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, July 13, 2023 at 7:00 P.M. in the Nowak Room of the Exeter Town Office building located at 10 Front Street, Exeter, New Hampshire to consider the following:

APPROVAL OF MINUTES: June 8 and June 22, 2023

NEW BUSINESS:

Continued public hearing on the application of Blind Tiger, LLC for a site plan review for the proposed reconstruction of the club house and additional parking at the Exeter Country Club. The subject property is located at 58 Jady Hill Avenue, in the R-2, Single Family Residential zoning district. Tax Map Parcel #52-1. PB Case #23-2.

The application of Tropic Star Development LLC for a minor subdivision of the property located at 2 Meeting Place Drive into two parcels; and a site plan review for the proposed construction of a single-story bank with drive-thru, parking and associated site improvements. The subject property is located in the C-2, Highway Commercial zoning district. Tax Map Parcel #55-75. PB Case #23-6.

The application of Ross Engineering LLC for a multi-family site plan review and Shoreland Conditional Use Permit (CUP) for the proposed redevelopment of the property at 14 Hobart Street into three residential condominium units along with associated site improvements. The subject property is located in the R-2, Single Family Residential zoning district, Tax Map Parcel #74-89. PB Case #23-8.

The application of Eversource Energy for a Wetland Conditional Use Permit (CUP) for the proposed replacement of thirty-six (36) existing transmission poles associated with the A126 and H141 lines within the existing Eversource ROW in various locations. The subject properties are located in the RU-Rural and R-1, Low Density Residential zoning districts and are identified as Tax Map Parcels #30-8, 30-9, 29-31, 29-32, 28-3, 28-6, 28-13, 28-18, 17-19, 18-3, 19-3, 19-2, 19-1, 19-16, 19-16-1, 24-1, 25-1, 20-8, 24-3 & 24-30. PB Case #23-9.

The application of Douglas and Christine Rupp for a Wetlands Conditional Use Permit (CUP) for the proposed construction of a driveway for a single-family residence within the wetlands and wetlands buffer area. The subject property is located at 24 Powder Mill Road, in the R-1, Low Density Residential zoning district. Tax Map Parcel #102-4. PB Case #23-11.

OTHER BUSINESS

- 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 06/29/23: Exeter Town Office and Town of Exeter website

TOWN OF EXETER
PLANNING BOARD
NOWAK ROOM – TOWN OFFICE BUILDING
10 FRONT STREET
JUNE 8, 2023
DRAFT MINUTES
7:00 PM

I. PRELIMINARIES:

BOARD MEMBERS PRESENT BY ROLL CALL: Chair Langdon Plumer, Pete Cameron, Clerk, Gwen English, John Grueter, Jen Martel and Nancy Belanger Select Board Representative

STAFF PRESENT: Town Planner Dave Sharples

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

III. OLD BUSINESS

APPROVAL OF MINUTES

May 11, 2023

Mr. Grueter recommended an edit, that the meeting was adjourned by a 7-0-0 vote.

Mr. Grueter motioned to approve the May 11, 2023 minutes, as amended. Ms. Belanger seconded the motion. A vote was taken, all were in favor, the motion passed 5-0-0.

May 25, 2023

The April 13, 2023 minutes and May 11, 2023 minutes had been approved at this meeting and those edits were made. The motion that the minutes were tabled was corrected to read approved as amended.

Ms. Belanger motioned to approve the May 25, 2023 meeting minutes, as amended. Mr. Grueter seconded the motion. A vote was taken, all were in favor, the motion passed 6-0-0.

IV. <u>NEW BUSINESS</u>:

1. The application of Elizabeth A. Hewson Revocable Trust for a minor subdivision of an existing 2.30-acre parcel into three (3) residential lots.
45 Pine Street, R-2 Single Family Residential zoning district

Tax Map Parcel #83-59
Planning Board Case #23-5

Chair Plumer read out loud the Public Hearing Notice.

Mr. Sharples indicated the applicant is seeking a minor subdivision of an existing 2.30-acre parcel located at 45 Pine Street into three (3) residential lots, one with a 1.2-acre parcel with the existing residence with frontage on Pine Street and two (2) new residential lots, each 24,004 square feet in area with frontage on Nelson Drive. The applicant submitted a minor subdivision application, plan and supporting documents dated May 8, 2023. There was no Technical Review Committee meeting, however the plans were reviewed by staff or compliance with zoning and subdivision regulations and Doug Eastman the Code Enforcement Officer determined the proposal meets minimum dimensional requirements. There are no waivers being requested.

Mr. Sharples noted that there could be Conditional Use Permit required for one or both of the lots for the project and rather than have the applicants come back at the end of August he recommended the following condition be proposed in addition to the two standard conditions: that the lot shall be deemed unbuildable until either a CUP is secured, or it is determined by the town that one is not necessary.

Ms. English motioned to open Planning Board Case #23-5. Mr. Grueter seconded the motion. A vote was taken, all were in favor, the motion passed 6-0-0.

Henry Boyd of Millenium Engineering presented the plans on behalf of the applicant. He noted the existing dwelling will reside on Lot 1, which will be 52,151 s.f. in size. Lots 2 & 3 shall contain 24,004 s.f. each. He showed the location of the proposed parcels on the plan and noted that at one time they were three parcels voluntarily merged by the prior owner and a building was removed. He noted that two different existing wetland flags were found. He indicated the 100' setback area and the 150' CUP area. He noted the parcels will be on town water/sewer.

Ms. English asked about driveways off Nelson Drive and Mr. Boyd indicated yes.

Chair Plumer opened the hearing for public comment at 7:21 PM.

Mr. Sharples provided the Board with letters dated June 1, 2023 and June 2, 2023 from the owners of 96 Court Street. She expressed concerns with decreased property values and preservation of the trees along the property line on the Court Street side especially the deciduous tree on the corner of Nelson Drive and Court Street to mitigate the aesthetics of

Court Street being preserved. She expressed concerns with drainage since the bridge work was done on the Little River which they addressed with the town engineer and manager to no avail. Two photos of the street view were provided.

Mr. Grueter noted that neither of the two owners were direct abutters, across the street but not directly across.

Chair Plumer closed public comments on the hearing at 7:22 PM.

Ms. Martel questioned the drip lines from the roof and pitch of the driveway on either side.

Mr. Sharples indicated he was not involved with the conversations with the town engineer.

Mr. Grueter questioned the catch basins and their function.

Mr. Sharples read out loud the proposed 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 the signing of the final plans. This plan shall be in NAD 1983 State Plane New Hampshire FIPS 2800 feet coordinates;
2. All monumentation shall be set in accordance with Section 9.25 of the Site Plan Review and Subdivision Regulations prior to the signing of the final plan; and
3. that the lots of the plan shall be deemed unbuildable until either a CUP is secured, or it is determined by the town that one is not necessary.

Ms. Belanger moved that the request of Elizabeth A. Hewson Revocable Trust (Planning Board Case #23-5) for minor subdivision approval be approved with the conditions read by the Town Planner. Mr. Grueter seconded the motion. A vote was taken, all were in favor, the motion passed 6-0-0.

2. The application of Blind Tiger, LLC for a site plan review for the proposed reconstruction of the club house and additional parking at the Exeter Country Club
58 Jady Hill Avenue, R-2, Single-Family Residential zoning district
Tax Map Parcel #52-1
Planning Board Case #23-2

Chair Plumer read out loud the Public Hearing Notice.

Mr. Sharples indicated the case was ready for review purposes

Ms. English motioned to open Planning Board Case #23-2. Mr. Cameron seconded the motion. A vote was taken, all were in favor, the motion passed 6-0-0.

Mr. Sharples indicated that the applicant is seeking site plan approval for the proposed reconstruction of the existing club house, additional parking and associated site improvements at the Exeter Country Club located at 58 Jady Hill Avenue. The applicant submitted a site plan review application, plans and supporting documents dated January 24, 2023 for review. A TRC meeting was conducted on February 16, 2023 and it was determined that a second TRC meeting was necessary. A copy of the TRC comment letter dated February 24, 2023 and UEI comment letter dated February 17, 2023 were provided to the Board. Revised plans and supporting documents were received on April 28, 2023. The second TRC meeting was held on May 11, 2023. A second UEI comment letter dated May 12, 2023 was provided to the Board with no further TRC comments or comments from Town Departments. The applicant provided revised plans and supporting documents dated May 24, 2023 addressing the concerns raised at the second TRC meeting and staff is reviewing that submission. The applicant is requesting several waivers in accordance with the waiver requested letter from Emanuel Engineering dated April 25, 2023.

Bruce Scamman of Emanuel Engineering presented the plan on behalf of the applicant. Mr. Scamman displayed the plan for the project and described the renovation of the 68'x94' club house that would include a restaurant and additional parking. He detailed the proposed elevator, outdoor deck overlooking the 1st and 9th fairways and existing club shop on the first floor and detailed the proposed drainage structures and noted that the Town did not want the applicant to tie into their catch basin.

Mr. Sharples asked him to explain the change in access from the parking lot. Mr. Scammon showed the proposed entrance and parking islands. There would be a sidewalk to Jady Hill in the Town Right of Way, one of two offsite improvements. He showed the locations of various stormwater management features including a dry well and swale, piping system to the 9th fairway and man-made berm.

Ms. Martel asked about tree cutting and he showed the 11 large trees that would be cut. She asked about adding trees and changing the cherry tree proposed to a canopy shade tree.

Mr. Cameron asked the hours, which were not yet determined yet and about the lighting plan. There would be lights on the building itself and the parking lot and all would be LED down facing, dark sky compliant. A lighting intensity plan analysis was provided. They would be going from two to 11 lights to bring them up to current safety standards while as Mr. Sharples noted there is no town requirement to add more lights. Mr. Sharples did note, however, that the

town required all lights to be off or reduced in intensity after 10 PM. Mr. Scammon stated they would add a note to that effect to the plan.

Ms. English asked about the calculation for the number of parking spaces. Mr. Scammon indicated there would be 120 parking spots. At times the golf course would be closed when the restaurant was open. The applicant worked with TRC on that.

Ms. English asked if the space would be used as an event venue for weddings and other large events. The applicant indicated there would be meetings, smaller gatherings, no weddings or large events.

Ms. Belanger asked the number of existing spaces. Mr. Sharples indicated 65 parking spaces currently. They would be adding 55.

Mr. Cameron asked about calculations of impervious surface which Mr. Scammon provided, going from approximately 30,000 SF to 59,000 SF.

Mr. Cameron asked about landscaping and Mr. Scammon pointed out plans for bushes and a hedge row. Ms. Martel asked about planting near the retaining wall and where paving was being removed at the lowest portion. Ms. English asked about the area next to the building and if the drip edge would be vegetated.

Ms. English expressed concerns about pedestrian safety and trucks Mr. Scammon noted crosswalks would be impractical due to slopes. He explained how the golf carts would be brought up by attendants from the storage area. He explained the requirement for fire trucks to enter and exit and the grade change driven by town drainage moving the area onto the applicant's property.

Ms. Martel questioned the loading dock area and also asked if the sidewalks could be wider and push the plant bed so cars won't park into the sidewalk reducing its width. He noted the area will not see much pedestrian traffic. Ms. Martel noted that is where the handicapped parking will be and they will need to get around.

Chair Plumer opened the hearing to comments and questions from the public at 8:40 PM.

Greg McCarthy indicated he lived at 4 Webster Avenue and has concerns with drainage which have been reported since 1975. There is a separate project for the Jady Hill sewer system which will tear up the road that was just paved. He would like to keep runoff off Webster Avenue and hopes a solution will be found. He noted he is not convinced the dry well will solve the problem.

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 carts 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 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. Belanger 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 Conservation 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"

X. ADJOURN

Mr. Cameron motioned to adjourn the meeting at 9:53 PM. Ms. Belanger seconded the motion. A vote was taken all were in favor, the motion passed 6-0-0.

Respectfully submitted,

Daniel Hoijer,
Recording Secretary
Via Exeter TV

TOWN OF EXETER
PLANNING BOARD
NOWAK ROOM – TOWN OFFICE BUILDING
10 FRONT STREET
JUNE 22, 2023
DRAFT MINUTES
7:00 PM

I. PRELIMINARIES:

BOARD MEMBERS PRESENT BY ROLL CALL: Chair Langdon Plumer, Gwen English, John Grueter, and Nancy Belanger Select Board Representative

STAFF PRESENT:

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

III. OLD BUSINESS

APPROVAL OF MINUTES

June 8, 2023 - ***Tabled***

Ms. Belanger motioned to table approval of the June 8, 2023 minutes until the Planning Board's July 13, 2023 meeting. Ms. English seconded the motion. A vote was taken, all were in favor, the motion passed 4-0-0.

IV. <u>NEW BUSINESS</u>:

1. The continued public hearing on the application of Blind Tiger, LLC for a site plan review for the proposed reconstruction of the club house and additional parking at the Exeter Country Club
58 Jady Hill Avenue, R-2, Single-Family Residential zoning district
Tax Map Parcel #52-1
Planning Board Case #23-2

Chair Plumer reported that the applicant has requested a continuance.

Mr. Grueter motioned that the request of Blind Tiger, LLC, Planning Board Case #23-2 for extension of their hearing for site plan review, be continued to the Planning Board's July 13,

2023 meeting at 7:00 PM. Ms. Belanger seconded the motion. A vote was taken, all were in favor, the motion passed 4-0-0.

VI. OTHER BUSINESS

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

VII. TOWN PLANNER'S ITEMS

VIII. CHAIRPERSON'S ITEMS

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

X. ADJOURN

Mr. Grueter motioned to adjourn the meeting at 8:05 PM. Ms. Belanger seconded the motion. A vote was taken all were in favor, the motion passed 6-0-0.

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: **June 29, 2023**

To: **Planning Board**

From: **Dave Sharples, Town Planner**

Re: **Blind Tiger, LLC (Exeter Country Club)** **PB Case #23-2**

The Applicant is seeking site plan approval for the proposed reconstruction of the existing club house, additional parking and associated site improvements at the Exeter Country Club located at 58 Jady Hill Avenue. The subject property is located in the R-2, Single Family Residential zoning district and is identified as Tax Map Parcel #52-1.

The Applicant submitted a site plan review application, plans and supporting documents, dated January 24, 2023 for review; revised plans and supporting documents were submitted on April 28 and May 24, 2023. These materials have previously been provided for your review.

Technical Review Committee (TRC) meetings were conducted on February 16 and May 11, 2023. Copies of the TRC comment letter, and two UEI comment letters have previously been provided for review.

The Applicant appeared before the Board at the June 8th, 2023 meeting to present their proposal. Subsequently, the Board acted to table further discussion on the application the June 22nd, 2023 meeting, and also scheduled at site walk for Wed. June, 21st, 2023 at 10:00 AM.

The site walk was well attended by members of the public. Concerns were raised with respect to drainage, buffering and how and when previous site improvements had occurred on the site. After discussion with the Applicant following the site walk, they decided to request to be tabled to the July 13th, 20223 meeting in order to address the outstanding issues.

Revised plans have not been received as of the writing of this memorandum. I'm writing the memo a week earlier than usual due to a pending vacation. I will update the board on my review of the revised plans at the meeting. The revised plans should be in the packet as Barb will be here next week to send out the packet.

The Applicant is requesting several waivers from the Board's Site Plan and Subdivision Regulations in conjunction with the application and are outlined in the enclosed waiver request letter from Emanuel Engineering, dated April 25, 2023.

I will be prepared with suggested conditions of approval at the meeting in the event the board decides to act on the request.

Waiver Motions:

High Intensity Soils Survey (HISS) waiver motion: After reviewing the criteria for granting waivers, I move that the request of Blind Tiger LLC (PB Case #23-2) for a waiver from Section 7.4.10 and 7.5.4 of the Site Plan Review and Subdivision Regulations to provide High Intensity Soil Survey information on the **Existing Conditions Plan and Proposed Site Plan** be APPROVED / APPROVED WITH THE FOLLOWING CONDITIONS / TABLED / DENIED.

Existing streets/driveways and information on all existing structures on site and within 200-feet of site waiver motion: After reviewing the criteria for granting waivers, I move that the request of Blind Tiger, LLC (PB Case #23-2) for a waiver from Section 7.4.13. and Section 7.4.15 of the Site Plan Review and Subdivision Regulations regarding identifying lines of existing abutting streets and driveway locations and information on all existing structures on site and within 200-feet of the site be APPROVED / APPROVED WITH THE FOLLOWING CONDITIONS / TABLED / DENIED.

Stormwater Management for Redevelopment Standards waiver motion: After reviewing the criteria for granting waivers, I move that the request of Blind Tiger, LLC (PB Case #23-2) for a waiver from Section 9.3.2 of the Site Plan Review and Subdivision Regulations regarding stormwater management requirements for redevelopment be APPROVED / APPROVED WITH THE FOLLOWING CONDITIONS / TABLED / DENIED.

Landscape Strips waiver motion: After reviewing the criteria for granting waivers, I move that the request of Blind Tiger, LLC (PB Case #23-2) for a waiver from Section 9.7.3 of the Site Plan Review and Subdivision Regulations regarding landscape strips to be provided to screen the view from adjacent residential properties be APPROVED / APPROVED WITH THE FOLLOWING CONDITIONS / TABLED / DENIED.

Planning Board Motion:

Site Plan Motion: I move that the request of Blind Tiger, LLC (PB Case #23-2) for Site Plan approval be APPROVED / APPROVED WITH THE FOLLOWING CONDITIONS / TABLED / DENIED.

Thank You.

Enclosures

EMANUEL
ENGINEERING

April 25, 2023

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

RE: Waiver Request – Blind Tiger, LLC Site Plan at Exeter Country Club –
58 Jady Hill Avenue, Exeter, NH

Members of the Exeter Planning Board,

We request to waive the following requirements from the Site Plan Review and Subdivision Regulations for the Town of Exeter, New Hampshire as amended February 2022: Section 7.4.10, Section 7.4.13, Section 7.4.15, Section 7.5.4, Section 9.3.2.6, and Section 9.7.3. See below for these sections whose description can be found below with EEI comments in *italics* of why we seek a waiver:

Section 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.
&
Section 7.5.4 - High Intensity Soil Survey (HISS) information for the site, including the total area of wetlands proposed to be filled.

Per these two regulations, a High Intensity Soil Survey (HISS) of the entire site is required for the existing and proposed conditions. We have conducted a review of the property and do not believe that a HISS is necessary for the proposed development. We have accessed the soil information of the site from the USDA-NRCS Web Soil Survey which provides detailed information on soil characteristics, including soil type,

hydrological groups, and drainage rates. This information, along with our own site inspections, has given us a good understanding of the soil conditions on the property.

Additionally, within our drainage calculations, we have been conservative with the infiltration rates (0.3 inches per hour) as specified by the Ksat values for New Hampshire Soils for Chatfield-Hollis-Canton complex soils.

Due to the measures that we have taken, we believe we are carrying out the spirit and intent of the regulations, and the need to provide a HISS would cause our client unnecessary hardship; therefore, we request a waiver from this requirement.

Section 7.4.13 - The lines of existing abutting streets and driveway locations within 200-feet of the site.
&
Section 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.

These two regulations require that the plans show the various items within 200-feet of the site. However, due to the massive size of the 73.25-acre site, this becomes very difficult to depict within the plan set, especially due to the fact that only a small portion of the site is shown on the majority of the plans.

Performing of survey for the required items would cause our client unnecessary hardship, and using aerial photography to show them might not accurately portray these items. Jady Hill Avenue is shown on the plans at the site entrance, and the abutters' driveways are shown across the street, therefore we believe we are carrying out the sprit and intent of these regulations.

Section 9.3.2.6 - Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids (TSS) and at least 60% removal of both total nitrogen and total phosphorus using appropriate treatment measures, as specified in the NH Stormwater Manual (refer to Volume 2, page 6, Table 2.1 Summary of Design Criteria, Water Quality Volume for treatment criteria) or other equivalent means. Where practical, the use of natural, vegetated filtration and/or

infiltration practices or subsurface gravel wetlands for water quality treatment is preferred given its relatively high nitrogen removal efficiency. All new impervious area draining to surface waters impaired by nitrogen, phosphorus or nutrients shall be treated with stormwater BMP's designed to optimize pollutant removal efficiencies based on design standards and performance data published by the UNH Stormwater Center and/or included in the latest version of the NH Stormwater Manual.

Note: The Anti-Degradation provisions of the State Water Quality Standards require that runoff from development shall not contribute additional pollutant loads to existing water body impairments.

This regulation requires that at least 80% removal of Total Suspended Solids (TSS) and at least 60% removal of both total nitrogen and total phosphorous.

Our proposal includes the construction of a bioretention basin that achieves 97% TSS removal, 44% total nitrogen removal, and 99% total phosphorous removal, as per the UNH Stormwater Center data report. We meet the requirements for the TSS and total phosphorous removal, but fall short by 16% for the nitrogen removal. This bioretention basin will take on the majority of the proposed impervious area as well as a portion of existing impervious area that was not treated previously. In pre-development conditions there is 48,015 square feet of untreated impervious area, and in post-development conditions there is 39,060 square feet of untreated impervious area, resulting in a net decrease of 8,955 square feet of untreated imperious area. We acknowledge that with our proposed site improvements, we are increasing the impervious area of the site by 11,530 square feet, but found merit in decreasing the untreated impervious area, as mentioned.

Furthermore, the treated water will be conveyed to an existing detention pond that supplies water for watering the golf course. We have been told that the detention pond sometimes runs dry, and water needs to be pumped into it from a nearby well. The nitrogen within our treated stormwater can be used when watering the golf course to promote growth and require less fertilizer on site. The nutrients from the nitrogen can be spread over the golf course, therefore it is unnecessary to achieve the required 60%

removal rate. Per this regulation, vegetated filtration is preferred, and this process would achieve this.

For the above reasons, we believe we are carrying out the spirit and intent of the regulations. Further treatment of stormwater would create an unnecessary hardship, drastically change the proposed development and becoming more costly.

Section 9.7.3- Landscape Strips: Where appropriate, existing trees and vegetation shall be incorporated into landscape or buffer strips. Landscape strips shall be at least 20-feet in width and 4 to 6 feet in height to effectively screen the view from adjacent residential properties. If approved by the Board, the use of fencing, landscaped berms and/or other type screening materials can be used in lieu of providing a 20 foot wide planted landscape strip. Landscape strips shall be used for screening purposes in the following situations:

1. Where a proposed non-residential use abuts a residential zoning district.
2. Where a proposed non-residential use abuts an existing residential use.
3. Where a proposed road of any development abuts an existing property line or is within 20 feet of a property line in which the existing use is residential.

This regulation requires a 20-foot landscaped buffer strip between the subject parcel and Hayes Park to the south. Since the use of the subject parcel is commercial and the Hayes Park is residential, the regulations require a 20-foot landscaped buffer strip.

However, due to the circumstances on site, we believe that we are carrying out the spirit and intent of the regulation without providing the 20-foot buffer strip. In proposed conditions, existing woodlands screen the parking lot from abutting properties to the south. Additionally, with such a difference in elevation (greater than 20 feet in areas) between the proposed parking lot and toe of slope of properties to the south, there will be little to no visibility of the cars or their lights in these areas. Any plantings provided south of the parking would likely not even be visible to the abutters to the south.

