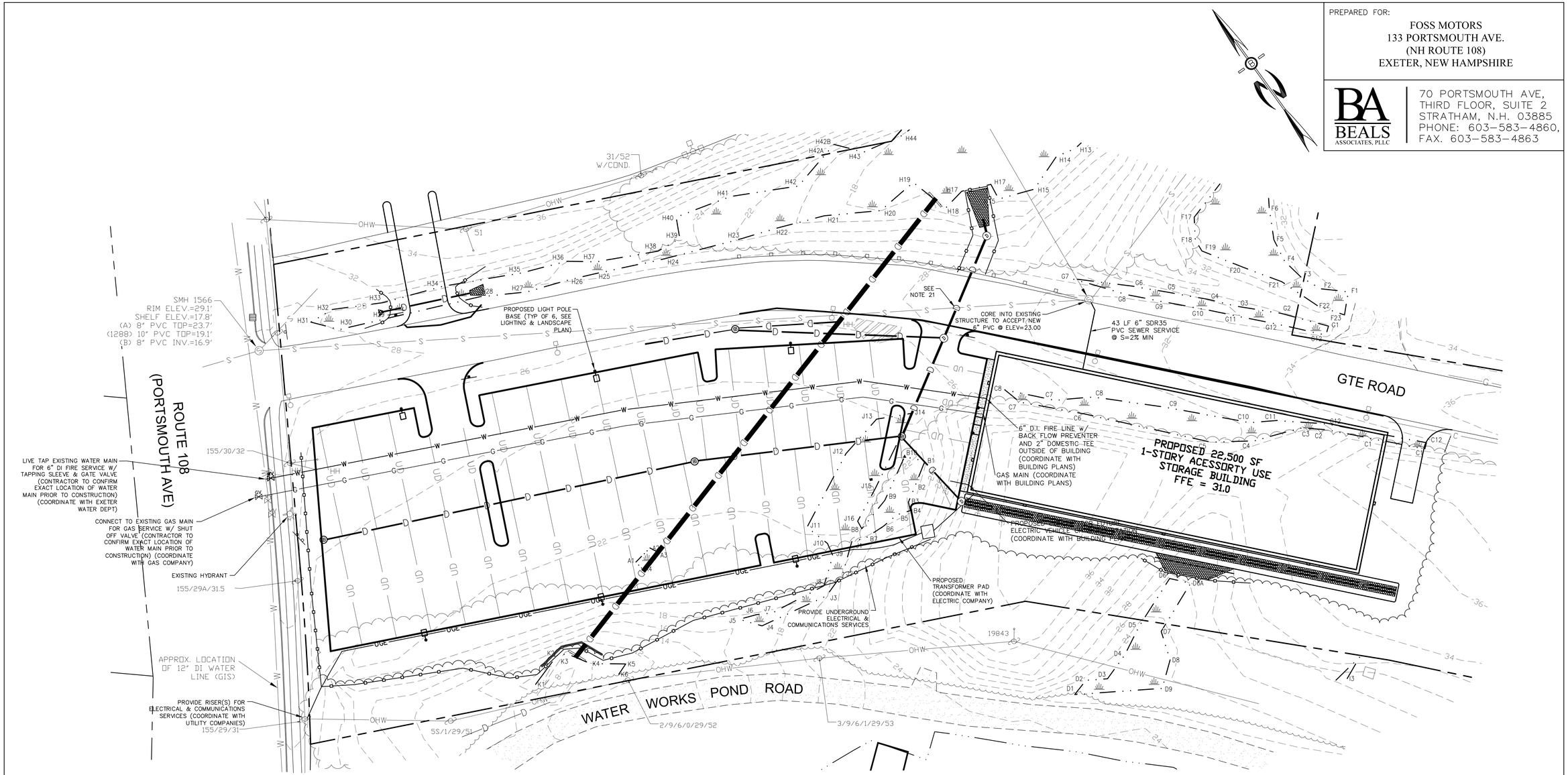
COMMERCIAL DEVELOPMENT
ROUTE 108
EXETER, NH
TAX MAP 52, LOT 112.2

DATE: FEBRUARY 2024	SCALE: 1" = 30'	
PROJ. NO: NH-1471	SHEET NO. 3	

PREPARED FOR:

FOSS MOTORS
133 PORTSMOUTH AVE.
(NH ROUTE 108)
EXETER, NEW HAMPSHIRE

BA BEALS ASSOCIATES, PLLC
70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX. 603-583-4863



UTILITY NOTES:

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, FEES, AND BONDS.
2. THE CONTRACTOR SHALL PROVIDE NOTICE TO ALL COMPANIES AND LOCAL AUTHORITIES OWNING OR HAVING A JURISDICTION OVER UTILITIES RUNNING TO, THROUGH, OR ACROSS PROJECT AREAS PRIOR TO DEMOLITION AND/OR CONSTRUCTION ACTIVITIES.
3. THE SPECIFICATIONS FOR PROPOSED PRIVATE UTILITY SERVICES SHALL BE TO THE STANDARDS AND REQUIREMENTS OF THE RESPECTIVE UTILITY COMPANY. CONTRACTOR TO COORDINATE WITH UTILITY COMPANIES FOR PROPER UTILITY CROSSING REQUIREMENTS PRIOR TO CONSTRUCTION.
4. PRIOR TO THE PRE-CONSTRUCTION MEETING UGE&T PLANS FROM THE UTILITY COMPANIES NEED TO BE REDRAWN ON THIS SHEET. ADDITIONALLY THE CONTRACTOR NEEDS TO HAVE A COMPLETED SWPPP. A PRE-CONSTRUCTION MEETING SHALL BE HELD WITH THE OWNER, ENGINEER, ARCHITECT, CONTRACTOR, LOCAL OFFICIALS, AND ALL UTILITY COMPANIES (PUBLIC AND PRIVATE) PRIOR TO START OF CONSTRUCTION.
5. ALL CONSTRUCTION SHALL CONFORM TO EXETER STANDARDS AND REGULATIONS, UNLESS OTHERWISE SPECIFIED. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR (OSHA) RULES AND REGULATIONS. BUILDINGS ARE TO BE SERVICED BY UNDERGROUND UTILITIES.
6. THE CONTRACTOR IS TO VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITY STUBS PRIOR TO CONSTRUCTION AND DISCONNECT ALL EXISTING SERVICE CONNECTIONS AT THEIR RESPECTIVE MAINS (IF REQUIRED) IN ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANY'S STANDARDS AND SPECIFICATIONS.
7. WATER LINE SHALL BE INSTALLED UNDER ALL UTILITY LINES WITH A MINIMUM OF 18" OF VERTICAL CLEARANCE BETWEEN UTILITIES AT CROSSINGS.
8. AN AS-BUILT PLAN IS TO BE PREPARED AND SUBMITTED TO DEPARTMENT OF PUBLIC WORKS IN DIGITAL (.DWG AND .PDF) AND MYLAR FORMATS.
9. THE CONTRACTOR IS RESPONSIBLE FOR PAYMENT OF ALL CONNECTION FEES.
10. SANITARY SEWER FLOW CALCULATIONS:
    FACTORY/WAREHOUSE – 10 GPD/PERSON X 10 PEOPLE
    ESTIMATED FLOW AT 10 GPD/PERSON = 100 GPD.
11. ALL WATER AND SANITARY LEADS TO BUILDING SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY CAP AND WITNESS AT END.
12. THRUST BLOCKS SHALL BE PROVIDED AT ALL WATER LINE BENDS, TEES, AND MECHANICAL JOINTS.
13. CONTRACTOR SHALL MINIMIZE DISRUPTIONS TO EXISTING WATER SERVICES AND ALL REQUIREMENTS OF EXETER WATER DEPARTMENT SHALL BE FOLLOWED REGARDING NOTIFICATION OF INTERRUPTION OF SERVICE (MIN 48 HOURS). TEE INSTALLATION MAY NEED TO BE CONDUCTED AT NIGHT AS DIRECTED BY EXETER WATER DEPT.
14. WATER VALVES ARE TO BE OPERATED ONLY BY MUNICIPAL STAFF.
15. THE INSTALLATION OF SMOKE, HEAT, FIRE, OR CARBON MONOXIDE ALARMS OR SYSTEMS SHALL COMPLY WITH NFPA 72 REQUIREMENTS.
16. ALL SEWER SERVICE BENDS SHALL HAVE CLEANOUTS INSTALLED.
17. ALL WATER, SEWER, ROAD (INCLUDING PARKING LOT), AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 9.3 STORMWATER MANAGEMENT STANDARDS, STORMWATER MANAGEMENT PLAN, STORMWATER POLLUTION PREVENTION PLAN, AND EROSION AND SEDIMENT CONTROL STANDARDS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER, NEW HAMPSHIRE", SEE SECTION 9.14 ROADWAYS, ACCESS POINTS, AND FIRE LANES AND SECTION 9.13 PARKING AREAS FOR EXCEPTIONS.
18. THE CONTRACTOR MUST OBTAIN A VALID UTILITY PIPE INSTALLER'S LICENSE AND THE JOB SUPERVISOR OR FOREMAN MUST BE CERTIFIED BY THE TOWN PRIOR TO WORKING ON ANY WATER, SEWER, OR DRAINAGE PIPES THAT ARE IN A TOWN STREET OR RIGHT OF WAY, OR THAT WILL CONNECT OR MAY BE CONNECTED TO A TOWN WATER, SEWER, OR DRAINAGE SYSTEM. A LICENSED SUPERVISOR OR FOREMAN MUST BE PRESENT AT THE JOB SITE AT ALL TIMES DURING CONSTRUCTION OF THESE UTILITIES.
19. THE DEVELOPER SHALL COORDINATE WITH THE ELECTRIC COMPANY TO ENSURE ANY TREE PLANTINGS ALONG MAIN STREET WILL NOT CONFLICT WITH THE EXISTING OVERHEAD WIRES.
20. THE DEVELOPER SHALL COORDINATE WITH THE ELECTRIC COMPANY TO CONFIRM A DROP POLE ON THE PROPERTY IS NOT REQUIRED.
21. WHERE PROPOSED 18" DRAIN LINE PASSES UNDER EXISTING 10" SEWER LINE IN GRE ROAD, CARE SHALL BE TAKEN TO ENSURE PROPER COMPACTION. AT CROSSING, DRAIN LINE JOINTS SHALL BEING LOCATED AS FAR FROM THE SEWER CROSSING POINT AS POSSIBLE.

UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER BEALS ASSOCIATES, NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 1-888-DIG-SAFE (1-888-344-7233) AND EXETER DPW (603) 773-6157.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

REVISIONS:	DATE:
REVISED PER REVIEW COMMENTS	5/15/24
REVISED PER REVIEW COMMENTS	3/28/24

UTILITY PLAN

COMMERCIAL DEVELOPMENT
ROUTE 108
EXETER, NH
TAX MAP 52, LOT 112.2

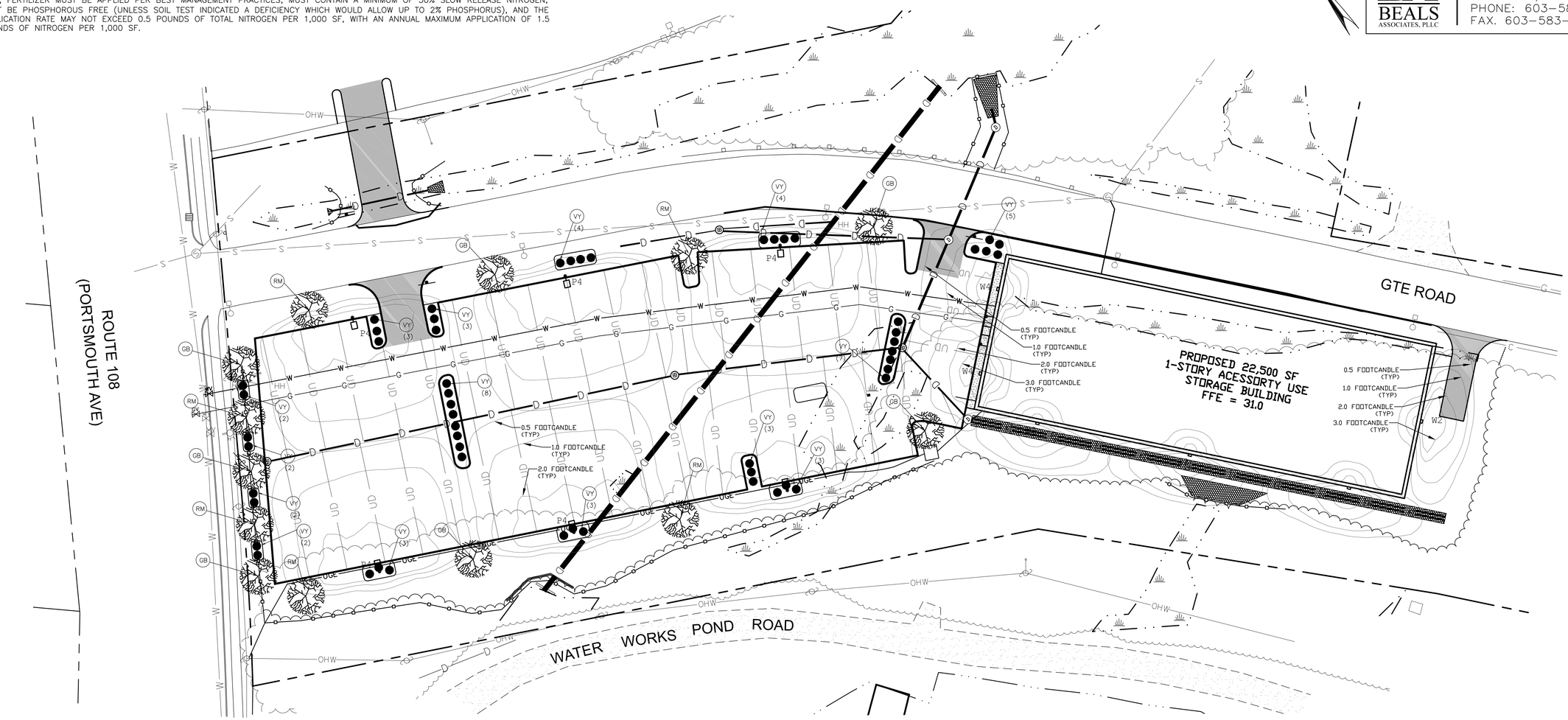
DATE: FEBRUARY 2024	SCALE: 1" = 30'
PROJ. NO: NH-1471	SHEET NO. 4

LANDSCAPING NOTES:

1. NO PLANT MATERIALS SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
2. A 4–INCH DEEP SHREDDED PINE BARK SHALL BE INSTALLED UNDER ALL SHRUBS, AND IN ALL PLANTING BEDS, AS DIRECTED BY OWNER.
3. ALL TREES SHALL BE BAILED AND BURLAPPED, UNLESS OTHERWISE NOTED, OR APPROVED BY THE OWNER.
4. ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF FINAL ACCEPTANCE.
5. LOAM AND SEED ALL AREAS NOT OTHERWISE NOTED.
6. DO NOT INSTALL LOAM IN AREAS OF EXISTING TREES TO REMAIN.
7. THE LANDSCAPING OF THE SITE DEPICTED ON THIS PLAN IS INTEGRAL TO THE APPROVAL BY THE EXETER PLANNING BOARD AND SHALL BE REASONABLY MAINTAINED AND WHEN DEAD OR REMOVED, MUST BE REASONABLY REPLACED.
8. AFTER 1 YEAR, FERTILIZER MAY NOT BE APPLIED WITHIN 100 FEET OF WATERWORKS POND OR WHEELWRIGHT CREEK. BEYOND 100 FEET, FERTILIZER MUST BE APPLIED PER BEST MANAGEMENT PRACTICES, MUST CONTAIN A MINIMUM OF 50% SLOW RELEASE NITROGEN, MUST BE PHOSPHOROUS FREE (UNLESS SOIL TEST INDICATED A DEFICIENCY WHICH WOULD ALLOW UP TO 2% PHOSPHORUS), AND THE APPLICATION RATE MAY NOT EXCEED 0.5 POUNDS OF TOTAL NITROGEN PER 1,000 SF, WITH AN ANNUAL MAXIMUM APPLICATION OF 1.5 POUNDS OF NITROGEN PER 1,000 SF.

PLANT SCHEDULE

QTY.	KEY	BOTANICAL NAME	COMMON NAME	SIZE
5	GB	*Betula populifolia*	*Gray Birch*	*2"– 2 1/2" Cal.*
4	RM	*Acer rubrum*	*Red Maple*	*2"– 2 1/2" Cal.*
17	VY	*Taxus Vermeulen*	*Vermeulen Yew*	*3'–4'*



Luminaire Schedule								
Symbol	Qty	Label	Description	Tag	LLF	Luminaire Lumens	Luminaire Watts	Total Watts
	6	P4	COOPER: GAIN-SA3D-730-U-T4FT-CXX-HSS	MOUNTED ON 25' VALMONT POLE: DS330-400Q250-D1-FP-COOPER CXX-FBC-AB	0.900	15145	184	1104
	4	W2	COOPER: GWC-SA1B-730-U-T2-CXX	WALL MTD 14' AFG	0.900	5453	44	176
	2	W4	COOPER: GWC-SA1C-730-U-T4FT-CXX	WALL MTD 14' AFG	0.900	6920	59	118

Parking Lot

Illuminance (Fc)
Average = 1.40
Maximum = 3.7
Minimum = 0.4
Avg/Min Ratio = 3.50

LIGHTING NOTES:

1. ALL OUTDOOR LIGHTING SHALL BE SO DIRECTED & SHIELDED THAT NO GLARE WILL SPILL OUT ABUTTING PROPERTIES. PROPERTIES.
2. AFTER 10:00 PM ONLY THAT AMOUNT OF LIGHT NECESSARY FOR THE SECURITY OF THE PREMISES SHALL BE PERMITTED.
3. ALL LIGHTING SHALL BE DOWNCAST SHIELDING TYPE AND DARK SKY COMPLIANT.
4. LIGHTING DESIGN PROVIDED BY CHARRON/REFLEX LIGHTING.

MCGRAW–EDISON GWC GALLEON
WALL MOUNTED
14–FOOT MOUNTING HEIGHT

MCGRAW–EDISON GALN GALLEON II
POLE MOUNTED
25–FOOT MOUNTING HEIGHT

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

REVISED PER REVIEW COMMENTS	5/15/24
REVISED PER REVIEW COMMENTS	3/28/24
REVISIONS:	DATE:

PREPARED FOR:

FOSS MOTORS
133 PORTSMOUTH AVE.
(NH ROUTE 108)
EXETER, NEW HAMPSHIRE

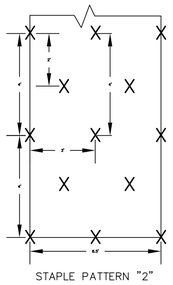
BA BEALS ASSOCIATES, PLLC
70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603–583–4860,
FAX. 603–583–4863

STATE OF NEW HAMPSHIRE
CHRISTIAN O. SMITH No. 9900
PROFESSIONAL ENGINEER

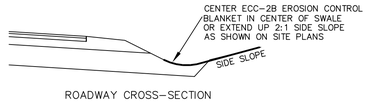
LIGHTING & LANDSCAPE PLAN

COMMERCIAL DEVELOPMENT
ROUTE 108
EXETER, NH
TAX MAP 52, LOT 112.2

DATE: FEBRUARY 2024	SCALE: 1" = 30'
PROJ. N0: NH-1471	SHEET NO. 5



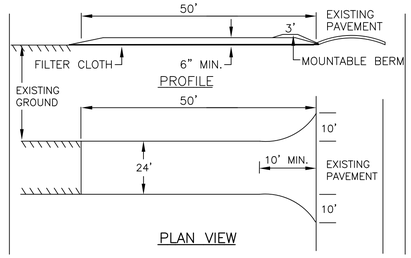
PHYSICAL SPECIFICATIONS
(ROLL)
WIDTH = 7.5'
LENGTH = 120.0'
WEIGHT = 37 LBS.
AREA = 100 SQUARE YARDS



ROADWAY CROSS-SECTION

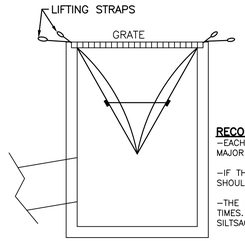
STAPLE PATTERN "2"

East Coast Erosion Blanket ECC-2B
(Double Net Coconut)
INSTALLATION DETAIL



1. STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 3 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE 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 ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICH EVER IS GREATER. 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 ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.

STABILIZED CONSTRUCTION ENTRANCE

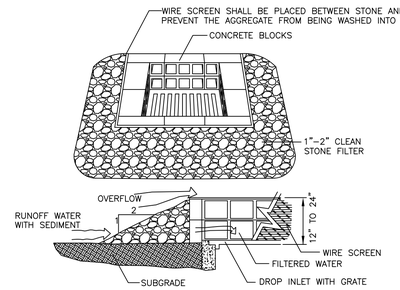


RECOMMENDED MAINTENANCE SCHEDULE
-EACH SILTSACK SHOULD BE INSPECTED AFTER EVERY MAJOR RAIN EVENT

-IF THERE HAVE BEEN NO MAJOR EVENTS, SILTSACK SHOULD BE INSPECTED EVERY 2-3 WEEKS

-THE RESTRAINT CORD SHOULD BE VISIBLE AT ALL TIMES. IF CORD IS COVERED WITH SEDIMENT, THE SILTSACK SHOULD BE EMPTIED.

SILTSACK DETAIL
NOT TO SCALE



MAINTENANCE NOTE:

1. ALL STRUCTURES SHOULD BE INSPECTED AFTER EVERY RAINFALL AND REPAIRS MADE AS NECESSARY. SEDIMENT SHOULD BE REMOVED FROM TRAPPING DEVICES AFTER THE SEDIMENT HAS REACHED A MAXIMUM OF ONE HALF THE DEPTH OF THE TRAP. THE SEDIMENT SHOULD BE DISPOSED IN A SUITABLE UPLAND AREA AND PROTECTED FROM EROSION BY EITHER STRUCTURE OR VEGETATIVE MEANS. THE TEMPORARY TRAPS SHOULD BE REMOVED AND THE AREA REPAIRED AS SOON AS THE CONTRIBUTING DRAINAGE AREA TO THE INLET HAS BEEN COMPLETELY STABILIZED.

TEMPORARY CATCH BASIN INLET PROTECTION
(Block and Gravel Drop Inlet Sediment Filter)
NOT TO SCALE

** WITHIN 50 FEET DISTURBANCE TO ANY WETLAND, A DOUBLE ROW OF EROSION BARRIER (SILT FENCE, SILT SOCK, OR MULCH BERM) SHALL BE INSTALLED.

TEMPORARY EROSION CONTROL MEASURES

1. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT NO MORE THAN 5 ACRES OF LAND SHALL BE EXPOSED BEFORE DISTURBED AREAS ARE STABILIZED*.
2. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED OR DIRECTED BY THE ENGINEER ALL DISTURBED AREAS SHALL BE RETURNED TO ORIGINAL GRADES AND ELEVATIONS.
3. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 4" OF LOAM AND SEEDED WITH NOT LESS THAN 1.10 POUNDS OF SEED PER 1000 SQUARE FEET OF AREA. (48 POUNDS PER ACRE) SEE SEED SPECIFICATIONS THIS SHEET.
4. SILT FENCES AND OTHER EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY RAIN EVENT GREATER THAN 0.25" DURING THE LIFE OF THE PROJECT. ALL DAMAGED AREAS SHALL BE REPAIRED, SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
5. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION CONTROL MEASURES ARE TO BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND RE-VEGETATED.
6. AREAS MUST BE SEEDED AND MULCHED WITHIN 3 DAYS OF FINAL GRADING, PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF SOIL.

* AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
- BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED.
- A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED.
- A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS RIPRAP HAS BEEN INSTALLED.
- EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

CONSTRUCTION SPECIFICATIONS

1. STRUCTURES SHALL BE INSTALLED ACCORDING TO THE DIMENSIONS SHOWN ON THE PLANS AT THE APPROPRIATE SPACING.
2. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER SO THAT EROSION AND AIR AND WATER POLLUTION WILL BE MINIMIZED.
3. WHEN TIMBER STRUCTURES ARE USED, THE TIMBER SHALL EXTEND AT LEAST 18" INTO THE SOIL.
4. STRAW BALES SHALL BE ANCHORED INTO THE SOIL USING 2" X 2" STAKES DRIVEN THROUGH THE BALES AND AT LEAST 18 INCHES IN TO THE SOIL.
5. SEEDING, FERTILIZING, AND MULCHING SHALL CONFORM TO THE RECOMMENDATIONS IN THE APPROPRIATED VEGETATIVE BMP.
6. STRUCTURES SHALL BE REMOVED FROM THE CHANNEL WHEN THEIR USEFUL LIFE HAS BEEN COMPLETED.
7. THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES THE CONTRACTOR SHALL TAKE PRECAUTIONS AND INSTRUCTIONS FROM THE PLANNING DEPARTMENT IN ORDER TO PREVENT, ABATE AND CONTROL THE EMISSION OF FUGITIVE DUST INCLUDING BUT NOT LIMITED TO WETTING, COVERING, SHIELDING, OR VACUUMING.
8. THE NH COMMISSIONER OF AGRICULTURE PROHIBITS THE COLLECTION, POSSESSION, IMPORTATION, TRANSPORTATION, SALE, PROPAGATION, TRANSPLANTATION, OR CULTIVATION OF PLANTS BANNED BY NH LAW RSA 430:53 AND NH CODE ADMINISTRATIVE RULES AGR 3800. THE PROJECT SHALL MEET ALL REQUIREMENTS AND THE INTENT OF . RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES
9. THE CONSTRUCTION SITE OPERATOR AND OWNER SHALL SUBMIT A NOTICE OF INTENT (NOI) TO USEPA, WASHINGTON, DC, STORMWATER NOTICE PROCESSING CENTER AT LEAST FORTEEN DAYS PRIOR TO COMMENCEMENT OF WORK ON SITE. EPA WILL POST THE NOI AT http://cfpubl.epa.gov/npdes/stormwater/noi/noisearch.cfm. AUTHORIZATION IS GRANTED UNDER THE PERMIT ONCE THE NOI IS SHOWN IN "ACTIVE STATUS".

CONSTRUCTION SEQUENCE

1. CUT AND REMOVE TREES IN CONSTRUCTION AREAS AS REQUIRED OR DIRECTED.
2. CONSTRUCT AND/OR INSTALL TEMPORARY AND PERMANENT SEDIMENT EROSION AND DETENTION CONTROL FACILITIES AS REQUIRED. EROSION, SEDIMENT AND DETENTION CONTROL FACILITIES SHALL BE INSTALLED AND STABILIZED PRIOR TO ANY EARTH MOVING OPERATION AND PRIOR TO DIRECTING RUNOFF TO THEM.
3. CLEAR, CUT, GRUB AND DISPOSE OF DEBRIS IN APPROVED FACILITIES. STUMPS AND DEBRIS ARE TO BE REMOVED FROM SITE AND DISPOSED OF PER STATE AND LOCAL REGULATIONS.
4. EXCAVATE AND STOCKPILE TOPSOIL /LOAM. ALL AREAS SHALL BE STABILIZED IMMEDIATELY AFTER GRADING.
5. CONSTRUCT TEMPORARY CULVERTS AS REQUIRED OR DIRECTED.
6. CONSTRUCT THE ROADWAY/DRIVEWAYS AND ITS ASSOCIATED DRAINAGE STRUCTURES. ALL ROADWAYS, PARKING AREAS, AND CUT/FILL SLOPES SHALL BE STABILIZED AND/OR LOAMED AND SEEDED WITHIN 72-HOURS OF ACHIEVING FINISH GRADE AS APPLICABLE.
7. INSTALL PIPE AND CONSTRUCTION ASSOCIATED APPURTENANCES AS REQUIRED OR DIRECTED. ALL DISTURBED AREAS SHALL STABILIZED IMMEDIATELY AFTER GRADING.
8. BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES AND DISTURBED AREAS SHALL BE SEEDED OR MULCHED AS REQUIRED, OR DIRECTED.
9. DAILY OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINAGE CHECK DAMS, DITCHES, SEDIMENT TRAPS, ETC. TO PREVENT EROSION ON THE SITE AND PREVENT ANY SILTATION OF ABUTTING WATERS OR PROPERTY.
10. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION
11. COMPLETE PERMANENT SEEDING AND LANDSCAPING
12. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE ESTABLISHED THEMSELVES AND SITE IMPROVEMENTS ARE COMPLETE. SMOOTH AND REVEGETATE ALL DISTURBED AREAS.
13. ALL SWALES AND DRAINAGE STRUCTURES WILL BE CONSTRUCTED AND STABILIZED PRIOR TO HAVING RUNOFF DIRECTED TO THEM.
14. FINISH PAVING ALL ROADWAYS/DRIVEWAYS.
15. LOT DISTURBANCE OTHER THAN THAT SHOWN ON THE APPROVED PLANS SHALL NOT COMMENCE UNTIL THE ROADWAY HAS THE BASE COURSE TO DESIGN ELEVATION AND THE ASSOCIATED DRAINAGE IS COMPLETE AND STABLE.