We believe that the requirement of providing additional plantings to the south of the parking lot an unnecessary hardship that would create unneeded costs for our client.

Your favorable consideration for the above waivers would be appreciated.

Sincerely,

JJ MacBride, PE

Civil Engineer

SITE PLAN FOR BLIND TIGER, LLC

EXETER TAX MAP 52 LOT 1
58 JADY HILL AVENUE (SITE)
EXETER, NH 03833

APPROVED BY THE TOWN OF EXETER PLANNING BOARD

CHAIRMAN _____ DATE _____

OWNER
EXETER COUNTRY CLUB
P.O. BOX 1088
EXETER, NH 03833

APPLICANT
BLIND TIGER, LLC
3 WRIGHT LANE
EXETER, NH 03833

CIVIL ENGINEER
EMANUEL ENGINEERING, INC.
118 PORTSMOUTH AVENUE, SUITE A202
STRATHAM, NH 03885

WETLAND SCIENTIST
GOVE ENVIRONMENTAL SERVICES, INC.
8 CONTINENTAL DRIVE, BUILDING 2, UNIT H
EXETER, NH 03833

LAND SURVEYOR
JAMES VERRA & ASSOCIATES, INC.
101 SHATTUCK WAY, SUITE 8
NEWINGTON, NH 03801

ARCHITECT
DYNAMIC DESIGNS, P.C.
259 EAST FRANK STREET
BIRMINGHAM, MI 48009

LIGHTING
EXPOSURE LIGHTING
6 SCOTT ROAD, UNIT A
HAMPTON, NH 03842

LANDSCAPING
THORN AND THISTLE GARDENS
480 MIDDLE ROAD
BRENTWOOD, NH 03833

PROJECT LOCUS PLAN
1" = 1,000 '

PROJECT DRAWING SET:

	COVER SHEET
1 & 2 OF 2	PLAN OF LAND IN EXETER, NH
	EXETER COUNTRY CLUB (BY GREAT BAY ENGINEERING, INC.)
B1	ABUTTER KEY
C1	EXISTING CONDITIONS
C2	SITE PLAN
C3A & C3B	GRADING & DRAINAGE PLAN
C4A	UTILITIES PLAN
C4B	PROPOSED SEPTIC PROFILE
C5	PAVING & CURBING PLAN
D1	NOTES & EROSION CONTROL DETAILS
D2	DRAINAGE DETAILS
D3	UTILITY DETAILS
D4	SITE DETAILS
L01	LIGHTING PLAN (BY EXPOSURE LIGHTING)
LA1	LANDSCAPING PLAN (BY THORN AND THISTLE GARDENS)

STATE OF NEW HAMPSHIRE
BRENDAN J. QUIGLEY
No. 249
CERTIFIED WETLAND SCIENTIST
5-24-23

SEAL:
STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN
No. 11236
LICENSED PROFESSIONAL ENGINEER
5/23/23

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
3	MAY 23, 2023	FOR APPROVAL	
2	APR 20, 2023	FOR APPROVAL	
1	JAN 24, 2023	FOR APPROVAL	

DRAWN: JJM	DESIGN: JJM
CHECKED: BDS	CHECKED: BDS

EMANUEL ENGINEERING
civil & structural consultants, land planners
118 Portsmouth Avenue, A202
Stratham, NH 03885
P: 603-772-4400 F: 603-772-4487
www.emanuelengineering.com

CLIENT:
BLIND TIGER, LLC
3 WRIGHT LANE
EXETER, NH 03833

TITLE:
COVER SHEET
FOR
EXETER COUNTRY CLUB
58 JADY HILL AVENUE (SITE)
EXETER, NH 03833

PROJECT:	SCALE:	SHEET:
21-157	AS SHOWN	COVER

Dec 30 3 45 PM '88 B4258

DEC 30 3 45 PM '88

MATCH LINE

MATCH LINE

LOT 012
3,190,717 S.F.
73.25 Ac.

SQUAMSCOTT RIVER
APPROXIMATE M.H.W.
1967' ±

SET IP
10' ±
300.35'
N49°23'10"W
SB FND
CHARLES & MABEL HAYES
RCR BK. 2380, PG. 1608
N41°33'50"E
352.20'
SET IP
273.00'
N49°33'50"W
SET DH
N43°36'20"E
132.00'
SET IP
N/F HAYES MOBILE HOME PARK INC.
R.C.R. BK. 2380, PG. 1607
R.C.R. PLAN # 03117
638.00'
N50°56'10"W
CB FND

CONSERVATION EASEMENT LINE
777.95'
N67°44'42"W

CLUB HOUSE
PAVED PARKING
GRAVEL PARKING

AREA EXCLUDED FROM CONSERVATION EASEMENT

S20°30'50"W
333.78'
CONSERVATION EASEMENT LINE
SET DH
S33°49'07"
59.41'
SET DH
R.O.W. (VARIOUS WIDTHS)
908.83'
N 65°02'35" W
CONSERVATION EASEMENT LINE

SET IP
SET IP
N67°50'30"W
50.00'
362.57'
S21°04'00"W
JADY HILL AVE.
159.67'
N84°19'30"W
IP FND
N/F RONALD PRAY
R.C.R. BK. 2116. PG. 142
N/F MARY T. MCDONALD
R.C.R. BK. 2592, PG. 2684
R.C.R. PLAN # A-2388NR
351.39'
N85°06'10"W
IP FND
N/F PAUL & ELIZBETH LAPERLE
R.C.R. BK.1029, PG.418
N86°32'00"W
56.36'
IP FND
N/F DOUGLAS & ELLYN EASTMAN
R.C.R. BK. 2323, PG. 1197
R.C.R. PLAN # D-7601
359.58'
N85°15'40"W
N/F JOHN & BARBARA GAFNEY
R.C.R. BK. 2721, PG. 1339
SET IP
N/F JOANNA IRVINE
RCR BK. 974, PG.361
311.80'
S23°29'20"W
SET IP
SET IP
10' ±
N/F PRECISION MEDIA
R.C.R. BK. 2693, PG. 2246

1432.11' TIE LINE
S10°40'50"W FOR CLOSURE ONLY
2089' ± APPROX. M.H.W.
N/F ROBERT & KATHY SMITH
R.C.R. BK. 2313, PG. 505
R.C.R. PLAN # 02883
N/F PHILLIP PUTNEY REAL ESTATE
R.C.R. BK. 2339, PG. 1925
CREEK
APPROXIMATE M.H.W.
SEE PLAN R.C.R. 02991
N65°03'20"W
71.67'
WHEELWRIGHT
MAGNETIC

LEGEND
- STONE BOUND
- IRON PIN
- STONE WALL
- FENCE LINE
- TREE LINE
- MARSH
- GRAVEL ROAD

NOTES:
1. TOWN OF EXETER TAX MAP 06-03, LOT 012
2. DEED REFERENCE:
   R.C.R. BK. 1496, PG. 338
   R.C.R. BK. 1406, PG. 291
   R.C.R. BK. 810, PG. 226
   R.C.R. BK. 752, PG. 223
3. OWNER OF RECORD:
   EXETER COUNTRY CLUB
   JADY HILL ROAD
   EXETER NH.
4. CONSERVATION EASEMENT TO TOWN OF EXETER, AREA 2,284,408 S.F., 55.35 Ac.
5. FAIRWAY EASEMENT TO BE CONVEYED TO EXETER COUNTRY CLUB , 2.0 Ac.
6. PERIMETER SURVEY 11/88 BY LIETZ SET 4 ERROR OF CLOSURE LESS THAN 1' IN 10,000', AREA DETERMINED BY D.M.D. COMPUTATIONS USING ACTUAL STREAM LOCATIONS
7. MEAN SEA LEVEL (MSL) AND MEAN HIGH WATER (MHW) LOCATED U.S.C.G.S. ELEVATIONS 1929 N.V.D.

GRAPHIC SCALE
0 40 80 160 200
(IN FEET)
1 inch = 80 ft.

I CERTIFY THAT THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTER OF DEEDS

I CERTIFY THAT THIS SURVEY PLAT SHOWS THE PROPERTY LINES THAT ARE THE LINES OF OWNERSHIPS AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW LINES FOR DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN. (RSA 676:18)

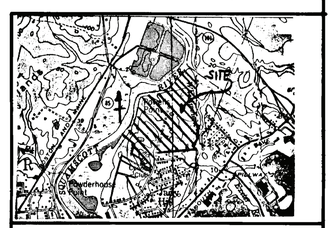
12/5/88
DATE

William G. Collins Jr.
LICENSED LAND SURVEYOR (SEAL)

EXTOCS

D-18931

SHEET 1 of 2



LOCUS USCGS 1" = 2000'+/-

PLAN OF LAND IN EXETER NH. EXETER COUNTRY CLUB

FOR
EXETER CONSERVATION COMMISSION
EXETER, N.H.

GREAT BAY ENGINEERING, INC
91 PORTSMOUTH AVENUE
STRATHAM, NH 03885

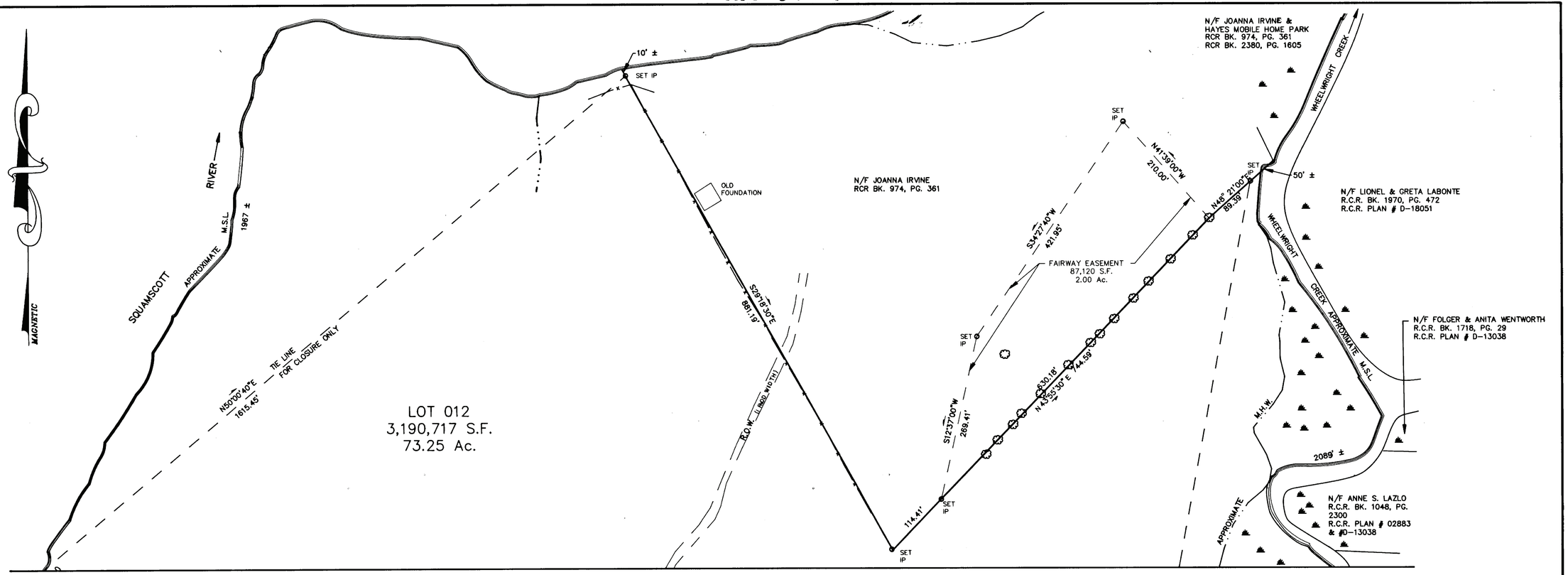
STATE OF NEW HAMPSHIRE
No. 597
WILLIAM G. COLLINS, JR.
LICENSED LAND SURVEYOR
SIGNATURE

DATE: DEC 1988
SCALE 1"=80'
DRAWN BY: AC
CHECKED BY: WGC

JOB NO. 240 SH 1 OF 2

Dec 30 3 45 PM '88

DEC 30 345 PM '88



MATCH LINE

MATCH LINE

SEE SHEET 1 FOR LEGEND AND NOTES.

GRAPHIC SCALE

0 40 80 160 320

(IN FEET)
1 inch = 80 ft.

I CERTIFY THAT THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTER OF DEEDS

I CERTIFY THAT THIS SURVEY PLAT SHOWS THE PROPERTY LINES THAT ARE THE LINES OF OWNERSHIPS AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW LINES FOR DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN. (RSA 676:18)

12/5/88
DATE

William G. Collins Jr.
LICENSED LAND SURVEYOR (SEAL)

PLAN OF LAND
IN
EXETER NH.
EXETER COUNTRY CLUB

FOR
EXETER CONSERVATION COMMISSION
EXETER NH.

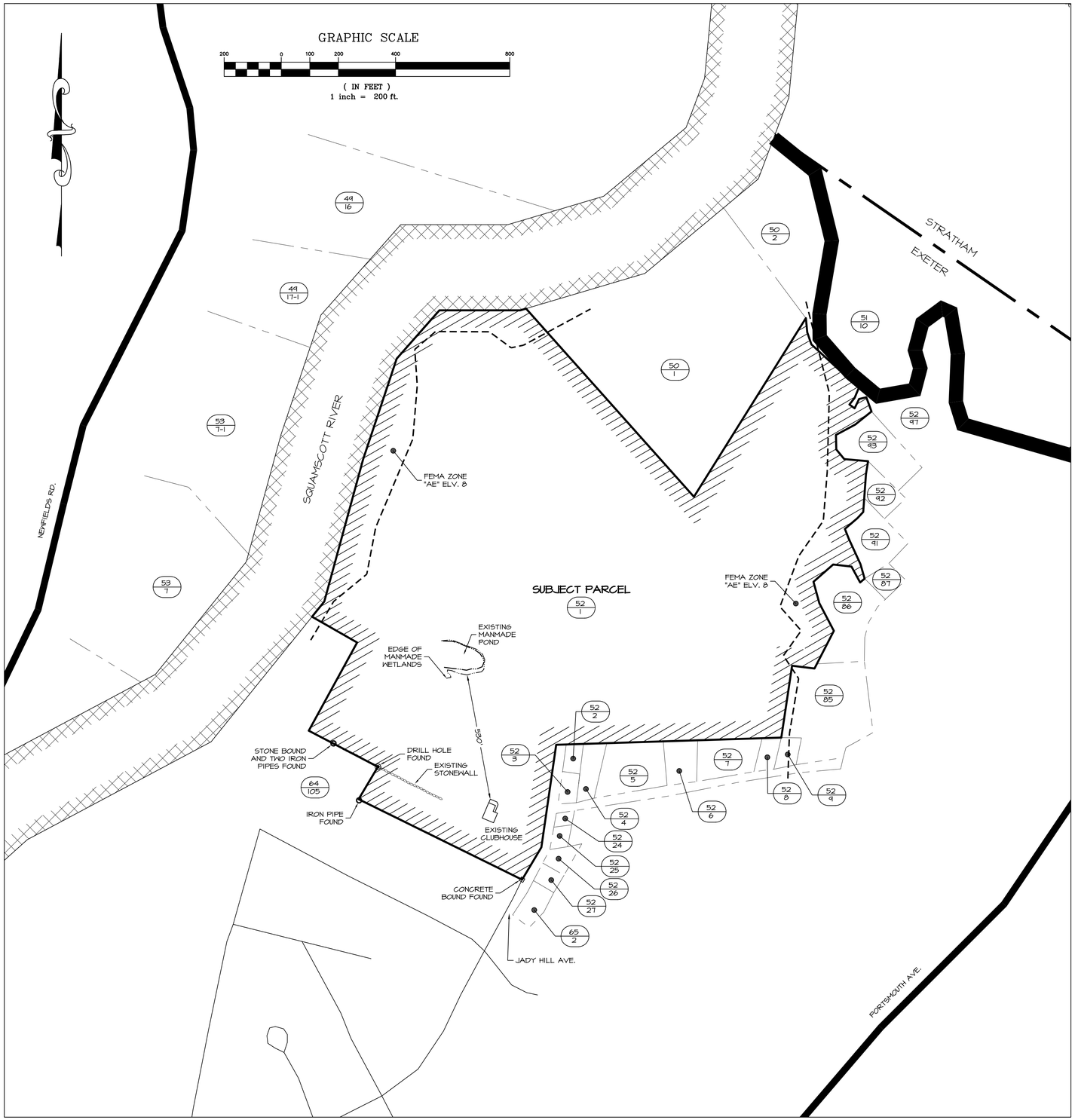
GREAT BAY ENGINEERING, INC
91 PORTSMOUTH AVENUE
STRATHAM, NH 03885

STATE OF NEW HAMPSHIRE — LICENSED LAND SURVEYOR — NO. 587 — WILLIAM G. COLLINS, JR. — SIGNATURE

DATE: DEC 1988
SCALE 1"=80'
DRAWN BY: AC
CHECKED BY: WGC

JOB NO. 240 SH 2 OF 2

D-18931 SHEET 2 of 2



SUBJECT PARCEL:

TAX MAP 52 LOT 1
EXETER COUNTRY CLUB
P.O. BOX 1088
EXETER, NH 03833
RCRD BK1406 PG0290
USE: GOLF CRSE

ABUTTERS:

TAX MAP 49 LOT 16
RUSSELL F. FREDERICKSEN
11 NEWFIELDS ROAD
EXETER, NH 03833
RCRD BK3488 PG2807
USE: MULTI HSES

TAX MAP 49 LOT 17-1
ABIGAIL A. PHILLIPS
REVOCABLE TRUST
9 NEWFIELDS ROAD
EXETER, NH 03833
RCRD BK3502 PG1209
USE: SINGLE FAM

TAX MAP 50 LOT 1
TOWN OF EXETER
10 FRONT STREET
EXETER, NH 03833
RCRD BK2782 PG0389
USE: EXEMPT FARMLAND

TAX MAP 50 LOT 2
TOWN OF EXETER
10 FRONT STREET
EXETER, NH 03833
RCRD BK2782 PG0400
USE: MUNICIPAL

TAX MAP 51 LOT 10
LABONTE INVESTMENT REALTY LLC
355 ROUTE 125
BRENTWOOD, NH 03833
RCRD BK5561 PG1932
USE: RES ACLNUD

TAX MAP 52 LOT 2
JANET A. CHECK
79 JADY HILL AVENUE
EXETER, NH 03833
RCRD BK3241 PG1941
USE: SINGLE FAM

TAX MAP 52 LOT 3
MARIA GEORGE CARRASQUILLO
77 JADY HILL AVENUE
EXETER, NH 03833
RCRD BK5985 PG0579
USE: SINGLE FAM

TAX MAP 52 LOT 4
MARSHMAN FAMILY TRUST
2 WEBSTER AVENUE
EXETER, NH 03833
RCRD BK6402 PG1467
USE: SINGLE FAM

TAX MAP 52 LOT 5
GREGORY MCCARTHY
4 WEBSTER AVENUE
EXETER, NH 03833
RCRD BK5383 PG1401
USE: SINGLE FAM

TAX MAP 52 LOT 6
DOUGLAS B. EASTMAN
12 WEBSTER AVENUE
EXETER, NH 03833
RCRD BK3172 PG0776
USE: SINGLE FAM

TAX MAP 52 LOT 7
JACQUES P. WAGEMAKER
14 WEBSTER AVENUE
EXETER, NH 03833
RCRD BK5517 PG0405
USE: SINGLE FAM

TAX MAP 52 LOT 8
TOWN OF EXETER
10 FRONT STREET
EXETER, NH 03833
RCRD BK2887 PG2683
USE: MUNICIPAL

(ABUTTERS: CONTINUED):

TAX MAP 52 LOT 9
TOWN OF EXETER
10 FRONT STREET
EXETER, NH 03833
RCRD BK3680 PG2336
USE: MUNICIPAL

TAX MAP 52 LOT 24
LEON N. MORSE
73 JADY HILL AVENUE
EXETER, NH 03833
RCRD BK2533 PG0786
USE: SINGLE FAM

TAX MAP 52 LOT 25
MICHAEL S. JOHNSON
71 JADY HILL AVENUE
EXETER, NH 03833
RCRD BK5497 PG0681
USE: SINGLE FAM

TAX MAP 52 LOT 26
TIMOTHY GAGNON
69 JADY HILL AVENUE
EXETER, NH 03833
RCRD BK5601 PG2630
USE: SINGLE FAM

TAX MAP 52 LOT 27
THOMAS NASH
67 JADY HILL AVENUE
EXETER, NH 03833
RCRD BK5954 PG1279
USE: SINGLE FAM

TAX MAP 52 LOT 85
ARUBA CAPITAL
PO BOX 1540
EXETER, NH 03833
RCRD BK4988 PG1827
USE: OFFICE BLD

TAX MAP 52 LOT 86
TRACY J. MIDDLETON
FAMILY TRUST
7 DOWNING COURT
EXETER, NH 03833
RCRD BK6247 PG2422
USE: SINGLE FAM

TAX MAP 52 LOT 87
CLIVE TOMLINSON
1803 TUALATIN STREET
ST. HELENS, OREGON 97051
RCRD BK5873 PG0742
USE: SINGLE FAM

TAX MAP 52 LOT 91
BARRY W SPRACKLIN
2 MELODY LANE
EXETER, NH 03833
RCRD BK2921 PG1464
USE: SINGLE FAM

TAX MAP 52 LOT 92
WILLIAM C. UNGER
1 MELODY LANE
EXETER, NH 03833
RCRD BK5325 PG1379
USE: SINGLE FAM

TAX MAP 52 LOT 93
ANNE S. LASZLO
27 ALLEN STREET
EXETER, NH 03833
RCRD BK2300 PG1084
USE: SINGLE FAM

(ABUTTERS: CONTINUED):

TAX MAP 52 LOT 97
TOWN OF EXETER
10 FRONT STREET
EXETER, NH 03833
RCRD BK2828 PG1102
USE: MUNICIPAL

TAX MAP 53 LOT 7
CATHLEEN A. TOOMEY
REVOCABLE TRUST
1 NEWFIELDS ROAD
EXETER, NH 03833
RCRD BK6361 PG1158
USE: SINGLE FAM

TAX MAP 53 LOT 7-1
CARPE DIEM TRUST
5 NEWFIELDS ROAD
EXETER, NH 03833
RCRD BK5828 PG1557
USE: SINGLE FAM

TAX MAP 64 LOT 105
HAYES MOBILE HOME PARK INC
56 JADY HILL AVENUE
EXETER, NH 03833
RCRD BK3178 PG0286
USE: SINGLE FAM

TAX MAP 65 LOT 2
DANIEL W. CHARTRAND
63 JADY HILL AVENUE
EXETER, NH 03833
RCRD BK5319 PG1110
USE: SINGLE FAM

NOTES:

1. OWNER OF RECORD:
   TAX MAP 52, LOT 1
   EXETER COUNTRY CLUB
   P.O. BOX 1088
   EXETER, NH 03833
   RCRD BK1406 PG0290
2. THE INTENT OF THIS PLAN IS TO SHOW ALL THE ABUTTERS AND THEIR INFORMATION OF THE SUBJECT PARCEL LOCATED AT EXETER, NH TAX MAP 52, LOT 1. IT IS ALSO THE INTENT TO SHOW THE SURVEYED BOUNDS OF THE SUBJECT PARCEL THAT ARE NOT IN THE VICINITY OF THE PROPOSED IMPROVEMENTS ON SITE. ONLY A PORTION OF THE BOUNDARY WAS SURVEYED. THIS IS NOT A BOUNDARY PLAN.
3. PARCEL IS ZONED R-2 SINGLE FAMILY PER THE 2019 ZONING MAP OF EXETER, NEW HAMPSHIRE.
4. A PORTION OF THE PARCEL IS WITHIN IN FLOOD HAZARD ZONES "AE" (EL 8) AND "X", REFERENCE FLOOD INSURANCE RATE MAPS 33015C0402E & 33015C0406E, DATED MAY 17, 2005.
5. FIELDWORK COMPLETED BY JAMES VERRA AND ASSOCIATES, INC. IN SPRING 2022. NH GRID; NAVD 1988.
6. WETLANDS DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. IN SPRING 2022. THE DELINEATION WAS LIMITED TO THE AREAS OF PROPOSED WORK DEPICTED ON THESE PLANS. 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.
7. THIS PLAN WAS PREPARED WITH ON-SITE FIELD SURVEY AND EXISTING PLANS. THE CONTRACTOR SHOULD NOTIFY EMANUEL ENGINEERING, INC. DURING CONSTRUCTION IF ANY DISCREPANCY TO THE PLAN IS FOUND ON SITE.

WETLAND NOTES:

WETLANDS WERE DELINEATED BY GOVE ENVIRONMENTAL SERVICES INC. IN SPRING 2022 UTILIZING THE FOLLOWING STANDARDS:

1. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
2. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.2. UNITED STATES DEPARTMENT OF AGRICULTURE (2018).
3. NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE. 2020 VERSION 4, FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA.
4. U.S. ARMY CORPS OF ENGINEERS NATIONAL WETLAND PLANT LIST, VERSION 3.5. (2020)

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
3	MAY 23, 2023	FOR APPROVAL	
2	APR 20, 2023	FOR APPROVAL	
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DRAWN:	JJM	DESIGN:	JJM
CHECKED:	BDS	CHECKED:	BDS

STATE OF NEW HAMPSHIRE
BRENDAN J. QUIGLEY
No. 249
CERTIFIED WETLAND SCIENTIST
5-24-23

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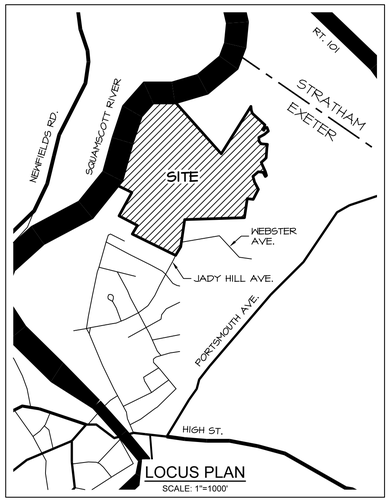
CLIENT:
BLIND TIGER, LLC
3 WRIGHT LANE
EXETER, NH 03833

TITLE:
ABUTTER KEY
FOR
EXETER COUNTRY CLUB
58 JADY HILL AVENUE (SITE)
EXETER, NH 03833

PROJECT:	SCALE:	SHEET:
21-157	1"=200'	B1



LOCUS PLAN
SCALE: 1"=1000'

WETLAND NOTES:

WETLANDS WERE DELINEATED BY GOVE ENVIRONMENTAL SERVICES INC. IN SPRING 2022 UTILIZING THE FOLLOWING STANDARDS:

1. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
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4. U.S. ARMY CORPS OF ENGINEERS NATIONAL WETLAND PLANT LIST, VERSION 3.5. (2020)

LEGEND

- CONCRETE BOUND FOUND
- (TYP) IRON PIPE FOUND TYPICAL
- PROPERTY LINE
- EDGE OF PAVEMENT (EOP)
- HVAC UNIT
- OHE OVERHEAD UTILITIES
- UG UNDERGROUND UTILITIES
- UTILITY POLE
- GUY WIRE
- LIGHT FIXTURE
- IRRIGATION BOX
- WATER LINE
- WV WATER VALVE
- D DRAIN LINE
- CB CATCH BASIN
- DMH DRAIN MANHOLE
- CO CLEANOUT
- SMH SEWER MANHOLE
- S SEWER LINE
- PROPANE TANK
- STONE WALL
- WETLANDS
- TREE LINE
- TREE/SHRUB

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

EXISTING SAND TRAP
EXISTING GRAVEL CART PATH (TYPICAL)
EXISTING 9TH GREEN
EXISTING IRRIGATION BOX (TYPICAL)
EXISTING BOULDER
EXISTING PRACTICE GREEN
EXISTING GUY WIRE (TYPICAL)
EXISTING STONEWALL
EXISTING HEDGES
BENCHMARK SURVEY SPIKE SET IN 30" DIA. OAK TREE ELV. 100.91
EXISTING SECOND STORY OVERHANG
EXISTING STONE
EXISTING RETAINING WALL
EXISTING LANDSCAPING
EXISTING HVAC UNIT (TYPICAL)
DECK
EXISTING DECK
EXISTING CHIMNEY
EXISTING STONE PAVERS
EXISTING FLAG POLE
EXISTING STAIRS
EXISTING LANDSCAPING
EXISTING DECK
52 / 1
EXISTING CLUBHOUSE
EXISTING GRAVEL
EXISTING PROPANE TANKS (TYPICAL)
EXISTING CONCRETE PAD (TYPICAL)
EXISTING ELECTRIC METER (TYPICAL)
EXISTING SEWER MANHOLE (RIM ELV. 91.63)
EXISTING POST & RAIL FENCE (TYPICAL)
EXISTING STAIRS
EXISTING GRAVEL CART STORAGE AREA
EXISTING CHAIN LINK FENCE W/ BARBED WIRE (TYPICAL)
EXISTING LEDGE
EXISTING LEDGE
EXISTING DUMPSTERS
PROPERTY LINE
EXISTING BOULDER
CONCRETE BOUND FOUND
BENCHMARK SURVEY SPIKE SET IN UTILITY POLE ELV. 66.18
EXISTING NUCLEAR SIREN POLE
64 / 105
EXISTING 1ST HOLE TEE-BOX
EXISTING 1ST HOLE TEE-BOX
EXISTING 1ST HOLE TEE-BOX
EXISTING GRANITE BENCH
EXISTING HEDGES
EXISTING SPONSORS SIGN
EXISTING CHAIN LINK FENCE
APPROXIMATE EXISTING WATER LINE
DIRECTION OF TRAVEL
EXISTING LIGHT POLE ATTACHED TO UTILITY POLE
EXISTING UTILITY POLE (TYPICAL)
EXISTING SHRUB (TYPICAL)
DIRECTION OF TRAVEL
20.6'
DIRECTION OF TRAVEL
20.8'
PROPERTY LINE
EXISTING BOULDER
EXISTING CATCH BASIN RIM ELV. = 57.90
EXISTING STOP SIGN
EXISTING STOP BAR
PROPERTY LINE
OLD FENCE POST FOUND
OLD FENCE POST FOUND
EXISTING 2" DIAMETER GAS LINE
EXISTING 4" DIA. SEWER LINE (TYPICAL)
EXISTING 6" Ø CAST IRON WATER MAIN
EXISTING TREE >20"Ø (TYPICAL)
EXISTING CHAIN LINK FENCE
EXISTING WATER SHUTOFF
BENCHMARK SURVEY SPIKE SET IN UTILITY POLE ELV. 62.66
ABANDONED UTILITY POLE
EXISTING EXETER COUNTRY CLUB SIGN
WEBSTER AVENUE
JADY HILL AVENUE (RIGHT OF WAY VARIES)

NOTES:

1. OWNER OF RECORD:
   TAX MAP 52, LOT 1
   EXETER COUNTRY CLUB
   P.O. BOX 1088
   EXETER, NH 03833
   RCRD BK1406 PG0290
2. THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS AND TOPOGRAPHY FOR EXETER, NH TAX MAP 52, LOT 1.
3. PARCEL IS ZONED R-2 SINGLE FAMILY PER THE 2019 ZONING MAP OF EXETER, NEW HAMPSHIRE.
4. A PORTION OF THE PARCEL IS WITHIN IN FLOOD HAZARD ZONES "AE" (EL 8) AND "X", REFERENCE FLOOD INSURANCE RATE MAPS 33015C0402E & 33015C0406E, DATED MAY 17, 2005.
5. FIELDWORK COMPLETED BY JAMES VERRA AND ASSOCIATES, INC. IN SPRING 2022. NH GRID; NAVD 1988.
6. WETLANDS DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC, IN SPRING 2022. THE DELINEATION WAS LIMITED TO THE AREAS OF PROPOSED WORK DEPICTED ON THESE PLANS. 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.
7. PROPERTY TO BE SERVICED TOWN WATER AND SEWER.
8. ALL CONSTRUCTION SHOULD COMPLY WITH FEDERAL, STATE, AND LOCAL STANDARDS AND REGULATIONS.
9. THIS PLAN WAS PREPARED WITH ON-SITE FIELD SURVEY AND EXISTING PLANS. THE CONTRACTOR SHOULD NOTIFY EMANUEL ENGINEERING, INC. DURING CONSTRUCTION IF ANY DISCREPANCY TO THE PLAN IS FOUND ON SITE.
10. BEFORE ANY EXCAVATION, DIG SAFE AND ALL UTILITY COMPANIES SHOULD BE CONTACTED 72 HOURS BEFORE COMMENCING BY THE CONTRACTOR. CALL DIG SAFE @ 811 OR 1-888-DIG-SAFE.
11. ALL UTILITIES SHALL BE LOCATED UNDERGROUND EXCEPT AS NOTED ON PLAN APPROVED BY THE PLANNING BOARD.
12. THE LOCATION OF THE EXISTING WATER AND GAS LINES WITHIN THE TOWN RIGHT OF WAY WERE LOCATED PER REF. PLAN #3.

REFERENCE PLANS:

1. "PLAN OF LAND IN EXETER NH. EXETER COUNTRY CLUB" BY GREAT BAY ENGINEERING, INC; DATED DECEMBER 1988; SCALE: 1"=80'; RCRD D-18931.
2. "PLAN OF LAND IN EXETER, NH SHOWING SITE IMPROVEMENTS AT 58 JADY HILL AVE (EXETER COUNTRY CLUB)" BY MILLENNIUM ENGINEERING, INC.; DATED JUNE 4, 2021; SCALE: 1"=40'; NOT RECORDED.
3. "TOWN OF EXETER, NEW HAMPSHIRE WEBSTER AVENUE PUMP STATION & FORCE MAIN UPGRADES EXETER, NEW HAMPSHIRE" (SHEET C-5) BY WRIGHT-PIERCE (UNDATED); SCALE: 1"=20'; NOT RECORDED.

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
2	APR 20, 2023	FOR APPROVAL	
1	JAN 24, 2023	FOR APPROVAL	

DRAWN: JJM | DESIGN: JJM
CHECKED: BDS | CHECKED: BDS

EMANUEL ENGINEERING
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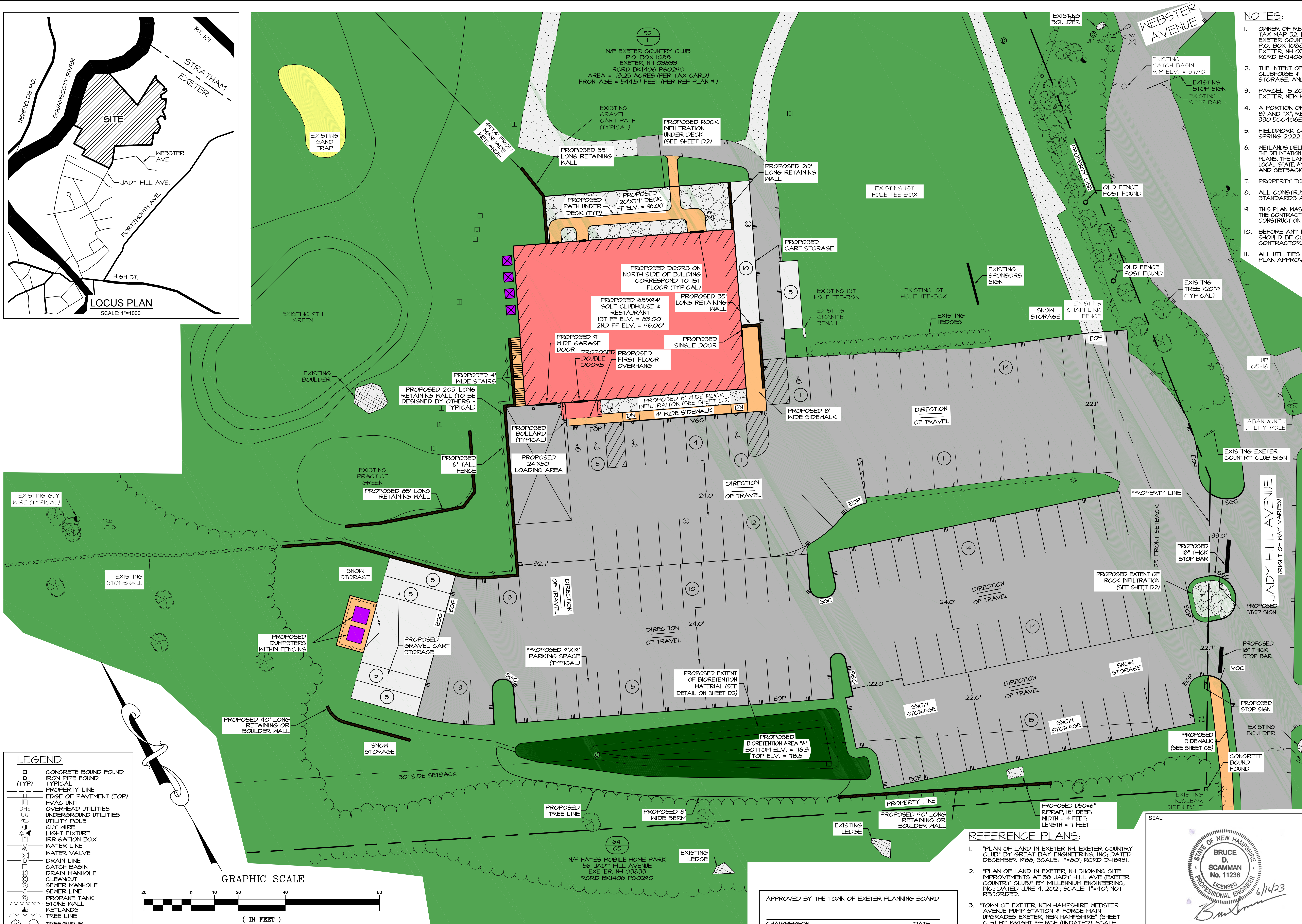
CLIENT:
BLIND TIGER, LLC
3 WRIGHT LANE
EXETER, NH 03833

STATE OF NEW HAMPSHIRE
BRENDAN J. QUIGLEY
No. 249
CERTIFIED WETLAND SCIENTIST
4-20-23

SEAL:
STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN
No. 11236
LICENSED PROFESSIONAL ENGINEER
4/25/23

TITLE:
EXISTING CONDITIONS
FOR
EXETER COUNTRY CLUB
58 JADY HILL AVENUE (SITE)
EXETER, NH 03833

PROJECT:	SCALE:	SHEET:
21-157	1"=20'	C1



NOTES:

1. OWNER OF RECORD:
   TAX MAP 52, LOT 1
   EXETER COUNTRY CLUB
   P.O. BOX 1088
   EXETER, NH 03833
   RCRD BK1406 PG0290
2. THE INTENT OF THIS PLAN IS TO SHOW A PROPOSED 68'x94' GOLF CLUBHOUSE & RESTAURANT WITH ATTACHED 20'x79' DECK, GOLF CART STORAGE, AND EXPANDED PARKING.
3. PARCEL IS ZONED R-2 SINGLE FAMILY PER THE 2019 ZONING MAP OF EXETER, NEW HAMPSHIRE.
4. A PORTION OF THE PARCEL IS WITHIN IN FLOOD HAZARD ZONES "AE" (EL 8) AND "X"; REFERENCE FLOOD INSURANCE RATE MAPS 33015C0402E & 33015C0406E, DATED MAY 17, 2005.
5. FIELDWORK COMPLETED BY JAMES VERRA AND ASSOCIATES, INC. IN SPRING 2022. NH GRID; NAVD 1988.
6. WETLANDS DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. IN SPRING 2022. THE DELINEATION WAS LIMITED TO THE AREAS OF PROPOSED WORK DEPICTED ON THESE PLANS. 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.
7. PROPERTY TO BE SERVICED TOWN WATER AND SEWER.
8. ALL CONSTRUCTION SHOULD COMPLY WITH FEDERAL, STATE, AND LOCAL STANDARDS AND REGULATIONS.
9. THIS PLAN WAS PREPARED WITH ON-SITE FIELD SURVEY AND EXISTING PLANS. THE CONTRACTOR SHOULD NOTIFY EMANUEL ENGINEERING, INC. DURING CONSTRUCTION IF ANY DISCREPANCY TO THE PLAN IS FOUND ON SITE.
10. BEFORE ANY EXCAVATION, DIG SAFE AND ALL UTILITY COMPANIES SHOULD BE CONTACTED 72 HOURS BEFORE COMMENCING BY THE CONTRACTOR. CALL DIG SAFE @ 811 OR 1-888-DIG-SAFE.
11. ALL UTILITIES SHALL BE LOCATED UNDERGROUND EXCEPT AS NOTED ON PLAN APPROVED BY THE PLANNING BOARD.
12. TOWN OF EXETER ZONING REQUIREMENTS FOR THE "R-2" DISTRICT, PER THE TOWN OF EXETER NH ZONING ORDINANCE DATED MARCH 2022:
    - MINIMUM LOT AREA = 15,000 SF (0.344 ACRES)
      - LOT AREA PROVIDED = 73.25 ACRES
    - MINIMUM LOT WIDTH = 100 FEET
      - LOT WIDTH PROVIDED = >> 100 FEET
    - MINIMUM LOT DEPTH = 100 FEET
      - LOT DEPTH PROVIDED = >> 100 FEET
    - MINIMUM FRONTAGE = 100 FEET
      - FRONTAGE PROVIDED = 544.57 FEET
    - MAXIMUM BUILDING HEIGHT = 35 FEET (3 STORIES)
    - MINIMUM FRONT SETBACK = 25 FEET
    - MINIMUM SIDE SETBACK = 15 FT (ONE), 30 FT (BOTH)
    - MINIMUM REAR SETBACK = 25 FEET
    - MAXIMUM BUILDING COVERAGE = 25%
      - BUILDING COVERAGE PROVIDED = 0.25%
    - MINIMUM OPEN SPACE = 40%
      - IMPERVIOUS AREA (EXCLUDES CART PATHS)=59,545 SF
      - OPEN SPACE PROVIDED = 98.13%
13. PARKING REQUIREMENTS PER THE TOWN OF EXETER, NH SITE PLAN REVIEW & SUBDIVISION REGULATIONS AS AMENDED FEBRUARY 2022, AND THE ZONING ORDINANCE AMENDED THROUGH MARCH 2022:
    - PARKING SPACE DIMENSIONS = 9'(W)x19'(L)

PARKING ANGLE	MINIMUM AISLE WIDTH
45-DEGREES	16-FEET
60-DEGREES	20-FEET
90-DEGREES	22-FEET

REQUIRED:
- FOR RESTAURANTS/BARS = 1 SPACE PER 3 SEATS
  - PROPOSED SEATS = 127 SEATS
  - 127 SEATS x (1 SPACE / 3 SEATS) = 43 SPACES
- FUNCTION ROOM = 1 SPACE PER 3 SEATS
  - PROPOSED SEATS = 36
  - 36 SEATS x (1 SPACE / 3 SEATS) = 12 SPACES
- GOLF COURSE (ESTIMATED) = 5 SPACES PER HOLE
  - 9 HOLES x (5 SPACES/HOLE) = 45 SPACES
- 20 EMPLOYEES x (1 SPACE/EMPLOYEE) = 20 SPACES
- TOTAL REQUIRED = 43 + 12 + 45 + 20 = 120 SPACES

PROVIDED:
- PROPOSED PARKING SPACES PROVIDED = 120 SPACES (INCLUDES 3 EV READY SPACES)

14. ALL KNOX BOX, FIRE ALARM SYSTEM AND FIRE SPRINKLER INSTALLATION & INSPECTIONS TO BE COORDINATED WITH THE EXETER FIRE DEPARTMENT.
15. ALL MUSIC TO MEET THE TOWN OF EXETER ZONING ORDINANCE AT THE TIME OF APPROVAL.
16. ALL LIGHTING TO BE TURNED OFF OR REDUCED IN INTENSITY AT 10 PM PER SECTION 9.20.4.4 OF THE 2022 SITE PLAN REVIEW AND SUBDIVISION REGULATIONS FOR THE TOWN OF EXETER.

REFERENCE PLANS:

1. "PLAN OF LAND IN EXETER NH. EXETER COUNTRY CLUB" BY GREAT BAY ENGINEERING, INC; DATED DECEMBER 1988; SCALE: 1"=80'; RCRD D-18931.
2. "PLAN OF LAND IN EXETER, NH SHOWING SITE IMPROVEMENTS AT 58 JADY HILL AVE (EXETER COUNTRY CLUB)" BY MILLENNIUM ENGINEERING, INC.; DATED JUNE 4, 2021; SCALE: 1"=40'; NOT RECORDED.
3. "TOWN OF EXETER, NEW HAMPSHIRE WEBSTER AVENUE PUMP STATION & FORCE MAIN UPGRADES EXETER, NEW HAMPSHIRE" (SHEET C-5) BY WRIGHT-PEIRCE (UNDATED); SCALE: 1"=20'; NOT RECORDED.