WINTER MAINTENANCE

1. ALL DISTURBED AREAS THAT DO NOT HAVE AT LEAST 85% VEGETATIVE COVERAGE PRIOR TO OCTOBER 15TH, SHALL BE STABILIZED BY APPLYING MULCH AT A RATE OF 3-4 TONS PER ACRE. ALL SIDE SLOPES, STEEPER THAN 4:1, THAT ARE NOT DIRECTED TO SWALES OR DETENTION BASINS, SHALL BE LINED WITH BIODEGRADABLE/PHOTODEGRADABLE "JUTE MATTING" (EXCELSIOR'S CURLEX II OR EQUAL). ALL OTHER SLOPES SHALL BE MULCHED AND TACKED AT A RATE OF 3-4 TONS PER ACRE. THE APPLICATION OF MULCH AND/OR JUTE MATTING SHALL NOT OCCUR OVER EXISTING SNOW COVER. IF THE SITE IS ACTIVE AFTER OCTOBER 15TH, ANY SNOW THAT ACCUMULATES ON DISTURBED AREAS SHALL BE REMOVED. PRIOR TO SPRING THAW ALL AREAS WILL BE STABILIZED, AS DIRECTED ABOVE.

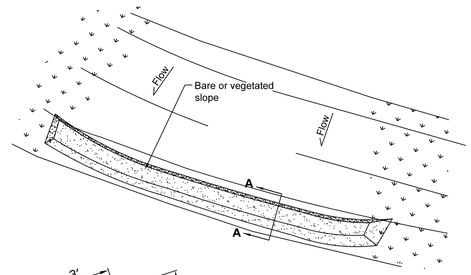
2. ALL SWALES THAT DO NOT HAVE FULLY ESTABLISHED VEGETATION SHALL BE EITHER LINED WITH TEMPORARY JUTE MATTING OR TEMPORARY STONE CHECK DAMS (APPROPRIATELY SPACED). STONE CHECK DAMS WILL BE MAINTAINED THROUGHOUT THE WINTER MONTHS. IF THE SWALES ARE TO BE MATTED WITH PERMANENT LINERS OR RIPRAP WITH ENGINEERING FABRIC, THIS SHALL BE COMPLETED PRIOR TO WINTER SHUTDOWN OR AS SOON AS THEY ARE PROPERLY GRADED AND SHAPED.

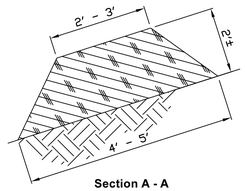
3. PRIOR TO OCT. 15TH ALL ROADWAY AND PARKING AREAS SHALL BE BROUGHT UP TO AND THROUGH THE BANK RUN GRAVEL APPLICATION. IF THESE AREAS' ELEVATIONS ARE PROPOSED TO REMAIN BELOW THE PROPOSED SUBGRADE ELEVATION, THE SUBGRADE MATERIAL SHALL BE ROUGHLY CROWNED AND A 3" LAYER OF CRUSHED GRAVEL SHALL BE PLACED AND COMPACTED. THIS WILL ALLOW THE SUBGRADE TO SHED RUNOFF AND WILL REDUCE ROADWAY EROSION. THIS CRUSHED GRAVEL DOES NOT HAVE TO CONFORM TO NH DOT 304.3, BUT SHALL HAVE BETWEEN 15-25% PASSING THE #200 SIEVE AND THE LARGEST STONE SIZE SHALL BE 2". IF THE SITE IS ACTIVE AFTER NOVEMBER 15TH, ANY ACCUMULATED SNOW SHALL BE REMOVED FROM ALL ROADWAY AND PARKING AREAS.

4. AFTER OCTOBER 15TH, THE END OF NEW HAMPSHIRE'S AVERAGE GROWING SEASON, NO ADDITIONAL LOAM SHALL BE SPREAD ON SIDE SLOPES AND SWALES. THE STOCKPILES THAT WILL BE LEFT UNDISTURBED UNTIL SPRING SHALL BE SEEDED BY THIS DATE. AFTER OCTOBER 15TH, ANY NEW OR DISTURBED PILES SHALL BE MULCHED AT A RATE OF 3-4 TONS PER ACRE. ALL STOCKPILES THAT WILL REMAIN THROUGHOUT THE WINTER SHALL BE SURROUNDED WITH SILT FENCING.

SEEDING SPECIFICATIONS

1. GRADING AND SHAPING
   A. SLOPES SHALL NOT BE STEEPER THAN 2:1;3:1 SLOPES OR FLATTER ARE PREFERRED. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
2. SEEDBED PREPARATION
   A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
   B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND MIX FERTILIZER AND LIME INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
3. ESTABLISHING A STAND
   A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL KINDS AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. REFER TO LIGHTING & LANDSCAPE PLAN FOR FERTILIZER REQUIREMENTS.
   B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
   C. A NEW ENGLAND NATIVE SEED MIXTURE SHALL BE USED. REFER TO MANUFACTURER'S SPECIFICATIONS FOR RATES OF SEEDING.
   D. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 10 TO SEPTEMBER 1.
4. MULCH
   A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
   B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90 LBS PER 1000 SQ. FT.
5. MAINTENANCE TO ESTABLISH A STAND
   A. PLANTED AREA SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
   B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIAL STAKE 2 TO 3 YEARS TO BECOME ESTABLISHED.
   C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, OCCASIONAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.





Section A - A

Mix material should consist of 30-50% large (1-3") particles. The organic matter content should be 25%-65%, dry weight basis. The organic matter may originate from a variety of vegetative sources, but needs to be fibrous and elongated. The mix shall be free of silt, clay, fine sand, refuse and contaminants or any material toxic to plant growth. Erosion Control Mix berms are effective filters for overland flow conditions and should not be used to filter concentrated flow such as that found in drainage ditchs, streams, etc.

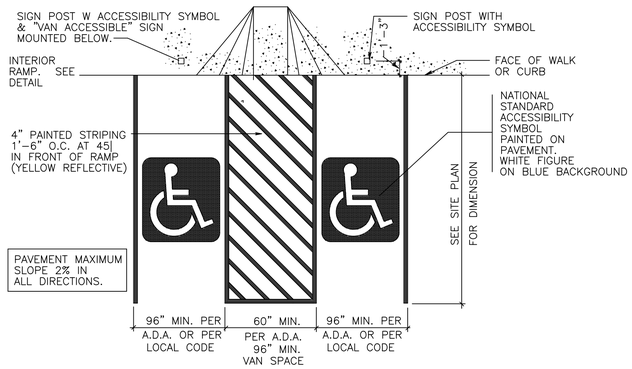
Erosion Control Mix Berm

REVISED PER REVIEW COMMENTS	5/15/24
REVISED PER REVIEW COMMENTS	3/28/24
REVISIONS:	DATE:

EROSION & SEDIMENT CONTROL DETAILS

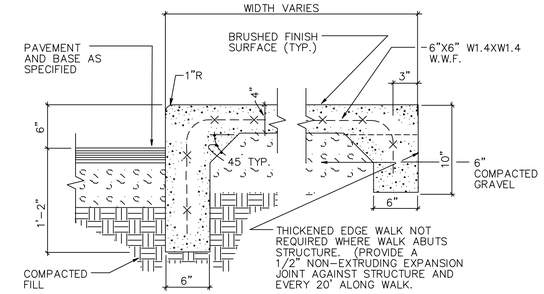
COMMERCIAL DEVELOPMENT
ROUTE 108
EXETER, NH
TAX MAP 52, LOT 112.2

DATE:	FEB, 2024	SCALE:	NTS
PROJ. N0:	NH-1471	SHEET NO.	6



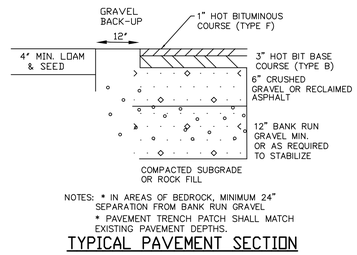
PARKING STALL FOR THE PHYSICALLY CHALLENGED

NOT TO SCALE DEC. 15, 1991



BRUSHED CONCRETE WALK

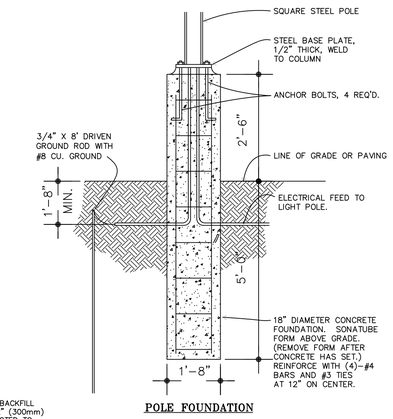
NOT TO SCALE JULY 15,1986



NOTES: * IN AREAS OF BEDROCK, MINIMUM 24" SEPARATION FROM BANK RUN GRAVEL
* PAVEMENT TRENCH PATCH SHALL MATCH EXISTING PAVEMENT DEPTHS.

TYPICAL PAVEMENT SECTION

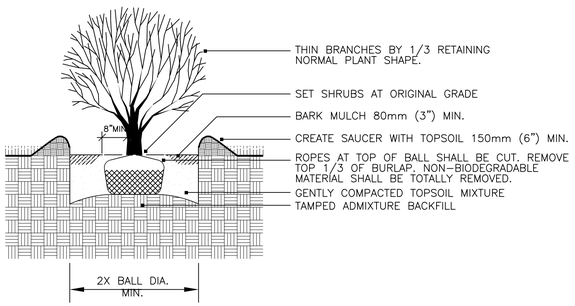
NEW ASPHALT



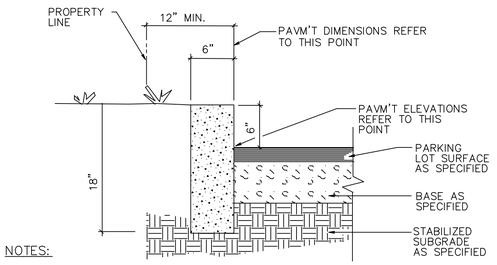
POLE FOUNDATION

LIGHT BASE DETAIL

SCALE: NONE



SHRUB PLANTING - BALL & BURLAP

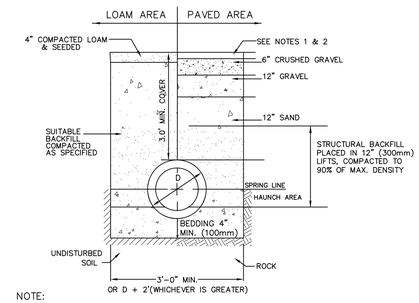


NOTES:

1. EDGING TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.
2. JOINTS BETWEEN STONES SHALL BE MORTARED.

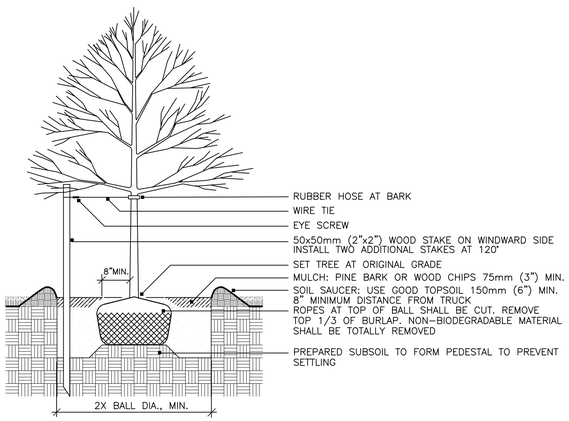
6" VERTICAL GRANITE CURB

NOT TO SCALE

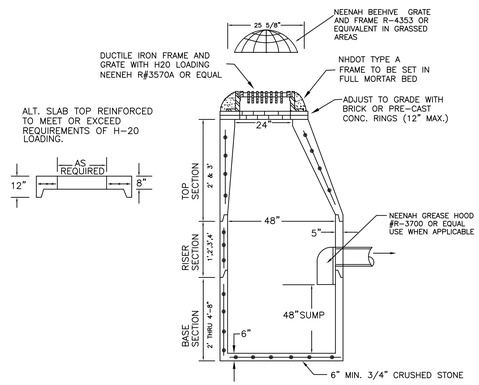


NOTE:
1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM TO SUBDIVISION SPEC'S.

TYPICAL DRAINAGE TRENCH DETAIL

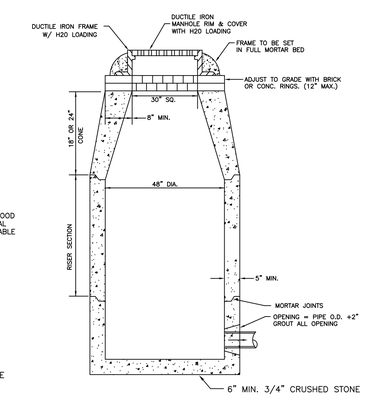


DECIDUOUS TREE PLANTING WITH STAKE AND WIRE TIE - HEAVY DUTY



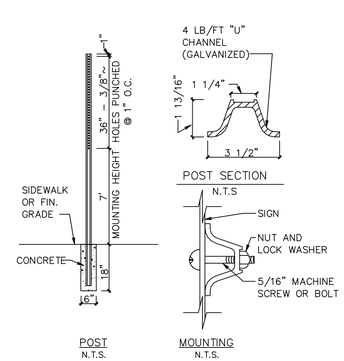
PRECAST CATCH BASIN

NOT TO SCALE



PRECAST DRAIN MANHOLE

NOT TO SCALE



POST N.T.S. MOUNTING N.T.S.

STREET SIGN DETAIL

PREPARED FOR:
FOSS MOTORS
133 PORTSMOUTH AVE.
(NH ROUTE 108)
EXETER, NEW HAMPSHIRE

BEALS ASSOCIATES, PLLC
70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX. 603-583-4863

STATE OF NEW HAMPSHIRE CHRISTIAN O. SMITH No.9900 LICENSED PROFESSIONAL ENGINEER

REVISED PER REVIEW COMMENTS	5/15/24
REVISED PER REVIEW COMMENTS	3/28/24
REVISIONS:	DATE:

CONSTRUCTION DETAILS

COMMERCIAL DEVELOPMENT
ROUTE 108
EXETER, NH
TAX MAP 52, LOT 112.2

DATE:	FEB, 2024	SCALE:	NTS
PROJ. N0:	NH-1471	SHEET NO.	7

CONSTRUCTION SPECIFICATIONS FOR POROUS ASPHALT
THE UNH STORM WATER CENTER

INSTALLATION RECOMMENDATIONS

INSTALLATION
A. PERCOLATION BEDS (REFERS TO NO 57 STONE)
I. OWNER SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO ALL PERCOLATION BED AND POROUS PAVING WORK.
2. SUB GRADE PREPARATION
A.EXISTING SUB GRADE UNDER BED AREAS SHALL NOT BE COMPACTED OR SUBJECT TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC PRIOR TO STONE BED PLACEMENT.
B. WHERE EROSION OF SUB GRADE HAS CAUSED ACCUMULATION OF FINE MATERIALS AND/OR SURFACE PONDING, THIS MATERIAL SHALL BE REMOVED WITH LIGHT EQUIPMENT AND THE UNDERLYING SOILS SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES WITH A YORK RAKE OR EQUIVALENT AND LIGHT TRACTOR.
C. BRING SUB GRADE OF STONE PERCOLATION BED TO LINE, GRADE, AND ELEVATIONS INDICATED. FILL AND LIGHTLY REGRADE ANY AREAS DAMAGED BY EROSION, PONDING, OR TRAFFIC COMPACTION BEFORE THE PLACING OF STONE. ALL BED BOTTOMS ARE LEVEL GRADE.
3. RECHARGE BED INSTALLATION (REFERS TO NO 3 STONE)
A.UPON COMPLETION OF SUB GRADE WORK, THE ENGINEER SHALL BE NOTIFIED AND SHALL INSPECT AT HIS DISCRETION BEFORE PROCEEDING WITH PERCOLATION BED INSTALLATION.
B.PERCOLATION BED AGGREGATE SHALL BE PLACED IMMEDIATELY AFTER APPROVAL OF SUB GRADE PREPARATION. ANY ACCUMULATION OF DEBRIS OR SEDIMENT WHICH HAS TAKEN PLACE AFTER APPROVAL OF SUB GRADE SHALL BE REMOVED PRIOR TO INSTALLATION OF AGGREGATE AT NO EXTRA COST TO THE OWNER.
C.INSTALL COARSE AGGREGATE NO. 3 (1 1/2" STONE) IN 8–INCH MAXIMUM LIFTS. LIGHTLY COMPACT EACH LAYER WITH EQUIPMENT, KEEPING EQUIPMENT MOVEMENT OVER STORAGE BED SUBGRADES TO A MINIMUM. INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
D. INSTALL 3" LIFT PEA GRAVEL LAYER TO PREVENT MIGRATION OF FINES FROM THE FILTER COARSE (NHDOT 304.1)
E.INSTALL FILTER COARSE (NHDOT 304.1 SAND LESS THAN 2% FINES) IN 2, 4" LIFTS. LIGHTLY COMPACT EACH LAYER WITH EQUIPMENT, KEEPING EQUIPMENT MOVEMENT OVER STORAGE BED SUBGRADES TO A MINIMUM. INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
F. INSTALL CHOKER BASE COURSE (AASHTO # 57 STONE) AGGREGATE EVENLY OVER SURFACE OF STONE BED, SUFFICIENT TO ALLOW PLACEMENT OF PAVEMENT, AND NOTIFY ENGINEER FOR APPROVAL. CHOKER BASE COURSE SHALL BE SUFFICIENT TO ALLOW FOR EVEN PLACEMENT OF ASPHALT BUT NO THICKER THAN 4–INCH IN DEPTH.
4. SURROUNDING AREAS
A.BEFORE THE POROUS PAVEMENT IS INSTALLED, ADJACENT SOIL AREAS SHOULD BE SLOPED AWAY FROM ALL PAVEMENT EDGES, TO PREVENT POTENTIAL SEDIMENT FROM WASHING ONTO THE PAVEMENT SURFACE.
B.TO ACCOMPLISH THIS, A SEQUENCE OF SWALES SHOULD BE EXCAVATED INTO ALL EARTHEN (UNPAVED) AREAS AT LEAST ON THE UPHILL SIDES OF THE PAVEMENT, AND WHERE NECESSARY, TO BELOW THE CURB OR PAVEMENT ELEVATION. ITS SHAPE AND PAINTINGS CAN BE INTEGRATED WITH THE PROJECT'S ARCHITECTURE AND LANDSCAPE, AND DESIGNED TO MAXIMIZE INFILTRATION. SWALE OVERFLOW, WHEN IT OCCURS, CAN BE DISCHARGED FROM ONE SWALE TO ANOTHER BY CONNECTING PIPES UNDER DRIVEWAYS.
C.BUILDING BASEMENTS AND FOUNDATIONS SHOULD BE WATERPROOFED AS NECESSARY, WHERE THE POROUS PAVEMENT ABUTS BUILDINGS.
B. POROUS ASPHALT
1. TRANSPORTING MATERIAL
A.TRANSPORTING OF MIX TO THE SITE SHALL BE IN VEHICLES WITH SMOOTH, CLEAN DUMP BEDS THAT HAVE BEEN SPRAYED WITH A NON–PETROLEUM RELEASE AGENT.
B.THE MIX SHALL BE COVERED DURING TRANSPORT TO CONTROL COOLING.
2. POROUS BITUMINOUS ASPHALT SHALL NOT BE STORED IN EXCESS OF 90 MINUTES BEFORE PLACEMENT.
3. ASPHALT PLACEMENT
A.THE POROUS BITUMINOUS SURFACE COURSE SHALL BE LAID IN ONE LIFT DIRECTLY OVER THE CHOKER COARSE, FILTER COARSE, AND CRUSHED STONE BASE COURSE TO A 4–INCH FINISHED THICKNESS. THE SURFACE CAN BE LAID IN TWO LIFTS IF SECOND LIFT IS DONE WITHIN 10 BUSINESS DAYS
AND THE INITIAL COURSE IS CLEAN AND FREE OF SEDIMENT.
B.THE LAYING TEMPERATURE OF THE BITUMINOUS MIX SHALL BE BETWEEN 300 DEGREES FAHRENHEIT AND 350 DEGREES FAHRENHEIT (BASED ON THE RECOMMENDATIONS OF THE ASPHALT SUPPLIER).
C.INSTALLATION SHALL TAKE PLACE WHEN AMBIENT TEMPERATURES ARE 55 DEGREES FAHRENHEIT OR ABOVE, WHEN MEASURED IN THE SHADE AWAY FROM ARTIFICIAL HEAT.
D.THE USE OF A REMIXING MATERIAL TRANSFER DEVICE BETWEEN THE TRUCKS AND THE PAVER IS HIGHLY RECOMMENDED TO ELIMINATE COLD LUMPS IN THE MIX.
E. THE POLYMER–MODIFIED ASPHALT IS VERY DIFFICULT TO RAKE, A WELL–HEATED SCREED SHOULD BE USED TO MINIMIZE THE NEED FOR RAKING.
F. COMPACTION OF THE SURFACE COURSE SHALL TAKE PLACE WHEN THE SURFACE IS COOL ENOUGH TO RESIST A 10–TON ROLLER. (140°F. SURFACE TEMPERATURE) ONE OR TWO PASSES IS ALL THAT IS REQUIRED FOR PROPER COMPACTION. MORE ROLLING COULD CAUSE A REDUCTION IN THE SURFACE POROSITY WHICH IS UNACCEPTABLE.
4. IN THE EVENT CONSTRUCTION SEDIMENT IS INADVERTENTLY DEPOSITED ON THE FINISHED POROUS
SURFACE, IT MUST BE IMMEDIATELY REMOVED BY VACUUMING.
5. AFTER FINAL ROLLING, NO VEHICULAR TRAFFIC OF ANY KIND SHALL BE PERMITTED ON THE SURFACE UNTIL COOLING AND HARDENING HAS TAKEN PLACE, AND IN NO CASE WITHIN THE FIRST 48 HOURS. PROVIDE BARRIERS AS NECESSARY AT NO EXTRA COST TO THE OWNER TO PREVENT VEHICULAR USE; REMOVE AT THE DISCRETION OF THE ENGINEER.
6. STRIPING PAINT FOR TRAFFIC LANES AND PARKING BAYS SHALL BE CHLORINATED RUBBER BASE, FACTORY MIXED, NON–BLEEDING, FAST DRYING, BEST QUALITY, WHITE TRAFFIC PAINT WITH A LIFE EXPECTANCY OF TWO YEARS UNDER NORMAL TRAFFIC USE.
A.PAVEMENT–MARKING PAINT; LATEX, WATER–BASE EMULSION, READY–MIXED, COMPLYING WITH FS TT–P–1952.
B.SWEEP AND CLEAN SURFACE TO ELIMINATE LOOSE MATERIAL AND DUST.
C.PAINT 4 INCH WIDE TRAFFIC LANE STRIPING IN ACCORDANCE WITH LAYOUTS OF PLAN. APPLY PAINT WITH MECHANICAL EQUIPMENT TO PRODUCE UNIFORM STRAIGHT EDGES. APPLY IN TWO COATS AT MANUFACTURER'S RECOMMENDED RATES. PROVIDE CLEAR, SHARP LINES USING WHITE TRAFFIC PAINT, INSTALLED IN ACCORDANCE WITH NHDOT SPECIFICATIONS.
6. WORK SHALL BE DONE EXPERTLY THROUGHOUT, WITHOUT STAINING OR INJURY TO OTHER WORK.
TRANSITION TO ADJACENT IMPERVIOUS BITUMINOUS PAVING SHALL BE MERGED NEATLY WITH FLUSH, CLEAN LINE. FINISHED PAVING SHALL BE EVEN, WITHOUT POCKETS, AND GRADED TO ELEVATIONS SHOWN ON DRAWING.
7. POROUS PAVEMENT BEDS SHALL NOT BE USED FOR EQUIPMENT OR MATERIALS STORAGE DURING CONSTRUCTION, AND UNDER NO CIRCUMSTANCES SHALL VEHICLES BE ALLOWED TO DEPOSIT SOIL ON PAVED POROUS SURFACES.
8. REPAIR OF DAMAGED PAVING
A.ANY EXISTING PAVING ON OR ADJACENT TO THE SITE THAT HAS BEEN DAMAGED AS A RESULT OF CONSTRUCTION WORK SHALL HE REPAIRED TO THE SATISFACTION OF THE OWNER WITHOUT ADDITIONAL COST TO THE OWNER.
9. FIELD QUALITY CONTROL
A. THE FULL PERMEABILITY OF THE PAVEMENT SURFACE SHALL BE TESTED BY APPLICATION OF CLEAN WATER AT THE RATE OF AT LEAST 5 GPM OVER THE SURFACE, USING A HOSE OR OTHER DISTRIBUTION DEVISE. WATER USED FOR THE TEST SHALL BE CLEAN, FREE OF SUSPENDED SOLIDS AND DELETERIOUS LIQUIDS AND WILL BE PROVIDED AT NO EXTRA COST TO THE OWNER. ALL APPLIED WATER SHALL INFILTRATE DIRECTLY WITHOUT PUDDLE FORMATION OR SURFACE RUNOFF, AND SHALL BE OBSERVED BY THE ENGINEER AND OWNER.
B.TEST IN–PLACE BASE AND SURFACE COURSE FOR COMPLIANCE WITH REQUIREMENTS FOR THICKNESS AND SURFACE SMOOTHNESS. REPAIR OR REMOVE AND REPLACE UNACCEPTABLE WORK AS DIRECTED BY THE OWNER.
C.SURFACE SMOOTHNESS: TEST FINISHED SURFACE FOR SMOOTHNESS AND EVEN DRAINAGE, USING A TEN–FOOT TO CENTERLINE OF PAVED AREA. SURFACE WILL NOT BE ACCEPTED IF GAPS OR RIDGES EXCEED 3116 OF AN INCH.

MINIMUM COMPACTION REQUIREMENTS

COMPACTION SHALL BE PERFORMED TO NOT LESS THAN NINETY–FIVE PERCENT (95%) MAXIMUM DENSITY AS DETERMINED IN A LABORATORY COMPACTION TEST, PERFORMED UNDER THE SPECIFICATIONS OF ASTM D1557–64T, METHOD "A", (BACK FILL MATERIAL OF A STONY NATURE SHALL BE TESTED UNDER METHOD "C" OR "D" OF THE SAME ASTM DESIGNATION) OR OTHER APPROVED ASTM OR AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) SPECIFICATIONS. SUCH TEXT SHALL ALSO BE USED FOR ESTABLISHING THE OPTIMUM MOISTURE CONTENT OF THE MATERIALS. THE IN–PLACE DRY UNIT WEIGHT OF THE COMPACTED MATERIALS SHALL BE DETERMINED BY METHODS SPECIFIED UNDER ASTM "D" 1556–58T OR OTHER APPROVED ASTM OR AASHTO SPECIFICATIONS. THE IN–PLACE COMPACTION TEST TO BE CONSISTENT WITH THE APPROVED LABORATORY COMPACTION TEST.

TABLE 5. POROUS ASPHALT MIX DESIGN CRITERIA.

SIEVE SIZE (INCH/MM)	PERCENT PASSING (%)
0.75/19	100
0.50/12.5	85–100
0.375/9.5	55–75
NO.4/4.75	10–25
NO.8/2.36	5–10
NO.200/0.075 (#200)	2–4
BINDER CONTENT (AASHTO T164)	6.0–6.5%
AIR VOID CONTENT BY CORELOK (ASTM D6752)*	16.0–20.0%
AIR VOID CONTENT BY PARAFFIN WAX (AASHTO T275)*	18.0–22.0%
DRAINDOWN (ASTM D6390)**	<= 0.3 %
RETAINED TENSILE STRENGTH (AASHTO 283)***	>= 80 %

* EITHER METHOD IS ACCEPTABLE
**CELLULOSE OR MINERAL FIBERS MAY BE USED TO REDUCE DRAINDOWN.
***IF THE TSR (RETAINED TENSILE STRENGTH) VALUES FALL BELOW 80% WHEN TESTED PER NAPA IS 131 (WITH A SINGLE FREEZE THAW CYCLE RATHER THAN 5), STEP 4, THE CONTRACTOR SHALL EMPLOY AN ANTISTRIP ADDITIVE, SUCH AS HYDRATED LIME (ASTM C977) OR A FATTY AMINE, TO RAISE THE TSR VALUE ABOVE 80%.