APPROVED BY THE TOWN OF EXETER PLANNING BOARD

CHAIRPERSON DATE

SEAL: STATE OF NEW HAMPSHIRE BRUCE D. SCAMMAN No. 11236 LICENSED PROFESSIONAL ENGINEER 6/16/23

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
5	JUNE 16, 2023	FOR APPROVAL	
4	MAY 23, 2023	FOR APPROVAL	
1	JAN 24, 2023	FOR APPROVAL	

DRAWN: JJM	DESIGN: JJM
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CLIENT:
BLIND TIGER, LLC
3 WRIGHT LANE
EXETER, NH 03833

TITLE:
SITE PLAN
FOR
EXETER COUNTRY CLUB
58 JADY HILL AVENUE (SITE)
EXETER, NH 03833

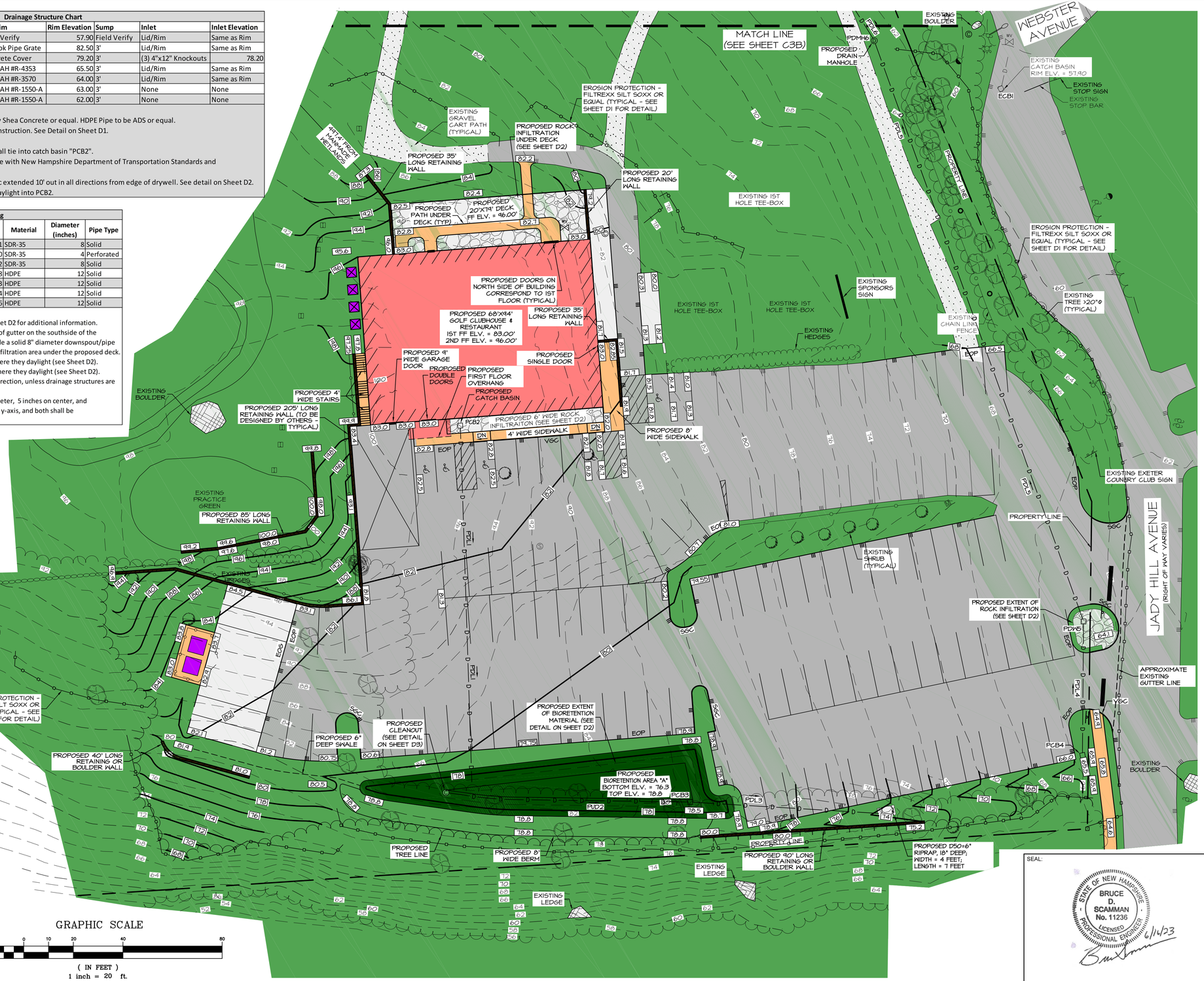
PROJECT:	SCALE:	SHEET:
21-157	1"=20'	C2

Drainage Structure Chart							
Structure #	**Structure**	**Size**	**Lid/Rim**	**Rim Elevation**	**Sump**	**Inlet**	**Inlet Elevation**
ECB1	Concrete Catch Basin	Field Verify	Field Verify	57.90	Field Verify	Lid/Rim	Same as Rim
PCB2	HDPE Pipe	12" Diameter	Polylok Pipe Grate	82.50	3'	Lid/Rim	Same as Rim
PCB3	Concrete Catch Basin	4' Diameter	Concrete Cover	79.20	3'	(3) 4"x12" Knockouts	78.20
PCB4	Concrete Catch Basin	4' Diameter	NEENAH #R-4353	65.50	3'	Lid/Rim	Same as Rim
PDW5	Concrete Drywell	4' Diameter	NEENAH #R-3570	64.00	3'	Lid/Rim	Same as Rim
PDMH6	Concrete Catch Basin	4' Diameter	NEENAH #R-1550-A	63.00	3'	None	None
PDMH7	Concrete Catch Basin	4' Diameter	NEENAH #R-1550-A	62.00	3'	None	None

Notes:
1. Proposed concrete catch basins and drywells to be by Shea Concrete or equal. HDPE Pipe to be ADS or equal.
2. Provide SiltSack Type C within ECB1 & PCB4 during construction. See Detail on Sheet D1.
3. See Sheet D2 for knockout details.
4. Gutters on the southside of the proposed building shall tie into catch basin "PCB2".
5. All concrete structures must be installed in accordance with New Hampshire Department of Transportation Standards and specifications for Road and Bridge Construction.
6. PDW5 to be underlain by Mirafi 140N geotextile fabric extended 10' out in all directions from edge of drywell. See detail on Sheet D2.
7. Foundation drain and retaining wall underdrains to daylight into PCB2.

Drainage Pipe Listing							
Pipe #	**In-Invert (feet)**	**Out-Invert (feet)**	**Length (feet)**	**Slope (ft/ft)**	**Material**	**Diameter (inches)**	**Pipe Type**
PDL1	80.00	77.00	145	0.021	SDR-35	8	Solid
PUD2	74.05	74.05	95	0.000	SDR-35	4	Perforated
PDL3	74.05	73.90	75	0.002	SDR-35	8	Solid
PDL4	63.00	61.10	50	0.038	HDPE	12	Solid
PDL5	61.00	60.35	245	0.003	HDPE	12	Solid
PDL6	60.25	58.50	420	0.004	HDPE	12	Solid
PDL7	58.40	46.10	265	0.046	HDPE	12	Solid

Notes:
1. See bioretention area and rock infiltration details on Sheet D2 for additional information.
2. Provide a solid 8" diameter downspout/pipe from the roof gutter on the southside of the proposed building into catch basin "PCB2". Similarly, provide a solid 8" diameter downspout/pipe on the northside of the proposed building into the stone infiltration area under the proposed deck.
3. Pipes PDL1, PDL3, & PDL7 to have animal guard grates where they daylight (see Sheet D2).
4. Pipes PDL1, PDL3, & PDL7 to have flared entrance/exit where they daylight (see Sheet D2).
5. Cleanouts to be provided at ends of pipe or changes in direction, unless drainage structures are already provided. See detail on Sheet D3.
6. Perforated pipes shall have two rows of holes ½" in diameter, 5 inches on center, and spaced 120° apart. Perforations shall be mirrored about the y-axis, and both shall be located on the bottom half of the pipe.



LEGEND

- CONCRETE BOUND FOUND
- IRON PIPE FOUND (TYP) TYPICAL
- PROPERTY LINE
- EDGE OF PAVEMENT (EOP)
- HVAC UNIT
- OHE — OVERHEAD UTILITIES
- UG — UNDERGROUND UTILITIES
- UTILITY POLE
- GUY WIRE
- LIGHT FIXTURE
- IRRIGATION BOX
- WATER LINE
- WATER VALVE
- D — DRAIN LINE
- CATCH BASIN
- DRAIN MANHOLE
- CLEANOUT
- SEWER MANHOLE
- SEWER LINE
- PROPANE TANK
- STONE WALL
- WETLANDS
- TREE LINE
- TREE/SHRUB

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

NOTES:

1. OWNER OF RECORD:
   TAX MAP 52, LOT 1
   EXETER COUNTRY CLUB
   P.O. BOX 1088
   EXETER, NH 03833
   RCRD BK1406 PG0290
2. THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED GRADING AND DRAINAGE ON SITE ASSOCIATED WITH THE PROPOSED SITE IMPROVEMENTS.
3. PARCEL IS ZONED R-2 SINGLE FAMILY PER THE 2019 ZONING MAP OF EXETER, NEW HAMPSHIRE.
4. A PORTION OF THE PARCEL IS WITHIN IN FLOOD HAZARD ZONES "AE" (EL 8) AND "X"; REFERENCE FLOOD INSURANCE RATE MAPS 33015C0402E & 33015C0406E, DATED MAY 17, 2005.
5. FIELDWORK COMPLETED BY JAMES VERRA AND ASSOCIATES, INC. IN SPRING 2022. NH GRID, NAVD 1988.
6. WETLANDS DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. IN SPRING 2022. THE DELINEATION WAS LIMITED TO THE AREAS OF PROPOSED WORK DEPICTED ON THESE PLANS. 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.
7. PROPERTY TO BE SERVICED TOWN WATER AND SEWER.
8. ALL CONSTRUCTION SHOULD COMPLY WITH FEDERAL, STATE, AND LOCAL STANDARDS AND REGULATIONS.
9. THIS PLAN WAS PREPARED WITH ON-SITE FIELD SURVEY AND EXISTING PLANS. THE CONTRACTOR SHOULD NOTIFY EMANUEL ENGINEERING, INC. DURING CONSTRUCTION IF ANY DISCREPANCY TO THE PLAN IS FOUND ON SITE.
10. BEFORE ANY EXCAVATION, DIG SAFE AND ALL UTILITY COMPANIES SHOULD BE CONTACTED 72 HOURS BEFORE COMMENCING BY THE CONTRACTOR. CALL DIG SAFE @ 811 OR 1-888-DIG-SAFE.
11. ALL UTILITIES SHALL BE LOCATED UNDERGROUND EXCEPT AS NOTED ON PLAN APPROVED BY THE PLANNING BOARD.
12. ALL WATER, SEWER, ROAD (INCLUDING PARKING LOT), AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 4.5 GRADING, DRAINAGE, AND EROSION & SEDIMENT CONTROL AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER, NEW HAMPSHIRE.
13. PRIOR TO CONSTRUCTION, IT IS NECESSARY TO SUBMIT A NOTICE OF INTENT (NOI) AND IMPLEMENT A STORM WATER POLLUTION PREVENTION PLAN (SWPPP). THE SWPPP INSPECTOR MUST BE A "QUALIFIED PERSON" WHO IS CERTIFIED ACCORDING TO THE LATEST REGULATIONS GOVERNING SUCH CERTIFICATIONS.
14. TOTAL PROPOSED SITE DISTURBANCE = 76600 SF

REFERENCE PLANS:

1. "PLAN OF LAND IN EXETER NH. EXETER COUNTRY CLUB" BY GREAT BAY ENGINEERING, INC; DATED DECEMBER 1988; SCALE: 1"=80'; RCRD D-18431.
2. "PLAN OF LAND IN EXETER, NH SHOWING SITE IMPROVEMENTS AT 58 JADY HILL AVE (EXETER COUNTRY CLUB)" BY MILLENNIUM ENGINEERING, INC.; DATED JUNE 4, 2021; SCALE: 1"=40'; NOT RECORDED.
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CLIENT:

BLIND TIGER, LLC
3 WRIGHT LANE
EXETER, NH 03833

SEAL:

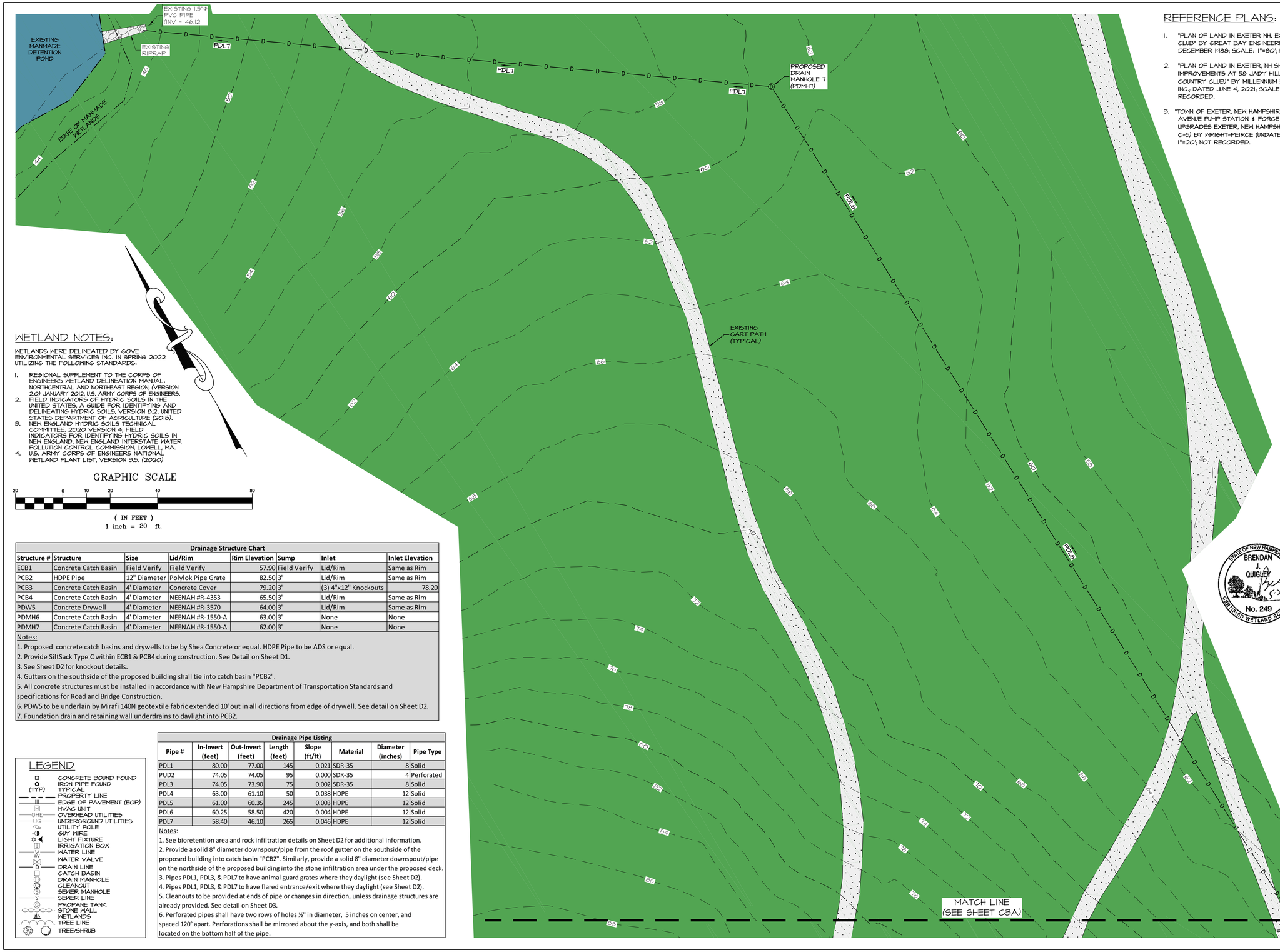
STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN
No. 11236
LICENSED PROFESSIONAL ENGINEER
6/16/23

TITLE:

GRADING & DRAINAGE PLAN

FOR
EXETER COUNTRY CLUB
58 JADY HILL AVENUE (SITE)
EXETER, NH 03833

PROJECT:	SCALE:	SHEET:
21-157	1"=20'	C3A



WETLAND NOTES:

WETLANDS WERE DELINEATED BY GOVE ENVIRONMENTAL SERVICES INC. IN SPRING 2022 UTILIZING THE FOLLOWING STANDARDS:

1. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
2. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.2, UNITED STATES DEPARTMENT OF AGRICULTURE (2018).
3. NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE. 2020 VERSION 4, FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA.
4. U.S. ARMY CORPS OF ENGINEERS NATIONAL WETLAND PLANT LIST, VERSION 3.5. (2020)

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

LEGEND

- CONCRETE BOUND FOUND
- IRON PIPE FOUND
- (TYP) TYPICAL
- PROPERTY LINE
- EDGE OF PAVEMENT (EOP)
- HVAC UNIT
- OHE OVERHEAD UTILITIES
- UG UNDERGROUND UTILITIES
- UTILITY POLE
- GUY WIRE
- LIGHT FIXTURE
- IRRIGATION BOX
- W WATER LINE
- WATER VALVE
- D DRAIN LINE
- CATCH BASIN
- DRAIN MANHOLE
- CLEANOUT
- S SEWER MANHOLE
- S SEWER LINE
- PROPANE TANK
- STONE WALL
- WETLANDS
- TREE LINE
- TREE/SHRUB

Drainage Structure Chart

Structure #	Structure	Size	Lid/Rim	Rim Elevation	Sump	Inlet	Inlet Elevation
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PCB2	HDPE Pipe	12" Diameter	Polylok Pipe Grate	82.50	3'	Lid/Rim	Same as Rim
PCB3	Concrete Catch Basin	4' Diameter	Concrete Cover	79.20	3'	(3) 4"x12" Knockouts	78.20
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PDW5	Concrete Drywell	4' Diameter	NEENAH #R-3570	64.00	3'	Lid/Rim	Same as Rim
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PDMH7	Concrete Catch Basin	4' Diameter	NEENAH #R-1550-A	62.00	3'	None	None

Notes:
1. Proposed concrete catch basins and drywells to be by Shea Concrete or equal. HDPE Pipe to be ADS or equal.
2. Provide SiltSack Type C within ECB1 & PCB4 during construction. See Detail on Sheet D1.
3. See Sheet D2 for knockout details.
4. Gutters on the southside of the proposed building shall tie into catch basin "PCB2".
5. All concrete structures must be installed in accordance with New Hampshire Department of Transportation Standards and specifications for Road and Bridge Construction.
6. PDW5 to be underlain by Mirafi 140N geotextile fabric extended 10' out in all directions from edge of drywell. See detail on Sheet D2.
7. Foundation drain and retaining wall underdrains to daylight into PCB2.

Drainage Pipe Listing

Pipe #	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	Material	Diameter (inches)	Pipe Type
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Notes:
1. See bioretention area and rock infiltration details on Sheet D2 for additional information.
2. Provide a solid 8" diameter downspout/pipe from the roof gutter on the southside of the proposed building into catch basin "PCB2". Similarly, provide a solid 8" diameter downspout/pipe on the northside of the proposed building into the stone infiltration area under the proposed deck.
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NOTES:

1. OWNER OF RECORD:
   TAX MAP 52, LOT 1
   EXETER COUNTRY CLUB
   P.O. BOX 1088
   EXETER, NH 03833
   RCRD BK1406 PG0290
2. THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED DRAINAGE ON SITE ASSOCIATED WITH THE PROPOSED SITE IMPROVEMENTS CONVEYING STORMWATER TO THE EXISTING DETENTION POND NORTH OF THE PROPOSED IMPROVEMENTS.
3. PARCEL IS ZONED R-2 SINGLE FAMILY PER THE 2019 ZONING MAP OF EXETER, NEW HAMPSHIRE.
4. A PORTION OF THE PARCEL IS WITHIN IN FLOOD HAZARD ZONES "AE" (EL 8) AND "X". REFERENCE FLOOD INSURANCE RATE MAPS 33015C0402E & 33015C0406E, DATED MAY 17, 2005.
5. FIELDWORK COMPLETED BY JAMES VERRA AND ASSOCIATES, INC. IN SPRING 2022. NH GRID; NAVD 1988.
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7. PROPERTY TO BE SERVICED TOWN WATER AND SEWER.
8. ALL CONSTRUCTION SHOULD COMPLY WITH FEDERAL, STATE, AND LOCAL STANDARDS AND REGULATIONS.
9. THIS PLAN WAS PREPARED WITH ON-SITE FIELD SURVEY AND EXISTING PLANS. THE CONTRACTOR SHOULD NOTIFY EMANUEL ENGINEERING, INC. DURING CONSTRUCTION IF ANY DISCREPANCY TO THE PLAN IS FOUND ON SITE.
10. BEFORE ANY EXCAVATION, DIG SAFE AND ALL UTILITY COMPANIES SHOULD BE CONTACTED 72 HOURS BEFORE COMMENCING BY THE CONTRACTOR. CALL DIG SAFE @ 811 OR 1-888-DIG-SAFE.
11. ALL UTILITIES SHALL BE LOCATED UNDERGROUND EXCEPT AS NOTED ON PLAN APPROVED BY THE PLANNING BOARD.
12. 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.
13. PRIOR TO CONSTRUCTION, IT IS NECESSARY TO SUBMIT A NOTICE OF INTENT (NOI) AND IMPLEMENT A STORM WATER POLLUTION PREVENTION PLAN (SWPPP). THE SWPPP INSPECTOR MUST BE A "QUALIFIED PERSON" WHO IS CERTIFIED ACCORDING TO THE LATEST REGULATIONS GOVERNING SUCH CERTIFICATIONS.
14. TOTAL PROPOSED SITE DISTURBANCE = 76800 SF

STATE OF NEW HAMPSHIRE
BRENDAN J. QUIGLEY
5-24-23
No. 249
CERTIFIED WETLAND SCIENTIST

SEAL:
STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN
No. 11236
LICENSED PROFESSIONAL ENGINEER
5/23/23

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CHECKED: BDS | CHECKED: BDS

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www.emanuelengineering.com

CLIENT:
BLIND TIGER, LLC
3 WRIGHT LANE
EXETER, NH 03833

TITLE:
GRADING & DRAINAGE PLAN
FOR
EXETER COUNTRY CLUB
58 JADY HILL AVENUE (SITE)
EXETER, NH 03833

PROJECT:	SCALE:	SHEET:
21-157	1"=20'	C3B

Drainage Structure Chart

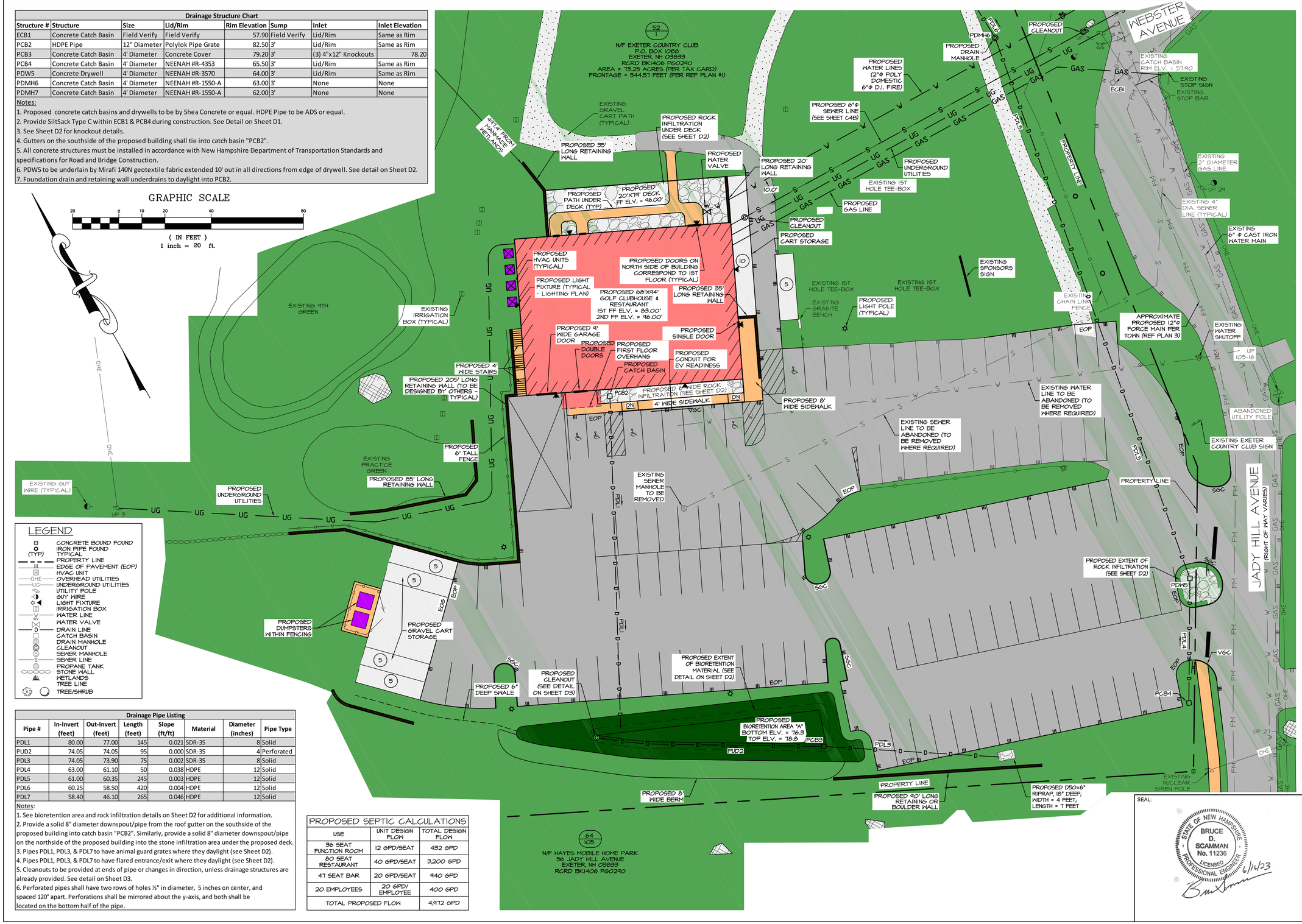
Structure #	Structure	Size	Lid/Rim	Rim Elevation	Sump	Inlet	Inlet Elevation
ECB1	Concrete Catch Basin	Field Verify	Field Verify	57.90	Field Verify	Lid/Rim	Same as Rim
PCB2	HDPE Pipe	12" Diameter	Polylok Pipe Grate	82.50	3'	Lid/Rim	Same as Rim
PCB3	Concrete Catch Basin	4' Diameter	Concrete Cover	79.20	3'	(3) 4"x12" Knockouts	78.20
PCB4	Concrete Catch Basin	4' Diameter	NEENAH #R-4353	65.50	3'	Lid/Rim	Same as Rim
PDW5	Concrete Drywell	4' Diameter	NEENAH #R-3570	64.00	3'	Lid/Rim	Same as Rim
PDMH6	Concrete Catch Basin	4' Diameter	NEENAH #R-1550-A	63.00	3'	None	None
PDMH7	Concrete Catch Basin	4' Diameter	NEENAH #R-1550-A	62.00	3'	None	None

Notes:
1. Proposed concrete catch basins and drywells to be by Shea Concrete or equal. HDPE Pipe to be ADS or equal.
2. Provide SiltSack Type C within ECB1 & PCB4 during construction. See Detail on Sheet D1.
3. See Sheet D2 for knockout details.
4. Gutters on the southside of the proposed building shall tie into catch basin "PCB2".
5. All concrete structures must be installed in accordance with New Hampshire Department of Transportation Standards and specifications for Road and Bridge Construction.
6. PDW5 to be underlain by Mirafi 140N geotextile fabric extended 10' out in all directions from edge of drywell. See detail on Sheet D2.
7. Foundation drain and retaining wall underdrains to daylight into PCB2.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.



LEGEND

- CONCRETE BOUND FOUND
- IRON PIPE FOUND (TYP)
- PROPERTY LINE
- EDGE OF PAVEMENT (EOP)
- HVAC UNIT
- OHE — OVERHEAD UTILITIES
- UG — UNDERGROUND UTILITIES
- UTILITY POLE
- GUY WIRE
- LIGHT FIXTURE
- IRRIGATION BOX
- W — WATER LINE
- WATER VALVE
- D — DRAIN LINE
- CATCH BASIN
- DRAIN MANHOLE
- CLEANOUT
- SEWER MANHOLE
- S — SEWER LINE
- PROPANE TANK
- STONE WALL
- WETLANDS
- TREE LINE
- TREE/SHRUB

Drainage Pipe Listing

Pipe #	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	Material	Diameter (inches)	Pipe Type
PDL1	80.00	77.00	145	0.021	SDR-35	8	Solid
PUD2	74.05	74.05	95	0.000	SDR-35	4	Perforated
PDL3	74.05	73.90	75	0.002	SDR-35	8	Solid
PDL4	63.00	61.10	50	0.038	HDPE	12	Solid
PDL5	61.00	60.35	245	0.003	HDPE	12	Solid
PDL6	60.25	58.50	420	0.004	HDPE	12	Solid
PDL7	58.40	46.10	265	0.046	HDPE	12	Solid

Notes:
1. See bioretention area and rock infiltration details on Sheet D2 for additional information.
2. Provide a solid 8" diameter downspout/pipe from the roof gutter on the southside of the proposed building into catch basin "PCB2". Similarly, provide a solid 8" diameter downspout/pipe on the northside of the proposed building into the stone infiltration area under the proposed deck.
3. Pipes PDL1, PDL3, & PDL7 to have animal guard grates where they daylight (see Sheet D2).
4. Pipes PDL1, PDL3, & PDL7 to have flared entrance/exit where they daylight (see Sheet D2).
5. Cleanouts to be provided at ends of pipe or changes in direction, unless drainage structures are already provided. See detail on Sheet D3.
6. Perforated pipes shall have two rows of holes ½" in diameter, 5 inches on center, and spaced 120° apart. Perforations shall be mirrored about the y-axis, and both shall be located on the bottom half of the pipe.

PROPOSED SEPTIC CALCULATIONS

USE	UNIT DESIGN FLOW	TOTAL DESIGN FLOW
36 SEAT FUNCTION ROOM	12 GPD/SEAT	432 GPD
80 SEAT RESTAURANT	40 GPD/SEAT	3,200 GPD
47 SEAT BAR	20 GPD/SEAT	940 GPD
20 EMPLOYEES	20 GPD/ EMPLOYEE	400 GPD
TOTAL PROPOSED FLOW		4,972 GPD

NOTES:

1. OWNER OF RECORD:
   TAX MAP 52, LOT 1
   EXETER COUNTRY CLUB
   P.O. BOX 1088
   EXETER, NH 03833
   RCRD BK1406 P60290
2. THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED UTILITIES ON SITE ASSOCIATED WITH THE PROPOSED SITE IMPROVEMENTS.
3. PARCEL IS ZONED R-2 SINGLE FAMILY PER THE 2019 ZONING MAP OF EXETER, NEW HAMPSHIRE.
4. A PORTION OF THE PARCEL IS WITHIN IN FLOOD HAZARD ZONES "AE" (EL 8) AND "X", REFERENCE FLOOD INSURANCE RATE MAPS 33015C0402E & 33015C0406E, DATED MAY 17, 2005.
5. FIELDWORK COMPLETED BY JAMES VERRA AND ASSOCIATES, INC. IN SPRING 2022. NH GRID; NAVD 1988.
6. WETLANDS DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. IN SPRING 2022. THE DELINEATION WAS LIMITED TO THE AREAS OF PROPOSED WORK DEPICTED ON THESE PLANS. 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.
7. PROPERTY TO BE SERVICED TOWN WATER AND SEWER.
8. ALL CONSTRUCTION SHOULD COMPLY WITH FEDERAL, STATE, AND LOCAL STANDARDS AND REGULATIONS.
9. THIS PLAN WAS PREPARED WITH ON-SITE FIELD SURVEY AND EXISTING PLANS. THE CONTRACTOR SHOULD NOTIFY EMANUEL ENGINEERING, INC. DURING CONSTRUCTION IF ANY DISCREPANCY TO THE PLAN IS FOUND ON SITE.
10. BEFORE ANY EXCAVATION, DIG SAFE AND ALL UTILITY COMPANIES SHOULD BE CONTACTED 72 HOURS BEFORE COMMENCING BY THE CONTRACTOR. CALL DIG SAFE @ 811 OR 1-888-DIG-SAFE.
11. ALL UTILITIES SHALL BE LOCATED UNDERGROUND EXCEPT AS NOTED ON PLAN APPROVED BY THE PLANNING BOARD.
12. SEE THE LIGHTING PLAN (SHEET L01) BY EXPOSURE LIGHTING FOR LIGHTING DETAILS.
13. THE NEW GREASE INTERCEPTOR FOR THE PROPOSED RESTAURANT WITHIN THE CLUBHOUSE SHALL BE INSTALLED IN THE INTERIOR OF THE BUILDING.
14. ALL ABANDONED UTILITIES SHALL EITHER BE REMOVED, CAPPED, OR FILLED WITH FLOWABLE FILL.
15. ALL LIGHTING TO BE TURNED OFF OR REDUCED IN INTENSITY AT 10 PM PER SECTION 9.20.4.4 OF THE 2022 SITE PLAN REVIEW AND SUBDIVISION REGULATIONS FOR THE TOWN OF EXETER.

REFERENCE PLANS:

1. "PLAN OF LAND IN EXETER NH. EXETER COUNTRY CLUB" BY GREAT BAY ENGINEERING, INC; DATED DECEMBER 1988; SCALE: 1"=80'; RCRD D-18431.
2. "PLAN OF LAND IN EXETER, NH SHOWING SITE IMPROVEMENTS AT 58 JADY HILL AVE (EXETER COUNTRY CLUB)" BY MILLENNIUM ENGINEERING, INC.; DATED JUNE 4, 2021; SCALE: 1"=40'; NOT RECORDED.
3. "TOWN OF EXETER, NEW HAMPSHIRE WEBSTER AVENUE PUMP STATION & FORCE MAIN UPGRADES EXETER, NEW HAMPSHIRE" (SHEET C-5) BY WRIGHT-PIERCE (UNDATED); SCALE: 1"=20'; NOT RECORDED.

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5	JUNE 16, 2023	FOR APPROVAL	
4	MAY 23, 2023	FOR APPROVAL	
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CLIENT:
BLIND TIGER, LLC
3 WRIGHT LANE
EXETER, NH 03833

SEAL:
BRUCE D. SCAMMAN No. 11236 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE
6/16/23

TITLE:
UTILITIES PLAN
FOR
EXETER COUNTRY CLUB
58 JADY HILL AVENUE (SITE)
EXETER, NH 03833

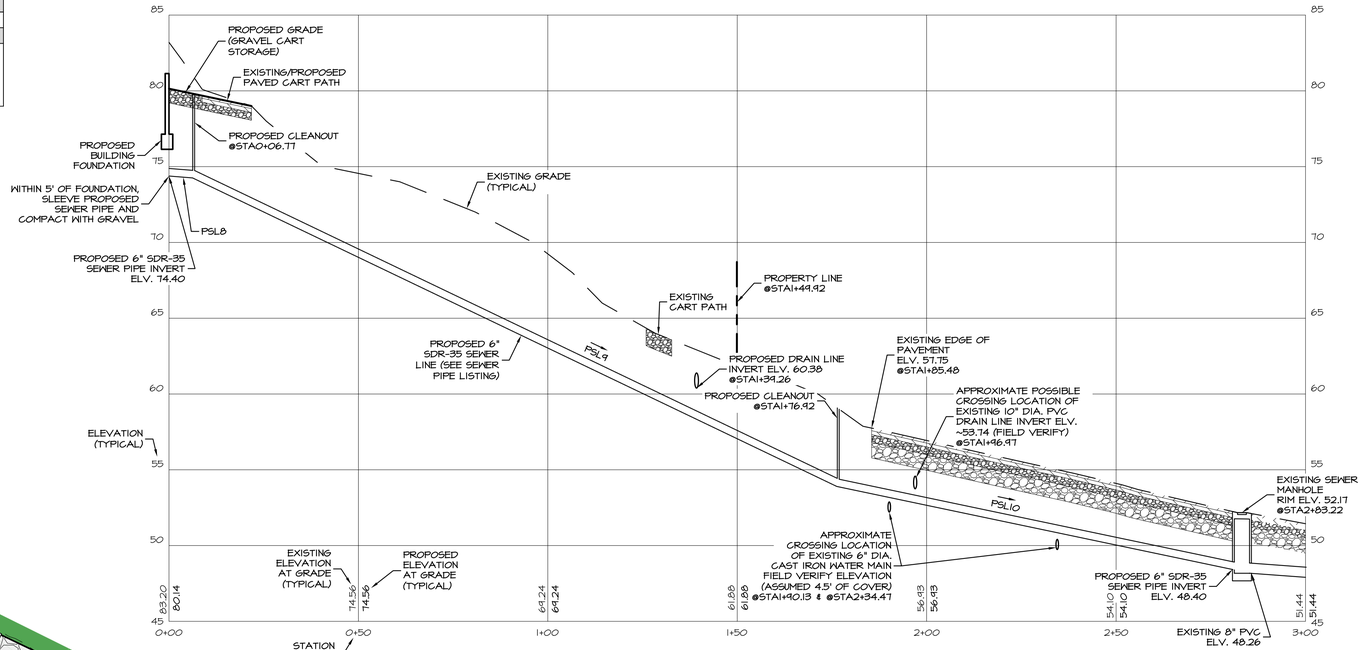
PROJECT:	SCALE:	SHEET:
21-157	1"=20'	C4A

Septic Pipe Listing							
Pipe #	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	Material	Diameter (inches)	Pipe Type
PSL8	74.40	74.25	7	0.021	SDR-35	6	Solid
PSL9	74.25	53.90	170	0.120	SDR-35	6	Solid
PSL10	53.90	48.40	150	0.037	SDR-35	6	Solid

Notes:
1. Pipe PSL8 shall be sleeved and compacted with gravel within 5' of the proposed foundation.
2. All joints, inlets, outlets, etc. To be sealed with a non-shrink grout, "water-plug" or equal.
3. All pipes to be sleeved or encased in concrete within 10' of any water line crossing.

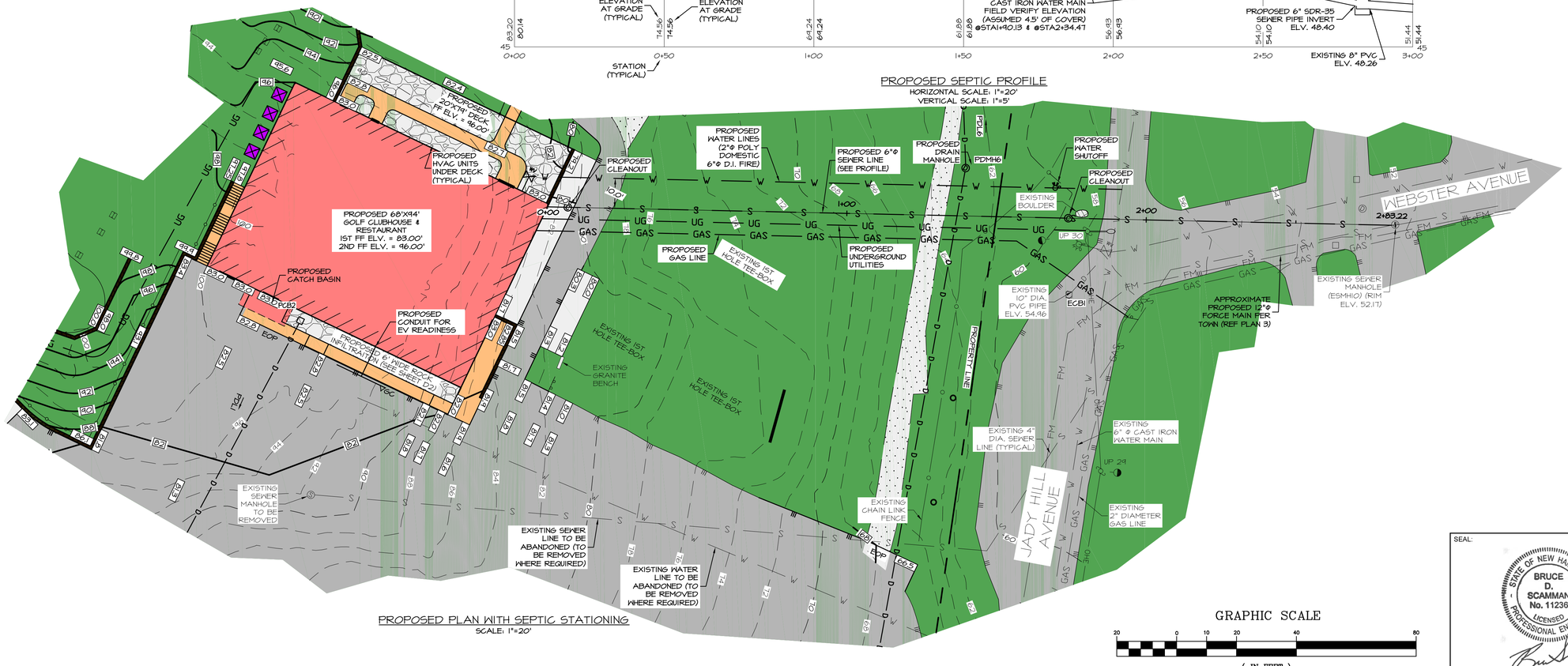
PROPOSED SEPTIC CALCULATIONS

USE	UNIT DESIGN FLOW	TOTAL DESIGN FLOW
36 SEAT FUNCTION ROOM	12 GPD/SEAT	432 GPD
80 SEAT RESTAURANT	40 GPD/SEAT	3,200 GPD
47 SEAT BAR	20 GPD/SEAT	940 GPD
20 EMPLOYEES	20 GPD/ EMPLOYEE	400 GPD
TOTAL PROPOSED FLOW		4,972 GPD



PROPOSED SEPTIC PROFILE

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=5'



PROPOSED PLAN WITH SEPTIC STATIONING

SCALE: 1"=20'

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

NOTES:

1. OWNER OF RECORD:
   TAX MAP 52, LOT 1
   EXETER COUNTRY CLUB
   P.O. BOX 1088
   EXETER, NH 03833
   RCRD BK1406 P90290
2. THE INTENT OF THIS PLAN IS TO SHOW THE PROFILE OF THE PROPOSED SEWER LINE REQUIRED FOR THE PROPOSED SITE IMPROVEMENTS.
3. PARCEL IS ZONED R-2 SINGLE FAMILY PER THE 2019 ZONING MAP OF EXETER, NEW HAMPSHIRE.
4. A PORTION OF THE PARCEL IS WITHIN IN FLOOD HAZARD ZONES "AE" (EL 8) AND "X", REFERENCE FLOOD INSURANCE RATE MAPS 33015C0402E & 33015C0406E, DATED MAY 17, 2005.
5. FIELDWORK COMPLETED BY JAMES VERRA AND ASSOCIATES, INC. IN SPRING 2022. NH GRID; NAVD 1988.
6. WETLANDS DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. IN SPRING 2022. THE DELINEATION WAS LIMITED TO THE AREAS OF PROPOSED WORK DEPICTED ON THESE PLANS. 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.
7. PROPERTY TO BE SERVICED TOWN WATER AND SEWER.
8. ALL CONSTRUCTION SHOULD COMPLY WITH FEDERAL, STATE, AND LOCAL STANDARDS AND REGULATIONS.
9. THIS PLAN WAS PREPARED WITH ON-SITE FIELD SURVEY AND EXISTING PLANS. THE CONTRACTOR SHOULD NOTIFY EMANUEL ENGINEERING, INC. DURING CONSTRUCTION IF ANY DISCREPANCY TO THE PLAN IS FOUND ON SITE.
10. BEFORE ANY EXCAVATION, DIG SAFE AND ALL UTILITY COMPANIES SHOULD BE CONTACTED 72 HOURS BEFORE COMMENCING BY THE CONTRACTOR. CALL DIG SAFE @ 811 OR 1-888-DIG-SAFE.
11. ALL UTILITIES SHALL BE LOCATED UNDERGROUND EXCEPT AS NOTED ON PLAN APPROVED BY THE PLANNING BOARD.
12. THE NEW GREASE INTERCEPTOR FOR THE PROPOSED RESTAURANT WITHIN THE CLUBHOUSE SHALL BE INSTALLED IN THE INTERIOR OF THE BUILDING.
13. ALL ABANDONED UTILITIES SHALL EITHER BE REMOVED, CAPPED, OR FILLED WITH FLOWABLE FILL.

REFERENCE PLANS:

1. "PLAN OF LAND IN EXETER NH, EXETER COUNTRY CLUB" BY GREAT BAY ENGINEERING, INC; DATED DECEMBER 1988; SCALE: 1"=80'; RCRD D-18431.
2. "PLAN OF LAND IN EXETER, NH SHOWING SITE IMPROVEMENTS AT 58 JADY HILL AVE (EXETER COUNTRY CLUB)" BY MILLENNIUM ENGINEERING, INC.; DATED JUNE 4, 2021; SCALE: 1"=40'; NOT RECORDED.
3. "TOWN OF EXETER, NEW HAMPSHIRE WEBSTER AVENUE PUMP STATION & FORCE MAIN UPGRADES EXETER, NEW HAMPSHIRE" (SHEET C-5) BY WRIGHT-PIERCE (UNDATED); SCALE: 1"=20'; NOT RECORDED.