MIX SUMMARY
POROUS ASPHALT PAVEMENT MIX
THE UNH STORM WATER CENTER

POROUS ASPHALT SHALL BE FOUR INCHES THICK WITH A BITUMINOUS MIX OF 6% TO 6.5% BY WEIGHT DRY AGGREGATE AND AIR VOIDS OF 18–22% IN ACCORDANCE WITH ASTM D6390, DRAIN DOWN OF THE BINDER SHALL BE NO GREATER THAN 0.3%. IF MORE ABSORPTIVE AGGREGATES, SUCH AS LIMESTONE, ARE USED IN THE MIX, THEN THE AMOUNT OF BITUMEN IS TO BE BASED ON THE TESTING PROCEDURES OUTLINED IN THE NATIONAL ASPHALT PAVEMENT ASSOCIATION'S INFORMATION SERIES 131 – "PERVIOUS ASPHALT PAVEMENTS" (2003) OR NHDOT EQUIVALENT. MIX SUPPLIERS MAY HAVE A SUITABLE IN–HOUSE SPECIFICATION FOR OPEN GRADED FRICTION COURSE (OGFC) THAT CAN BE USED.

USE NEAT ASPHALT BINDER MODIFIED WITH AN ELASTOMERIC POLYMER TO PRODUCE A BINDER MEETING THE REQUIREMENTS OF PG 76–22 AS SPECIFIED IN AASHTO MP– 1. THE ELASTOMER POLYMER SHALL BE STYRENE–BUTADIENE–STYRENE (SBS), OR APPROVED EQUAL, APPLIED AT A RATE OF 3% BY WEIGHT OF THE TOTAL BINDER. THE COMPOSITE MATERIALS SHALL BE THOROUGHLY BLENDED AT THE ASPHALT REFINERY OR TERMINAL PRIOR TO BEING LOADED INTO THE TRANSPORT VEHICLE. THE POLYMER MODIFIED ASPHALT BINDER SHALL BE HEAT AND STORAGE STABLE.

AGGREGATE SHALL BE MINIMUM 90% CRUSHED MATERIAL AND HAVE A GRADATION OF:

COMPOSITION OF MIXTURE
SIEVE SIZE (INCH/MM)PERCENT PASSING0.75/191000.50/12.585–1000.375/9.555–75NO.4/4.7510–25NO.8/2.365–10NO.200/0.0752–4TOTAL AGGREGATES93–5–94% ASPHALT OF TOTAL MIX6–6.5
ADD HYDRATED LIME AT A DOSAGE RATE OF 1.0% BY WEIGHT OF THE TOTAL DRY AGGREGATE TO MIXES CONTAINING GRANITE. HYDRATED LIME SHALL MEET THE REQUIREMENTS OF ASTM C 977. THE ADDITIVE MUST BE ABLE TO PREVENT THE SEPARATION OF THE ASPHALT BINDER FROM THE AGGREGATE AND ACHIEVE A REQUIRED TENSILE STRENGTH RATIO (TSR) OF AT LEAST 80% ON THE ASPHALT MIX WHEN TESTED IN ACCORDANCE WITH AASHTO T 283. THE ASPHALTIC MIX SHALL BE TESTED FOR ITS RESISTANCE TO STRIPPING BY WATER IN ACCORDANCE WITH ASTM D–1664. IF THE ESTIMATED COATING AREA IS NOT ABOVE 95 PERCENT, ANTI–STRIPPING AGENTS SHALL BE ADDED TO THE ASPHALT.

NO WORK SHALL BE STARTED UNTIL THE CONTRACTOR HAS SUBMITTED AND THE ENGINEER HAS APPROVED A MIX DESIGN INCLUDING THE PERCENTAGE OF EACH INGREDIENT INCLUDING BINDER, POLYMER, AND THE JOB–MIX FORMULA FROM SUCH A COMBINATION. THE JOB–MIX FORMULA SHALL ESTABLISH A SINGLE PERCENTAGE OF AGGREGATE PASSING SIEVE AND A SINGLE PERCENTAGE OF BITUMINOUS MATERIAL TO BE ADDED TO THE AGGREGATE. NO CHANGE IN THE JOB–MIX FORMULA MAY BE MADE WITHOUT WRITTEN APPROVAL OF THE ENGINEER. THE JOB–MIX FORMULA MUST FALL WIT H THE MASTER RANGE SPECIFIED IN COMPOSITION OF MIXTURE TABLE.

TRANSPORTING MATERIAL: SEE CONSTRUCTION AND INSTALL SPECIFICATIONS

FOR QUESTIONS ON MIX SPECIFICATIONS CONTACT ROBERT ROSEEN, PHD, AT THE UNH STORM WATER CENTER. 603–862–4024.

MAINTENANCE SPECIFICATIONS FOR POROUS ASPHALT PARKING LOT AREAS AND LOW VOLUME ROADS
THE UNH STORM WATER CENTER

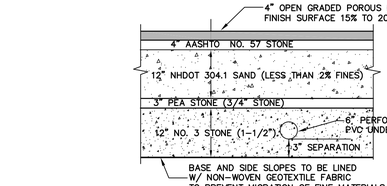
THE FOLLOWING RECOMMENDATIONS WILL HELP ASSURE THAT THE PAVEMENT IS MAINTAINED TO PRESERVE ITS HYDROLOGIC EFFECTIVENESS.

WINTER MAINTENANCE:

1. SANDING FOR WINTER TRACTION IS PROHIBITED. DEICING IS PERMITTED (NAC1, MGC12, OR EQUIVALENT). REDUCED SALT APPLICATION IS POSSIBLE AND CAN BE A COST SAVINGS FOR WINTER MAINTENANCE. NONTOXIC, ORGANIC DEICERS, APPLIED EITHER AS BLENDED, MAGNESIUM CHLORIDE–BASED LIQUID PRODUCTS OR AS PRETREATED SALT, ARE PREFERABLE.
2. PLOWING IS ALLOWED, BLADE SHOULD BE SET APPROXIMATELY 1" ABOVE ROAD SURFACE. ICE AND LIGHT SNOW ACCUMULATION ARE GENERALLY NOT AS PROBLEMATIC AS FOR STANDARD ASPHALT. SNOW WILL ACCUMULATE DURING HEAVIER STORMS AND SHOULD BE PLOWED.

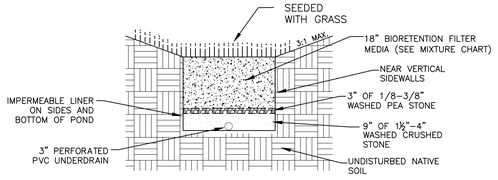
ROUTINE MAINTENANCE;

1. ASPHALT SEAL COATING MUST BE ABSOLUTELY FORBIDDEN. SURFACE SEAL COATING IS NOT REVERSIBLE.
2. THE PAVEMENT SURFACE SHOULD BE VACUUMED 2 OR 3 TIMES PER YEAR, AND AT ANY ADDITIONAL TIMES SEDIMENT IS SPILLED, ERODED, OR TRACKED ONTO THE SURFACE.
3. PLANTED AREAS ADJACENT TO PERVIOUS PAVEMENT SHOULD BE WELL MAINTAINED TO PREVENT SOIL WASHOUT ONTO THE PAVEMENT. IF ANY BARE SPOTS OR ERODED AREAS ARE OBSERVED WITHIN THE PLANTED AREAS, THEY SHOULD BE REPLANTED AND/OR STABILIZED AT ONCE.
4. IMMEDIATELY CLEAN ANY SOIL DEPOSITED ON PAVEMENT. SUPERFICIAL DIRT DOES NOT NECESSARILY CLOG THE PAVEMENT VOIDS. HOWEVER, DIRT THAT IS GROUND IN REPEATEDLY BY TIRES CAN LEAD TO CLOGGING. THEREFORE, TRUCKS OR OTHER HEAVY VEHICLES SHOULD BE PREVENTED FROM TRACKING OR SPILLING DIRT ONTO THE PAVEMENT.
5. DO NOT ALLOW CONSTRUCTION STAGING, SOIL/MULCH STORAGE, ETC. ON UNPROTECTED PAVEMENT SURFACE.
6. REPAIRS: POTHOLES OF LESS THAN 50 SQUARE FEET CAN BE PATCHED BY ANY MEANS SUITABLE WITH STANDARD PAVEMENT OR A PERVIOUS MIX IS PREFERRED. FOR AREAS GREATER THAN 50 SQ. FT. IN NEED OF REPAIR, APPROVAL OF PATCH TYPE SHOULD BE SOUGHT FROM A QUALIFIED ENGINEER. ANY REQUIRED REPAIR OF DRAINAGE STRUCTURES SHOULD BE DONE PROMPTLY TO ENSURE CONTINUED PROPER FUNCTIONING OF THE SYSTEM.
7. WRITTEN AND VERBAL COMMUNICATION TO THE POROUS PAVEMENT'S FUTURE OWNER SHOULD MAKE CLEAR THE PAVEMENT'S SPECIAL PURPOSE AND SPECIAL MAINTENANCE REQUIREMENTS SUCH AS THOSE LISTED HERE.
8. A PERMANENT SIGN SHOULD BE ADDED AT THE ENTRANCE AND END OF THE POROUS ASPHALT AREA TO INFORM RESIDENTS AND MAINTENANCE STAFF OF THE SPECIAL NATURE AND PURPOSE OF THE PAVEMENT, AND ITS SPECIAL MAINTENANCE REQUIREMENTS.



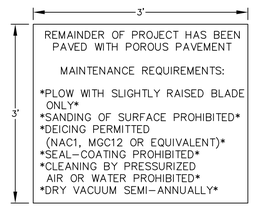
NOTES:
1. 4" FRICTION COARSE CONSISTS OF COARSER AGGREGATE AND STIFFER BINDER. SEE TABLE
2. A WORKING COURSE 4" THICK CONSISTS OF AASHTO NO. 57 STONE.
3. 6" UNDERDRAIN TO BE SET ABOVE CRUSHED GRAVEL BOTTOM TO ALLOW FOR STORAGE AND INFILTRATION. 2.4" OF WATER CAN BE DETAINED UNDER THE UNDERDRAIN.
4. TOP COAT SHOULD BE VACUUMED A MINIMUM OF TWICE A YEAR.
5. ADJACENT AREAS TO POROUS PAVEMENT SHOULD BE GRADED AWAY FROM PAVEMENT TO PREVENT SEDIMENT FROM RUNNING ONTO POROUS AREA AND CLOGGING PORES. ROOF RUNOFF CAN FLOW ONTO PAVEMENT OR INTO SUBBASE MATERIAL.

POROUS PAVEMENT
NOT TO SCALE

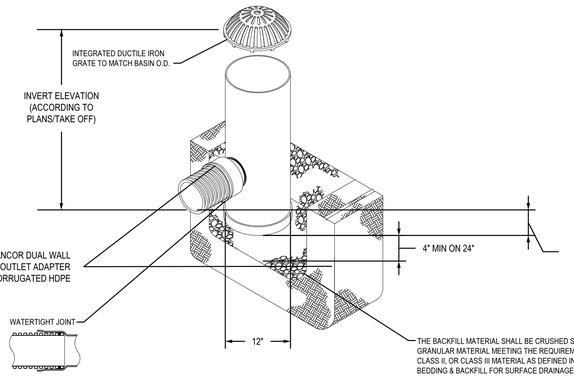


NOTES:
1. THE BIORETENTION MEDIA TO BE SEEDED WITH NE SEMI–SHADE GRASS AND FORBS MIX PROPOSED AT 1–LB PER 1,450 S.F (DROUGHT TOLERANT) OR SIMILAR GRASS SEED PER NHDES.
2. SCARIFY SIDES AND BOTTOM OF BIORETENTION AREA TO FACILITATE NATURAL INFILTRATION RATES.

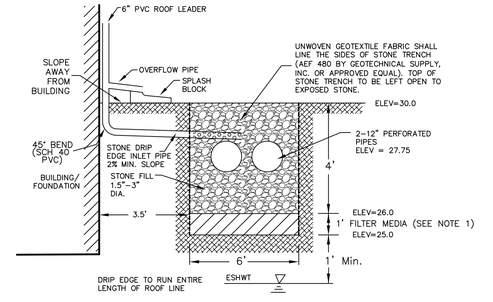
BIORETENTION SECTION
NOT TO SCALE



POROUS PAVEMENT SIGN DETAIL
NOT TO SCALE



12" OVERFLOW RISER WITH DOME GRATE
NOT TO SCALE



NOTES:
1. FILTER MEDIA MIXTURE SHALL BE 20% COMPOST/FINELY SHREDDED BARK OR WOOD MULCH W/<5% PASSING THE #200 SEIVE, 30% LOAMY TOPSOIL, 50% SANDY SOIL (SAND PORTION SHALL BE ASTM C33 FINE AGREGATE).
2. STONE SHALL BE CLEAN AND WASHED.

STONE INFILTRATION TRENCH SECTION
NOT TO SCALE

FILTER MEDIA MIXTURES			
Component Material	Percent of Mixture by Volume	Gradation of material: Sieve No.	Gradation of material: Percent by Weight Passing Standard Sieve
Filter Media Option A			
ASTM C–33 concrete sand	50 to 55		
Loamy sand topsoil, with fines as indicated	20 to 30	200	15 to 25
Moderately fine shredded bark or wood fiber mulch, with fines as indicated	20 to 30	200	< 5
Filter Media Option B			
Moderately fine shredded bark or wood fiber mulch, with fines as indicated	20 to 30	200	< 5
Loamy coarse sand	70 to 80	10	85 to 100
		20	70 to 100
		60	15 to 40
		200	8 to 15

PREPARED FOR:
FOSS MOTORS
133 PORTSMOUTH AVE.
(NH ROUTE 108)
EXETER, NEW HAMPSHIRE

BEALS ASSOCIATES, PLLC
70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603–583–4860,
FAX. 603–583–4863

REVISED PER REVIEW COMMENTS	5/15/24
REVISIONS:	DATE:

CONSTRUCTION DETAILS

COMMERCIAL DEVELOPMENT
ROUTE 108
EXETER, NH
TAX MAP 52, LOT 112.2

DATE:	MAY 3, 2024	SCALE:	NTS
PROJ. N0:	NH-1471	SHEET NO.	8

PREPARED FOR:
FOSS MOTORS
133 PORTSMOUTH AVE.
(NH ROUTE 108)
EXETER, NEW HAMPSHIRE

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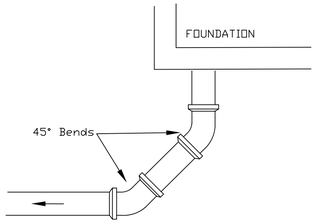
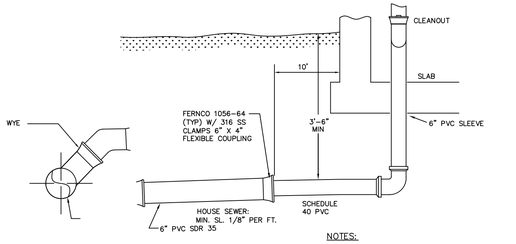


HORIZONTAL DETAIL OF SEWER SERVICE

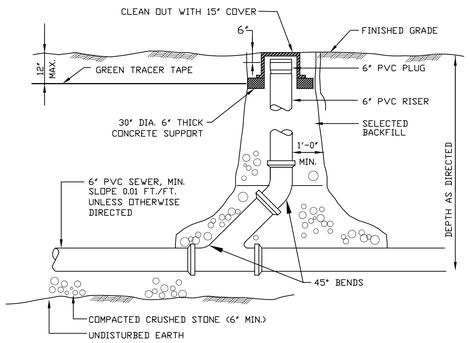


NOTES:

1) SEWER SYSTEM SHALL BE INSTALLED UNDER THIS CONTRACT.

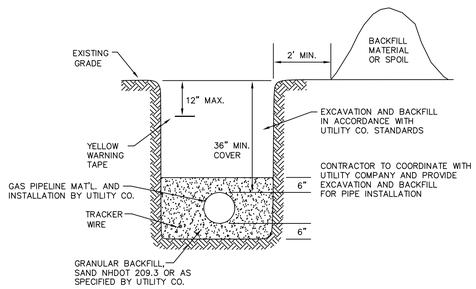
2) PIPE DEPTH AT HOUSE SHALL BE ABOVE THE SEASONAL GROUND WATER LEVEL WHEREVER POSSIBLE.

VERTICAL DETAIL OF SEWER SERVICE

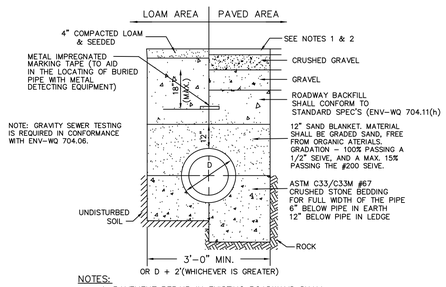


SEWER SERVICE CLEAN OUT

PVC PIPE SHALL CONFORM WITH ASTM D3034 AND ASTM D2412.
PVC JOINTS SEALS SHALL CONFORM WITH ASTM D3212



GAS TRENCH DETAIL



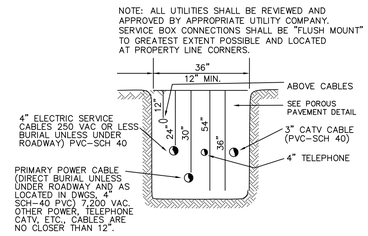
NOTES:

1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM TO MUNICIPAL SPEC'S.

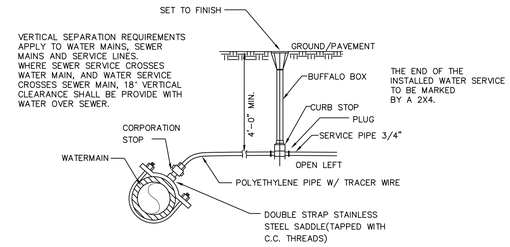
STANDARD BACKFILL SPEC'S.
-NATURAL MATERIALS EXCAVATED FROM THE TRENCH DURING CONSTRUCTION EXCLUDING:
1 DEBRIS;
2 PAVEMENT PIECES;
3 ORGANIC MATTER;
4 TOP SOIL;
5 WET OR SPOT MUCK;
6 PEAT OR CLAY;
7 EXCAVATED LEDGE;
8 ROCKS >6" IN LARGEST DIMENSION;
9 ANY MATERIAL NOT APPRVOED BY THE ENGINEER

TYPICAL SEWER TRENCH DETAIL

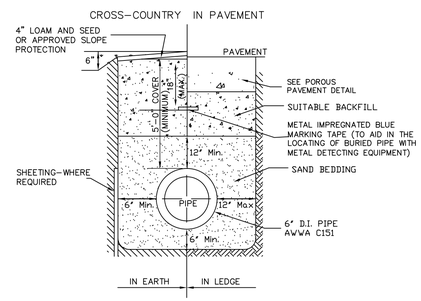
NOTE: ALL UTILITIES SHALL BE REVIEWED AND APPROVED BY APPROPRIATE UTILITY COMPANY. SERVICE BOX CONNECTIONS SHALL BE "FLUSH MOUNT" TO GREATEST EXTENT POSSIBLE AND LOCATED AT PROPERTY LINE CORNERS.



UTILITY TRENCH DETAIL



TYPICAL WATER SERVICE CONNECTION



TYPICAL TRENCH DETAIL FOR WATER SYSTEM

REVISED PER REVIEW COMMENTS	5/15/24
REVISED PER REVIEW COMMENTS	3/28/24
REVISIONS:	DATE:

UTILITY DETAILS

COMMERCIAL DEVELOPMENT
ROUTE 108
EXETER, NH
TAX MAP 52, LOT 112.2

DATE:	FEB, 2024	SCALE:	NTS
PROJ. NO:	NH-1471	SHEET NO.	9

PREPARED FOR:

FOSS MOTORS
133 PORTSMOUTH AVE.
(NH ROUTE 108)
EXETER, NEW HAMPSHIRE

BA BEALS ASSOCIATES, PLLC
70 PORTSMOUTH AVE,
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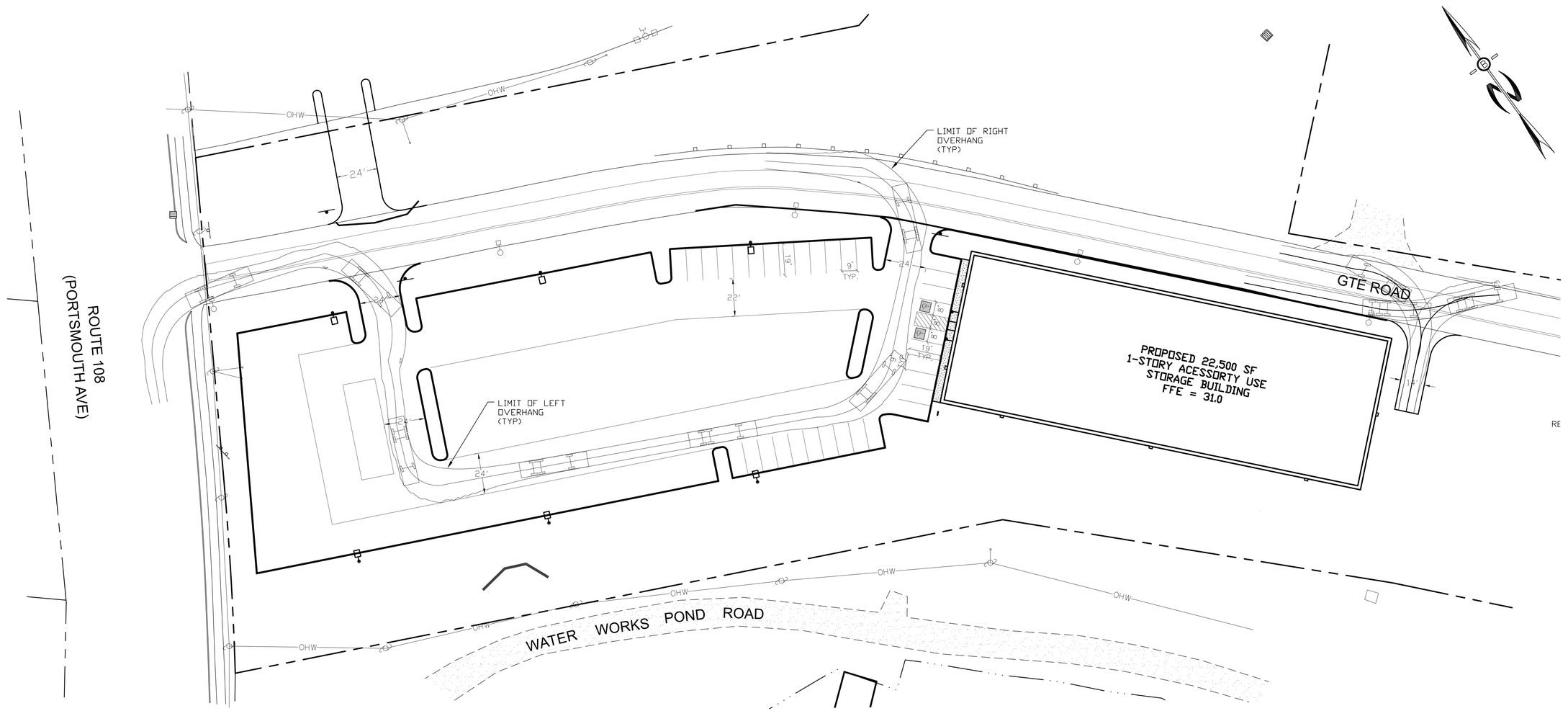
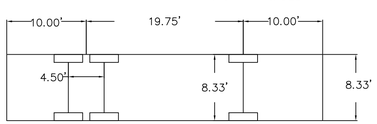


Exeter Aerial Ladder Truck



Tire Diameter: 3.6 FEET

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

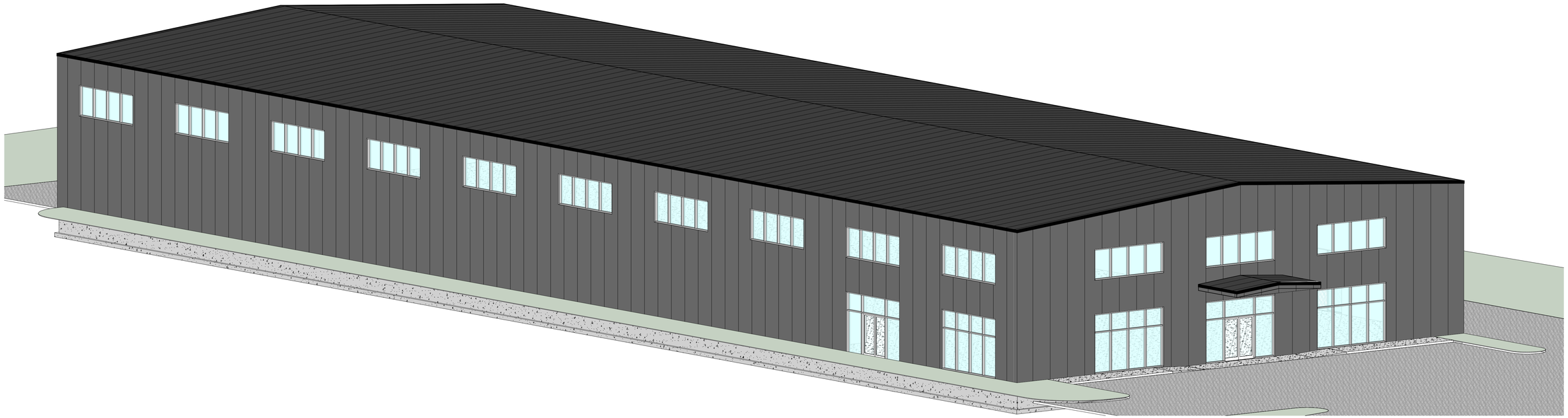
REVISED PER REVIEW COMMENTS	5/15/24
ADDED PER REVIEW COMMENTS	3/28/24
REVISIONS:	DATE:

STATE OF NEW HAMPSHIRE
CHRISTIAN O. SMITH
No. 9900
PROFESSIONAL ENGINEER

EXETER LADDER TRUCK MANEUVERING PLAN

COMMERCIAL DEVELOPMENT
ROUTE 108
EXETER, NH
TAX MAP 52, LOT 112.2

	SCALE: 1" = 30'
PROJ. NO: NH-1471	SHEET NO. 10



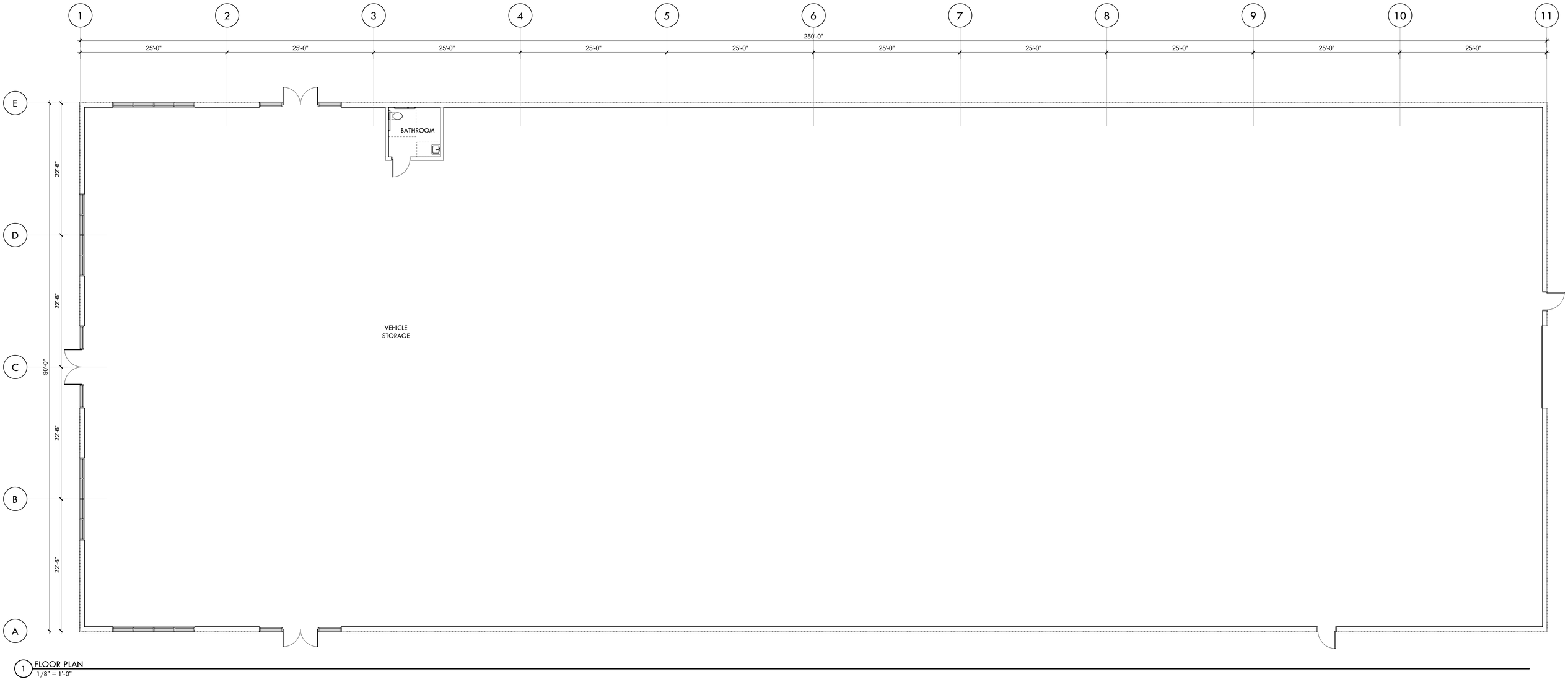
1 SCHEMATIC

JEWETT

SCHEMATIC

FOSS Motors

May 15, 2024



1 FLOOR PLAN
1/8" = 1'-0"

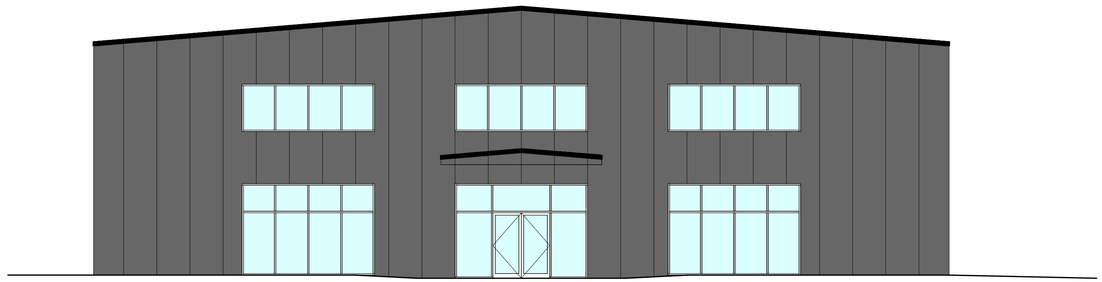
JEWETT

FLOOR PLAN

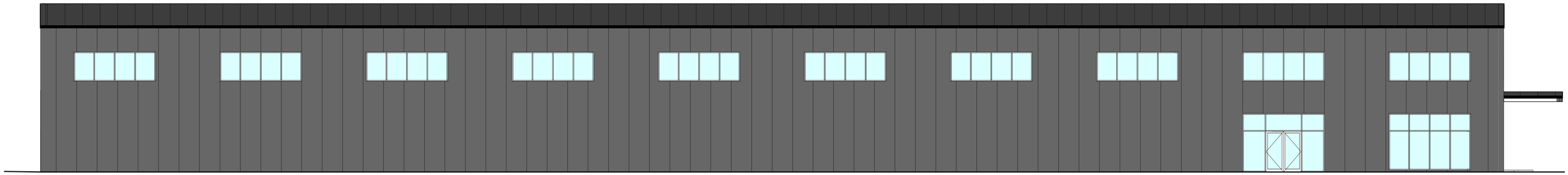
1/8" = 1'-0"

FOSS Motors

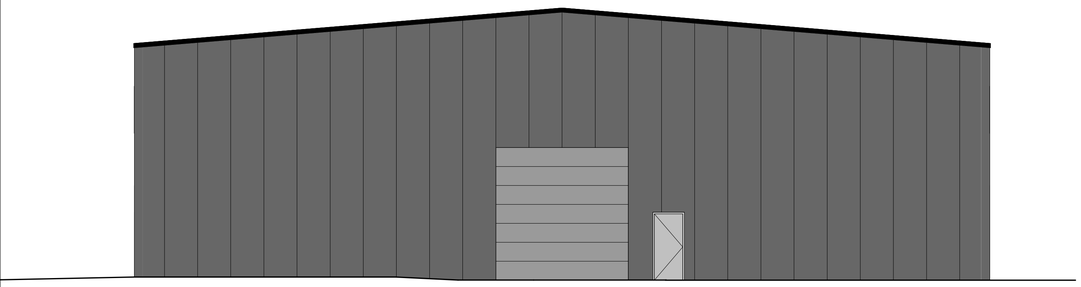
May 15, 2024



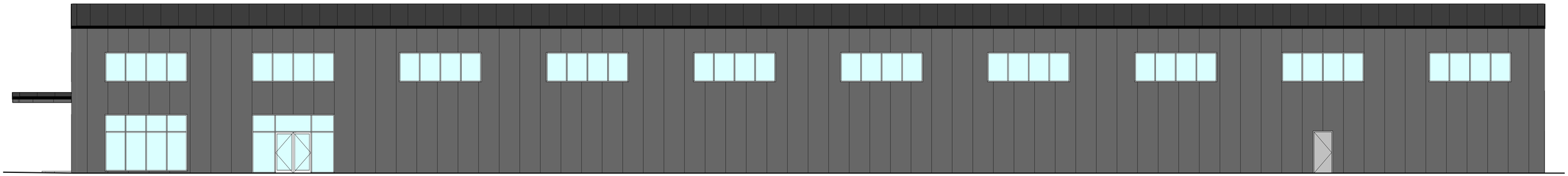
1 WEST ELEVATION
1/8" = 1'-0"



2 NORTH ELEVATION
1/8" = 1'-0"



3 EAST ELEVATION
1/8" = 1'-0"



4 SOUTH ELEVATION
1/8" = 1'-0"

JEWETT

ELEVATIONS

1/8" = 1'-0"

FOSS Motors

May 15, 2024

DRAINAGE ANALYSIS
&
SEDIMENT AND EROSION CONTROL PLAN

Prepared for:

FOSS MOTORS
COMMERCIAL SITE PLAN

Prepared by:

BEALS ASSOCIATES, PLLC
70 PORTSMOUTH AVENUE
STRATHAM, NH 03885

Project Number:
NH-1471
133 Portsmouth Avenue / NH Route 108
Exeter, New Hampshire
February 13, 2024
Revised May 15, 2024

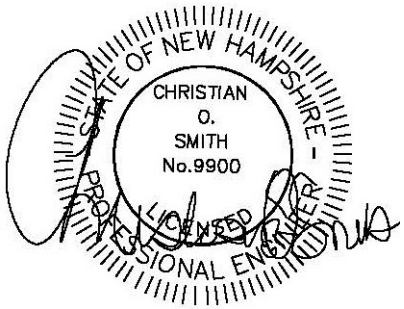


Table of Contents

1.0 ANALYSIS SUMMARY

Foss Motors proposes to construct a commercial site plan to establish a 22,500 sf storage accessory use to the existing car dealership located on the parcel to the north on Portsmouth Avenue (NH Route 108) in Exeter New Hampshire. A drainage analysis of 6.2 acres of the proposed site improvement was conducted for the purpose of estimating the peak rate of stormwater run-off and to subsequently design adequate drainage structures. Two models were compiled: one for the area in its existing (pre-construction) condition and a second for its proposed (post-construction) condition. The analysis was conducted using Extreme Precipitation data provided by Cornell University for the following 24-hour duration storm events, including increasing all 24-hour rainfall data by 15% as required since Exeter is within the designated "coastal region" by NHDES:

Storm Event	Rainfall Depth (inches)
WQV	1.00
2-Year	3.70
10-Year	5.65
25-Year	7.19
50-Year	8.63

These storm events use the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment to model the rainfall and predict stormwater runoff flows and volumes. A Type III storm pattern was used in the model. The purpose of this analysis is to estimate the peak rates of run-off from the site for detention adequacy purposes, and to compare the peak rate of run-off between the existing and proposed conditions.

Peak Rate of Discharge

		Component Peak Rate of Discharge (CFS)				
Analysis Point # Analysis Point Description	**Condition**	**WQV**	**2-Year**	**10-Year**	**25-Year**	**50-Year**
Reach #100 - Southwest	Existing	0.34	4.99	10.59	15.41	20.08
	Proposed	0.33	3.77	9.46	15.00	19.64
Reach #200 - South	Existing	0.00	0.14	0.67	1.27	1.88
	Proposed	0.00	0.07	0.32	0.57	1.29
Reach #300 - Southeast	Existing	0.02	0.16	0.54	0.92	1.34
	Proposed	0.02	0.16	0.54	0.92	1.34

Channel Protection

Analysis Point # Analysis Point Description	Condition	2-Year Storm Volume (Acre-Feet)
Reach #100 - Southwest	Existing Proposed	0.603 0.434
Reach #200 - South	Existing Proposed	0.025 0.010
Reach #300 - Southeast	Existing Proposed	0.025 0.025

As shown above, all post-development storm events either reduce or match the pre-development peak discharge rates. Also, channel protection volumes are either reduced or match when comparing post-development to pre-development.

The proposed storage accessory use includes a paved area for additional vehicle storage and travel ways. Other than the entrances from GTE Road into the site, the parking area consists of porous pavement. The proposed improvement area includes three separate subcatchments. The peak rate of run-off in the proposed conditions is controled with the addition of the porous pavement, a bioretention pond, and a stone infiltration trench along with altering subcatchments to reduce the runoff. All pavement and roof runoff receives treatment from filter media within the porous pavement, bioretention pond, and stone infiltration trench prior to discharging towards the adjacent wetlands and storage to the north. In addition, the potential for increased erosion and sedimentation is handled by way of silt barriers surrounding the disturbed areas. The use of Best Management Practices per the Rockingham Conservation District / DES Handbook have been applied to the design of these structures and will be observed during all stages of construction. All land disturbed during construction will be stabilized within 30 days of groundbreaking. Existing wetlands and abutters will suffer no adverse effects resulting from this proposed development.

2.0 EXISTING CONDITIONS ANALYSIS

The existing property is located on a parcel consisting of a paved roadway, lawn area, brush, and woodlands with wetlands in and adjacent to the site. The existing topography is such that the site analysis is divided into three subcatchments within the area proposed to be improved. Final Reach #100 flows to the existing wetland and storage area to the northeast of the proposed improvement area and ultimately through the existing 36-inch culvert through the site, Reach #200 flows towards the south towards the Exeter Reservoir, and Reach #300 flows towards the southeast towards the Exeter Reservoir.

Classified by Site-Specific Soil Mapping within the developed areas and NRCS Soil Survey for other contributing areas, the site is composed of relatively flat slopes and soils categorized into the Hydrologic Soil Groups (HSG) B and C.

3.0 PROPOSED CONDITIONS ANALYSIS

The addition of the impervious area, clearing of trees, and re-grading of the site causes an increase in the curve number (Cn) and a decrease in the time of concentration (Tc) which results in a potential increase in peak rates of run-off from the site. To reduce these flows to pre-development conditions, various stormwater management systems will be proposed. Porous pavement is provided within the parking area that includes a pipe network with catchbasins and underdrains. There is also a bioretention pond that captures, treats, and stores runoff from a portion of GTE Road. Additionally, a stone infiltration trench along the southern end of the building captures, treats, and stores runoff from the roof, a portion of GTE Road, and the pavement for the firetruck turnaround. The proposed development divides the site into three similar post-construction subcatchments (Reach #300 being identical to the pre-development condition). The runoff is directed to the points of analysis through HydroCAD “reaches” and “ponds”.

During construction, appropriate Best Management Practices (BMP's) will be applied so as to negate the potential for sediment-laden run-off to discharge off-site prior to the final stabilization of the proposed grading. The structures outlined in this proposal provide for adequate treatment of stormwater run-off for sediment control.

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

The proposed site development is protected from erosion and the roadways and abutting properties are protected from sediment by the use of Best Management Practices as outlined in the New Hampshire Stormwater Manual. Any area disturbed by construction will be re-stabilized within 30 days, and abutting properties and wetlands will not be adversely affected by this development. All swales and drainage structures will be constructed and stabilized prior to having run-off directed to them.

4.1 Silt Barrier / Construction Fence

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

4.2 Vegetated Stabilization

All areas that are disturbed during construction will be stabilized with vegetated material within 30 days of disturbance. Construction will be managed in such a manner that erosion is prevented and that no abutter’s property will be subjected to any siltation, unless otherwise permitted. All

areas to be planted with grass for long-term cover will follow the specifications on Sheet E-1 using the seeding mixture below:

Mixture C	Pounds per Acre	Pounds per 1,000 sf
Tall Fescue	20	0.45
Creeping Red Fescue	20	0.45
Birdsfoot Trefoil	8	0.20
Total	**48**	**1.10**

4.3 Stabilized Construction Entrance/Exit

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

4.2 Drainage Swales / Stormwater Conveyance Channels

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

4.5 Level Spreaders

Level spreaders enable any run-off directed towards them to be spread evenly into sheet flow prior to discharge into wetlands or treatment by a filter strip, thus allowing for better filter strip efficiency and a lesser potential for erosion.

4.6 Vegetated Buffers

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

4.6 Filter Strips

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

4.4 Environmental Dust Control

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

4.5 Construction Sequence

1. Cut and remove trees in construction areas as directed or required.
2. Construct and/or install temporary and permanent sediment erosion and detention control facilities, as required. Erosion, sediment, and facilities shall be installed and stabilized prior to any earth moving operation, and prior to directing run-off to them.
3. Clear, cut, grub, and dispose of debris in approved facilities.
4. Excavate and stockpile topsoil / loam. All disturbed areas shall be stabilized immediately after grading.
5. Construct the paved area, underground detention pond with associated drainage structures, and building.
6. Begin permanent and temporary seeding and mulching. All cut and fill slopes and disturbed areas shall be seeded and mulched as required or directed.
7. Daily, or as required, construct temporary berms, drainage ditches, sediment traps, etc. to prevent erosion on the site and prevent any siltation of abutting waters or property.
8. Inspect and maintain all erosion and sediment control measures during construction.
9. Complete permanent seeding and landscaping.
10. Remove temporary erosion control measures after seeding areas have established themselves and site improvements are complete. Smooth and re-vegetate all disturbed areas.
11. All swales and drainage structures will be constructed and stabilized prior to having run-off being directed to them.

4.6 Temporary Erosion Control Measures

1. The smallest practical area of land shall be exposed at any one time.

2. Erosion and sediment control measures shall be installed as shown on the plans and at locations as required, or directed by the engineer.

3. All disturbed areas shall be returned to original grades and elevations. Disturbed areas shall be loamed with a minimum of 4” of loam and seeded with not less than 1.10 pound of seed per 1,000 square feet (48 pounds per acre) of area.

4. Silt barriers shall be inspected periodically and after every rainstorm during the life of the project. All damaged areas shall be repaired and sediment deposits shall periodically be removed and properly disposed of.

5. After all disturbed areas have been stabilized, the temporary erosion control measures are to be removed and the area disturbed by the removal smoothed and revegetated.

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

4.7 Inspection and Maintenance Schedule

Silt barriers shall be inspected during and after storm events to ensure that the fence still has integrity and is not allowing sediment to pass.

5.0 CONCLUSION

This proposed site development on Portsmouth Avenue (NH Route 108) in Exeter, NH will have no adverse effect on the abutting property owners by way of stormwater run-off or siltation. Appropriate steps will be taken to eliminate erosion and sedimentation; these will be accomplished through the construction of a drainage system consisting of porous pavement, a bioretention pond, and an stone infiltration trench. The Best Management Practices developed by the State of New Hampshire have been utilized in the design of this system and these applications will be enforced throughout the construction process.

An Alteration of Terrain Permit (RSA 485: A-17) is required for this project due to the area of disturbance being more than 50,000 square feet within a shoreland protection area.

Respectfully Submitted,

BEALS ASSOCIATES, *PLLC.*

Christian O. Smith

Christian O Smith, PE
Principal

Appendix I

Existing Conditions Analysis

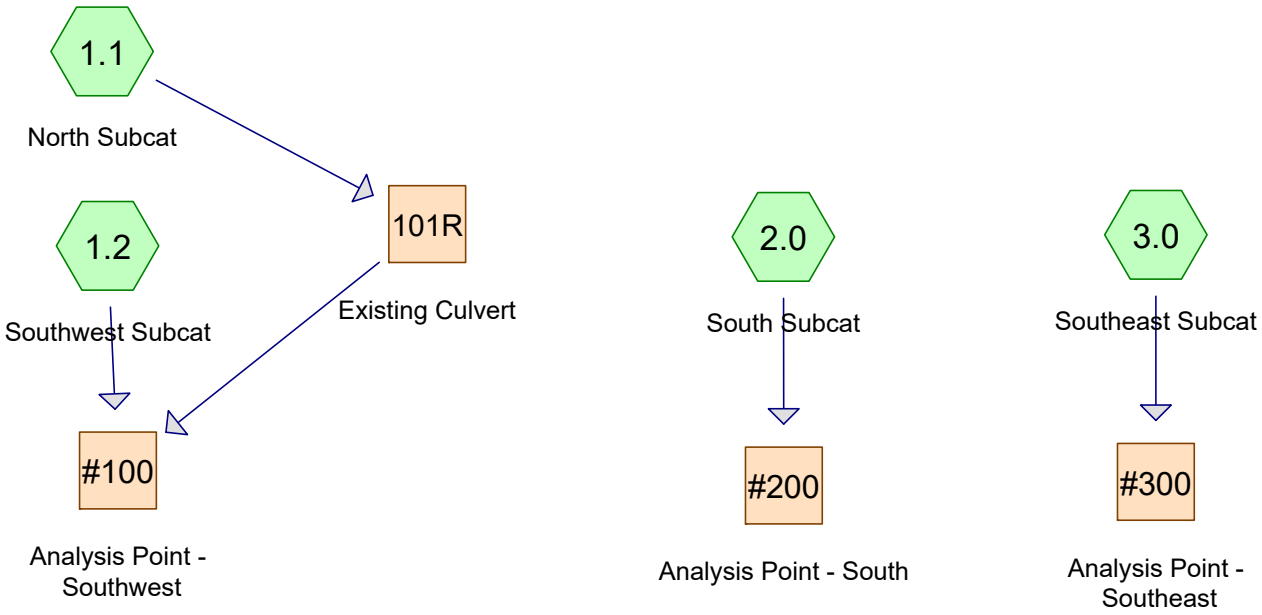
WQV (1-Inch) 24-Hour Summary

2-Year 24-Hour Summary

10-Year 24-Hour Complete

25-Year 24-Hour Summary

50-Year 24-Hour Summary



Subcat Reach Pond Link

Routing Diagram for NH-1471 Existing
Prepared by Beals Associates, PLLC, Printed 5/10/2024

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.023	61	>75% Grass cover, Good, HSG B (3.0)
1.669	74	>75% Grass cover, Good, HSG C (1.1, 1.2, 3.0)
0.011	48	Brush, Good, HSG B (3.0)
0.177	65	Brush, Good, HSG C (1.1, 3.0)
0.580	98	Paved parking, HSG C (1.1, 1.2, 3.0)
1.258	55	Woods, Good, HSG B (1.2, 2.0, 3.0)
2.486	70	Woods, Good, HSG C (1.1, 1.2, 2.0, 3.0)
6.204	**70**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1.292	HSG B	1.2, 2.0, 3.0
4.913	HSG C	1.1, 1.2, 2.0, 3.0
0.000	HSG D	
0.000	Other	
6.204		**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.10 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: North Subcat Runoff Area=98,624 sf 14.64% Impervious Runoff Depth=0.12"
Flow Length=451' Tc=11.1 min CN=WQ Runoff=0.23 cfs 0.023 af

Subcatchment 1.2: Southwest Subcat Runoff Area=121,015 sf 7.86% Impervious Runoff Depth=0.08"
Flow Length=726' Tc=24.3 min CN=WQ Runoff=0.12 cfs 0.017 af

Subcatchment 2.0: South Subcat Runoff Area=30,220 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=179' Tc=15.6 min CN=WQ Runoff=0.00 cfs 0.000 af

Subcatchment 3.0: Southeast Subcat Runoff Area=20,396 sf 6.41% Impervious Runoff Depth=0.05"
Flow Length=153' Tc=17.0 min CN=WQ Runoff=0.02 cfs 0.002 af

Reach #100: Analysis Point - Southwest Inflow=0.34 cfs 0.040 af
Outflow=0.34 cfs 0.040 af

Reach #200: Analysis Point - South Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach #300: Analysis Point - Southeast Inflow=0.02 cfs 0.002 af
Outflow=0.02 cfs 0.002 af

Reach 101R: Existing Culvert Avg. Flow Depth=0.11' Max Vel=2.78 fps Inflow=0.23 cfs 0.023 af
36.0" Round Pipe n=0.013 L=366.0' S=0.0191 '/' Capacity=92.24 cfs Outflow=0.23 cfs 0.023 af

Total Runoff Area = 6.204 ac Runoff Volume = 0.042 af Average Runoff Depth = 0.08"
90.65% Pervious = 5.624 ac 9.35% Impervious = 0.580 ac

Time span=0.00-72.00 hrs, dt=0.10 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: North Subcat Runoff Area=98,624 sf 14.64% Impervious Runoff Depth=1.49"
Flow Length=451' Tc=11.1 min CN=WQ Runoff=2.86 cfs 0.281 af

Subcatchment 1.2: Southwest Subcat Runoff Area=121,015 sf 7.86% Impervious Runoff Depth=1.39"
Flow Length=726' Tc=24.3 min CN=WQ Runoff=2.58 cfs 0.322 af

Subcatchment 2.0: South Subcat Runoff Area=30,220 sf 0.00% Impervious Runoff Depth=0.43"
Flow Length=179' Tc=15.6 min CN=WQ Runoff=0.14 cfs 0.025 af

Subcatchment 3.0: Southeast Subcat Runoff Area=20,396 sf 6.41% Impervious Runoff Depth=0.64"
Flow Length=153' Tc=17.0 min CN=WQ Runoff=0.16 cfs 0.025 af

Reach #100: Analysis Point - Southwest Inflow=4.99 cfs 0.603 af
Outflow=4.99 cfs 0.603 af

Reach #200: Analysis Point - South Inflow=0.14 cfs 0.025 af
Outflow=0.14 cfs 0.025 af

Reach #300: Analysis Point - Southeast Inflow=0.16 cfs 0.025 af
Outflow=0.16 cfs 0.025 af

Reach 101R: Existing Culvert Avg. Flow Depth=0.37' Max Vel=5.93 fps Inflow=2.86 cfs 0.281 af
36.0" Round Pipe n=0.013 L=366.0' S=0.0191 '/' Capacity=92.24 cfs Outflow=2.92 cfs 0.281 af

Total Runoff Area = 6.204 ac Runoff Volume = 0.652 af Average Runoff Depth = 1.26"
90.65% Pervious = 5.624 ac 9.35% Impervious = 0.580 ac

Time span=0.00-72.00 hrs, dt=0.10 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: North Subcat Runoff Area=98,624 sf 14.64% Impervious Runoff Depth=2.97"
Flow Length=451' Tc=11.1 min CN=WQ Runoff=5.95 cfs 0.560 af

Subcatchment 1.2: Southwest Subcat Runoff Area=121,015 sf 7.86% Impervious Runoff Depth=2.85"
Flow Length=726' Tc=24.3 min CN=WQ Runoff=5.58 cfs 0.661 af

Subcatchment 2.0: South Subcat Runoff Area=30,220 sf 0.00% Impervious Runoff Depth=1.34"
Flow Length=179' Tc=15.6 min CN=WQ Runoff=0.67 cfs 0.077 af

Subcatchment 3.0: Southeast Subcat Runoff Area=20,396 sf 6.41% Impervious Runoff Depth=1.63"
Flow Length=153' Tc=17.0 min CN=WQ Runoff=0.54 cfs 0.064 af

Reach #100: Analysis Point - Southwest Inflow=10.59 cfs 1.221 af
Outflow=10.59 cfs 1.221 af

Reach #200: Analysis Point - South Inflow=0.67 cfs 0.077 af
Outflow=0.67 cfs 0.077 af

Reach #300: Analysis Point - Southeast Inflow=0.54 cfs 0.064 af
Outflow=0.54 cfs 0.064 af

Reach 101R: Existing Culvert Avg. Flow Depth=0.52' Max Vel=7.37 fps Inflow=5.95 cfs 0.560 af
36.0" Round Pipe n=0.013 L=366.0' S=0.0191 '/' Capacity=92.24 cfs Outflow=6.05 cfs 0.560 af

Total Runoff Area = 6.204 ac Runoff Volume = 1.362 af Average Runoff Depth = 2.63"
90.65% Pervious = 5.624 ac 9.35% Impervious = 0.580 ac

Summary for Subcatchment 1.1: North Subcat

[49] Hint: Tc<2dt may require smaller dt

Runoff = 5.95 cfs @ 12.17 hrs, Volume= 0.560 af, Depth= 2.97"
Routed to Reach 101R : Existing Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Type III 24-hr 10-YR Rainfall=5.65"

Area (sf)	CN	Description
7,697	65	Brush, Good, HSG C
62,761	70	Woods, Good, HSG C
13,731	74	>75% Grass cover, Good, HSG C
14,435	98	Paved parking, HSG C
98,624		Weighted Average
84,189		85.36% Pervious Area
14,435		14.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	50	0.0360	0.18		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.92"
3.4	202	0.0198	0.98		**Shallow Concentrated Flow, SCF thru grass** Short Grass Pasture Kv= 7.0 fps
3.0	199	0.0498	1.12		**Shallow Concentrated Flow, SCF thru woods** Woodland Kv= 5.0 fps
11.1	451	Total			

Summary for Subcatchment 1.2: Southwest Subcat

Runoff = 5.58 cfs @ 12.35 hrs, Volume= 0.661 af, Depth= 2.85"
Routed to Reach #100 : Analysis Point - Southwest

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Type III 24-hr 10-YR Rainfall=5.65"

Area (sf)	CN	Description
7,950	55	Woods, Good, HSG B
44,576	70	Woods, Good, HSG C
58,973	74	>75% Grass cover, Good, HSG C
9,516	98	Paved parking, HSG C
121,015		Weighted Average
111,499		92.14% Pervious Area
9,516		7.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	50	0.1060	0.07		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 2.92"
8.9	378	0.0103	0.71		**Shallow Concentrated Flow, SCF thru grass** Short Grass Pasture Kv= 7.0 fps
3.9	298	0.0637	1.26		**Shallow Concentrated Flow, SCF thru woods** Woodland Kv= 5.0 fps
24.3	726	Total			

Summary for Subcatchment 2.0: South Subcat

Runoff = 0.67 cfs @ 12.26 hrs, Volume= 0.077 af, Depth= 1.34"
Routed to Reach #200 : Analysis Point - South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Type III 24-hr 10-YR Rainfall=5.65"

Area (sf)	CN	Description
29,826	55	Woods, Good, HSG B
394	70	Woods, Good, HSG C
30,220		Weighted Average
30,220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	50	0.0640	0.06		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 2.92"
1.5	129	0.0868	1.47		**Shallow Concentrated Flow, SCF thru woods** Woodland Kv= 5.0 fps
15.6	179	Total			

Summary for Subcatchment 3.0: Southeast Subcat

Runoff = 0.54 cfs @ 12.27 hrs, Volume= 0.064 af, Depth= 1.63"
Routed to Reach #300 : Analysis Point - Southeast

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Type III 24-hr 10-YR Rainfall=5.65"

Area (sf)	CN	Description
475	48	Brush, Good, HSG B
17,025	55	Woods, Good, HSG B
983	61	>75% Grass cover, Good, HSG B
29	65	Brush, Good, HSG C
567	70	Woods, Good, HSG C
9	74	>75% Grass cover, Good, HSG C
1,308	98	Paved parking, HSG C
20,396		Weighted Average
19,088		93.59% Pervious Area
1,308		6.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	50	0.0490	0.05		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 2.92"
1.3	103	0.0728	1.35		**Shallow Concentrated Flow, SCF thru woods** Woodland Kv= 5.0 fps
17.0	153	Total			

Summary for Reach #100: Analysis Point - Southwest

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.042 ac, 10.90% Impervious, Inflow Depth = 2.91" for 10-YR event
Inflow = 10.59 cfs @ 12.23 hrs, Volume= 1.221 af
Outflow = 10.59 cfs @ 12.23 hrs, Volume= 1.221 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs

Summary for Reach #200: Analysis Point - South

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.694 ac, 0.00% Impervious, Inflow Depth = 1.34" for 10-YR event
Inflow = 0.67 cfs @ 12.26 hrs, Volume= 0.077 af
Outflow = 0.67 cfs @ 12.26 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs

Summary for Reach #300: Analysis Point - Southeast

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.468 ac, 6.41% Impervious, Inflow Depth = 1.63" for 10-YR event
Inflow = 0.54 cfs @ 12.27 hrs, Volume= 0.064 af
Outflow = 0.54 cfs @ 12.27 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs

Summary for Reach 101R: Existing Culvert

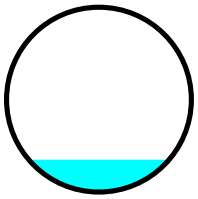
[52] Hint: Inlet/Outlet conditions not evaluated
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 2.264 ac, 14.64% Impervious, Inflow Depth = 2.97" for 10-YR event
Inflow = 5.95 cfs @ 12.17 hrs, Volume= 0.560 af
Outflow = 6.05 cfs @ 12.19 hrs, Volume= 0.560 af, Atten= 0%, Lag= 1.0 min
Routed to Reach #100 : Analysis Point - Southwest

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Max. Velocity= 7.37 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.35 fps, Avg. Travel Time= 2.6 min

Peak Storage= 300 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.52' , Surface Width= 2.27'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 92.24 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 366.0' Slope= 0.0191 '/'
Inlet Invert= 14.10', Outlet Invert= 7.10'