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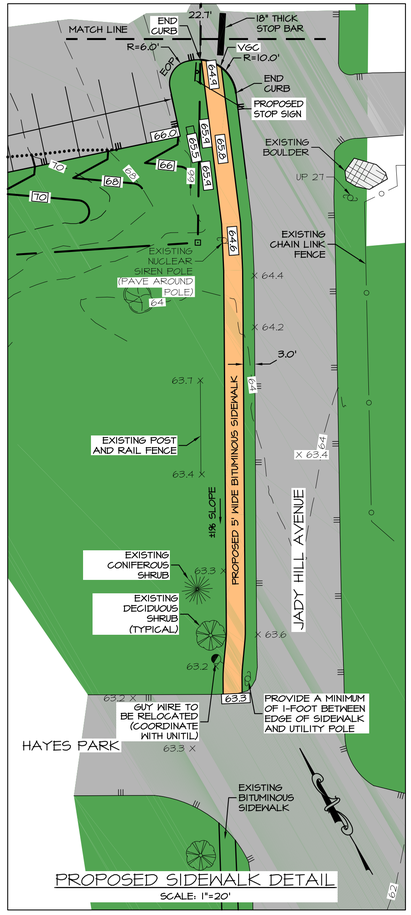
EXETER, NH 03833

SEAL:
STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN No. 11236 LICENSED PROFESSIONAL ENGINEER
5/23/23

TITLE:
PROPOSED SEPTIC PROFILE
FOR
EXETER COUNTRY CLUB
58 JADY HILL AVENUE (SITE)
EXETER, NH 03833

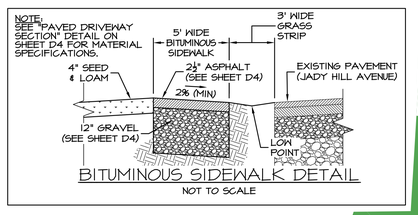
PROJECT:	SCALE:	SHEET:
21-157	1"=20'	C4B



PROPOSED SIDEWALK DETAIL

SCALE: 1"=20'

NOTE:
SEE "PAVED DRIVEWAY SECTION" DETAIL ON SHEET D4 FOR MATERIAL SPECIFICATIONS.



BITUMINOUS SIDEWALK DETAIL

NOT TO SCALE

LEGEND

- CONCRETE BOUND FOUND
- IRON PIPE FOUND (TYP) TYPICAL
- PROPERTY LINE
- EDGE OF PAVEMENT (EOP)
- HVAC UNIT
- OVERHEAD UTILITIES
- UNDERGROUND UTILITIES
- UTILITY POLE
- GUY WIRE
- LIGHT FIXTURE
- IRRIGATION BOX
- WATER LINE
- WATER VALVE
- DRAIN LINE
- CATCH BASIN
- DRAIN MANHOLE
- CLEANOUT
- SEWER MANHOLE
- SEWER LINE
- PROPANE TANK
- STONE WALL
- WETLANDS
- TREE LINE
- TREE/SHRUB

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

52/1 N/F EXETER COUNTRY CLUB
P.O. BOX 1088
EXETER, NH 03833
RCRD BK1406 P60290
AREA = 73.25 ACRES (PER TAX CARD)
FRONTAGE = 544.57 FEET (PER REF PLAN #1)

EXISTING SAND TRAP
EXISTING GRAVEL CART PATH (TYPICAL)
45'± FROM MEAN HIGH WATER MARK OF WETLANDS
PROPOSED 35' LONG RETAINING WALL
PROPOSED 20' LONG RETAINING WALL
PROPOSED PATH UNDER DECK (TYP)
PROPOSED 20'X14' DECK FF ELV. = 96.00'
EXISTING/ PROPOSED PAVEMENT CUT LINE
PROPOSED CART STORAGE
EXISTING 1ST HOLE TEE-BOX
EXISTING SPONSORS SIGN
EXISTING GRANITE BENCH
PROPOSED DOORS ON NORTH SIDE OF BUILDING CORRESPOND TO 1ST FLOOR (TYPICAL)
PROPOSED 68'X44' GOLF CLUBHOUSE & RESTAURANT
1ST FF ELV. = 83.00'
2ND FF ELV. = 96.00'
PROPOSED 35' LONG RETAINING WALL
PROPOSED 9' WIDE GARAGE DOOR
PROPOSED DOUBLE DOORS
PROPOSED FIRST FLOOR OVERHANG
PROPOSED SINGLE DOOR
PROPOSED 4' WIDE STAIRS
PROPOSED 205' LONG RETAINING WALL (TO BE DESIGNED BY OTHERS - TYPICAL)
PROPOSED 6' WIDE ROCK INFILTRATION (SEE SHEET D2)
4' WIDE SIDEWALK
PROPOSED 8' WIDE SIDEWALK
PROPOSED BOLLARD (TYPICAL)
PROPOSED 6' TALL FENCE
PROPOSED 24'X50' LOADING AREA
VERTICAL GRANITE CURB (VGC)
EXISTING PRACTICE GREEN
PROPOSED 85' LONG RETAINING WALL
EXISTING 9TH GREEN
EXISTING BOULDER
EXISTING PAVEMENT
PROPOSED PAVEMENT
DIRECTION OF TRAVEL
PROPOSED DUMPSTERS WITHIN FENCING
PROPOSED GRAVEL CART STORAGE
PROPOSED 9'X19' PARKING SPACE (TYPICAL)
SLOPED GRANITE CURB (SGC)
PROPOSED 40' LONG RETAINING OR BOULDER WALL
PROPERTY LINE
PROPOSED 90' LONG RETAINING OR BOULDER WALL
EXISTING LEDGE
64/105 N/F HAYES MOBILE HOME PARK
56 JADY HILL AVENUE
EXETER, NH 03833
RCRD BK1406 P60290

WEBSTER AVENUE
EXISTING STOP SIGN
EXISTING STOP BAR
EXISTING BOULDER
UP 30
WV
PROPERTY LINE
UP 29
EXISTING CHAIN LINK FENCE
EOP
UP 105-16
ABANDONED UTILITY POLE
EXISTING EXETER COUNTRY CLUB SIGN
END CURB
R=12.0'
PROPERTY LINE
SGC
R=6.0'
JADY HILL AVENUE (RIGHT OF WAY VARIES)
33.0'
PROPOSED 18" THICK STOP BAR
R=10.0'
R=6.0'
PROPOSED STOP SIGN
R=8.0'
PROVIDE TIP DOWN IN CURB TO ALLOW FLOW OF STORMWATER
PROPOSED 18" THICK STOP BAR
MATCH LINE
22.7'
VGC
EXISTING BOULDER
UP 27
EXISTING NUCLEAR SIREN POLE

NOTES:

1. OWNER OF RECORD;
   TAX MAP 52, LOT 1
   EXETER COUNTRY CLUB
   P.O. BOX 1088
   EXETER, NH 03833
   RCRD BK1406 P60290
2. THE INTENT OF THIS PLAN IS TO SHOW THE DIMENSIONS FOR THE PROPOSED PARKING, TRAVEL WAYS, CURBING, AND SIDEWALKS ON SITE.
3. PARCEL IS ZONED R-2 SINGLE FAMILY PER THE 2019 ZONING MAP OF EXETER, NEW HAMPSHIRE.
4. A PORTION OF THE PARCEL IS WITHIN IN FLOOD HAZARD ZONES "AE" (EL 8) AND "X"; REFERENCE FLOOD INSURANCE RATE MAPS 33015C0402E & 33015C0406E, DATED MAY 17, 2005.
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9. THIS PLAN WAS PREPARED WITH ON-SITE FIELD SURVEY AND EXISTING PLANS. THE CONTRACTOR SHOULD NOTIFY EMANUEL ENGINEERING, INC. DURING CONSTRUCTION IF ANY DISCREPANCY TO THE PLAN IS FOUND ON SITE.
10. BEFORE ANY EXCAVATION, DIG SAFE AND ALL UTILITY COMPANIES SHOULD BE CONTACTED 72 HOURS BEFORE COMMENCING BY THE CONTRACTOR. CALL DIG SAFE @ 811 OR 1-888-DIG-SAFE.

REFERENCE PLANS:

1. "PLAN OF LAND IN EXETER NH. EXETER COUNTRY CLUB" BY GREAT BAY ENGINEERING, INC; DATED DECEMBER 1988; SCALE: 1"=80'; RCRD D-18431.
2. "PLAN OF LAND IN EXETER, NH SHOWING SITE IMPROVEMENTS AT 58 JADY HILL AVE (EXETER COUNTRY CLUB)" BY MILLENNIUM ENGINEERING, INC.; DATED JUNE 4, 2021; SCALE: 1"=40'; NOT RECORDED.
3. "TOWN OF EXETER, NEW HAMPSHIRE WEBSTER AVENUE PUMP STATION & FORCE MAIN UPGRADES EXETER, NEW HAMPSHIRE" (SHEET C-5) BY WRIGHT-PIERCE (UNDATED); SCALE: 1"=20'; NOT RECORDED.

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SEAL:
STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN
No. 11236
LICENSED PROFESSIONAL ENGINEER
5/23/23

TITLE:
PAVING & CURBING PLAN
FOR
EXETER COUNTRY CLUB
58 JADY HILL AVENUE (SITE)
EXETER, NH 03833

PROJECT:	SCALE:	SHEET:
21-157	1"=20'	C5

EROSION AND SEDIMENTATION CONTROL - CONSTRUCTION PHASING AND SEQUENCING:

1. SEE "EROSION AND SEDIMENTATION CONTROL GENERAL NOTES" WHICH ARE TO BE AN INTEGRAL PART OF THIS PROCESS.
2. INSTALL SILT FENCING AND/OR HAY BALE BARRIERS AS PER DETAILS AND AT SEDIMENT MIGRATION.
3. CONSTRUCT TREATMENT SWALES , LEVEL SPREADERS AND DETENTION STRUCTURES AS DEPICTED ON DRAWINGS.
4. INSTALL TEMPORARY GRAVEL CONSTRUCTION ENTRANCE(S) AS PER DETAIL AND AT LOCATIONS SHOWN ON THE DRAWINGS. MAINTAIN (TOP DRESS) REGULARLY TO PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC STREETS.
5. STRIP AND STOCKPILE TOPSOIL. STABILIZE PILES OF SOIL CONSTRUCTION MATERIAL.
6. ROUGH GRADE SITE. INSTALL CULVERTS AND ROAD DITCHES.
7. FINISH GRADE AND COMPACT SITE.
8. RE-SPREAD AND ADD TOPSOIL TO ALL ROADSIDE SLOPES. TOTAL TOPSOIL THICKNESS TO BE A MINIMUM OF FOUR TO SIX INCHES.
9. STABILIZE ALL AREAS OF BARE SOIL WITH MULCH AND SEEDING.
10. RE-SEED PER EROSION AND SEDIMENTATION CONTROL GENERAL NOTES.
11. SILT FENCING AND HAY BALES TO REMAIN AND BE MAINTAINED FOR TWENTY FOUR MONTHS AFTER CONSTRUCTION TO INSURE ESTABLISHMENT OF ADEQUATE SOIL STABILIZATION AND VEGETATIVE COVER. ALL SILT FENCING, HAY BALES AND TRAPPED SILT ARE THEN TO BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.
12. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH MOVING OPERATIONS.
13. PONDS AND SWALES SHALL BE INSTALLED EARLY ON IN THE CONSTRUCTION SEQUENCE - BEFORE ROUGH GRADING THE SITE.
14. ALL DITCHES AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
15. ALL ROADWAYS AND PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
16. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.
17. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.
18. BUOYANCY CALCULATIONS HAVE NOT BEEN PERFORMED. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ANCHORAGE FOR ALL TANKS WHERE REQUIRED.

WINTER CONSTRUCTION NOTES (OCTOBER 15 TO MAY 1):

1. ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPETED IN ADVANCE OF THAW OR SPRING MELT EVENT.
2. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
3. AFTER OCTOBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.

ROCK INFILTRATION AREA MAINTENANCE:

THE ROCK INFILTRATION AREA SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM. IF THE ROCK HAS BEEN DISPLACED, UNDERMINED, OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW ANY OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS; FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAIL WATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE OUTLET PROTECTION APRON.

EROSION AND SEDIMENTATION CONTROL - GENERAL NOTES:

1. CONDUCT ALL CONSTRUCTION IN A MANNER AND SEQUENCE THAT CAUSES THE LEAST PRACTICAL DISTURBANCE OF THE PHYSICAL ENVIRONMENT, BUT IN NO CASE SHALL EXCEED 5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
2. ALL EROSION AND SEDIMENTATION CONTROL MEASURES IN THE PLAN SHALL MEET THE DESIGN BASED ON NEW HAMPSHIRE STORMWATER MANUAL, VOLUMES 1-3; DATED DECEMBER 2008, PREPARED BY NHDES.
3. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
   - BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED.
   - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED.
   - A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED.
   - EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
4. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
5. SEE WINTER CONSTRUCTION NOTES IF SCHEDULE AND DATES ARE APPLICABLE.
6. ALL DITCHES, SWALES AND PONDS MUST BE STABILIZED PRIOR TO DIRECTING FLOW TO THEM.
7. ALL GROUND AREAS OPENED UP FOR CONSTRUCTION WILL BE STABILIZED IN THE SHORTEST PRACTICAL TIME. ALL SOILS FINISH GRADED MUST BE STABILIZED WITHIN SEVENTY TWO HOURS OF DISTURBANCE.
8. EMPLOY TEMPORARY EROSION AND SEDIMENTATION CONTROL DEVICES AS DETAILED ON THIS PLAN AS NECESSARY UNTIL ADEQUATE STABILIZATION HAS BEEN ASSURED.
9. TEMPORARY & LONG TERM SEEDING; USE SEED MIXTURES, FERTILIZER, LIME AND MULCHING AS RECOMMENDED (SEE SEEDING AND STABILIZATION NOTES).
10. STRAW OR HAY BALE BARRIERS AND SILTATION FENCING TO BE SECURELY EMBEDDED AND STAKED AS DETAILED, WHEREVER POSSIBLE A VEGETATED STRIP OF AT LEAST TWENTY FIVE FEET IS TO BE KEPT BETWEEN SILT FENCE AND ANY EDGE OF WET AREA.
11. SEEDED AREAS WILL BE FERTILIZED AND RE-SEEDED AS NECESSARY TO ENSURE VEGETATIVE ESTABLISHMENT.
12. SEDIMENT BASIN(S), IF REQUIRED, TO BE CHECKED AFTER EACH SIGNIFICANT RAINFALL AND CLEANED AS NEEDED TO RETAIN DESIGN CAPACITY.
13. STRAW BALE AND/OR SILT FENCE BARRIERS WILL BE CHECKED REGULARLY AND AFTER EACH SIGNIFICANT RAINFALL. NECESSARY REPAIRS WILL BE MADE TO CORRECT UNDERMINING OR DETERIORATION OF THE BARRIER AS WELL AS CLEANING, REMOVAL AND PROPER DISPOSAL OF TRAPPED SEDIMENT.
14. TREATMENT SWALES WILL BE CHECKED WEEKLY AND REPAIRED WHEN NECESSARY UNTIL ADEQUATE VEGETATIVE COVER HAS BEEN ESTABLISHED.
15. THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
16. TEMPORARY WATER DIVERSION (SWALES, BASINS, ETC.) MUST BE USED AS NECESSARY UNTIL AREAS ARE STABILIZED.

SEEDING AND STABILIZATION FOR LOAMED SITE:

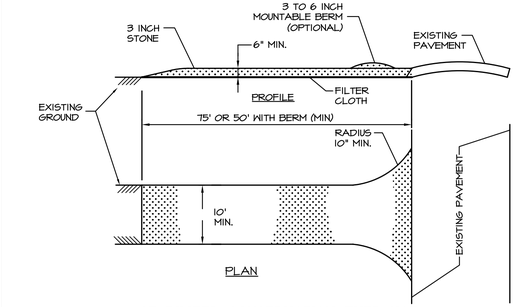
1. FOR TEMPORARY & LONG TERM SEEDINGS (BY SEPTEMBER 15 OF THE SAME YEAR OF DISTURBANCE) USE AGWAY'S SOIL CONSERVATION GRASS SEED OR EQUAL.
2. COMPONENTS: ANNUAL RYE GRASS, PERENNIAL RYE GRASS, WHITE CLOVER, 2 FESCUES, SEED AT A RATE OF 100 POUNDS PER ACRE.
3. FERTILIZER & LIME:
   NITROGEN (N) 50 LBS/ACRE, PHOSPHATE (P205) 100 LBS/ACRE, POTASH (K20) 100 LBS/ACRE, LIME 2000 LBS/ACRE.
4. MULCH: HAY OR STRAW 1.5-2 TONS/ACRE.
5. GRADING AND SHAPING:
   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.
6. SEED BED PREPARATION
   - SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
   - STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND MIX FERTILIZER AND LIME INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.

STABILIZATION CONSTRUCTION ENTRANCE SPECIFICATIONS:

1. STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 3 INCH STONE (MINIMUM), RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 75 FEET (OR 50 FEET WITH A 3 TO 6 INCH MOUNTABLE BERM).
3. THE THICKNESS OF THE STONE FOR THE STABILIZATION 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.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARDS 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 OF ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED PROMPTLY.
8. WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

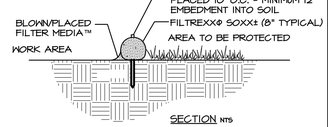
FILTREXX LAND IMPROVEMENT SYSTEMS INSPECTION & MAINTENANCE:

1. CONSULT FILTREXX SNAPP CUT SHEETS FOR ALL FILTREXX PRODUCTS PRIOR TO INSTALLATION AND FOR MAINTENANCE GUIDELINES. HTTP://WWW.FILTREXX.COM/DESIGN_CUT_SHEETS.HTM
2. ROUTINE INSPECTION SHOULD BE CONDUCTED WITHIN 24 HRS OF A RUNOFF EVENT OR AS DESIGNATED BY THE REGULATING AUTHORITY. UNITS SHOULD BE REGULARLY INSPECTED TO MAKE SURE THEY MAINTAIN THEIR SHAPE AND ARE PRODUCING ADEQUATE HYDRAULIC FLOW-THROUGH, DITCH/CHANNEL EROSION CONTROL, AND SEDIMENT REMOVAL.
3. IF PONDING BECOMES EXCESSIVE, ADDITIONAL CHECK DAMS, LEVEL SPREADERS, OR SEDIMENT CONTROL UNITS FOR SEDIMENT REMOVAL MAY BE REQUIRED.
4. SEDIMENT ACCUMULATION SHOULD BE REMOVED ONCE IT REACHES THE HEIGHT OF THE CHECK DAM OR UNIT. ALTERNATIVELY, ANOTHER UNIT MAY BE INSTALLED SLIGHTLY UPSLOPE, ON TOP OF THE EXISTING ONE. THIS PROCESS IS NOT CONSIDERED A SOIL DISTURBING ACTIVITY.
5. STORM DEBRIS ACCUMULATION BEHIND CHECK DAMS, LEVEL SPREADER, SEDIMENT CONTROL UNIT, ETC. SHOULD NEVER BE HIGHER THAN THE SIDES OF THE CHECK DAM/UNIT. STORM RUNOFF OVERFLOW SHALL MAINTAIN THE UNITS IN A FUNCTIONAL CONDITION AT ALL TIMES AND IT SHALL BE ROUTINELY INSPECTED.
6. IF A UNIT HAS BEEN DAMAGED, IT SHALL BE REPAIRED, OR REPLACED IF BEYOND REPAIR.
7. THE CONTRACTOR SHALL REMOVE SEDIMENT AT THE BASE OF THE UPSLOPE SIDE OF UNITS WHEN ACCUMULATION HAS REACHED 1/2 OF THE EFFECTIVE HEIGHT OF THE SOXX, OR AS DIRECTED BY THE ENGINEER.
8. AS AN ALTERNATIVE, ANOTHER SOXX UNIT MAY BE INSTALLED ADJACENT AND PARALLEL TO THE UPSLOPE SIDE OF THE ORIGINAL TO INCREASE SEDIMENT STORAGE CAPACITY. SOXX SEDIMENT BACKUP IN CENTER OF THE DITCH/CHANNEL SHALL REMAIN LOWER THAN THE SIDES.
9. IF SOXX UNIT BECOMES CLOGGED WITH DEBRIS AND SEDIMENT, IMMEDIATE REMOVAL OF DEBRIS AND SEDIMENT SHOULD BE CONDUCTED TO ASSURE PROPER DRAINAGE AND WATER FLOW THROUGH THE DITCH OR CHANNEL. STORM RUNOFF OVERFLOW OF THE SOXX UNIT IS ACCEPTABLE.
10. SOXX UNITS SHALL BE MAINTAINED UNTIL DISTURBED AREA AROUND THE DEVICE HAS BEEN PERMANENTLY STABILIZED AND CONSTRUCTION ACTIVITY HAS CEASED.
11. THE FILTERMEDIATM MAY BE DISPERSED ON SITE ONCE DISTURBED AREA HAS PERMANENTLY STABILIZED, CONSTRUCTION ACTIVITY CEASED, OR DETERMINED BY THE ENGINEER.
12. PERMANENT VEGETATED FILTER STRIPS WILL BE LEFT INTACT.

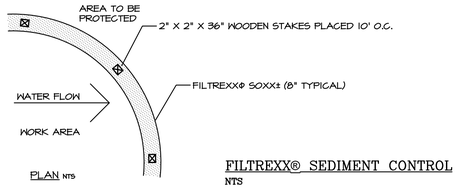


STABILIZED CONSTRUCTION ENTRANCE
N.T.S

NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.
4. ADDITIONAL INFO AVAILABLE AT HTTP://WWW.FILTREXX.COM



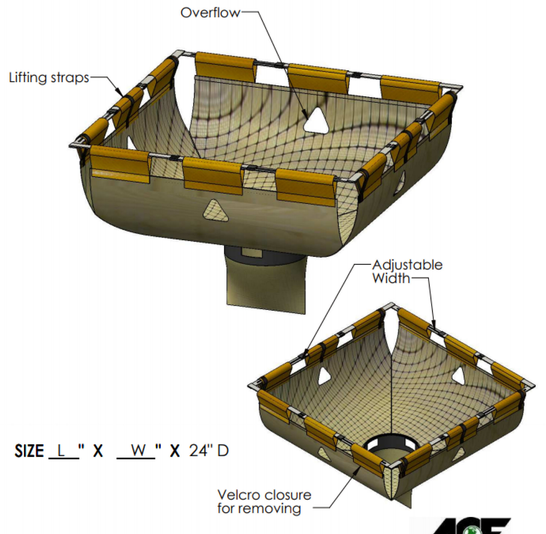
SECTION NTS



PLAN NTS

FILTREXX® SEDIMENT CONTROL
NTS

Silt Sack - Type C



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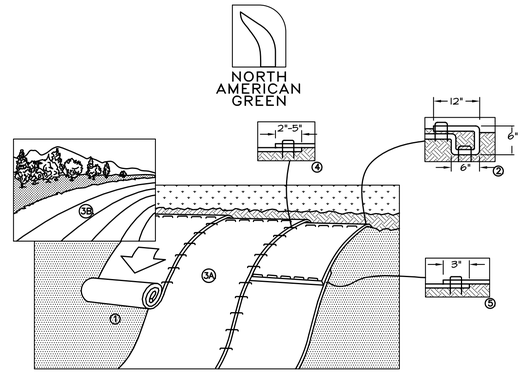
NORTH AMERICAN GREEN



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM , STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENTHS IN EXCESS OF 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

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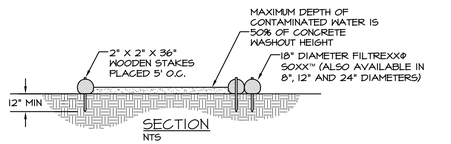

SECTION
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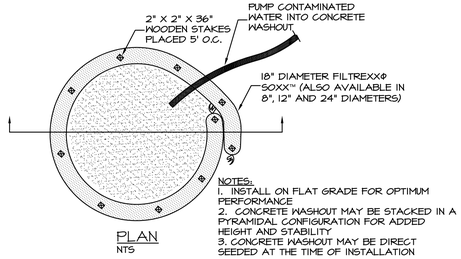

PLAN
NTS

NOTES:
1. INSTALL ON FLAT GRADE FOR OPTIMUM PERFORMANCE
2. CONCRETE WASHOUT MAY BE STACKED IN A PYRAMIDAL CONFIGURATION FOR ADDED HEIGHT AND STABILITY
3. CONCRETE WASHOUT MAY BE DIRECT SEEDED AT THE TIME OF INSTALLATION

FILTREXX® CONCRETE WASHOUT DETAIL
N.T.S.