Time span=0.00-72.00 hrs, dt=0.10 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: North Subcat Runoff Area=98,624 sf 14.64% Impervious Runoff Depth=4.26"
Flow Length=451' Tc=11.1 min CN=WQ Runoff=8.60 cfs 0.804 af

Subcatchment 1.2: Southwest Subcat Runoff Area=121,015 sf 7.86% Impervious Runoff Depth=4.14"
Flow Length=726' Tc=24.3 min CN=WQ Runoff=8.15 cfs 0.958 af

Subcatchment 2.0: South Subcat Runoff Area=30,220 sf 0.00% Impervious Runoff Depth=2.27"
Flow Length=179' Tc=15.6 min CN=WQ Runoff=1.27 cfs 0.131 af

Subcatchment 3.0: Southeast Subcat Runoff Area=20,396 sf 6.41% Impervious Runoff Depth=2.61"
Flow Length=153' Tc=17.0 min CN=WQ Runoff=0.92 cfs 0.102 af

Reach #100: Analysis Point - Southwest Inflow=15.41 cfs 1.761 af
Outflow=15.41 cfs 1.761 af

Reach #200: Analysis Point - South Inflow=1.27 cfs 0.131 af
Outflow=1.27 cfs 0.131 af

Reach #300: Analysis Point - Southeast Inflow=0.92 cfs 0.102 af
Outflow=0.92 cfs 0.102 af

Reach 101R: Existing Culvert Avg. Flow Depth=0.62' Max Vel=8.20 fps Inflow=8.60 cfs 0.804 af
36.0" Round Pipe n=0.013 L=366.0' S=0.0191 '/' Capacity=92.24 cfs Outflow=8.74 cfs 0.804 af

Total Runoff Area = 6.204 ac Runoff Volume = 1.994 af Average Runoff Depth = 3.86"
90.65% Pervious = 5.624 ac 9.35% Impervious = 0.580 ac

Time span=0.00-72.00 hrs, dt=0.10 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: North Subcat Runoff Area=98,624 sf 14.64% Impervious Runoff Depth=5.53"
Flow Length=451' Tc=11.1 min CN=WQ Runoff=11.16 cfs 1.042 af

Subcatchment 1.2: Southwest Subcat Runoff Area=121,015 sf 7.86% Impervious Runoff Depth=5.39"
Flow Length=726' Tc=24.3 min CN=WQ Runoff=10.65 cfs 1.249 af

Subcatchment 2.0: South Subcat Runoff Area=30,220 sf 0.00% Impervious Runoff Depth=3.25"
Flow Length=179' Tc=15.6 min CN=WQ Runoff=1.88 cfs 0.188 af

Subcatchment 3.0: Southeast Subcat Runoff Area=20,396 sf 6.41% Impervious Runoff Depth=3.62"
Flow Length=153' Tc=17.0 min CN=WQ Runoff=1.34 cfs 0.141 af

Reach #100: Analysis Point - Southwest Inflow=20.08 cfs 2.291 af
Outflow=20.08 cfs 2.291 af

Reach #200: Analysis Point - South Inflow=1.88 cfs 0.188 af
Outflow=1.88 cfs 0.188 af

Reach #300: Analysis Point - Southeast Inflow=1.34 cfs 0.141 af
Outflow=1.34 cfs 0.141 af

Reach 101R: Existing Culvert Avg. Flow Depth=0.71' Max Vel=8.84 fps Inflow=11.16 cfs 1.042 af
36.0" Round Pipe n=0.013 L=366.0' S=0.0191 '/' Capacity=92.24 cfs Outflow=11.33 cfs 1.042 af

Total Runoff Area = 6.204 ac Runoff Volume = 2.620 af Average Runoff Depth = 5.07"
90.65% Pervious = 5.624 ac 9.35% Impervious = 0.580 ac

Appendix II

Proposed Conditions Analysis

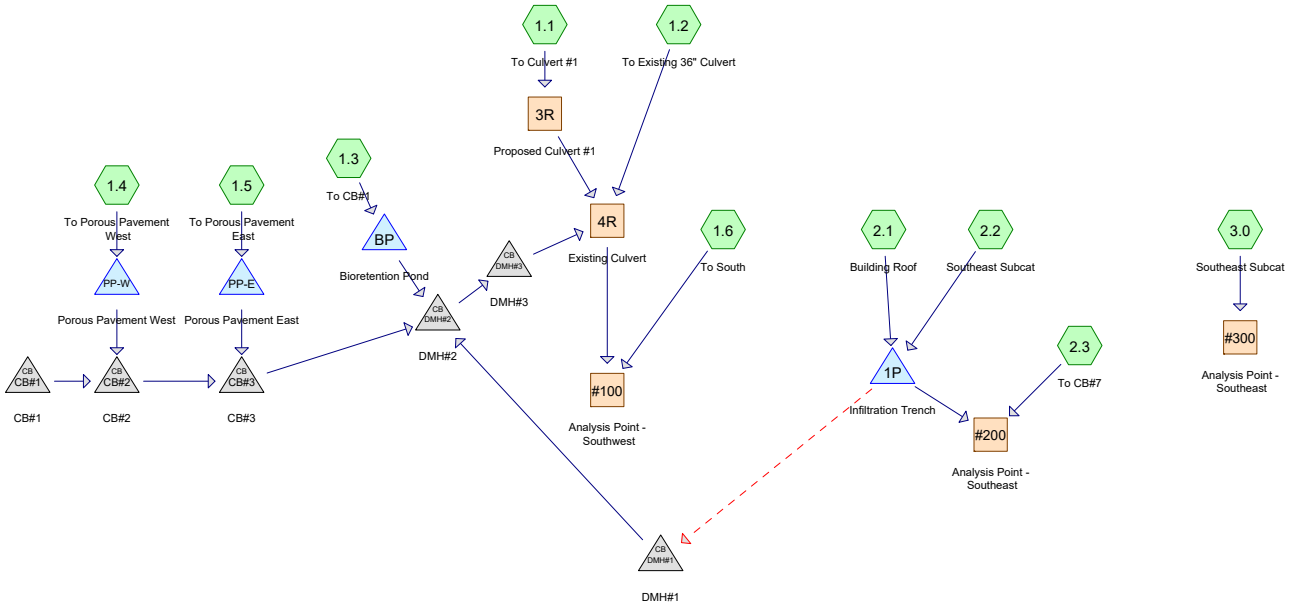
WQV (1-Inch) 24-Hour Summary

2-Year 24-Hour Summary

10-Year 24-Hour Complete

25-Year 24-Hour Summary

50-Year 24-Hour Summary



Subcat Reach Pond Link

Routing Diagram for NH-1471 Proposed
Prepared by Beals Associates, PLLC, Printed 5/10/2024
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.164	61	>75% Grass cover, Good, HSG B (2.2, 2.3, 3.0)
0.862	74	>75% Grass cover, Good, HSG C (1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.2, 3.0)
0.011	48	Brush, Good, HSG B (3.0)
0.140	65	Brush, Good, HSG C (1.1, 1.2, 2.2, 3.0)
0.070	98	Paved parking, HSG B (2.2)
1.908	98	Paved parking, HSG C (1.1, 1.2, 1.3, 1.4, 1.5, 2.2, 3.0)
0.288	98	Roofs, HSG B (2.1)
0.229	98	Roofs, HSG C (2.1)
0.758	55	Woods, Good, HSG B (1.6, 2.2, 2.3, 3.0)
1.773	70	Woods, Good, HSG C (1.2, 1.6, 2.2, 2.3, 3.0)
6.204	**80**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1.292	HSG B	1.6, 2.1, 2.2, 2.3, 3.0
4.913	HSG C	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 3.0
0.000	HSG D	
0.000	Other	
6.204		**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.10 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: To Culvert #1 Runoff Area=5,470 sf 21.55% Impervious Runoff Depth=0.18"
Tc=6.0 min CN=WQ Runoff=0.02 cfs 0.002 af

Subcatchment 1.2: To Existing 36" Culvert Runoff Area=93,154 sf 17.06% Impervious Runoff Depth=0.14"
Flow Length=397' Tc=8.4 min CN=WQ Runoff=0.28 cfs 0.025 af

Subcatchment 1.3: To CB#1 Runoff Area=15,839 sf 47.86% Impervious Runoff Depth=0.39"
Flow Length=435' Tc=9.9 min CN=WQ Runoff=0.13 cfs 0.012 af

Subcatchment 1.4: To Porous Pavement Runoff Area=37,577 sf 93.17% Impervious Runoff Depth=0.74"
Flow Length=96' Tc=63.7 min CN=WQ Runoff=0.27 cfs 0.053 af

Subcatchment 1.5: To Porous Pavement Runoff Area=21,269 sf 95.91% Impervious Runoff Depth=0.76"
Flow Length=93' Tc=64.6 min CN=WQ Runoff=0.16 cfs 0.031 af

Subcatchment 1.6: To South Runoff Area=26,188 sf 0.00% Impervious Runoff Depth=0.01"
Flow Length=311' Tc=16.1 min CN=WQ Runoff=0.00 cfs 0.001 af

Subcatchment 2.1: Building Roof Runoff Area=22,500 sf 100.00% Impervious Runoff Depth=0.79"
Tc=6.0 min CN=WQ Runoff=0.43 cfs 0.034 af

Subcatchment 2.2: Southeast Subcat Runoff Area=15,592 sf 30.94% Impervious Runoff Depth=0.25"
Flow Length=186' Tc=9.9 min CN=WQ Runoff=0.08 cfs 0.007 af

Subcatchment 2.3: To CB#7 Runoff Area=12,270 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=170' Tc=11.4 min CN=WQ Runoff=0.00 cfs 0.000 af

Subcatchment 3.0: Southeast Subcat Runoff Area=20,396 sf 6.41% Impervious Runoff Depth=0.05"
Flow Length=153' Tc=17.0 min CN=WQ Runoff=0.02 cfs 0.002 af

Reach #100: Analysis Point - Southwest Inflow=0.33 cfs 0.039 af
Outflow=0.33 cfs 0.039 af

Reach #200: Analysis Point - Southeast Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach #300: Analysis Point - Southeast Inflow=0.02 cfs 0.002 af
Outflow=0.02 cfs 0.002 af

Reach 3R: Proposed Culvert #1 Avg. Flow Depth=0.06' Max Vel=1.07 fps Inflow=0.02 cfs 0.002 af
12.0" Round Pipe n=0.012 L=56.0' S=0.0054 '/' Capacity=2.83 cfs Outflow=0.02 cfs 0.002 af

Reach 4R: Existing Culvert Avg. Flow Depth=0.13' Max Vel=3.07 fps Inflow=0.35 cfs 0.039 af
36.0" Round Pipe n=0.013 L=366.0' S=0.0191 '/' Capacity=92.24 cfs Outflow=0.33 cfs 0.039 af

Pond 1P: Infiltration Trench Peak Elev=25.08' Storage=39 cf Inflow=0.51 cfs 0.041 af
Discarded=0.38 cfs 0.042 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.38 cfs 0.042 af

Pond BP: Bioretention Pond Peak Elev=23.14' Storage=127 cf Inflow=0.13 cfs 0.012 af
Outflow=0.06 cfs 0.012 af

Pond CB#1: CB#1 Peak Elev=0.00'
12.0" Round Culvert n=0.013 L=232.0' S=0.0050 '/' Primary=0.00 cfs 0.000 af

Pond CB#2: CB#2 Peak Elev=21.84' Inflow=0.00 cfs 0.000 af
15.0" Round Culvert n=0.013 L=126.0' S=0.0050 '/' Outflow=0.00 cfs 0.000 af

Pond CB#3: CB#3 Peak Elev=21.11' Inflow=0.00 cfs 0.000 af
15.0" Round Culvert n=0.013 L=62.0' S=0.0050 '/' Outflow=0.00 cfs 0.000 af

Pond DMH#1: DMH#1 Peak Elev=24.50' Inflow=0.00 cfs 0.000 af
15.0" Round Culvert n=0.013 L=52.0' S=0.0288 '/' Outflow=0.00 cfs 0.000 af

Pond DMH#2: DMH#2 Peak Elev=19.50' Inflow=0.06 cfs 0.012 af
18.0" Round Culvert n=0.013 L=65.0' S=0.0051 '/' Outflow=0.06 cfs 0.012 af

Pond DMH#3: DMH#3 Peak Elev=19.17' Inflow=0.06 cfs 0.012 af
18.0" Round Culvert n=0.013 L=10.0' S=0.0050 '/' Outflow=0.06 cfs 0.012 af

Pond PP-E: Porous Pavement East Peak Elev=23.17' Storage=26 cf Inflow=0.16 cfs 0.031 af
Discarded=0.14 cfs 0.031 af Primary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.031 af

Pond PP-W: Porous Pavement West Peak Elev=23.18' Storage=71 cf Inflow=0.27 cfs 0.053 af
Discarded=0.23 cfs 0.053 af Primary=0.00 cfs 0.000 af Outflow=0.23 cfs 0.053 af

Total Runoff Area = 6.204 ac Runoff Volume = 0.167 af Average Runoff Depth = 0.32"
59.78% Pervious = 3.709 ac 40.22% Impervious = 2.495 ac

Time span=0.00-72.00 hrs, dt=0.10 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: To Culvert #1 Runoff Area=5,470 sf 21.55% Impervious Runoff Depth=1.70"
Tc=6.0 min CN=WQ Runoff=0.22 cfs 0.018 af

Subcatchment 1.2: To Existing 36" Culvert Runoff Area=93,154 sf 17.06% Impervious Runoff Depth=1.55"
Flow Length=397' Tc=8.4 min CN=WQ Runoff=3.09 cfs 0.276 af

Subcatchment 1.3: To CB#1 Runoff Area=15,839 sf 47.86% Impervious Runoff Depth=2.38"
Flow Length=435' Tc=9.9 min CN=WQ Runoff=0.76 cfs 0.072 af

Subcatchment 1.4: To Porous Pavement Runoff Area=37,577 sf 93.17% Impervious Runoff Depth=3.32"
Flow Length=96' Tc=63.7 min CN=WQ Runoff=1.16 cfs 0.239 af

Subcatchment 1.5: To Porous Pavement Runoff Area=21,269 sf 95.91% Impervious Runoff Depth=3.38"
Flow Length=93' Tc=64.6 min CN=WQ Runoff=0.66 cfs 0.138 af

Subcatchment 1.6: To South Runoff Area=26,188 sf 0.00% Impervious Runoff Depth=1.19"
Flow Length=311' Tc=16.1 min CN=WQ Runoff=0.57 cfs 0.059 af

Subcatchment 2.1: Building Roof Runoff Area=22,500 sf 100.00% Impervious Runoff Depth=3.47"
Tc=6.0 min CN=WQ Runoff=1.73 cfs 0.149 af

Subcatchment 2.2: Southeast Subcat Runoff Area=15,592 sf 30.94% Impervious Runoff Depth=1.56"
Flow Length=186' Tc=9.9 min CN=WQ Runoff=0.45 cfs 0.047 af

Subcatchment 2.3: To CB#7 Runoff Area=12,270 sf 0.00% Impervious Runoff Depth=0.45"
Flow Length=170' Tc=11.4 min CN=WQ Runoff=0.07 cfs 0.010 af

Subcatchment 3.0: Southeast Subcat Runoff Area=20,396 sf 6.41% Impervious Runoff Depth=0.64"
Flow Length=153' Tc=17.0 min CN=WQ Runoff=0.16 cfs 0.025 af

Reach #100: Analysis Point - Southwest Inflow=3.77 cfs 0.434 af
Outflow=3.77 cfs 0.434 af

Reach #200: Analysis Point - Southeast Inflow=0.07 cfs 0.010 af
Outflow=0.07 cfs 0.010 af

Reach #300: Analysis Point - Southeast Inflow=0.16 cfs 0.025 af
Outflow=0.16 cfs 0.025 af

Reach 3R: Proposed Culvert #1 Avg. Flow Depth=0.19' Max Vel=2.11 fps Inflow=0.22 cfs 0.018 af
12.0" Round Pipe n=0.012 L=56.0' S=0.0054 '/' Capacity=2.83 cfs Outflow=0.21 cfs 0.018 af

Reach 4R: Existing Culvert Avg. Flow Depth=0.39' Max Vel=6.08 fps Inflow=3.46 cfs 0.375 af
36.0" Round Pipe n=0.013 L=366.0' S=0.0191 '/' Capacity=92.24 cfs Outflow=3.34 cfs 0.375 af

Pond 1P: Infiltration Trench Peak Elev=28.24' Storage=1,972 cf Inflow=2.16 cfs 0.196 af
Discarded=0.38 cfs 0.188 af Primary=0.00 cfs 0.000 af Secondary=0.35 cfs 0.009 af Outflow=0.73 cfs 0.196 af

Pond BP: Bioretention Pond Peak Elev=25.74' Storage=979 cf Inflow=0.76 cfs 0.072 af
Outflow=0.17 cfs 0.072 af

Pond CB#1: CB#1 Peak Elev=0.00'
12.0" Round Culvert n=0.013 L=232.0' S=0.0050 '/' Primary=0.00 cfs 0.000 af

Pond CB#2: CB#2 Peak Elev=21.88' Inflow=0.00 cfs 0.000 af
15.0" Round Culvert n=0.013 L=126.0' S=0.0050 '/' Outflow=0.00 cfs 0.000 af

Pond CB#3: CB#3 Peak Elev=21.15' Inflow=0.00 cfs 0.000 af
15.0" Round Culvert n=0.013 L=62.0' S=0.0050 '/' Outflow=0.00 cfs 0.000 af

Pond DMH#1: DMH#1 Peak Elev=24.77' Inflow=0.35 cfs 0.009 af
15.0" Round Culvert n=0.013 L=52.0' S=0.0288 '/' Outflow=0.35 cfs 0.009 af

Pond DMH#2: DMH#2 Peak Elev=19.75' Inflow=0.52 cfs 0.081 af
18.0" Round Culvert n=0.013 L=65.0' S=0.0051 '/' Outflow=0.52 cfs 0.081 af

Pond DMH#3: DMH#3 Peak Elev=19.43' Inflow=0.52 cfs 0.081 af
18.0" Round Culvert n=0.013 L=10.0' S=0.0050 '/' Outflow=0.52 cfs 0.081 af

Pond PP-E: Porous Pavement East Peak Elev=23.41' Storage=1,869 cf Inflow=0.66 cfs 0.138 af
Discarded=0.18 cfs 0.138 af Primary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.138 af

Pond PP-W: Porous Pavement West Peak Elev=23.43' Storage=3,361 cf Inflow=1.16 cfs 0.239 af
Discarded=0.29 cfs 0.239 af Primary=0.00 cfs 0.000 af Outflow=0.30 cfs 0.239 af

Total Runoff Area = 6.204 ac Runoff Volume = 1.033 af Average Runoff Depth = 2.00"
59.78% Pervious = 3.709 ac 40.22% Impervious = 2.495 ac

Time span=0.00-72.00 hrs, dt=0.10 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: To Culvert #1 Runoff Area=5,470 sf 21.55% Impervious Runoff Depth=3.24"
Tc=6.0 min CN=WQ Runoff=0.42 cfs 0.034 af

Subcatchment 1.2: To Existing 36" Culvert Runoff Area=93,154 sf 17.06% Impervious Runoff Depth=3.05"
Flow Length=397' Tc=8.4 min CN=WQ Runoff=6.36 cfs 0.543 af

Subcatchment 1.3: To CB#1 Runoff Area=15,839 sf 47.86% Impervious Runoff Depth=4.10"
Flow Length=435' Tc=9.9 min CN=WQ Runoff=1.32 cfs 0.124 af

Subcatchment 1.4: To Porous Pavement Runoff Area=37,577 sf 93.17% Impervious Runoff Depth=5.24"
Flow Length=96' Tc=63.7 min CN=WQ Runoff=1.80 cfs 0.377 af

Subcatchment 1.5: To Porous Pavement Runoff Area=21,269 sf 95.91% Impervious Runoff Depth=5.31"
Flow Length=93' Tc=64.6 min CN=WQ Runoff=1.03 cfs 0.216 af

Subcatchment 1.6: To South Runoff Area=26,188 sf 0.00% Impervious Runoff Depth=2.60"
Flow Length=311' Tc=16.1 min CN=WQ Runoff=1.31 cfs 0.130 af

Subcatchment 2.1: Building Roof Runoff Area=22,500 sf 100.00% Impervious Runoff Depth=5.41"
Tc=6.0 min CN=WQ Runoff=2.66 cfs 0.233 af

Subcatchment 2.2: Southeast Subcat Runoff Area=15,592 sf 30.94% Impervious Runoff Depth=2.94"
Flow Length=186' Tc=9.9 min CN=WQ Runoff=0.91 cfs 0.088 af

Subcatchment 2.3: To CB#7 Runoff Area=12,270 sf 0.00% Impervious Runoff Depth=1.37"
Flow Length=170' Tc=11.4 min CN=WQ Runoff=0.32 cfs 0.032 af

Subcatchment 3.0: Southeast Subcat Runoff Area=20,396 sf 6.41% Impervious Runoff Depth=1.63"
Flow Length=153' Tc=17.0 min CN=WQ Runoff=0.54 cfs 0.064 af

Reach #100: Analysis Point - Southwest Inflow=9.46 cfs 0.994 af
Outflow=9.46 cfs 0.994 af

Reach #200: Analysis Point - Southeast Inflow=0.32 cfs 0.032 af
Outflow=0.32 cfs 0.032 af

Reach #300: Analysis Point - Southeast Inflow=0.54 cfs 0.064 af
Outflow=0.54 cfs 0.064 af

Reach 3R: Proposed Culvert #1 Avg. Flow Depth=0.26' Max Vel=2.58 fps Inflow=0.42 cfs 0.034 af
12.0" Round Pipe n=0.012 L=56.0' S=0.0054 '/' Capacity=2.83 cfs Outflow=0.42 cfs 0.034 af

Reach 4R: Existing Culvert Avg. Flow Depth=0.60' Max Vel=8.06 fps Inflow=8.04 cfs 0.864 af
36.0" Round Pipe n=0.013 L=366.0' S=0.0191 '/' Capacity=92.24 cfs Outflow=8.19 cfs 0.864 af

Pond 1P: Infiltration Trench Peak Elev=29.03' Storage=2,494 cf Inflow=3.53 cfs 0.321 af
Discarded=0.38 cfs 0.257 af Primary=0.00 cfs 0.000 af Secondary=2.36 cfs 0.064 af Outflow=2.75 cfs 0.321 af

Pond BP: Bioretention Pond Peak Elev=26.16' Storage=1,505 cf Inflow=1.32 cfs 0.124 af
Outflow=0.82 cfs 0.124 af

Pond CB#1: CB#1 Peak Elev=0.00'
12.0" Round Culvert n=0.013 L=232.0' S=0.0050 '/' Primary=0.00 cfs 0.000 af

Pond CB#2: CB#2 Peak Elev=22.31' Inflow=0.70 cfs 0.067 af
15.0" Round Culvert n=0.013 L=126.0' S=0.0050 '/' Outflow=0.70 cfs 0.067 af

Pond CB#3: CB#3 Peak Elev=21.68' Inflow=1.07 cfs 0.099 af
15.0" Round Culvert n=0.013 L=62.0' S=0.0050 '/' Outflow=1.07 cfs 0.099 af

Pond DMH#1: DMH#1 Peak Elev=25.28' Inflow=2.36 cfs 0.064 af
15.0" Round Culvert n=0.013 L=52.0' S=0.0288 '/' Outflow=2.36 cfs 0.064 af

Pond DMH#2: DMH#2 Peak Elev=20.33' Inflow=2.60 cfs 0.288 af
18.0" Round Culvert n=0.013 L=65.0' S=0.0051 '/' Outflow=2.60 cfs 0.288 af

Pond DMH#3: DMH#3 Peak Elev=19.96' Inflow=2.60 cfs 0.288 af
18.0" Round Culvert n=0.013 L=10.0' S=0.0050 '/' Outflow=2.60 cfs 0.288 af

Pond PP-E: Porous Pavement East Peak Elev=23.51' Storage=2,721 cf Inflow=1.03 cfs 0.216 af
Discarded=0.19 cfs 0.184 af Primary=0.36 cfs 0.033 af Outflow=0.56 cfs 0.216 af

Pond PP-W: Porous Pavement West Peak Elev=23.53' Storage=4,702 cf Inflow=1.80 cfs 0.377 af
Discarded=0.32 cfs 0.310 af Primary=0.70 cfs 0.067 af Outflow=1.02 cfs 0.377 af

Total Runoff Area = 6.204 ac Runoff Volume = 1.840 af Average Runoff Depth = 3.56"
59.78% Pervious = 3.709 ac 40.22% Impervious = 2.495 ac

Summary for Subcatchment 1.1: To Culvert #1

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.42 cfs @ 12.10 hrs, Volume= 0.034 af, Depth= 3.24"
Routed to Reach 3R : Proposed Culvert #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Type III 24-hr 10-YR Rainfall=5.65"

Area (sf)	CN	Description
1,384	65	Brush, Good, HSG C
2,907	74	>75% Grass cover, Good, HSG C
1,179	98	Paved parking, HSG C
5,470		Weighted Average
4,291		78.45% Pervious Area
1,179		21.55% Impervious Area

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

Summary for Subcatchment 1.2: To Existing 36" Culvert

[49] Hint: Tc<2dt may require smaller dt

Runoff = 6.36 cfs @ 12.12 hrs, Volume= 0.543 af, Depth= 3.05"
Routed to Reach 4R : Existing Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Type III 24-hr 10-YR Rainfall=5.65"

Area (sf)	CN	Description
3,820	65	Brush, Good, HSG C
62,762	70	Woods, Good, HSG C
10,684	74	>75% Grass cover, Good, HSG C
15,888	98	Paved parking, HSG C
93,154		Weighted Average
77,266		82.94% Pervious Area
15,888		17.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.1120	0.28		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.92"
2.4	148	0.0224	1.05		**Shallow Concentrated Flow, SCF thru grass** Short Grass Pasture Kv= 7.0 fps
3.0	199	0.0498	1.12		**Shallow Concentrated Flow, SCF thru woods** Woodland Kv= 5.0 fps
8.4	397	Total			

Summary for Subcatchment 1.3: To CB#1

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.32 cfs @ 12.14 hrs, Volume= 0.124 af, Depth= 4.10"
Routed to Pond BP : Bioretention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Type III 24-hr 10-YR Rainfall=5.65"

Area (sf)	CN	Description
8,258	74	>75% Grass cover, Good, HSG C
7,581	98	Paved parking, HSG C
15,839		Weighted Average
8,258		52.14% Pervious Area
7,581		47.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	50	0.0150	0.13		**Sheet Flow, Sheet Flow - Grass** Grass: Short n= 0.150 P2= 2.92"
3.0	370	0.0100	2.03		**Shallow Concentrated Flow, SCF - Pavement** Paved Kv= 20.3 fps
0.3	15	0.0200	0.99		**Shallow Concentrated Flow, SCF - Grass** Short Grass Pasture Kv= 7.0 fps
9.9	435	Total			

Summary for Subcatchment 1.4: To Porous Pavement West

[47] Hint: Peak is 782% of capacity of segment #3

Runoff = 1.80 cfs @ 12.82 hrs, Volume= 0.377 af, Depth= 5.24"
Routed to Pond PP-W : Porous Pavement West

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Type III 24-hr 10-YR Rainfall=5.65"

Area (sf)	CN	Description
2,567	74	>75% Grass cover, Good, HSG C
35,010	98	Paved parking, HSG C
37,577		Weighted Average
2,567		6.83% Pervious Area
35,010		93.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	31	0.0490	0.18		**Sheet Flow, Sheet Flow - Grass** Grass: Short n= 0.150 P2= 2.92"
60.0					**Direct Entry, Flow through selects**
0.9	65	0.0010	1.17	0.23	**Pipe Channel,** 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.010 PVC, smooth interior
63.7	96	Total			

Summary for Subcatchment 1.5: To Porous Pavement East

[47] Hint: Peak is 444% of capacity of segment #3

Runoff = 1.03 cfs @ 12.83 hrs, Volume= 0.216 af, Depth= 5.31"
Routed to Pond PP-E : Porous Pavement East

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Type III 24-hr 10-YR Rainfall=5.65"

Area (sf)	CN	Description
869	74	>75% Grass cover, Good, HSG C
20,400	98	Paved parking, HSG C
21,269		Weighted Average
869		4.09% Pervious Area
20,400		95.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	28	0.0200	0.13		**Sheet Flow, Sheet Flow - Grass** Grass: Short n= 0.150 P2= 2.92"
60.0					**Direct Entry, Flow through selects**
0.9	65	0.0010	1.17	0.23	**Pipe Channel,** 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.010 PVC, smooth interior
64.6	93	Total			

Summary for Subcatchment 1.6: To South

Runoff = 1.31 cfs @ 12.23 hrs, Volume= 0.130 af, Depth= 2.60"
Routed to Reach #100 : Analysis Point - Southwest

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Type III 24-hr 10-YR Rainfall=5.65"

Area (sf)	CN	Description
1,964	55	Woods, Good, HSG B
12,987	70	Woods, Good, HSG C
11,237	74	>75% Grass cover, Good, HSG C
26,188		Weighted Average
26,188		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	50	0.0750	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.92"
2.9	261	0.0910	1.51		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.1	311	Total			

Summary for Subcatchment 2.1: Building Roof

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.66 cfs @ 12.09 hrs, Volume= 0.233 af, Depth= 5.41"
Routed to Pond 1P : Infiltration Trench

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Type III 24-hr 10-YR Rainfall=5.65"

Area (sf)	CN	Description
12,535	98	Roofs, HSG B
9,965	98	Roofs, HSG C
22,500		Weighted Average
22,500		100.00% Impervious Area

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

Summary for Subcatchment 2.2: Southeast Subcat

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.91 cfs @ 12.14 hrs, Volume= 0.088 af, Depth= 2.94"
Routed to Pond 1P : Infiltration Trench

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Type III 24-hr 10-YR Rainfall=5.65"

Area (sf)	CN	Description
2,568	55	Woods, Good, HSG B
5,775	61	>75% Grass cover, Good, HSG B
3,058	98	Paved parking, HSG B
882	65	Brush, Good, HSG C
529	70	Woods, Good, HSG C
1,014	74	>75% Grass cover, Good, HSG C
1,766	98	Paved parking, HSG C
15,592		Weighted Average
10,768		69.06% Pervious Area
4,824		30.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	50	0.0580	0.10		**Sheet Flow, Sheet Flow - Woods** Woods: Light underbrush n= 0.400 P2= 2.92"
1.5	136	0.0449	1.48		**Shallow Concentrated Flow, SCF - Grass** Short Grass Pasture Kv= 7.0 fps
9.9	186	Total			

Summary for Subcatchment 2.3: To CB#7

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.32 cfs @ 12.21 hrs, Volume= 0.032 af, Depth= 1.37"
Routed to Reach #200 : Analysis Point - Southeast

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Type III 24-hr 10-YR Rainfall=5.65"

Area (sf)	CN	Description
11,481	55	Woods, Good, HSG B
395	61	>75% Grass cover, Good, HSG B
394	70	Woods, Good, HSG C
12,270		Weighted Average
12,270		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0440	0.09		**Sheet Flow, Sheet Flow - Woods** Woods: Light underbrush n= 0.400 P2= 2.92"
2.0	120	0.0401	1.00		**Shallow Concentrated Flow, SCF - Woods** Woodland Kv= 5.0 fps
11.4	170	Total			

Summary for Subcatchment 3.0: Southeast Subcat

Runoff = 0.54 cfs @ 12.27 hrs, Volume= 0.064 af, Depth= 1.63"
Routed to Reach #300 : Analysis Point - Southeast

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Type III 24-hr 10-YR Rainfall=5.65"

Area (sf)	CN	Description
475	48	Brush, Good, HSG B
17,025	55	Woods, Good, HSG B
983	61	>75% Grass cover, Good, HSG B
29	65	Brush, Good, HSG C
567	70	Woods, Good, HSG C
9	74	>75% Grass cover, Good, HSG C
1,308	98	Paved parking, HSG C
20,396		Weighted Average
19,088		93.59% Pervious Area
1,308		6.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	50	0.0490	0.05		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 2.92"
1.3	103	0.0728	1.35		**Shallow Concentrated Flow, SCF thru woods** Woodland Kv= 5.0 fps
17.0	153	Total			

Summary for Reach #100: Analysis Point - Southwest

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.580 ac, 40.13% Impervious, Inflow Depth = 2.61" for 10-YR event
Inflow = 9.46 cfs @ 12.20 hrs, Volume= 0.994 af
Outflow = 9.46 cfs @ 12.20 hrs, Volume= 0.994 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs

Summary for Reach #200: Analysis Point - Southeast

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.156 ac, 54.26% Impervious, Inflow Depth = 0.33" for 10-YR event
Inflow = 0.32 cfs @ 12.21 hrs, Volume= 0.032 af
Outflow = 0.32 cfs @ 12.21 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs

Summary for Reach #300: Analysis Point - Southeast

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.468 ac, 6.41% Impervious, Inflow Depth = 1.63" for 10-YR event
Inflow = 0.54 cfs @ 12.27 hrs, Volume= 0.064 af
Outflow = 0.54 cfs @ 12.27 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs

Summary for Reach 3R: Proposed Culvert #1

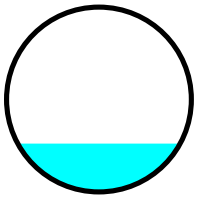
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 0.126 ac, 21.55% Impervious, Inflow Depth = 3.24" for 10-YR event
Inflow = 0.42 cfs @ 12.10 hrs, Volume= 0.034 af
Outflow = 0.42 cfs @ 12.10 hrs, Volume= 0.034 af, Atten= 1%, Lag= 0.3 min
Routed to Reach 4R : Existing Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Max. Velocity= 2.58 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.81 fps, Avg. Travel Time= 1.2 min

Peak Storage= 9 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.26' , Surface Width= 0.88'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.83 cfs

12.0" Round Pipe
n= 0.012 Concrete pipe, finished
Length= 56.0' Slope= 0.0054 '/'
Inlet Invert= 26.80', Outlet Invert= 26.50'



Summary for Reach 4R: Existing Culvert

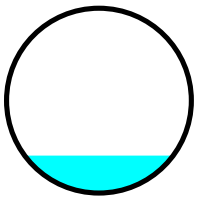
[52] Hint: Inlet/Outlet conditions not evaluated
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 3.979 ac, 46.19% Impervious, Inflow Depth = 2.61" for 10-YR event
Inflow = 8.04 cfs @ 12.18 hrs, Volume= 0.864 af
Outflow = 8.19 cfs @ 12.19 hrs, Volume= 0.864 af, Atten= 0%, Lag= 0.9 min
Routed to Reach #100 : Analysis Point - Southwest

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Max. Velocity= 8.06 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.29 fps, Avg. Travel Time= 2.7 min

Peak Storage= 372 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.60' , Surface Width= 2.41'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 92.24 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 366.0' Slope= 0.0191 '/'
Inlet Invert= 14.10', Outlet Invert= 7.10'



Summary for Pond 1P: Infiltration Trench

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=39)

Inflow Area = 0.874 ac, 71.73% Impervious, Inflow Depth = 4.40" for 10-YR event
Inflow = 3.53 cfs @ 12.10 hrs, Volume= 0.321 af
Outflow = 2.75 cfs @ 12.23 hrs, Volume= 0.321 af, Atten= 22%, Lag= 7.5 min
Discarded = 0.38 cfs @ 11.60 hrs, Volume= 0.257 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach #200 : Analysis Point - Southeast
Secondary = 2.36 cfs @ 12.23 hrs, Volume= 0.064 af
Routed to Pond DMH#1 : DMH#1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Peak Elev= 29.03' @ 12.23 hrs Surf.Area= 1,650 sf Storage= 2,494 cf
Flood Elev= 31.00' Surf.Area= 1,650 sf Storage= 4,785 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 23.5 min (784.0 - 760.5)

Volume	Invert	Avail.Storage	Storage Description
#1	25.00'	4,785 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
25.00	1,650	0.0	0	0
26.00	1,650	30.0	495	495
30.00	1,650	40.0	2,640	3,135
31.00	1,650	100.0	1,650	4,785

Device	Routing	Invert	Outlet Devices
#1	Discarded	25.00'	**10.000 in/hr Exfiltration over Surface area**
#2	Primary	30.00'	**50.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
#3	Secondary	27.80'	**15.0" Round Culvert** L= 275.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 27.80' / 27.50' S= 0.0011 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Discarded OutFlow Max=0.38 cfs @ 11.60 hrs HW=25.06' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.38 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=25.00' TW=0.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=2.13 cfs @ 12.23 hrs HW=28.94' TW=25.22' (Dynamic Tailwater)
└**3=Culvert** (Barrel Controls 2.13 cfs @ 2.38 fps)

Summary for Pond BP: Bioretention Pond

Inflow Area = 0.364 ac, 47.86% Impervious, Inflow Depth = 4.10" for 10-YR event
Inflow = 1.32 cfs @ 12.14 hrs, Volume= 0.124 af
Outflow = 0.82 cfs @ 12.34 hrs, Volume= 0.124 af, Atten= 38%, Lag= 12.5 min
Primary = 0.82 cfs @ 12.34 hrs, Volume= 0.124 af
Routed to Pond DMH#2 : DMH#2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Peak Elev= 26.16' @ 12.35 hrs Surf.Area= 1,421 sf Storage= 1,505 cf
Flood Elev= 26.50' Surf.Area= 1,710 sf Storage= 2,033 cf

Plug-Flow detention time= 62.1 min calculated for 0.124 af (100% of inflow)
Center-of-Mass det. time= 60.7 min (841.9 - 781.1)

Volume	Invert	Avail.Storage	Storage Description
#1	22.50'	2,033 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
22.50	496	0.0	0	0	496
23.50	496	40.0	198	198	575
25.00	496	30.0	223	422	693
26.00	1,292	100.0	863	1,284	1,496
26.50	1,710	100.0	748	2,033	1,920

Device	Routing	Invert	Outlet Devices
#1	Primary	21.43'	**12.0" Round Culvert** L= 126.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 21.43' / 20.80' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

#2	Device 1	26.00'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	22.50'	**3.0" Round Culvert** L= 116.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 22.50' / 22.50' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.05 sf

Primary OutFlow Max=0.75 cfs @ 12.34 hrs HW=26.14' TW=20.29' (Dynamic Tailwater)
↑**1=Culvert** (Passes 0.75 cfs of 5.62 cfs potential flow)
↑**2=Orifice/Grate** (Weir Controls 0.56 cfs @ 1.24 fps)
3=Culvert (Barrel Controls 0.19 cfs @ 3.79 fps)

Summary for Pond CB#1: CB#1

[43] Hint: Has no inflow (Outflow=Zero)

Device	Routing	Invert	Outlet Devices
#1	Primary	23.10'	**12.0" Round Culvert** L= 232.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 23.10' / 21.94' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=21.84' (Dynamic Tailwater)
↑**1=Culvert** (Controls 0.00 cfs)

Summary for Pond CB#2: CB#2

Inflow Area = 0.863 ac, 93.17% Impervious, Inflow Depth = 0.93" for 10-YR event
Inflow = 0.70 cfs @ 13.43 hrs, Volume= 0.067 af
Outflow = 0.70 cfs @ 13.43 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.0 min
Primary = 0.70 cfs @ 13.43 hrs, Volume= 0.067 af
Routed to Pond CB#3 : CB#3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Peak Elev= 22.31' @ 13.46 hrs
Flood Elev= 27.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.84'	**15.0" Round Culvert** L= 126.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 21.84' / 21.21' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.69 cfs @ 13.43 hrs HW=22.31' TW=21.68' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 0.69 cfs @ 2.44 fps)

Summary for Pond CB#3: CB#3

Inflow Area = 1.351 ac, 94.16% Impervious, Inflow Depth = 0.88" for 10-YR event
Inflow = 1.07 cfs @ 13.45 hrs, Volume= 0.099 af
Outflow = 1.07 cfs @ 13.45 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.0 min
Primary = 1.07 cfs @ 13.45 hrs, Volume= 0.099 af
Routed to Pond DMH#2 : DMH#2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Peak Elev= 21.68' @ 13.45 hrs
Flood Elev= 29.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.11'	**15.0" Round Culvert** L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 21.11' / 20.80' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.05 cfs @ 13.45 hrs HW=21.68' TW=20.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.05 cfs @ 2.85 fps)

Summary for Pond DMH#1: DMH#1

Inflow = 2.36 cfs @ 12.23 hrs, Volume= 0.064 af
Outflow = 2.36 cfs @ 12.23 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min
Primary = 2.36 cfs @ 12.23 hrs, Volume= 0.064 af
Routed to Pond DMH#2 : DMH#2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Peak Elev= 25.28' @ 12.23 hrs
Flood Elev= 30.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.50'	**15.0" Round Culvert** L= 52.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 24.50' / 23.00' S= 0.0288 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.13 cfs @ 12.23 hrs HW=25.22' TW=20.25' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.13 cfs @ 2.89 fps)

Summary for Pond DMH#2: DMH#2

Inflow Area = 1.715 ac, 84.34% Impervious, Inflow Depth = 2.01" for 10-YR event
Inflow = 2.60 cfs @ 12.26 hrs, Volume= 0.288 af
Outflow = 2.60 cfs @ 12.26 hrs, Volume= 0.288 af, Atten= 0%, Lag= 0.0 min
Primary = 2.60 cfs @ 12.26 hrs, Volume= 0.288 af
Routed to Pond DMH#3 : DMH#3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs

Peak Elev= 20.33' @ 12.31 hrs
Flood Elev= 29.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	19.37'	**18.0" Round Culvert** L= 65.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.37' / 19.04' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.21 cfs @ 12.26 hrs HW=20.29' TW=19.95' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 2.21 cfs @ 2.81 fps)

Summary for Pond DMH#3: DMH#3

[58] Hint: Peaked 0.16' above defined flood level

Inflow Area = 1.715 ac, 84.34% Impervious, Inflow Depth = 2.01" for 10-YR event
Inflow = 2.60 cfs @ 12.26 hrs, Volume= 0.288 af
Outflow = 2.60 cfs @ 12.26 hrs, Volume= 0.288 af, Atten= 0%, Lag= 0.0 min
Primary = 2.60 cfs @ 12.26 hrs, Volume= 0.288 af
Routed to Reach 4R : Existing Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Peak Elev= 19.96' @ 12.26 hrs
Flood Elev= 19.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	19.04'	**18.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.04' / 18.99' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.52 cfs @ 12.26 hrs HW=19.95' TW=14.66' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 2.52 cfs @ 3.24 fps)

Summary for Pond PP-E: Porous Pavement East

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=20)

Inflow Area = 0.488 ac, 95.91% Impervious, Inflow Depth = 5.31" for 10-YR event
Inflow = 1.03 cfs @ 12.83 hrs, Volume= 0.216 af
Outflow = 0.56 cfs @ 13.48 hrs, Volume= 0.216 af, Atten= 46%, Lag= 39.2 min
Discarded = 0.19 cfs @ 13.48 hrs, Volume= 0.184 af
Primary = 0.36 cfs @ 13.48 hrs, Volume= 0.033 af
Routed to Pond CB#3 : CB#3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Peak Elev= 23.51' @ 13.48 hrs Surf.Area= 19,771 sf Storage= 2,721 cf
Flood Elev= 26.10' Surf.Area= 19,771 sf Storage= 19,716 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 86.7 min (889.0 - 802.3)

Volume	Invert	Avail.Storage	Storage Description
#1	23.17'	19,716 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
23.17	19,771	0.0	0	0
24.17	19,771	40.0	7,908	7,908
24.42	19,771	40.0	1,977	9,886
25.42	19,771	30.0	5,931	15,817
25.76	19,771	40.0	2,689	18,506
26.10	19,771	18.0	1,210	19,716

Device	Routing	Invert	Outlet Devices
#1	Discarded	23.17'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 22.33'
#2	Primary	23.42'	**6.0" Round Culvert X 17.00** L= 65.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 23.42' / 23.10' S= 0.0049 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.19 cfs @ 13.48 hrs HW=23.51' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.19 cfs)

Primary OutFlow Max=0.36 cfs @ 13.48 hrs HW=23.51' TW=21.68' (Dynamic Tailwater)
↑—**2=Culvert** (Barrel Controls 0.36 cfs @ 1.27 fps)

Summary for Pond PP-W: Porous Pavement West

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=18)

Inflow Area = 0.863 ac, 93.17% Impervious, Inflow Depth = 5.24" for 10-YR event
Inflow = 1.80 cfs @ 12.82 hrs, Volume= 0.377 af
Outflow = 1.02 cfs @ 13.43 hrs, Volume= 0.377 af, Atten= 43%, Lag= 36.9 min
Discarded = 0.32 cfs @ 13.43 hrs, Volume= 0.310 af
Primary = 0.70 cfs @ 13.43 hrs, Volume= 0.067 af
Routed to Pond CB#2 : CB#2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Peak Elev= 23.53' @ 13.43 hrs Surf.Area= 32,239 sf Storage= 4,702 cf
Flood Elev= 26.10' Surf.Area= 32,239 sf Storage= 32,149 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 87.1 min (889.8 - 802.8)

Volume	Invert	Avail.Storage	Storage Description
#1	23.17'	32,149 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
23.17	32,239	0.0	0	0
24.17	32,239	40.0	12,896	12,896
24.42	32,239	40.0	3,224	16,120
25.42	32,239	30.0	9,672	25,791
25.76	32,239	40.0	4,385	30,176
26.10	32,239	18.0	1,973	32,149

Device	Routing	Invert	Outlet Devices
#1	Discarded	23.17'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 22.33'
#2	Primary	23.42'	**6.0" Round Culvert X 22.00** L= 65.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 23.42' / 23.10' S= 0.0049 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.32 cfs @ 13.43 hrs HW=23.53' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.32 cfs)

Primary OutFlow Max=0.70 cfs @ 13.43 hrs HW=23.53' TW=22.31' (Dynamic Tailwater)
↑—**2=Culvert** (Barrel Controls 0.70 cfs @ 1.42 fps)

Time span=0.00-72.00 hrs, dt=0.10 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: To Culvert #1 Runoff Area=5,470 sf 21.55% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=WQ Runoff=0.60 cfs 0.048 af

Subcatchment 1.2: To Existing 36" Culvert Runoff Area=93,154 sf 17.06% Impervious Runoff Depth=4.35"
Flow Length=397' Tc=8.4 min CN=WQ Runoff=9.16 cfs 0.775 af

Subcatchment 1.3: To CB#1 Runoff Area=15,839 sf 47.86% Impervious Runoff Depth=5.52"
Flow Length=435' Tc=9.9 min CN=WQ Runoff=1.78 cfs 0.167 af

Subcatchment 1.4: To Porous Pavement Runoff Area=37,577 sf 93.17% Impervious Runoff Depth=6.76"
Flow Length=96' Tc=63.7 min CN=WQ Runoff=2.31 cfs 0.486 af

Subcatchment 1.5: To Porous Pavement Runoff Area=21,269 sf 95.91% Impervious Runoff Depth=6.84"
Flow Length=93' Tc=64.6 min CN=WQ Runoff=1.31 cfs 0.278 af

Subcatchment 1.6: To South Runoff Area=26,188 sf 0.00% Impervious Runoff Depth=3.85"
Flow Length=311' Tc=16.1 min CN=WQ Runoff=1.96 cfs 0.193 af

Subcatchment 2.1: Building Roof Runoff Area=22,500 sf 100.00% Impervious Runoff Depth=6.95"
Tc=6.0 min CN=WQ Runoff=3.39 cfs 0.299 af

Subcatchment 2.2: Southeast Subcat Runoff Area=15,592 sf 30.94% Impervious Runoff Depth=4.16"
Flow Length=186' Tc=9.9 min CN=WQ Runoff=1.32 cfs 0.124 af

Subcatchment 2.3: To CB#7 Runoff Area=12,270 sf 0.00% Impervious Runoff Depth=2.31"
Flow Length=170' Tc=11.4 min CN=WQ Runoff=0.57 cfs 0.054 af

Subcatchment 3.0: Southeast Subcat Runoff Area=20,396 sf 6.41% Impervious Runoff Depth=2.61"
Flow Length=153' Tc=17.0 min CN=WQ Runoff=0.92 cfs 0.102 af

Reach #100: Analysis Point - Southwest Inflow=15.00 cfs 1.505 af
Outflow=15.00 cfs 1.505 af

Reach #200: Analysis Point - Southeast Inflow=0.57 cfs 0.054 af
Outflow=0.57 cfs 0.054 af

Reach #300: Analysis Point - Southeast Inflow=0.92 cfs 0.102 af
Outflow=0.92 cfs 0.102 af

Reach 3R: Proposed Culvert #1 Avg. Flow Depth=0.31' Max Vel=2.85 fps Inflow=0.60 cfs 0.048 af
12.0" Round Pipe n=0.012 L=56.0' S=0.0054 '/' Capacity=2.83 cfs Outflow=0.59 cfs 0.048 af

Reach 4R: Existing Culvert Avg. Flow Depth=0.77' Max Vel=9.22 fps Inflow=13.36 cfs 1.312 af
36.0" Round Pipe n=0.013 L=366.0' S=0.0191 '/' Capacity=92.24 cfs Outflow=13.13 cfs 1.312 af

Pond 1P: Infiltration Trench Peak Elev=29.54' Storage=2,830 cf Inflow=4.65 cfs 0.423 af
Discarded=0.38 cfs 0.307 af Primary=0.00 cfs 0.000 af Secondary=3.11 cfs 0.117 af Outflow=3.49 cfs 0.424 af

Pond BP: Bioretention Pond Peak Elev=26.27' Storage=1,658 cf Inflow=1.78 cfs 0.167 af
Outflow=1.54 cfs 0.167 af

Pond CB#1: CB#1 Peak Elev=0.00'
12.0" Round Culvert n=0.013 L=232.0' S=0.0050 '/' Primary=0.00 cfs 0.000 af

Pond CB#2: CB#2 Peak Elev=22.54' Inflow=1.39 cfs 0.135 af
15.0" Round Culvert n=0.013 L=126.0' S=0.0050 '/' Outflow=1.39 cfs 0.135 af

Pond CB#3: CB#3 Peak Elev=21.96' Inflow=2.15 cfs 0.206 af
15.0" Round Culvert n=0.013 L=62.0' S=0.0050 '/' Outflow=2.15 cfs 0.206 af

Pond DMH#1: DMH#1 Peak Elev=25.41' Inflow=3.11 cfs 0.117 af
15.0" Round Culvert n=0.013 L=52.0' S=0.0288 '/' Outflow=3.11 cfs 0.117 af

Pond DMH#2: DMH#2 Peak Elev=20.73' Inflow=4.62 cfs 0.490 af
18.0" Round Culvert n=0.013 L=65.0' S=0.0051 '/' Outflow=4.62 cfs 0.490 af

Pond DMH#3: DMH#3 Peak Elev=20.34' Inflow=4.62 cfs 0.490 af
18.0" Round Culvert n=0.013 L=10.0' S=0.0050 '/' Outflow=4.62 cfs 0.490 af

Pond PP-E: Porous Pavement East Peak Elev=23.56' Storage=3,055 cf Inflow=1.31 cfs 0.278 af
Discarded=0.20 cfs 0.208 af Primary=0.77 cfs 0.071 af Outflow=0.97 cfs 0.278 af

Pond PP-W: Porous Pavement West Peak Elev=23.58' Storage=5,310 cf Inflow=2.31 cfs 0.486 af
Discarded=0.33 cfs 0.351 af Primary=1.39 cfs 0.135 af Outflow=1.72 cfs 0.487 af

Total Runoff Area = 6.204 ac Runoff Volume = 2.526 af Average Runoff Depth = 4.89"
59.78% Pervious = 3.709 ac 40.22% Impervious = 2.495 ac

Time span=0.00-72.00 hrs, dt=0.10 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: To Culvert #1 Runoff Area=5,470 sf 21.55% Impervious Runoff Depth=5.84"
Tc=6.0 min CN=WQ Runoff=0.77 cfs 0.061 af

Subcatchment 1.2: To Existing 36" Culvert Runoff Area=93,154 sf 17.06% Impervious Runoff Depth=5.62"
Flow Length=397' Tc=8.4 min CN=WQ Runoff=11.87 cfs 1.001 af

Subcatchment 1.3: To CB#1 Runoff Area=15,839 sf 47.86% Impervious Runoff Depth=6.88"
Flow Length=435' Tc=9.9 min CN=WQ Runoff=2.22 cfs 0.208 af

Subcatchment 1.4: To Porous Pavement Runoff Area=37,577 sf 93.17% Impervious Runoff Depth=8.19"
Flow Length=96' Tc=63.7 min CN=WQ Runoff=2.79 cfs 0.589 af

Subcatchment 1.5: To Porous Pavement Runoff Area=21,269 sf 95.91% Impervious Runoff Depth=8.27"
Flow Length=93' Tc=64.6 min CN=WQ Runoff=1.58 cfs 0.337 af

Subcatchment 1.6: To South Runoff Area=26,188 sf 0.00% Impervious Runoff Depth=5.08"
Flow Length=311' Tc=16.1 min CN=WQ Runoff=2.59 cfs 0.255 af

Subcatchment 2.1: Building Roof Runoff Area=22,500 sf 100.00% Impervious Runoff Depth=8.39"
Tc=6.0 min CN=WQ Runoff=4.08 cfs 0.361 af

Subcatchment 2.2: Southeast Subcat Runoff Area=15,592 sf 30.94% Impervious Runoff Depth=5.36"
Flow Length=186' Tc=9.9 min CN=WQ Runoff=1.71 cfs 0.160 af

Subcatchment 2.3: To CB#7 Runoff Area=12,270 sf 0.00% Impervious Runoff Depth=3.30"
Flow Length=170' Tc=11.4 min CN=WQ Runoff=0.84 cfs 0.078 af

Subcatchment 3.0: Southeast Subcat Runoff Area=20,396 sf 6.41% Impervious Runoff Depth=3.62"
Flow Length=153' Tc=17.0 min CN=WQ Runoff=1.34 cfs 0.141 af

Reach #100: Analysis Point - Southwest Inflow=19.64 cfs 2.008 af
Outflow=19.64 cfs 2.008 af

Reach #200: Analysis Point - Southeast Inflow=1.29 cfs 0.081 af
Outflow=1.29 cfs 0.081 af

Reach #300: Analysis Point - Southeast Inflow=1.34 cfs 0.141 af
Outflow=1.34 cfs 0.141 af

Reach 3R: Proposed Culvert #1 Avg. Flow Depth=0.35' Max Vel=3.05 fps Inflow=0.77 cfs 0.061 af
12.0" Round Pipe n=0.012 L=56.0' S=0.0054 '/' Capacity=2.83 cfs Outflow=0.76 cfs 0.061 af

Reach 4R: Existing Culvert Avg. Flow Depth=0.88' Max Vel=9.91 fps Inflow=17.81 cfs 1.753 af
36.0" Round Pipe n=0.013 L=366.0' S=0.0191 '/' Capacity=92.24 cfs Outflow=17.25 cfs 1.753 af

Pond 1P: Infiltration Trench Peak Elev=30.03' Storage=3,179 cf Inflow=5.72 cfs 0.521 af
Discarded=0.38 cfs 0.349 af Primary=0.45 cfs 0.004 af Secondary=3.96 cfs 0.169 af Outflow=4.79 cfs 0.521 af

Pond BP: Bioretention Pond Peak Elev=26.32' Storage=1,746 cf Inflow=2.22 cfs 0.208 af
Outflow=2.08 cfs 0.208 af

Pond CB#1: CB#1 Peak Elev=0.00'
12.0" Round Culvert n=0.013 L=232.0' S=0.0050 '/' Primary=0.00 cfs 0.000 af

Pond CB#2: CB#2 Peak Elev=22.74' Inflow=2.01 cfs 0.205 af
15.0" Round Culvert n=0.013 L=126.0' S=0.0050 '/' Outflow=2.01 cfs 0.205 af

Pond CB#3: CB#3 Peak Elev=22.19' Inflow=3.13 cfs 0.314 af
15.0" Round Culvert n=0.013 L=62.0' S=0.0050 '/' Outflow=3.13 cfs 0.314 af

Pond DMH#1: DMH#1 Peak Elev=25.57' Inflow=3.96 cfs 0.169 af
15.0" Round Culvert n=0.013 L=52.0' S=0.0288 '/' Outflow=3.96 cfs 0.169 af

Pond DMH#2: DMH#2 Peak Elev=21.00' Inflow=6.01 cfs 0.691 af
18.0" Round Culvert n=0.013 L=65.0' S=0.0051 '/' Outflow=6.01 cfs 0.691 af

Pond DMH#3: DMH#3 Peak Elev=20.58' Inflow=6.01 cfs 0.691 af
18.0" Round Culvert n=0.013 L=10.0' S=0.0050 '/' Outflow=6.01 cfs 0.691 af

Pond PP-E: Porous Pavement East Peak Elev=23.59' Storage=3,291 cf Inflow=1.58 cfs 0.337 af
Discarded=0.21 cfs 0.228 af Primary=1.13 cfs 0.109 af Outflow=1.33 cfs 0.337 af

Pond PP-W: Porous Pavement West Peak Elev=23.62' Storage=5,754 cf Inflow=2.79 cfs 0.589 af
Discarded=0.34 cfs 0.384 af Primary=2.01 cfs 0.205 af Outflow=2.35 cfs 0.589 af

Total Runoff Area = 6.204 ac Runoff Volume = 3.191 af Average Runoff Depth = 6.17"
59.78% Pervious = 3.709 ac 40.22% Impervious = 2.495 ac