SEAL

STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN
No. 11236
LICENSED PROFESSIONAL ENGINEER
4/25/23

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2	APR 20, 2023	FOR APPROVAL	
1	JAN 24, 2023	FOR APPROVAL	

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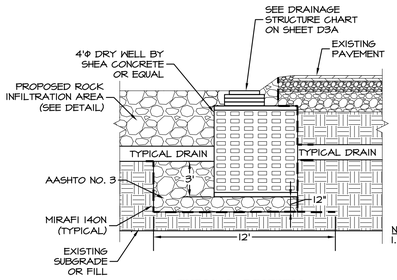
CLIENT:
BLIND TIGER, LLC
3 WRIGHT LANE
EXETER, NH 03833

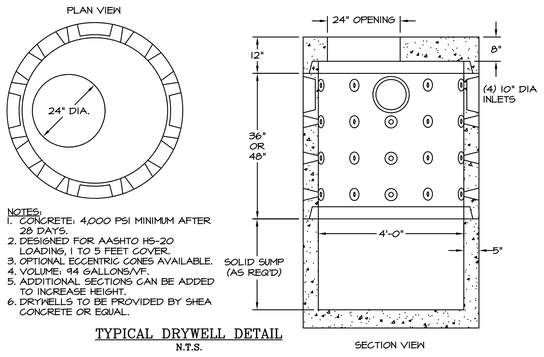
TITLE:
NOTES & EROSION CONTROL DETAILS
FOR
EXETER COUNTRY CLUB
58 JADY HILL AVENUE (SITE)
EXETER, NH 03833

PROJECT:	SCALE:	SHEET:
21-157	AS SHOWN	D1



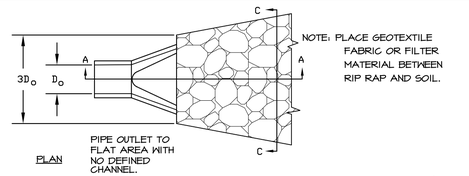
TYPICAL DRYWELL PLACEMENT DETAIL
N.T.S

NOTE:
1. SEE "TYPICAL DRYWELL DETAIL" ON SHEET D2 FOR DETAILS ON DRYWELL STRUCTURE.
2. ALL STONE FOR ROCK INFILTRATION AREA TO BE WASHED.

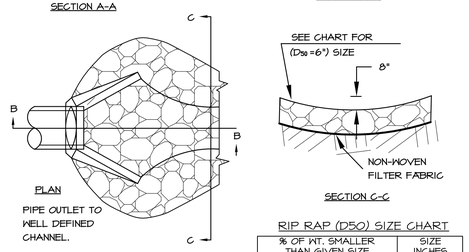


NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. DESIGNED FOR AASHTO HS-20 LOADING, 1 TO 5 FEET COVER.
3. OPTIONAL ECCENTRIC CONES AVAILABLE.
4. VOLUME: 94 GALLONS/VF.
5. ADDITIONAL SECTIONS CAN BE ADDED TO INCREASE HEIGHT.
6. DRYWELLS TO BE PROVIDED BY SHEA CONCRETE OR EQUAL.

TYPICAL DRYWELL DETAIL
N.T.S.



NOTE: PLACE GEOTEXTILE FABRIC OR FILTER MATERIAL BETWEEN RIP RAP AND SOIL.

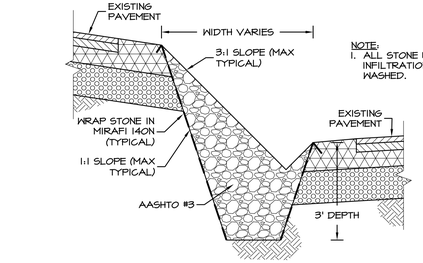


RIP RAP (D50) SIZE CHART

% OF WT. SMALLER THAN GIVEN SIZE	SIZE INCHES
100	9.0-12.0
85	7.8-10.8
50	6.0-9.0
15	1.8-3.0

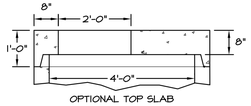
CONSTRUCTION SPECIFICATIONS:
1. THE SUBGRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIPRAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE ROCK OF GRAVEL USED FOR FILTER OR RIPRAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIPRAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIPRAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

PIPE OUTLET PROTECTION
N.T.S.



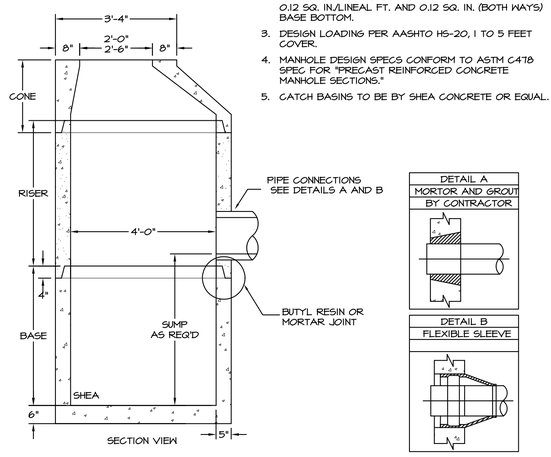
NOTE:
1. ALL STONE USED FOR ROCK INFILTRATION AREA TO BE WASHED.

TYPICAL ROCK INFILTRATION DETAIL
N.T.S.



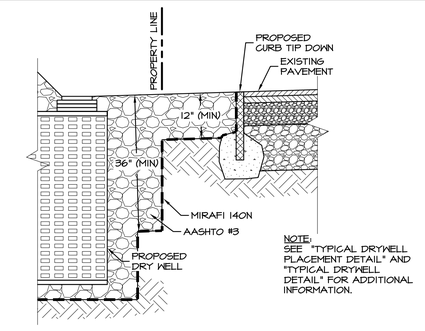
OPTIONAL TOP SLAB

NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. REINFORCED STEEL CONFORMS TO ASTM A185 SPEC. 0.12 SQ. IN./LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) BASE BOTTOM.
3. DESIGN LOADING PER AASHTO HS-20, 1 TO 5 FEET COVER.
4. MANHOLE DESIGN SPECS CONFORM TO ASTM C478 SPEC FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."
5. CATCH BASINS TO BE BY SHEA CONCRETE OR EQUAL.



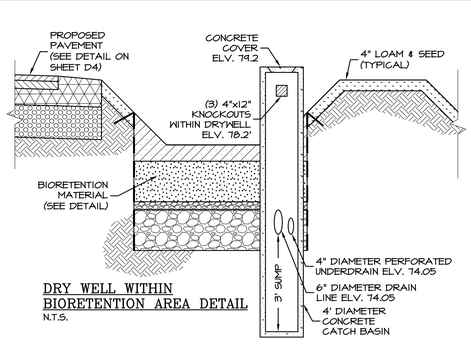
TYPICAL CATCH BASIN/MANHOLE DETAIL
N.T.S.

GRADATION FOR AASHTO #3	
NOMINAL SIZE SQUARE OPENINGS	AMOUNTS FINER THAN EACH LABORATORY SIEVE (SQUARE OPENINGS), PERCENTAGE BY WEIGHT
100 MM 4 IN.	
90 MM 3½ IN.	
75 MM 3 IN.	
63 MM 2½ IN.	100
50 MM 2 IN.	90-100
37.5 MM 1½ IN.	35-70
25 MM 1 IN.	0-15
19 MM ¾ IN.	
12.5 MM ½ IN.	0-5
9.5 MM ⅜ IN.	
4.75 MM NO. 4	
2.36 MM NO. 8	
1.18 MM NO. 16	
600 µM NO. 30	
300 µM NO. 50	
150 µM NO. 100	
75 µM NO. 200	



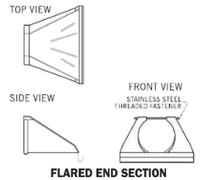
NOTE:
SEE "TYPICAL DRYWELL PLACEMENT DETAIL" AND "TYPICAL DRYWELL DETAIL" FOR ADDITIONAL INFORMATION.

ROCK INFILTRATION AT TIP DOWN DETAIL
N.T.S.

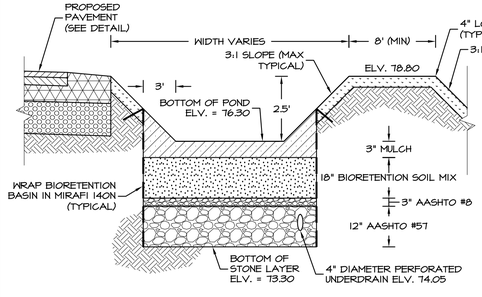


DRY WELL WITHIN BIORETENTION AREA DETAIL
N.T.S.

FLARED END SECTIONS	
SIZE	PRODUCT CODE
10" (250mm)	1015NP
12" (300mm) / 15" (375mm)	1215NP
18" (450mm)	1810NP
24" (600mm)	2410NP
30" (750mm)	3015NP
36" (900mm)	3615NP

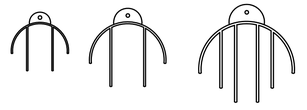


FLARED END SECTION



TYPICAL BIORETENTION AREA DETAIL
N.T.S.

BIOSWALE NOTES:
1. BIORETENTION SOIL MIX DESIGN:
   A. 60% SAND (NHDOT 304.1 SAND)
   B. 20% WOOD CHIPS
   C. 20% TOPSOIL (" MINUS SCREENED LOAM)
2. VERIFY THAT THERE IS NO RESTRICTIVE SOIL LAYER AT BOTTOM OF EXCAVATION.
3. DO NOT COMPACT SUBGRADE AT BOTTOM OF EXCAVATION.
4. NO BIORETENTION SOIL MIX SHALL BE PLACED UNTIL ENGINEERING APPROVAL AND INSPECTION OF SUBGRADE HAS BEEN CONDUCTED.
5. ALL FINISH GRADES AND SURFACES TO BE STABILIZED BY VEGETATION UPON COMPLETION UNLESS NOTED OTHERWISE.
6. SEE LAYOUT PLAN FOR STRUCTURE ELEVATION AND INVERTS, PIPE TYPE, LENGTH, AND SLOPE, AND BIORETENTION AREA DIMENSIONS
7. 4" PERFORATED PIPE IS TO BE SDR-35 WITH ½" DIAMETER PERFORATIONS, 3 HOLES MINIMUM PER FOOT OF LENGTH
8. ALL STONE TO BE WASHED.



ANIMAL GUARD GRATE
(FINGER STYLE)

STANDARD SIZES:
4", 6", 8", 10", 12", 15", 18", 24", 30", 36" & 42"

NOTES:

1.) PRODUCTS SHOWN MANUFACTURED BY ADVANCE DRAINAGE SYSTEM INC. WWW.ADS-PIPE.COM

2.) USE ADVANCE DRAINAGE SYSTEM INC. OR EQUAL

3.) FOLLOW MANUFACTURER INSTALLATION INSTRUCTIONS

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
3	MAY 23, 2023	FOR APPROVAL	
2	APR 20, 2023	FOR APPROVAL	
1	JAN 24, 2022	FOR APPROVAL	

DRAWN: JJM | DESIGN: JJM
CHECKED: BDS | CHECKED: BDS

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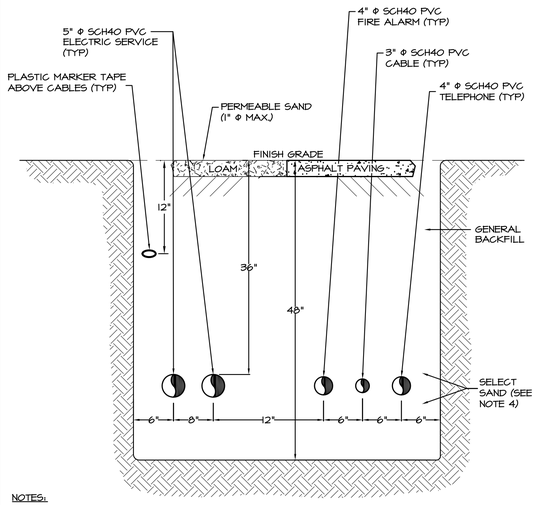
SEAL
STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN
No. 11236
LICENSED PROFESSIONAL ENGINEER
5/23/23

TITLE:
DRAINAGE DETAILS
FOR
EXETER COUNTRY CLUB
58 JADY HILL AVENUE (SITE)
EXETER, NH 03833

PROJECT: 21-157 | SCALE: AS SHOWN | SHEET: D2

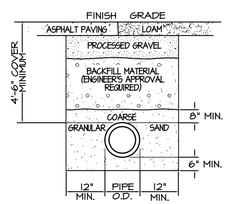


NOTES:

VERIFY NUMBER OF CONDUIT RUNS AND TYPES OF CONDUITS REQUIRED WITH ELECTRICAL AND MECHANICAL DESIGNERS BEFORE INSTALLATION

1. ALL UTILITIES SHALL BE REVIEWED AND APPROVED BY APPROPRIATE UTILITY COMPANY.
2. SERVICE BOX CONNECTIONS SHALL BE "FLUSH MOUNT" TO GREATEST EXTENT POSSIBLE AND LOCATED AT PROPERTY LINE CORNERS.
3. PIPE SIZES ARE MINIMUM SIZES TO BE INSTALLED.
4. BACKFILL: SHALL BE SELECTED SAND, 100% SHALL PASS THROUGH 1/4" SCREEN, UP TO 1% MAY BE ROUNDED PEBBLES UP TO 3/8" IN SIZE.
5. TRENCH WIDTH IS TO BE 12" MINIMUM, DEPENDING ON NUMBER OF UTILITIES IN TRENCH, UNLESS CABLE IS PLOWED IN.
6. UTILITIES ARE TO BE LOCATED IN ROAD SHOULDERS AND ROW'S AS DETERMINED BY PLANS. ALL WORK TO BE COORDINATED WITH UTILITY COMPANIES.
7. THERE MAY BE MORE OR LESS SERVICES TO BE INSTALLED IN TRENCH VERIFY WITH UTILITIES PLAN.
8. VERIFY & REFER TO PROJECT ELECTRICAL DRAWINGS AND DETAILS FOR SPECIFICS.

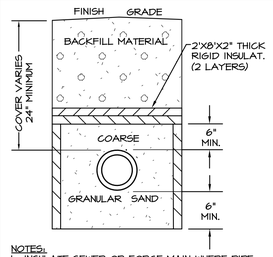
TYPICAL UTILITY TRENCH DETAIL
N.T.S.



NOTES:

1. ALL CONSTRUCTION AND CONNECTIONS TO BE IN ACCORDANCE WITH LOCAL STANDARDS.
2. SEE MECHANICAL DRAWINGS FOR PIPE SIZES, SCHEDULES, AND PITCH REQUIREMENTS.

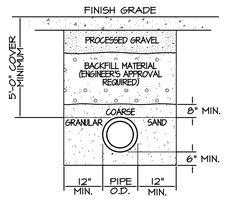
SEWER LINE INSTALLATION
N.T.S.



NOTES:

1. INSULATE SEWER OR FORCE MAIN WHERE PIPE WILL BE LESS THAN 6' BELOW PLOWED AREAS OR LESS THAN 4'-6" BELOW AREAS RUNNING CROSS COUNTRY.
2. GAPS BETWEEN SECTIONS OF INSULATION TO BE COVERED WITH 2'x2'x2" PIECE OF INSULATION CENTERED OVER GAP.

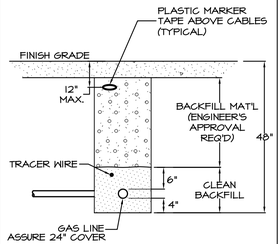
PIPE INSTALLATION DETAIL
N.T.S.



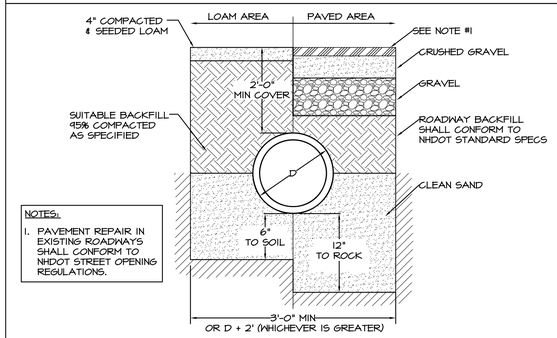
NOTE:

1. SEE SITE PLAN FOR PIPE SIZES AND SERVICES.

WATERLINE INSTALLATION
N.T.S.



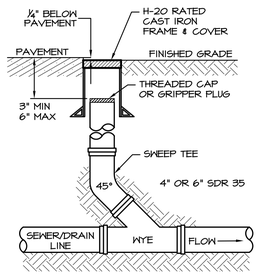
GAS LINE INSTALLATION
N.T.S.



NOTES:

1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO NHDOT STREET OPENING REGULATIONS.

DRIVEWAY & PARKING LOT TYPICAL PIPE-RUN SECTION
N.T.S.



SERVICE CLEANOUT DETAIL
N.T.S.

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
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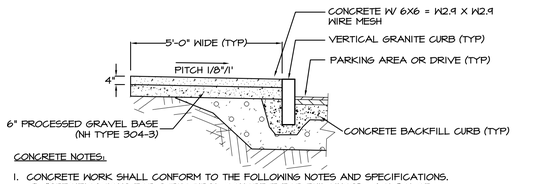
SEAL

STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN
No. 11236
LICENSED PROFESSIONAL ENGINEER
5/23/23

TITLE:

UTILITY DETAILS
FOR
EXETER COUNTRY CLUB
58 JADY HILL AVENUE (SITE)
EXETER, NH 03833

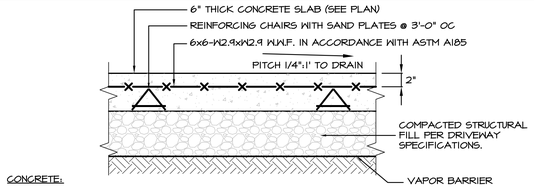
PROJECT:	SCALE:	SHEET:
21-157	AS SHOWN	D3



CONCRETE NOTES:

1. CONCRETE WORK SHALL CONFORM TO THE FOLLOWING NOTES AND SPECIFICATIONS.
   - "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" - ACI 301-05.
   - "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" - ACI 318-08.
2. COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 4000 PSI AFTER 28 DAYS WITH 5 - 7% AIR ENTRAINMENT, W.R. GRACE "ECLIPSE PLUS" SHRINKAGE ADMIXTURE, AND W.R. GRACE "DCI-S" CORROSION INHIBITOR, AND A MIDRANGE WATER REDUCER.
3. FINISH CONCRETE W/ BROOM FINISH, TOOLED CONTROL JOINTS @ 5'-0" MAX SPACING, AND TOOLED JOINT ALONG ALL EDGES OF SIDEWALK.
4. SLAB SHALL BE WATER CURED FOR A MINIMUM OF 5 DAYS USING WET BURLAP.
5. ALL SIDEWALKS ARE TO BE CONCRETE AS SHOWN ON THIS DETAIL.

TYPICAL CONCRETE SIDEWALK DETAIL
N.T.S.



CONCRETE:

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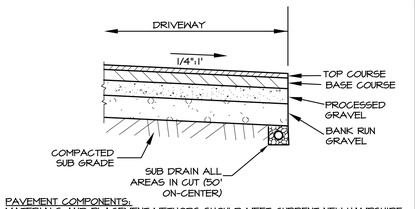
   - "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" - ACI 301-05.
   - "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" - ACI 318-08.
2. COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 4000 PSI AFTER 28 DAYS WITH 5 TO 7% AIR ENTRAINMENT FOR EXTERIOR SLABS, W.R. GRACE "ECLIPSE PLUS" SHRINKAGE ADMIXTURE, AND W.R. GRACE "DCI-S" CORROSION INHIBITOR, AND A MIDRANGE WATER REDUCER.
3. FINISH SLAB W/ BROOM FINISH AND TOOLED JOINT ALONG ALL EDGES OF SLAB.
4. SLAB SHALL BE WATER CURED FOR A MINIMUM OF 5 DAYS USING WET BURLAP.
5. W.W.F. SHALL BE SHEETS ONLY, LAP TWO SQUARES AT ALL JOINTS AND TIE @ 3'-0" ON CENTER.

TYPICAL EXTERIOR CONCRETE PAD DETAIL
N.T.S.

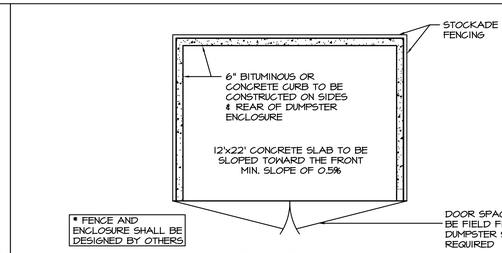


PAVEMENT COMPONENTS:
MATERIALS AND PLACEMENT METHODS SHOULD MEET CURRENT NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION (NHDOT) REQUIREMENTS.

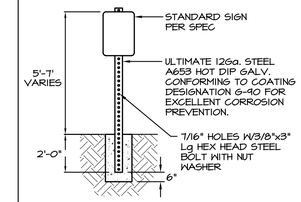
DRIVEWAY & PARKING AREA:
1-1/2" ASPHALT WEARING SURFACE, NHDOT ½" NOMINAL MAXIMUM AGGREGATE SIZE
2-1/2" ASPHALT BASE, NHDOT ¾" NOMINAL MAXIMUM AGGREGATE SIZE
6" CRUSHED GRAVEL BASE, NHDOT TYPE 304.3
12" GRAVEL SUB BASE, NHDOT TYPE 304.2

BITUMINOUS SIDEWALK:
2½" ASPHALT WEARING SURFACE, NHDOT ½" NOMINAL MAXIMUM AGGREGATE SIZE
12" CRUSHED GRAVEL BASE, NHDOT TYPE 304.3

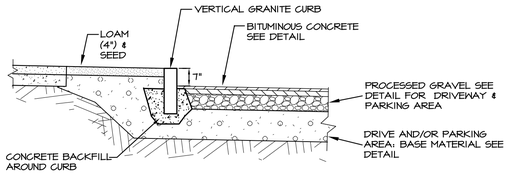
PAVED DRIVEWAY SECTION
N.T.S.