Appendix III

Charts, Graphs, and Calculations

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Metadata for Point	
Smoothing	Yes
State	New Hampshire
Location	New Hampshire, United States
Latitude	42.988 degrees North
Longitude	70.933 degrees West
Elevation	0 feet
Date/Time	Mon Nov 06 2023 13:52:49 GMT-0500 (Eastern Standard Time)

Coastal Region (Add 15%)
2-Year = 3.70 in
10-Year = 5.65 in
25-Year = 7.19 in
50-Year = 8.63 in

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.66	0.82	1.04	**1yr**	0.71	0.99	1.22	1.57	2.05	2.68	2.91	**1yr**	2.38	2.80	3.21	3.92	4.55	**1yr**
2yr	0.32	0.50	0.62	0.82	1.02	1.30	**2yr**	0.88	1.18	1.52	1.94	2.50	3.22	3.57	**2yr**	2.85	3.44	3.95	4.69	5.34	**2yr**
5yr	0.37	0.58	0.73	0.98	1.25	1.62	**5yr**	1.08	1.47	1.90	2.45	3.16	4.10	4.60	**5yr**	3.63	4.42	5.06	5.98	6.75	**5yr**
10yr	0.41	0.65	0.83	1.12	1.46	1.90	**10yr**	1.26	1.73	2.25	2.92	3.78	4.91	5.56	**10yr**	4.35	5.35	6.10	7.19	8.07	**10yr**
25yr	0.48	0.77	0.98	1.35	1.79	2.36	**25yr**	1.55	2.15	2.80	3.67	4.79	6.25	7.16	**25yr**	5.53	6.88	7.82	9.18	10.22	**25yr**
50yr	0.54	0.87	1.11	1.56	2.10	2.79	**50yr**	1.81	2.54	3.33	4.38	5.74	7.50	8.67	**50yr**	6.64	8.34	9.44	11.06	12.23	**50yr**
100yr	0.60	0.98	1.26	1.80	2.45	3.30	**100yr**	2.12	3.00	3.96	5.24	6.88	9.00	10.51	**100yr**	7.97	10.10	11.40	13.32	14.63	**100yr**
200yr	0.69	1.12	1.45	2.08	2.87	3.90	**200yr**	2.48	3.55	4.70	6.24	8.23	10.82	12.73	**200yr**	9.57	12.24	13.77	16.05	17.52	**200yr**
500yr	0.82	1.34	1.75	2.54	3.55	4.86	**500yr**	3.06	4.43	5.88	7.86	10.44	13.78	16.41	**500yr**	12.20	15.78	17.68	20.55	22.25	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.37	0.45	0.60	0.74	0.89	**1yr**	0.64	0.87	0.94	1.26	1.56	2.28	2.54	**1yr**	2.02	2.44	2.89	3.39	4.00	**1yr**
2yr	0.32	0.49	0.60	0.81	1.00	1.19	**2yr**	0.87	1.16	1.37	1.82	2.33	3.11	3.51	**2yr**	2.75	3.37	3.86	4.58	5.14	**2yr**
5yr	0.36	0.55	0.68	0.93	1.19	1.42	**5yr**	1.03	1.39	1.62	2.12	2.74	3.84	4.29	**5yr**	3.40	4.13	4.74	5.63	6.35	**5yr**
10yr	0.39	0.61	0.75	1.05	1.35	1.62	**10yr**	1.17	1.59	1.82	2.40	3.07	4.43	5.00	**10yr**	3.92	4.81	5.52	6.53	7.32	**10yr**
25yr	0.45	0.69	0.86	1.23	1.61	1.94	**25yr**	1.39	1.90	2.12	2.78	3.58	4.90	6.10	**25yr**	4.34	5.87	6.74	7.92	8.87	**25yr**
50yr	0.50	0.76	0.95	1.37	1.84	2.23	**50yr**	1.59	2.18	2.36	3.12	4.01	5.55	7.09	**50yr**	4.91	6.81	7.83	9.19	10.24	**50yr**
100yr	0.56	0.85	1.07	1.54	2.12	2.56	**100yr**	1.83	2.51	2.65	3.48	4.47	6.25	8.21	**100yr**	5.53	7.90	9.10	10.62	11.78	**100yr**
200yr	0.63	0.95	1.20	1.74	2.43	2.94	**200yr**	2.10	2.87	2.95	3.87	4.98	7.02	9.63	**200yr**	6.21	9.26	10.58	12.27	13.58	**200yr**
500yr	0.74	1.10	1.42	2.06	2.93	3.55	**500yr**	2.53	3.47	3.42	4.46	5.78	8.15	11.73	**500yr**	7.21	11.28	12.90	14.79	16.36	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	**1yr**	0.76	1.06	1.26	1.72	2.18	2.98	3.10	**1yr**	2.63	2.98	3.58	4.31	5.01	**1yr**
2yr	0.33	0.51	0.63	0.86	1.06	1.26	**2yr**	0.91	1.23	1.48	1.95	2.49	3.41	3.66	**2yr**	3.01	3.52	4.05	4.84	5.64	**2yr**
5yr	0.40	0.62	0.77	1.05	1.34	1.62	**5yr**	1.16	1.58	1.87	2.49	3.18	4.37	4.91	**5yr**	3.87	4.72	5.40	6.35	7.17	**5yr**
10yr	0.47	0.73	0.90	1.26	1.63	1.97	**10yr**	1.40	1.93	2.26	3.03	3.83	5.43	6.14	**10yr**	4.81	5.90	6.75	7.89	8.81	**10yr**
25yr	0.58	0.89	1.11	1.58	2.08	2.56	**25yr**	1.79	2.50	2.93	3.94	4.91	7.68	8.28	**25yr**	6.79	7.96	9.04	10.52	11.55	**25yr**
50yr	0.68	1.04	1.30	1.86	2.51	3.11	**50yr**	2.16	3.04	3.56	4.81	5.96	9.62	10.39	**50yr**	8.52	9.99	11.32	13.10	14.21	**50yr**
100yr	0.81	1.22	1.52	2.20	3.02	3.78	**100yr**	2.61	3.70	4.33	5.88	7.24	12.07	13.04	**100yr**	10.68	12.54	14.15	16.36	17.50	**100yr**
200yr	0.94	1.42	1.80	2.61	3.64	4.61	**200yr**	3.14	4.51	5.29	7.19	8.78	15.18	16.24	**200yr**	13.43	15.62	17.73	20.42	21.56	**200yr**
500yr	1.17	1.75	2.25	3.26	4.64	5.97	**500yr**	4.00	5.83	6.86	9.42	11.35	20.58	21.94	**500yr**	18.21	21.09	23.84	27.40	28.47	**500yr**

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Pollutant Removal Efficiencies for Best Management Practices for Use in Pollutant Loading Analysis

Best Management Practice (BMP) removal efficiencies for pollutant loading analysis for total suspended solids (TSS), total nitrogen (TN), and total phosphorus (TP) are presented in the table below. These removal efficiencies were developed by reviewing various literature sources and using best professional judgment based on literature values and general expectation of how values for different BMPS should relate to one another. The intent is to update this information and add BMPs and removal efficiencies for other parameters as more information/data becomes available in the future.

NHDES will consider other BMP removal efficiencies if sufficient documentation is provided.

Please note that all BMPs must be designed in accordance with the specifications in the Alteration of Terrain (AoT) Program Administrative Rules (Env-Wq 1500). If BMPs are not designed in accordance with the AoT Rules, NHDES may require lower removal efficiencies to be used in the analysis.

BMP in Series: When BMPs are placed in series, the BMP with the highest removal efficiency shall be the efficiency used in the model for computing annual loadings. Adding efficiencies together is generally not allowed because removals typically decrease rapidly with decreasing influent concentration and, in the case of primary BMPs (i.e., stormwater ponds, infiltration and filtering practices), pre-treatment is usually part of the design and is therefore, most likely already accounted for in the efficiencies cited for these BMPs.

Pollutant Removal Efficiencies for Best Management Practices for Use in Pollutant Loading Analysis				Values Accepted for Loading Analyses		
BMP Type	**BMP**	**Notes**	**Lit. Ref.**	**TSS**	**TN**	**TP**
Stormwater Ponds	Wet Pond		B, F	70%	35%	45%
	Wet Extended Detention Pond		A, B	80%	55%	68%
	Micropool Extended Detention Pond	TBA				
	Multiple Pond System	TBA				
	Pocket Pond	TBA				
Stormwater Wetlands	Shallow Wetland		A, B, F, I	80%	55%	45%
	Extended Detention Wetland		A, B, F, I	80%	55%	45%
	Pond/Wetland System	TBA				
	Gravel Wetland		H	95%	85%	64%
Infiltration Practices	Infiltration Trench (≥75 ft from surface water)		B, D, I	90%	55%	60%
	Infiltration Trench (<75 ft from surface water)		B, D, I	90%	10%	60%
	Infiltration Basin (≥75 ft from surface water)		A, F, B, D, I	90%	60%	65%
	Infiltration Basin (<75 ft from surface water)		A, F, B, D, I	90%	10%	65%
	Dry Wells			90%	55%	60%
	Drip Edges			90%	55%	60%
Filtering Practices	Aboveground or Underground Sand Filter that infiltrates WQV (≥75 ft from surface water)		A, F, B, D, I	90%	60%	65%
	Aboveground or Underground Sand Filter that infiltrates WQV (<75 ft from surface water)		A, F, B, D, I	90%	10%	65%
	Aboveground or Underground Sand Filter with underdrain		A, I, F, G, H	85%	10%	45%
	Tree Box Filter	TBA				
	Bioretention System		I, G, H	90%	65%	65%
	Permeable Pavement that infiltrates WQV (≥75 ft from surface water)		A, F, B, D, I	90%	60%	65%
	Permeable Pavement that infiltrates WQV (<75 ft from surface water)		A, F, B, D, I	90%	10%	65%
	Permeable Pavement with underdrain		Use TN and TP values for sand filter w/ underdrain and outlet pipe	90%	10%	45%

Pollutant Removal Efficiencies for Best Management Practices for Use in Pollutant Loading Analysis				Values Accepted for Loading Analyses		
BMP Type	**BMP**	**Notes**	**Lit. Ref.**	**TSS**	**TN**	**TP**
Treatment Swales	Flow Through Treatment Swale	TBA				
Vegetated Buffers	Vegetated Buffers		A, B, I	73%	40%	45%
Pre-Treatment Practices	Sediment Forebay	TBA				
	Vegetated Filter Strip		A, B, I	73%	40%	45%
	Vegetated Swale		A, B, C, F, H, I	65%	20%	25%
	Flow-Through Device - Hydrodynamic Separator		A, B, G, H	35%	10%	5%
	Flow-Through Device - ADS Underground Multichamber Water Quality Unit (WQU)		G, H	72%	10%	9%
	Other Flow-Through Devices	TBA				
	Off-line Deep Sump Catch Basin		J, K, L, M	15%	5%	5%

GOVE ENVIRONMENTAL SERVICES, INC

SITE-SPECIFIC SOIL SURVEY REPORT
For
127 Portsmouth Avenue, Exeter, NH
By
GES, Inc.
Project # 2023094
Date: 1-4-2024

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 purpose product, intended for infiltration requirements by the NH DES Alteration of Terrain Bureau. The soil map was produced by a professional soil scientist and is not a product of the USDA Natural Resources Conservation Service. This report accompanies the soil map.

The site-specific soil map (SSSM) was produced 1`-4-2024; prepared by JP Gove, CSS #004, GES, Inc.

Soils were identified with the New Hampshire State-wide Numerical Soils Legend, USDA NRCS, Durham, NH. Issue # 10, January 2011.

Hydrologic Soil Group was determined using SSSNNE Special Publication No. 5, Ksat Values for New Hampshire Soils, September 2009.

High Intensity Soil Map symbols, based upon SSSNNE Special Publication 1, December 2017, were added to the Soil Legend.

Scale of soil map: Approximately 1" = 40'.

Contours Interval: 2 feet

2. LANDFORMS & EXISTING CONDITIONS:

The site is located on a mostly disturbed area. What remains for natural soil is a hill of glacial outwash and valleys of marine sediments. The disturbed areas are cut faces at the sides of the hill, or graded flat in the valley.

3. DATE SOIL MAP PRODUCED

Date(s) of on-site field work: 1-4-2024

Date(s) of test pits: 1-4-2024

Test pits recorded by: James P. Gove, CSS #004

4. GEOGRAPHIC LOCATION AND SIZE OF SITE

City or town where soil mapping was conducted: Exeter

Location: Tax Map 52, Lot 112-2

Size of area: Approximately 5 acres

Was the map for the entire lot? no

If no, where was the mapping conducted on the parcel: Total lot area is 6.24 acres. Area soil mapped is limited to south of GTE Road.

5. PURPOSE OF THE SOIL MAP

Was the map prepared to meet the requirement of Alteration of Terrain? Yes

If no, what was the purpose of the map? n/a

Who was the map prepared for? Beals Associates, PLLC

6. SOIL IDENTIFICATION LEGEND

Map Unit Symbol	Map Unit Name	HISS Symbol	Hydrologic Soil Group
33	Scitico silt loam	553	C
24	Agawam fine sandy loam	211	B
500/dfccc	Udorthents loamy	363	C
600/ffccc	Endoaquents loamy	563	C

SLOPE PHASE:

0-8%	B	8-15%	C	15-25%	D
25%-50%	E	50%+	F		

7. NARRATIVE MAP UNIT DESCRIPTIONS

SITE-SPECIFIC MAP UNIT: 33

CORRELATED SOIL SERIES: Scitico silt loam

LANDSCAPE SETTING: Valleys

CHARACTERISTIC SURFACE FEATURES: Forested, no surface stones.

DRAINAGE CLASS: Poorly Drained

PARENT MATERIAL: Marine silts

NATURE OF DISSIMILAR INCLUSIONS: Poorly drained Shaker fine sandy loam at borders of wetlands.

ESTIMATED PERCENTAGE OF DISSIMILAR INCLUSIONS: 5%

SOIL PROFILE DESCRIPTIONS- horizon designation, depth, soil texture, Munsell color notation, Munsell color of redox features, soil structure, soil consistence, estimated coarse fragments, estimated seasonal high water table (ESHWT), observed water table (OBSWT), kind of water table (perched, apparent, or both), depth to lithic or paralithic contact:

Ap, 0-6 inches, silt loam, 10YR3/2, 5YR5/6 redox, granular, friable, no coarse fragments, ESHWT at 0 inches, perched.

Cg, 6-20 inches, silty clay loam, 2.5Y5/2, 5YR6/6 redox, blocky, firm, no coarse fragments, OBSWT at 10 inches, perched, no lithic contact.

SITE-SPECIFIC MAP UNIT: 24

CORRELATED SOIL SERIES: Agawam fine sandy loam

LANDSCAPE SETTING: Top of hill

CHARACTERISTIC SURFACE FEATURES: Forested, no surface stones.

DRAINAGE CLASS: Well Drained

PARENT MATERIAL: Glacial Outwash

NATURE OF DISSIMILAR INCLUSIONS: Moderately well drained Eldridge fine sandy loam at the transition from the hill side to the wetland boundary.

ESTIMATED PERCENTAGE OF DISSIMILAR INCLUSIONS: 5%

SOIL PROFILE DESCRIPTIONS- horizon designation, depth, soil texture, Munsell color notation, Munsell color of redox features, soil structure, soil consistence, estimated coarse fragments, estimated seasonal high water table (ESHWT), observed water table (OBSWT), kind of water table (perched, apparent, or both), depth to lithic or paralithic contact:

Ap, 0-6 inches, fine sandy loam, 10YR3/3, granular, friable, no coarse fragments.

Bw, 6-24 inches, fine sandy loam, 10YR5/6, granular, friable, no coarse fragments.

C, 24-45 inches, loamy sand, 2.5Y5/4, no redox, massive, friable, no coarse fragments, no ESHWT, no OBSWT, no lithic contact.

SITE-SPECIFIC MAP UNIT: 500/dfccc

CORRELATED SOIL SERIES: Udorthents, loamy

LANDSCAPE SETTING: Flat graded areas and cut faces.

CHARACTERISTIC SURFACE FEATURES: Grass, no surface stones.

DRAINAGE CLASS: Moderately Well Drained

PARENT MATERIAL: Mixed Fill over Marine silts

NATURE OF DISSIMILAR INCLUSIONS: Moderately well drained Boxford silt loam at borders of graded areas.

ESTIMATED PERCENTAGE OF DISSIMILAR INCLUSIONS: 5%

SOIL PROFILE DESCRIPTIONS- horizon designation, depth, soil texture, Munsell color notation, Munsell color of redox features, soil structure, soil consistence, estimated coarse fragments, estimated seasonal high water table (ESHWT), observed water table (OBSWT), kind of water table (perched, apparent, or both), depth to lithic or paralithic contact:

Fill, 0-20 inches, sandy loam to loamy sand, 10YR4/4, massive, friable, 10% gravel coarse fragments.

Cg, 20-40 inches, silty clay loam, 2.5Y5/2, 5YR5/6 redox, blocky, firm, no coarse fragments, ESHWT at 20 inches, OBSWT at 30 inches, perched, no lithic contact.

SITE-SPECIFIC MAP UNIT: 600/ffccc

CORRELATED SOIL SERIES: Endoaquents, loamy

LANDSCAPE SETTING: Ditches and swales.

CHARACTERISTIC SURFACE FEATURES: Grass or shrub-shrub, no surface stones.

DRAINAGE CLASS: Poorly Drained

PARENT MATERIAL: Marine silts – graded or dredged.

NATURE OF DISSIMILAR INCLUSIONS: Poorly drained Scitico silt loam at borders of graded areas.

ESTIMATED PERCENTAGE OF DISSIMILAR INCLUSIONS: 5%

SOIL PROFILE DESCRIPTIONS- horizon designation, depth, soil texture, Munsell color notation, Munsell color of redox features, soil structure, soil consistence, estimated coarse fragments, estimated seasonal high water table (ESHWT), observed water table (OBSWT), kind of water table (perched, apparent, or both), depth to lithic or paralithic contact:

C, 0-10 inches, silt loam, 2.5Y5/3, 5YR5/6 redox, massive, friable, no coarse fragments, ESHWT at 0 inches, perched.

Cg, 10-30 inches, silty clay loam, 2.5Y5/2, 5YR5/6 redox, blocky, firm, no coarse fragments, OBSWT at 10 inches, perched, no lithic contact.

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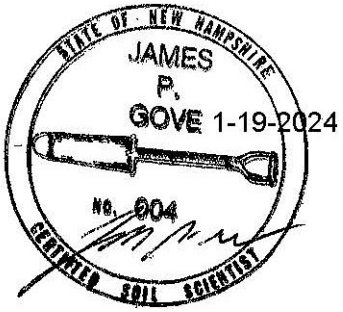
8. RESPONSIBLE SOIL SCIENTIST

Name: James Gove



Certified Soil Scientist Number: 004

9. OTHER DISTINGUISHING FEATURES OF SITE

Is the site in a natural condition? No

If no, what is the nature of the disturbance? Cut faces and flat graded areas. Only natural is remaining forested areas.

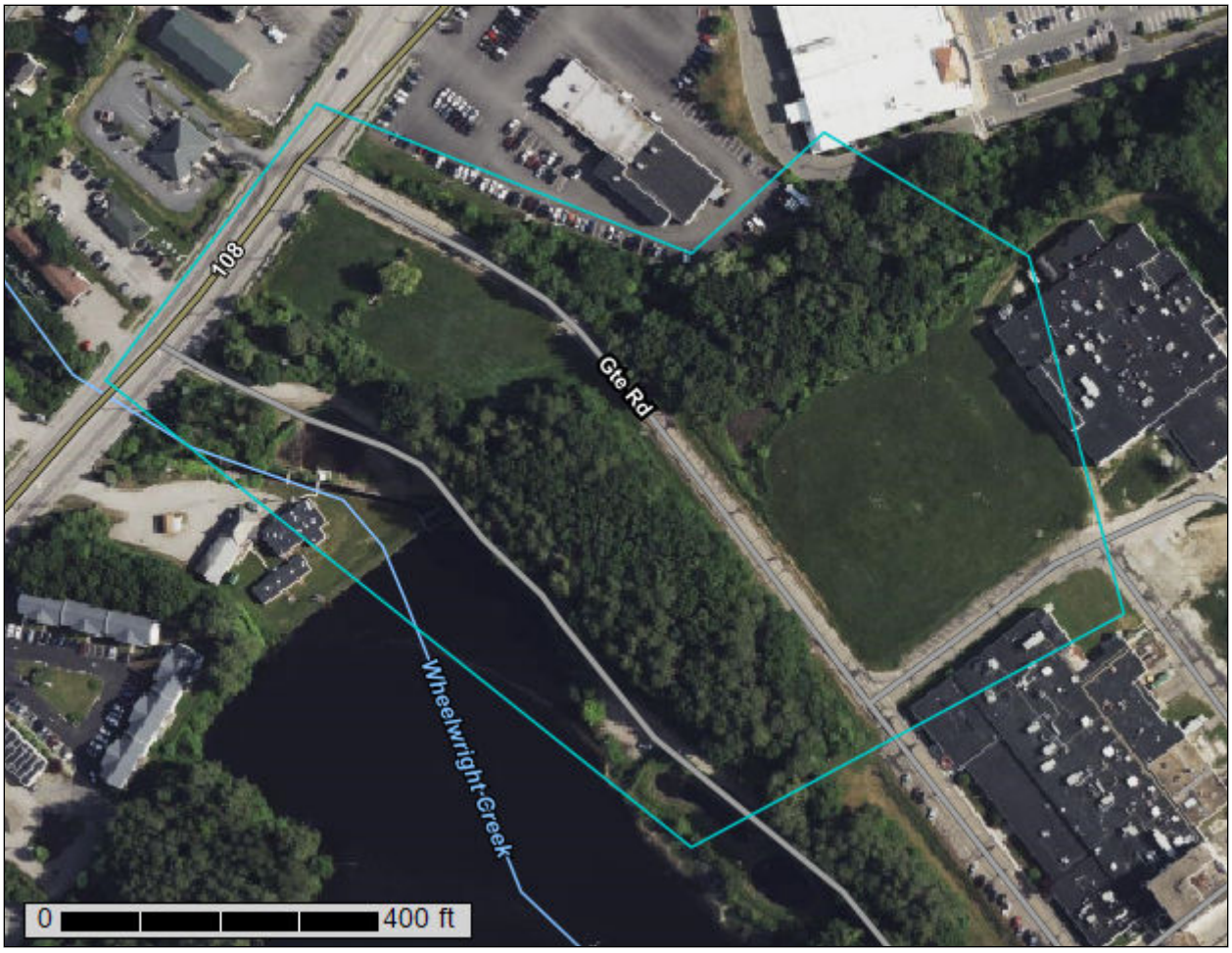
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Rockingham County, New Hampshire



November 6, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:2,410 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 26, Aug 22, 2023

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

Date(s) aerial images were photographed: May 22, 2022—Jun 5, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
26B	Windsor loamy sand, 3 to 8 percent slopes	0.2	1.2%
38B	Eldridge fine sandy loam, 3 to 8 percent slopes	6.2	37.8%
299	Udorthents, smoothed	7.2	43.4%
699	Urban land	2.1	12.9%
W	Water	0.8	4.7%
Totals for Area of Interest		**16.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate

pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Rockingham County, New Hampshire

26B—Windsor loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svkf
Elevation: 0 to 1,210 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 250 days
Farmland classification: Farmland of local importance

Map Unit Composition

Windsor and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Windsor

Setting

Landform: Outwash terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loose sandy glaciofluvial deposits derived from granite and/or schist and/or gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loamy sand
Bw - 3 to 25 inches: loamy sand
C - 25 to 65 inches: sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

Minor Components

Hinckley

Percent of map unit: 10 percent
Landform: Eskers
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

Deerfield, loamy sand

Percent of map unit: 5 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F144AY027MA - Moist Sandy Outwash
Hydric soil rating: No

38B—Eldridge fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9cnb
Elevation: 90 to 1,000 feet
Mean annual precipitation: 30 to 55 inches
Mean annual air temperature: 45 to 54 degrees F
Frost-free period: 120 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Eldridge and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eldridge

Setting

Parent material: Outwash over glaciolacustrine

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 23 inches: loamy fine sand
H3 - 23 to 62 inches: loamy very fine sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F144AY027MA - Moist Sandy Outwash
Hydric soil rating: No

Minor Components

Boxford

Percent of map unit: 5 percent
Hydric soil rating: No

Well drained inclusion

Percent of map unit: 5 percent
Hydric soil rating: No

Squamscott

Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

Scitico

Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

299—Udorthents, smoothed

Map Unit Setting

National map unit symbol: 9cmt
Elevation: 0 to 840 feet
Mean annual precipitation: 44 to 49 inches
Mean annual air temperature: 48 degrees F
Frost-free period: 155 to 165 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Properties and qualities

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

699—Urban land

Map Unit Composition

Urban land: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Minor Components

Not named

Percent of map unit: 15 percent
Hydric soil rating: No

W—Water

Map Unit Setting

National map unit symbol: 9cq3
Elevation: 200 to 2,610 feet
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

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STORMWATER MANAGEMENT / BMP
INSPECTION & MAINTENANCE PLAN

Foss Motors
127 Portsmouth Avenue, Exeter, NH
NH-1471
February 2024
Revised May 15, 2024

Proper construction, inspections, maintenance, and repairs are key elements in maintaining a successful stormwater management program on a developed property. Routine inspections ensure permit compliance and reduce the potential for deterioration of infrastructure or reduced water quality.

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

During construction activities Tim Foss with an address of 133 Portsmouth Avenue, Exeter, New Hampshire and a phone of 603.772.7777 or their heirs and/or assigns, shall be responsible for inspections and maintenance activities for the above project site. Foss Motors shall be responsible for *ongoing inspection and maintenance* of the porous pavement, bioretention pond, stone infiltration trench, and related drainage infrastructure. The owner shall document the transfer of responsibility in writing to the NHDES AoT Bureau.

The owner is responsible to ensure that any subsequent owner has copies of the Log Form and Annual Report records and fully understands the responsibilities of this plan. The grantor owner(s) will ensure this document is provided to the grantee owner(s) by duplicating the Ownership Responsibility Sheet which is found toward the back of this document, which will be maintained with the Inspection & Maintenance Logs and provided to the Town of Exeter and/or NHDES Alteration of Terrain Bureau upon request.

Documentation:
A maintenance log (i.e., report) will be kept summarizing inspections, maintenance, and any corrective actions taken. The log will include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task (see Stormwater System Operation and Maintenance Plan Inspection & Maintenance Manual Checklist attached). If a maintenance task

requires the clean-out of any sediments or debris, the location where the sediment and debris was disposed after removal shall be indicated.

Best Management Practices (BMP) Maintenance Guidelines
The following provides a list of recommendations and guidelines for managing the Stormwater facilities. The cited areas, facilities, and measures will be inspected and the identified deficiencies will be corrected. Clean-out must include the removal and legal disposal of any accumulated sediments and debris.

DURING CONSTRUCTION

1. Stabilized Construction Entrance

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

2. Dust Control

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

3. Temporary Erosion and Sediment Control Devices / Barriers

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

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

4. Invasive Species

THE NH COMMISSIONER OF AGRICULTURE PROHIBITS THE COLLECTION, POSSESSION, IMPORTATION, TRANSPORTATION, SALE, PROPAGATION, TRANSPLANTATION, OR CULTIVATION OF PLANTS BANNED BY NH LAW RSA

430:53 AND NH CODE ADMINISTRATIVE RULES AGR 3800. THE PROJECT SHALL MEET ALL REQUIREMENTS AND THE INTENT OF. RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.

POST CONSTRUCTION / LONG TERM MAINTENANCE:

5. Catch Basins/Manholes

Inspect catch basins 2 times per year (preferably in spring and fall) to ensure that the catch basins are working in their intended fashion and that they are free of debris. Clean structures when sediment depths reach 12" from invert of outlet. If the basin outlet is designed with a hood to trap floatable materials (i.e. Snout), check to ensure watertight seal is working. Remove floating debris and hydrocarbons at the time of the inspection.

6. Culverts

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

7. Vegetated Areas

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

8. Roadways and Paved Surfaces

Clear accumulations of winter sand along roadways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader.

9. Winter Maintenance

The plowing and application of de-icing materials shall be conducted by a certified Green Snow Pro contractor trained in best management practices for road salt/deicing at the expense of the owner. No snow dump shall be allowed onsite. In the event that snow storage areas are inundated in any given winter, snow will be trucked offsite and disposed of in a legal fashion.

10. Stormwater Infiltration Facilities

- Inspect all upstream pre-treatment measures for sediment and floatables accumulation. Remove and dispose of sediments or debris as needed.

- The infiltration facility will be inspected within the first three months after construction.
- After the initial three months, the infiltration facility will be inspected 2 times per year to ensure that the filter is draining within 72 hours of a rain event equivalent to 1/2" or more.
- Failure to drain in 72 hours will require part or all of the top 3 inches of the infiltration area to be removed and replaced with new like material. If the 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.
- Vegetated infiltration ponds or swales will be mowed at least annually or otherwise maintained to control the growth of woody vegetation and to control the accumulation of sediments in order to maintain the water quality volume. Any woody vegetation or accumulated sediment must be removed.
- The facilities will be inspected after major storms and any identified deficiencies will be corrected.

11. Bioretention Basin

- The perimeter should be mowed at least annually and the embankments periodically.
- 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.
- 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 infiltration function, including but not limited to removal of accumulated sediments or reconstruction of the filter media.
- The pre-treatment forebays will need occasional removal of sediment (every 5 years, or when 50% of capacity is lost, whichever occurs first). Inspections should ensure that no sediment is reaching the gravel.
- All structural components, which include, but are not limited to, level spreader, vegetation, pipes, orifice structures, and spillway structures, should be inspected and any deficiencies repaired. This includes a visual inspection of all storm water control structures for damage and/or accumulation of sediment.
- Vegetation should be inspected at least annually, and maintained in healthy condition, including pruning, removal and replacement.
- All dead or dying vegetation within the extents of the basin should be removed, as well as all herbaceous vegetation rootstock when overcrowding is observed and any vegetation that has a negative impact on storm water flowage through the facility. Any invasive vegetation encroaching upon the perimeter of the facility should be pruned or removed. Wetland plantings typically become well established, but occasional replanting to maintain minimum 50% coverage may be needed.

12. Porous Pavement

- Check for standing water remaining on the surface of the pavement after a precipitation event within 30 minutes.
- 1-2 times per year, use a vacuum sweeper to remove sediment from porous pavement. Use of a power washer or compressed air blower at an angle of 30 degrees or less can be effective.
- As part of vacuuming, inspect adjacent vegetated areas to verify no signs of erosion and run-on to permeable pavement. Repair or replace any damaged structural parts if required.
- Check for debris accumulation, particularly in the winter.
- Loose debris such as leaves or trash can be removed using a power/leaf blower or gutter broom.
- Fall and spring cleanup should be accompanied by pavement vacuuming.
- Accumulation of sediment and organic debris on the pavement surface.
- Repairs to damaged pavement should be repaired as they are identified.

13. Invasive Species

Background

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 chemical.

During maintenance activities, check for the presence of invasive plants and remove in a safe manner. They should be controlled as described on the following fact sheet prepared by the University of New Hampshire Cooperative Extension entitled Methods for Disposing Non-Native Invasive Plant dated January 2010.

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

Annual Report

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

Disposal Requirements

Disposal of debris, trash, sediment, and other waste materials should be done at suitable disposal/recycling sites and in compliance with all applicable local, state, and federal waste regulations.

STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

Inspection & Maintenance Manual Checklist

Commercial Development

Foss Motors – 127 Portsmouth Aveune
Exeter, NH

BMP / System	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
Stabilized Construction Entrance	Weekly	Inspect adjacent roadway for sediment tracking Inspect stone for sediment accumulation	Sweep adjacent roadways as soon as sediment is tracked Top dress with additional stone when necessary to prevent tracking
Sediment Control Devices / Barriers	Weekly	Inspect accumulated sediment level, rips, and tears	Repair or replace damaged lengths Remove and dispose of accumulated sediment once level reaches 1/3 of barrier height
Pavement Sweeping	Spring and Fall	Removal of sand and litter from impervious areas	N/A
Litter/Trash Removal	Routinely	Inspect dumpsters, outdoor waste receptacles area, and yard areas, as well as ponds and swale areas.	Site will be free of litter/trash.
Deicing Agents	N/A	N/A	Use salt as the primary agent for roadway safety during winter.
Landscaping	Maintained as required and mulched each Spring	N/A	Trash/debris and weed removal
Drainage Pipes, Catchbasins & Drain Manholes	Spring and Fall	Check for sediment accumulation & clogging.	More than 2" sediment depth
Bioretention Pond	Spring and Fall and after every	Sediment accumulation.	Remove sediment as needed.

	2.5” or rain or greater in a 24-hour period	Inspect embankments, inlet and outlet structures, and appurtenances. 72-Hour drawdown time evaluation and vegetation evaluation.	Remove trash & debris from system and appurtenances. Mow embankment and remove woody vegetation. Take corrective measures of filtration media if required.
Infiltration Trench	Spring and Fall and after every 2.5” of rain or greater in a 24-hour period	Inspect grass swale vegetation and sediment accumulation. 72-Hour drawdown time evaluation and vegetation evaluation.	Remove dead & diseased vegetation along with all debris; take corrective measures, reseed and repair grass swale if required. Mow grass swale. Restore infiltration by removing accumulated sediments and reconstruction of the infiltration basin as necessary.
Porous Pavement	Spring and Fall	Check for standing water. Check for damaged pavement.	Remove debris from porous pavement and adjacent areas. Vacuum sweep pavement. Repair damaged pavement.
Riprap Outlet Protection/Level Spreaders	Spring and Fall and after every 2.5” of rain or greater in a 24-hour period	Check for sediment buildup and displaced stones. Inspect for torn or visible fabric.	Remove excess sediment and trash/debris. Immediately repair and replace stone and/or fabric as necessary.
Annual Report	1 time per year	Submit Annual Report to Town of Exeter Inspector upon request	

<u>Inspection Notes:</u>

STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

Inspection & Maintenance Manual Log Form

Commercial Development

Foss Motors – 127 Portsmouth Aveune
Exeter, NH

BMP / System	Date Inspected	Inspected By	Cleaning/Repair (List Items & Comments)	Date Repaired	Repairs Performed By

CHECKLIST FOR INSPECTION OF BIORETENTION SYSTEM

Location: Inspector:

Date: Time: Site Conditions:

Date Since Last Rain Event:

Inspection Items	Satisfactory (S) or Unsatisfactory (U)	Comments/Corrective Action
1. Initial Inspection After Planting and Mulching		
Plants are stable, roots not exposed:	**S U**	
Surface is at design level, typically 4" below overpass:	**S U**	
Overflow bypass / inlet (if available) is functional:	**S U**	
2. Debris Cleanup (2 times a year minimum, Spring & Fall)		
Litter, leaves, and dead vegetation removed from	**S U**	
Prune perennial vegetation:	**S U**	
3. Standing Water (1 time a year, After large storm events)		
No evidence of standing water after 72 hours:	**S U**	
4. Short Circuiting & Erosion (1 times a year, After large storm events)		
No evidence of animal burrows or other holes:	**S U**	
No evidence of erosion:	**S U**	
5. Drought Conditions (As needed)		
Water plants as needed:	**S U**	
Dead or dying plants:	**S U**	
6. Overflow Bypass / Inlet Inspection (1 times a year, After large storm events)		
No evidence of blockage or accumulated leaves:	**S U**	
Good condition, no need for repair:	**S U**	
7. Vegetation Coverage (once a year)		
50 % coverage established throughout system by first year:	**S U**	
Robust coverage by year 2 or later:	**S U**	
8. Mulch Depth (if applicable, once every 2 years)		
Mulch at original design depth after tilling or replacement:	**S U**	
9. Vegetation Health (once every 3 years)		
Dead or decaying plants removed from the system:	**S U**	
10. Tree Pruning (once every 3 years)		
Prune dead, diseased, or crossing branches:	**S U**	
Corrective Action Needed		**Due Date**
1.		
2.		
3.		

CHECKLIST FOR INSPECTION OF PERMEABLE PAVEMENT

Location:

Inspector:

Date:

Time:

Site Conditions:

Date Since Last Rain Event:

Inspection Items	Satisfactory (S) or Unsatisfactory (U)	Comments/Corrective Action
1. Salt / Deicing (Winter/Spring)		
Use salt only for ice management	S U	
Accumulated salt removed in spring	S U	
2. Debris Cleanup (1-2 times per year minimum, Spring/Fall)		
Remove sediment and organic debris using vacuum street sweeper	S U	
Clean catch basins (if available)	S U	
3. Controlling Run-On		
Adjacent vegetated areas show no signs of erosion and run-on to permeable pavement	S U	
4. Outlet / Catch Basin Inspection (if available) (1-2 times per year, after large storm events)		
No evidence of blockage	S U	
Good condition, no need for cleaning/repair	S U	
5. Poorly Drained Pavement		
Recently cleaned and vacuumed	S U	
6. Pavement Condition		
No evidence of deterioration	S U	
7. Signage / Stockpiling (As Needed)		
No evidence of damage	S U	
Proper signage posted indicating usage for traffic load	S U	
No stockpiling of materials and other unauthorized uses	S U	

Corrective Action Needed	Due Date
1.	
2.	
3.	
Inspector's Signature	Date

Anti-icing Route Data Form

Truck Station:

Date:

Air Temperature	Pavement Temperature	Relative Humidity	Dew Point	Sky

Reason for applying:

Route:

Chemical:

Application Time:

Application Amount:

Observation (first day):

Observation (after event):

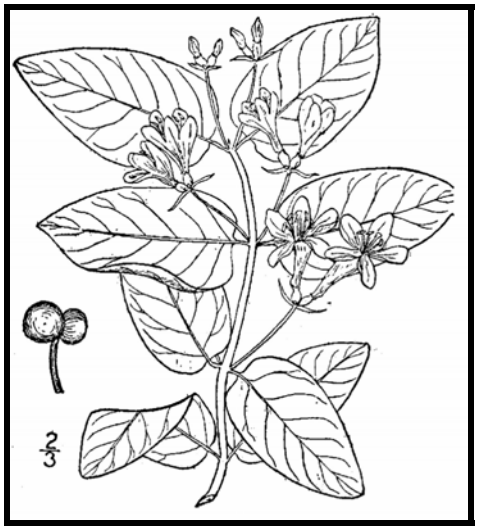
Observation (before next application);

Name:

University of New Hampshire Cooperative Extension

Methods for Disposing Non-Native Invasive Plants

Prepared by the Invasives Species Outreach Group, volunteers interested in helping people control invasive plants. Assistance provided by the Piscataquog Land Conservancy and the NH Invasives Species Committee. Edited by Karen Bennett, Extension Forestry Professor and Specialist.



Tatarian honeysuckle
Lonicera tatarica
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 3: 282.

Non-native invasive plants crowd out natives in natural and managed landscapes. They cost taxpayers billions of dollars each year from lost agricultural and forest crops, decreased biodiversity, impacts to natural resources and the environment, and the cost to control and eradicate them.

Invasive plants grow well even in less than desirable conditions such as sandy soils along roadsides, shaded wooded areas, and in wetlands. In ideal conditions, they grow and spread even faster. There are many ways to remove these non-native invasives, but once removed, care is needed to dispose the removed plant material so the plants don't grow where disposed.

Knowing how a particular plant reproduces indicates its method of spread and helps determine the appropriate disposal method. Most are spread by seed and are dispersed by wind, water, animals, or people. Some reproduce by vegetative means from pieces of stems or roots forming new plants. Others spread through both seed and vegetative means.

Because movement and disposal of viable plant parts is restricted (see NH Regulations), viable invasive parts can't be brought to most transfer stations in the state. Check with your transfer station to see if there is an approved, designated area for invasives disposal. This fact sheet gives recommendations for rendering plant parts non-viable.

Control of invasives is beyond the scope of this fact sheet. For information about control visit www.nhinvasives.org or contact your UNH Cooperative Extension office.

New Hampshire Regulations

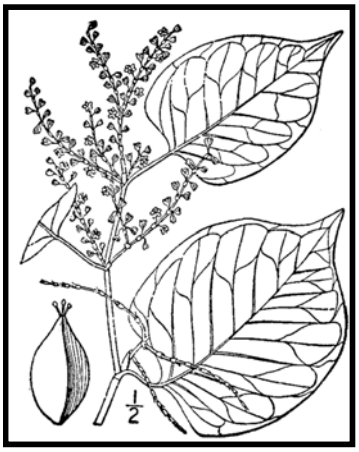
Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

No person shall collect, transport, import, export, move, buy, sell, distribute, propagate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1 of the New Hampshire prohibited invasive species list. (Agr 3802.01)

How and When to Dispose of Invasives?

To prevent seed from spreading remove invasive plants before seeds are set (produced). Some plants continue to grow, flower and set seed even after pulling or cutting. Seeds can remain viable in the ground for many years. If the plant has flowers or seeds, place the flowers and seeds in a heavy plastic bag "head first" at the weeding site and transport to the disposal site. The following are general descriptions of disposal methods. See the chart for recommendations by species.

Burning: Large woody branches and trunks can be used as firewood or burned in piles. For outside burning, a written fire permit from the local forest fire warden is required unless the ground is covered in snow. Brush larger than 5 inches in diameter can't be burned. Invasive plants with easily airborne seeds like black swallow-wort with mature seed pods (indicated by their brown color) shouldn't be burned as the seeds may disperse by the hot air created by the fire.



Japanese knotweed
Polygonum cuspidatum
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 1: 676.

Bagging (solarization): Use this technique with softer-tissue plants. Use heavy black or clear plastic bags (contractor grade), making sure that no parts of the plants poke through. Allow the bags to sit in the sun for several weeks and on dark pavement for the best effect.

Tarping and Drying: Pile material on a sheet of plastic and cover with a tarp, fastening the tarp to the ground and monitoring it for escapes. Let the material dry for several weeks, or until it is clearly nonviable.

Chipping: Use this method for woody plants that don't reproduce vegetatively.

Burying: This is risky, but can be done with watchful diligence. Lay thick plastic in a deep pit before placing the cut up plant material in the hole. Place the material away from the edge of the plastic before covering it with more heavy plastic. Eliminate as much air as possible and toss in soil to weight down the material in the pit. Note that the top of the buried material should be at least three feet underground. Japanese knotweed should be at least 5 feet underground!

Drowning: Fill a large barrel with water and place soft-tissue plants in the water. Check after a few weeks and look for rotted plant material (roots, stems, leaves, flowers). Well-rotted plant material may be composted. A word of caution- seeds may still be viable after using this method. Do this before seeds are set. This method isn't used often. Be prepared for an awful stink!

Composting: Invasive plants can take root in compost. Don't compost any invasives unless you know there is no viable (living) plant material left. Use one of the above techniques (bagging, tarping, drying, chipping, or drowning) to render the plants nonviable before composting. Closely examine the plant before composting and avoid composting seeds.

Be diligent looking for seedlings for *years* in areas where removal and disposal took place.

Suggested Disposal Methods for Non-Native Invasive Plants

This table provides information concerning the disposal of removed invasive plant material. If the infestation is treated with herbicide and left in place, these guidelines don't apply. Don't bring invasives to a local transfer station, unless there is a designated area for their disposal, or they have been rendered non-viable. This listing includes wetland and upland plants from the New Hampshire Prohibited Invasive Species List. The disposal of aquatic plants isn't addressed.

<table>
<tr><th>Woody Plants</th><th>Method of Reproducing</th><th>Methods of Disposal</th></tr>
<tr><td rowspan="2">Norway maple
(Acer platanoides)
European barberry
(Berberis vulgaris)
Japanese barberry
(Berberis thunbergii)
autumn olive
(Elaeagnus umbellata)
burning bush
(Euonymus alatus)
Morrow's honeysuckle
(Lonicera morrowii)
Tatarian honeysuckle
(Lonicera tatarica)
showy bush honeysuckle
(Lonicera x bella)
common buckthorn
(Rhamnus cathartica)
glossy buckthorn
(Frangula alnus)</td><td rowspan="2">Fruit and Seeds
  </td><td>Prior to fruit/seed ripening
Seedlings and small plants
▪ Pull or cut and leave on site with roots exposed. No special care needed.
Larger plants
▪ Use as firewood.
▪ Make a brush pile.
▪ Chip.
▪ Burn.</td></tr>
<tr><td>After fruit/seed is ripe
Don't remove from site.
▪ Burn.
▪ Make a covered brush pile.
▪ Chip once all fruit has dropped from branches.
▪ Leave resulting chips on site and monitor.</td></tr>
<tr><td rowspan="2">oriental bittersweet
(Celastrus orbiculatus)
multiflora rose
(Rosa multiflora)</td><td rowspan="2">Fruits, Seeds, Plant Fragments
  </td><td>Prior to fruit/seed ripening
Seedlings and small plants
▪ Pull or cut and leave on site with roots exposed. No special care needed.
Larger plants
▪ Make a brush pile.
▪ Burn.</td></tr>
<tr><td>After fruit/seed is ripe
Don't remove from site.
▪ Burn.
▪ Make a covered brush pile.
▪ Chip – only after material has fully dried (1 year) and all fruit has dropped from branches. Leave resulting chips on site and monitor.</td></tr>
</table>

<table>
<tr><th>Non-Woody Plants</th><th>Method of Reproducing</th><th>Methods of Disposal</th></tr>
<tr><td rowspan="2">garlic mustard
(Alliaria petiolata)
spotted knapweed
(Centaurea maculosa)
▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling.
black swallow-wort
(Cynanchum nigrum)
▪ May cause skin rash. Wear gloves and long sleeves when handling.
pale swallow-wort
(Cynanchum rossicum)
giant hogweed
(Heracleum mantegazzianum)
▪ Can cause major skin rash. Wear gloves and long sleeves when handling.
dame’s rocket
(Hesperis matronalis)
perennial pepperweed
(Lepidium latifolium)
purple loosestrife
(Lythrum salicaria)
Japanese stilt grass
(Microstegium vimineum)
mile-a-minute weed
(Polygonum perfoliatum)</td><td rowspan="2">Fruits and Seeds
  </td><td>Prior to flowering
Depends on scale of infestation
Small infestation
▪ Pull or cut plant and leave on site with roots exposed.

Large infestation
▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting).
▪ Monitor. Remove any re-sprouting material.</td></tr>
<tr><td>During and following flowering
Do nothing until the following year or remove flowering heads and bag and let rot.

Small infestation
▪ Pull or cut plant and leave on site with roots exposed.

Large infestation
▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting).
▪ Monitor. Remove any re-sprouting material.</td></tr>
<tr><td>common reed
(Phragmites australis)
Japanese knotweed
(Polygonum cuspidatum)
Bohemian knotweed
(Polygonum x bohemicum)</td><td>Fruits, Seeds, Plant Fragments
Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn’t materially influence disposal activities.</td><td>Small infestation
▪ Bag all plant material and let rot.
▪ Never pile and use resulting material as compost.
▪ Burn.

Large infestation
▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile.
▪ Monitor and remove any sprouting material.
▪ Pile, let dry, and burn.</td></tr>
</table>

January 2010

Appendix IV

Plans

SITE SPECIFIC SOIL MAPPING STANDARDS:

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 WAS PRODUCED JANUARY 15, 2024, AND WAS PREPARED BY JAMES P. GOVE, CSS #004, GOVE ENVIRONMENTAL SERVICES, INC.

SOIL IDENTIFICATION LEGEND:

MAP UNIT SYMBOL	MAP UNIT NAME	HISS SYMBOL	HYDROLOGIC SOIL GROUP
24	AGAWAM FINE SANDY LOAM	211	B
33	SCITICO SILT LOAM	553	C
500/dfccc	UDORTHENTS LOAMY	363	C
600/ffccc	ENDOAQUENTS LOAMY	563	C

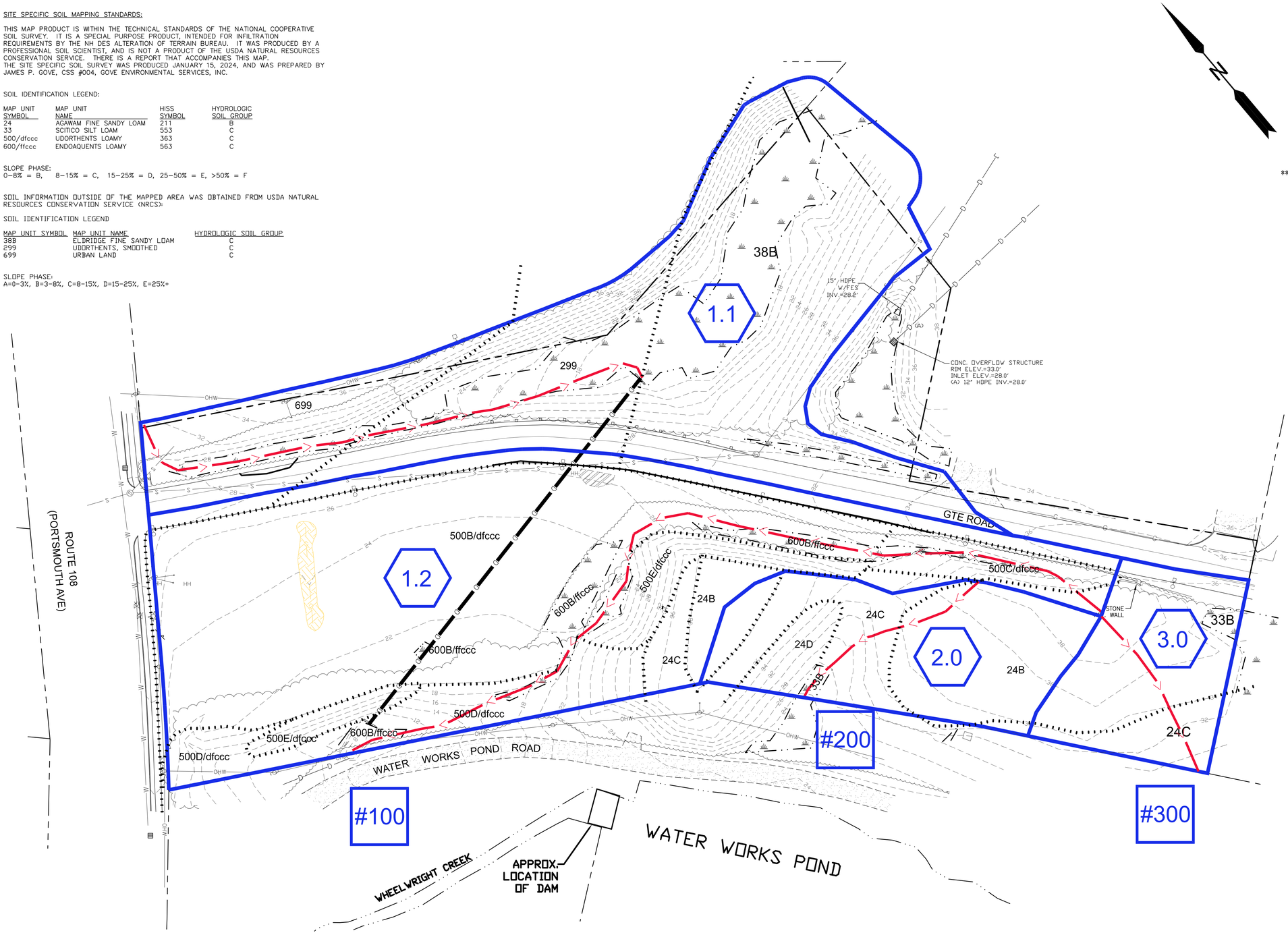
SLOPE PHASE:
0-8% = B, 8-15% = C, 15-25% = D, 25-50% = E, >50% = F

SOIL INFORMATION OUTSIDE OF THE MAPPED AREA WAS OBTAINED FROM USDA NATURAL RESOURCES CONSERVATION SERVICE (NRCS):

SOIL IDENTIFICATION LEGEND

MAP UNIT SYMBOL	MAP UNIT NAME	HYDROLOGIC SOIL GROUP
38B	ELDRIDGE FINE SANDY LOAM	C
299	UDORTHENTS, SMOOTHED	C
699	URBAN LAND	C

SLOPE PHASE:
A=0-3%, B=3-8%, C=8-15%, D=15-25%, E=25%+



PREPARED FOR:
FOSS MOTORS
133 PORTSMOUTH AVE.
(NH ROUTE 108)
EXETER, NEW HAMPSHIRE

BA BEALS ASSOCIATES, PLLC
70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860
FAX. 603-583-4863

** THIS DRAWING IS FOR DRAINAGE PURPOSES ONLY **

WATERSHED LEGEND

- 4 — SUBCATCHMENT
- 4 — REACH
- 4 — POND
- LIMIT OF SUBCATCHMENT
- FLOW PATH

LEGEND

- UTILITY POLE
- TP#1A — TEST PIT W/ NO.
- SURFACE LEDGE
- STONE WALL
- TREE LINE
- EXISTING CONTOUR – 10'
- EXISTING CONTOUR – 2'
- WETLAND BOUNDARY
- SOILS BOUNDARY LINE
- ABUTTING PROPERTY LINE
- EXISTING PROPERTY LINE

REVISIONS:	DATE:
REVISED PER REVIEW COMMENTS	5-15-24
REVISED PER REVIEW COMMENTS	4-9-24

EXISTING WATERSHED PLAN

COMMERCIAL DEVELOPMENT
ROUTE 108
EXETER, NH
TAX MAP 52, LOT 112.2

DATE:	FEBRUARY 2024	SCALE:	1"=40'
PROJ. N0:	NH-1471	SHEET NO.	WS-1

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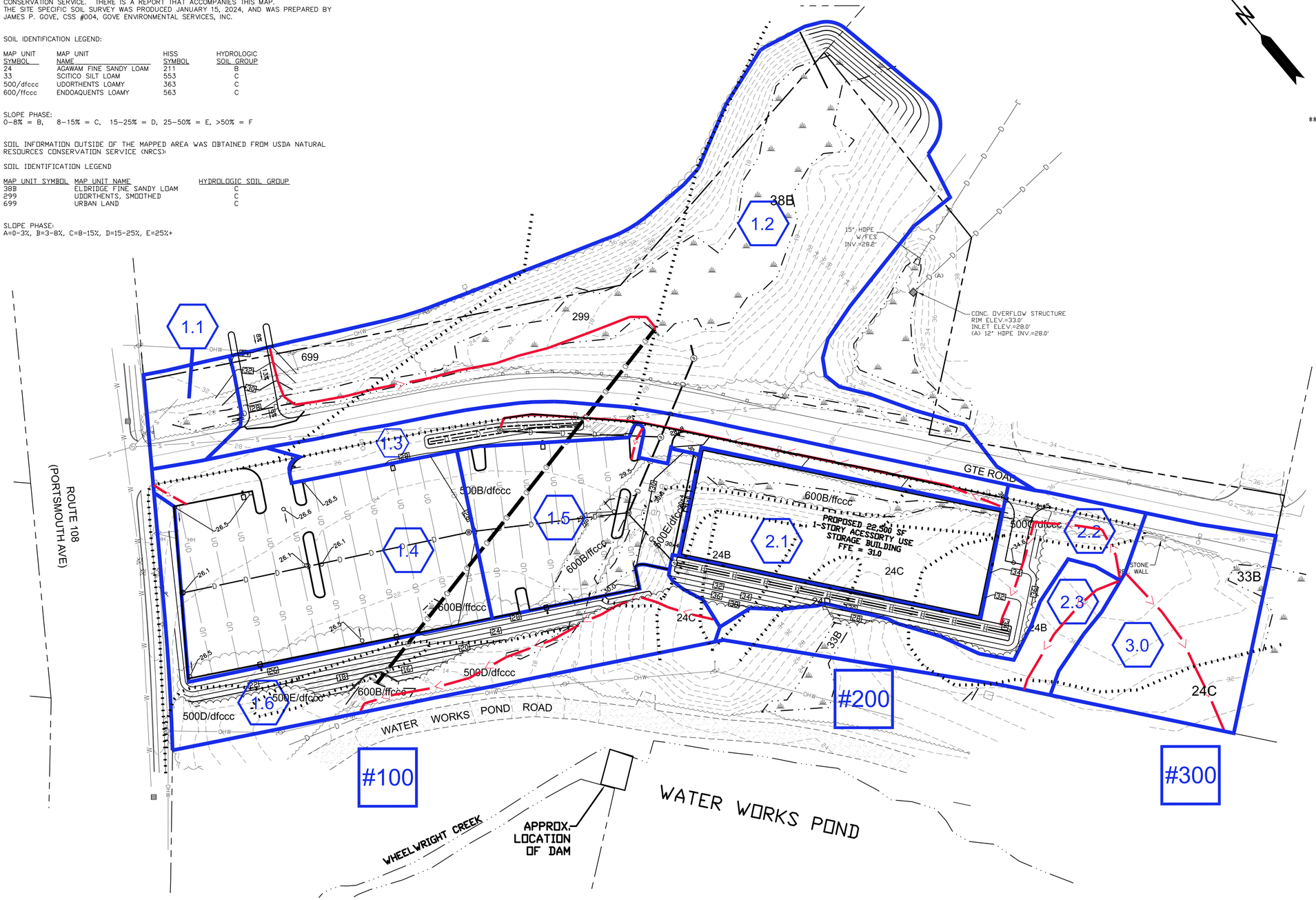

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- PROPOSED PROPERTY LINE

0 40 80 120

REVISIONS:	DATE:
REVISED PER REVIEW COMMENTS	5-15-24
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PROPOSED WATERSHED PLAN

COMMERCIAL DEVELOPMENT
ROUTE 108
EXETER, NH
TAX MAP 52, LOT 112.2

DATE:	FEBRUARY 2024	SCALE:	1"=40'
PROJ. N0:	NH-1471	SHEET NO.	WS-2