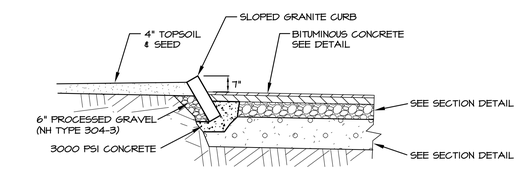
DUMPSTER SLAB DETAIL



STANDARD SIGN MOUNTING DETAIL
N.T.S.

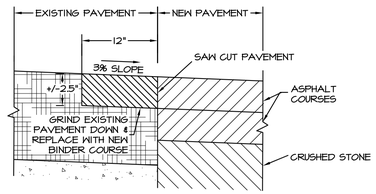


VERTICAL CURB DETAIL
N.T.S.

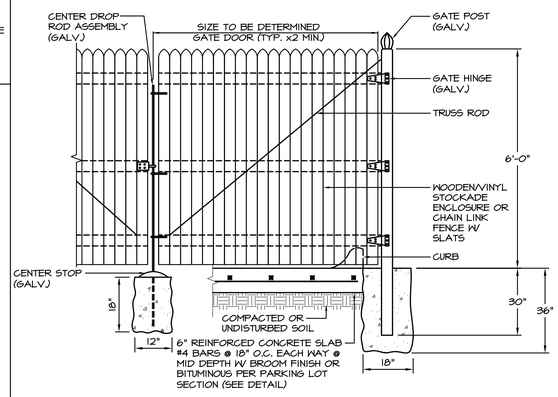


SLOPED CURB DETAIL
N.T.S.

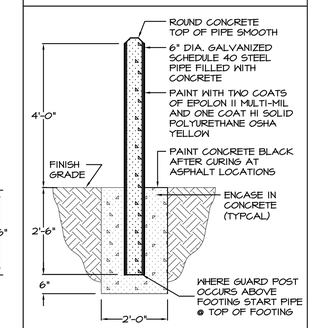
NOTES:
1. ALL GRAVEL AND SUBGRADE TO BE COMPACTED TO 95% MAXIMUM DRY DENSITY PER ASTM D1557 WITHIN 3% OF OPTIMUM MOISTURE CONTENT.
2. MATERIALS MAY VARY UNDERNEATH EXISTING SECTION.



SAW CUT & GRIND DOWN DETAIL
NOT TO SCALE

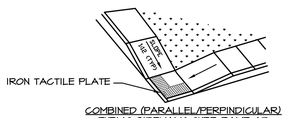


STOCKADE DUMPSTER ENCLOSURE DETAIL
N.T.S.

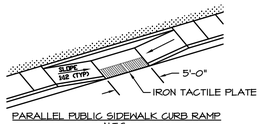


BOLLARD DETAIL
N.T.S.

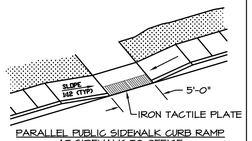
NOTE: CONSTRUCTION TO COMPLY WITH CURRENT ADA STANDARDS.



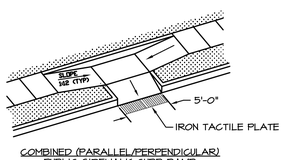
COMBINED (PARALLEL/PERPINDICULAR) PUBLIC SIDEWALK CURB RAMP AT SIDEWALK CORNER
N.T.S.



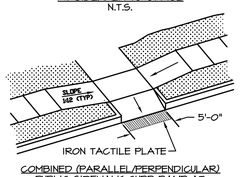
PARALLEL PUBLIC SIDEWALK CURB RAMP
N.T.S.



PARALLEL PUBLIC SIDEWALK CURB RAMP AT SIDEWALK TO OFFICE
N.T.S.



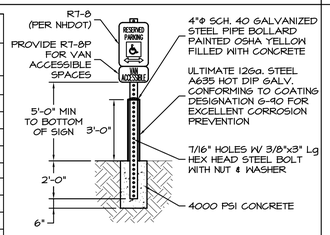
COMBINED (PARALLEL/PERPENDICULAR) PUBLIC SIDEWALK CURB RAMP
N.T.S.



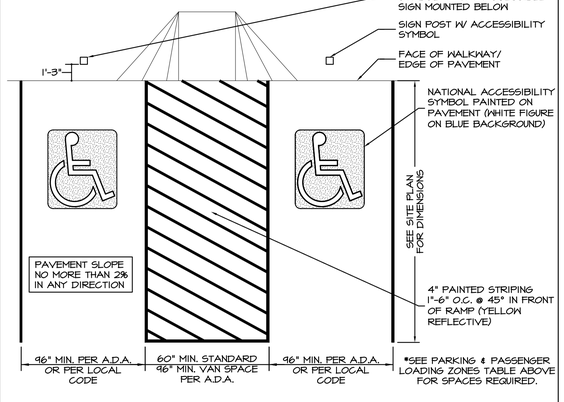
COMBINED (PARALLEL/PERPENDICULAR) PUBLIC SIDEWALK CURB RAMP AT SIDEWALK TO OFFICE
N.T.S.

ACCESSIBILITY RAMP DETAILS
N.T.S.

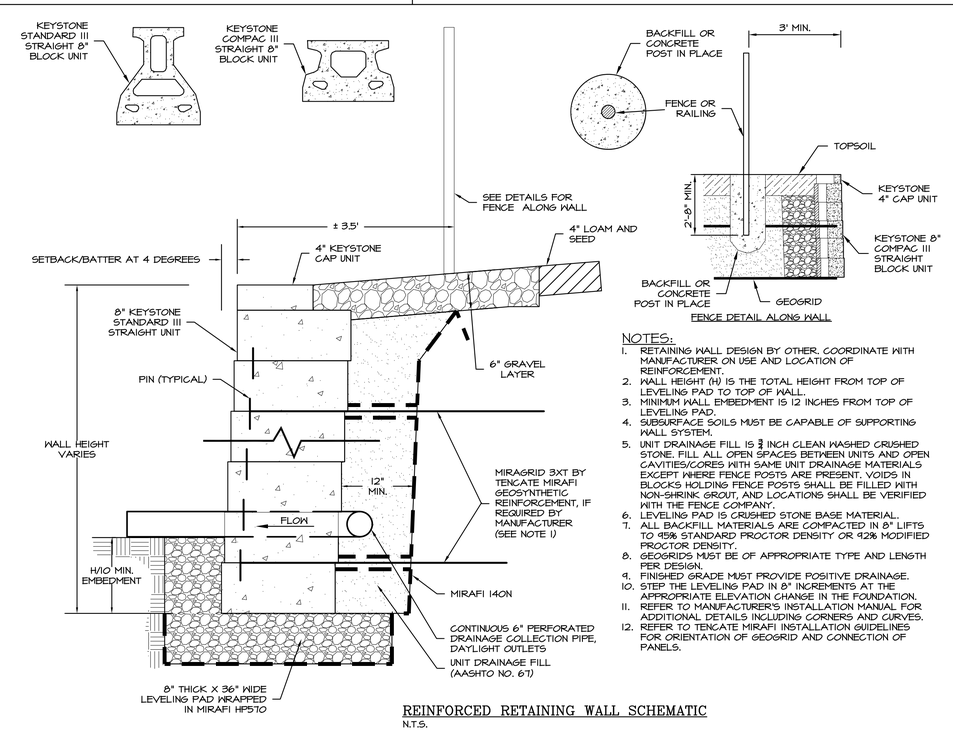
PARKING & PASSENGER LOADING ZONES			
TOTAL # PARKING SPACES	MINIMUM ACCESSIBLE SPACES		
	STAND.	VAN	TOTAL
1 - 25	0	1	1
26 - 50	1	1	2
51 -75	2	1	3
76 - 100	3	1	4
101 - 150	4	1	5
151 - 200	5	1	6
201 - 300	6	1	7
301 - 400	7	1	8
401 - 500	8	2	10
501 - 550	9	2	11
551 - 600	10	2	12
601 - 650	11	2	13



ACCESSIBILITY SIGN MOUNTING DETAIL



PARKING STALL FOR THE PHYSICALLY CHALLENGED
N.T.S.



REINFORCED RETAINING WALL SCHEMATIC
N.T.S.

NOTES:
1. RETAINING WALL DESIGN BY OTHER. COORDINATE WITH MANUFACTURER ON USE AND LOCATION OF REINFORCEMENT.
2. WALL HEIGHT (H) IS THE TOTAL HEIGHT FROM TOP OF LEVELING PAD TO TOP OF WALL.
3. MINIMUM WALL EMBEDMENT IS 12 INCHES FROM TOP OF LEVELING PAD.
4. SUBSURFACE SOILS MUST BE CAPABLE OF SUPPORTING WALL SYSTEM.
5. UNIT DRAINAGE FILL IS ¾ INCH CLEAN WASHED CRUSHED STONE. FILL ALL OPEN SPACES BETWEEN UNITS AND OPEN CAVITIES/CORES WITH SAME UNIT DRAINAGE MATERIALS EXCEPT WHERE FENCE POSTS ARE PRESENT. VOIDS IN BLOCKS HOLDING FENCE POSTS SHALL BE FILLED WITH NON-SHRINK GROUT, AND LOCATIONS SHALL BE VERIFIED WITH THE FENCE COMPANY.
6. LEVELING PAD IS CRUSHED STONE BASE MATERIAL.
7. ALL BACKFILL MATERIALS ARE COMPACTED IN 8" LIFTS TO 95% STANDARD PROCTOR DENSITY OR 92% MODIFIED PROCTOR DENSITY.
8. GEOGRIDS MUST BE OF APPROPRIATE TYPE AND LENGTH PER DESIGN.
9. FINISHED GRADE MUST PROVIDE POSITIVE DRAINAGE.
10. STEP THE LEVELING PAD IN 8" INCREMENTS AT THE APPROPRIATE ELEVATION CHANGE IN THE FOUNDATION.
11. REFER TO MANUFACTURER'S INSTALLATION MANUAL FOR ADDITIONAL DETAILS INCLUDING CORNERS AND CURVES.
12. REFER TO TENCATE MIRAFI INSTALLATION GUIDELINES FOR ORIENTATION OF GEOGRID AND CONNECTION OF PANELS.

SEAL

STATE OF NEW HAMPSHIRE
BRUCE D. SCAMMAN
No. 11236
LICENSED PROFESSIONAL ENGINEER
5/23/23

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
2	MAY 23, 2023	FOR APPROVAL	
1	APR 20, 2023	FOR APPROVAL	

DRAWN:	JJM	DESIGN:	JJM
CHECKED:	BDS	CHECKED:	BDS

EMANUEL ENGINEERING
civil & structural consultants, land planners
118 Portsmouth Avenue, A202
Stratham, NH 03885
P: 603-772-4400 F: 603-772-4487
www.emanuelengineering.com

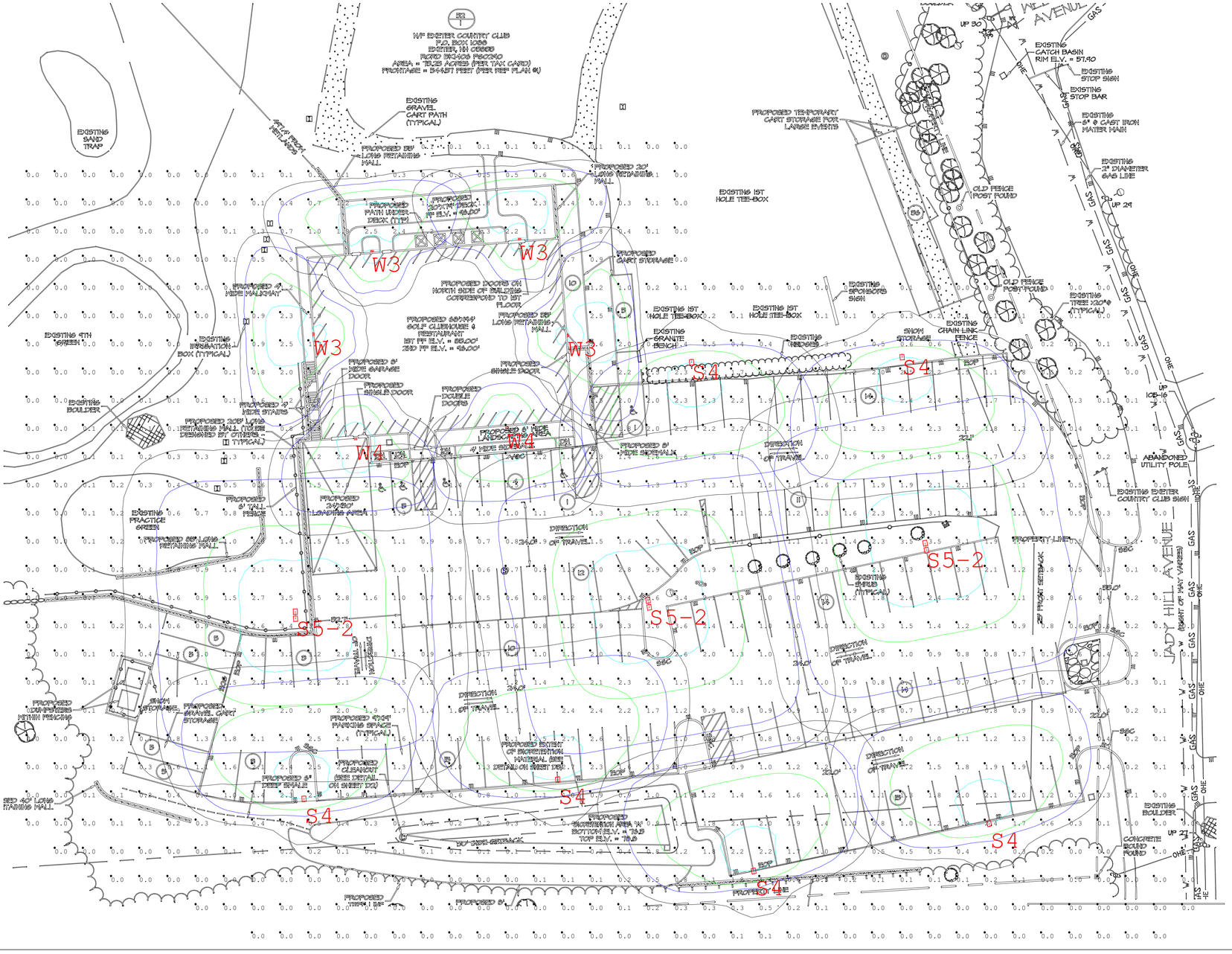
CLIENT:
BLIND TIGER, LLC
3 WRIGHT LANE
EXETER, NH 03833

TITLE:
SITE DETAILS
FOR
EXETER COUNTRY CLUB
58 JADY HILL AVENUE (SITE)
EXETER, NH 03833

PROJECT:	SCALE:	SHEET:
21-157	AS SHOWN	D4

StatArea_1
PARKING LOT AREA
Illuminance (Fc)
Average = 1.54
Maximum = 3.6
Minimum = 0.5
Avg/Min Ratio = 3.08
Max/Min Ratio = 7.20

Luminaire Schedule					
Symbol	Qty	Label	Arrangement	Description	[MANUFAC]
	6	S4	Single	MRM-LED-07L-SIL-FT-UNV-DIM-30-70CRI-IH-CXX / 4SQ-B3-S11G-20-S-CXX-GA-4BC (20' AFG)	LSI INDUSTRIES, INC.
	3	S5-2	Back-Back	MRM-LED-07L-SIL-5W-UNV-DIM-30-70CRI-CXX / 4SQ-B3-S11G-20-D180-CXX-GA-4BC (20' AFG)	LSI INDUSTRIES, INC.
	4	W3	Single	XWS-LED-03L-SIL-3-UNV-DIM-30-70CRI-CXX / WALL MTD 12' AFG	LSI INDUSTRIES, INC.
	2	W4	Single	XWS-LED-03L-SIL-FT-UNV-DIM-30-70CRI-CXX / WALL MTD 12' AFG	LSI INDUSTRIES, INC.



EXPOSURE
LIGHTING — CONTROLS — ELECTRICAL

Exposure Lighting
6 Scott Rd, Unit A
Hampton, NH 03842
603-601-8080

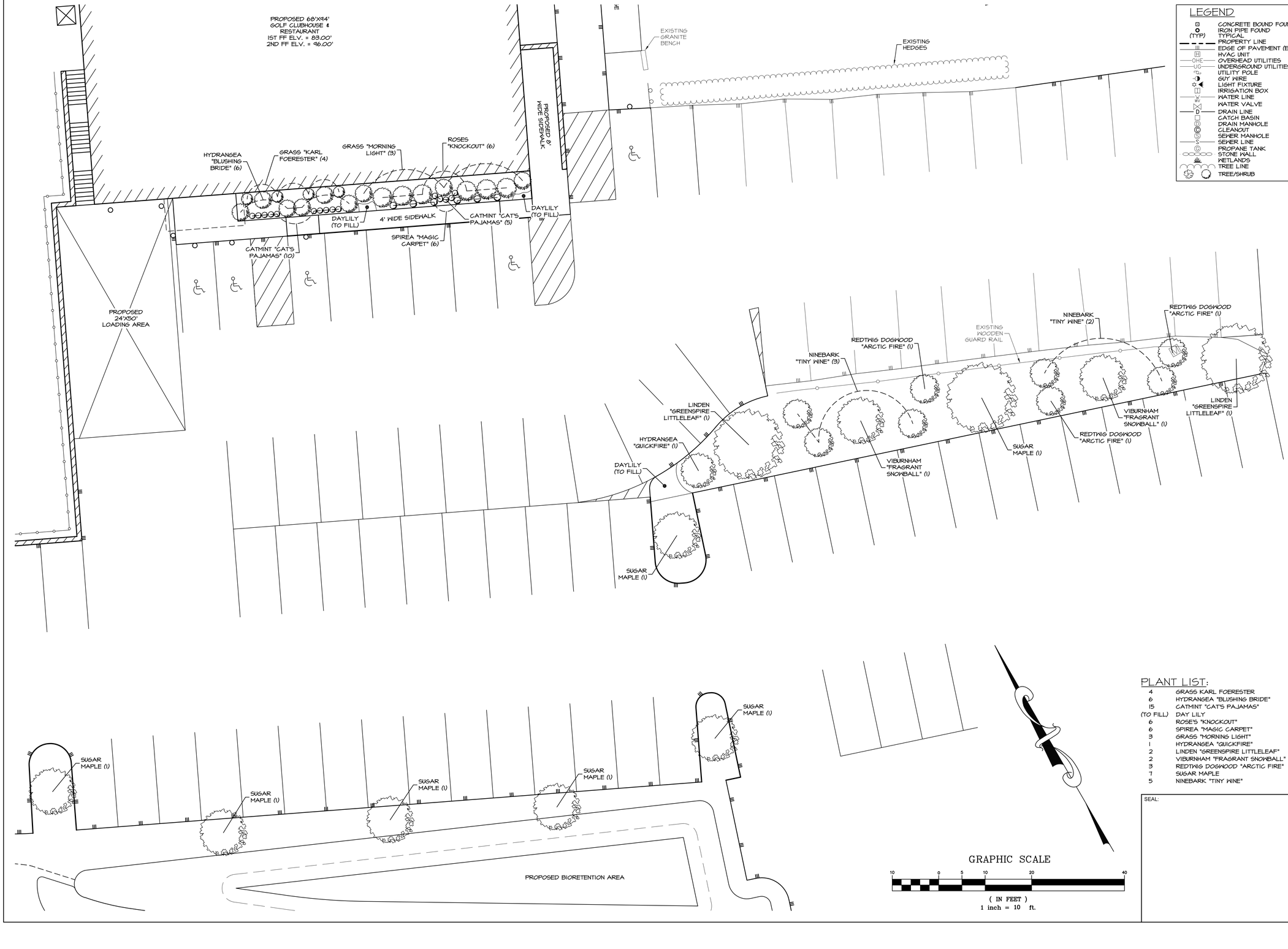
#	Date	Comments

Revisions

Drawn By:
Checked By:
Date:4/13/2023
Scale:

EXETER COUNTRY CLUB
58 JADY HILL AVE
EXTER NH 03833

L01



LEGEND

- CONCRETE BOUND FOUND
- IRON PIPE FOUND
- (TYP) TYPICAL
- PROPERTY LINE
- EDGE OF PAVEMENT (EOP)
- HVAC UNIT
- OHE OVERHEAD UTILITIES
- UG UNDERGROUND UTILITIES
- UTILITY POLE
- GUY WIRE
- LIGHT FIXTURE
- IRRIGATION BOX
- W WATER LINE
- WATER VALVE
- D DRAIN LINE
- CATCH BASIN
- DRAIN MANHOLE
- CLEANOUT
- S SEWER MANHOLE
- S SEWER LINE
- PROPANE TANK
- STONE WALL
- WETLANDS
- TREE LINE
- TREE/SHRUB

NOTES:

1. OWNER OF RECORD:
   TAX MAP 52, LOT 1
   EXETER COUNTRY CLUB
   P.O. BOX 1088
   EXETER, NH 03833
   RCRD BK1406 P50290
2. THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED LANDSCAPING ON SITE ASSOCIATED WITH THE PROPOSED SITE IMPROVEMENTS.
3. PARCEL IS ZONED R-2 SINGLE FAMILY PER THE 2019 ZONING MAP OF EXETER, NEW HAMPSHIRE.
4. A PORTION OF THE PARCEL IS WITHIN IN FLOOD HAZARD ZONES "AE" (EL 8) AND "X"; REFERENCE FLOOD INSURANCE RATE MAPS 33015C0402E & 33015C0406E, DATED MAY 17, 2005.
5. FIELDWORK COMPLETED BY JAMES VERRA AND ASSOCIATES, INC. IN SPRING 2022. NH GRID; NAVD 1988.
6. WETLANDS DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. IN SPRING 2022. THE DELINEATION WAS LIMITED TO THE AREAS OF PROPOSED WORK DEPICTED ON THESE PLANS. 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.
7. PROPERTY TO BE SERVICED TOWN WATER AND SEWER.
8. ALL CONSTRUCTION SHOULD COMPLY WITH FEDERAL, STATE, AND LOCAL STANDARDS AND REGULATIONS.
9. THIS PLAN WAS PREPARED WITH ON-SITE FIELD SURVEY AND EXISTING PLANS. THE CONTRACTOR SHOULD NOTIFY EMANUEL ENGINEERING, INC. DURING CONSTRUCTION IF ANY DISCREPANCY TO THE PLAN IS FOUND ON SITE.
10. BEFORE ANY EXCAVATION, DIG SAFE AND ALL UTILITY COMPANIES SHOULD BE CONTACTED 72 HOURS BEFORE COMMENCING BY THE CONTRACTOR. CALL DIG SAFE @ 811 OR 1-888-DIG-SAFE.
11. ALL UTILITIES SHALL BE LOCATED UNDERGROUND EXCEPT AS NOTED ON PLAN APPROVED BY THE PLANNING BOARD.
12. EMANUEL ENGINEERING, INC. (EEI) DID NOT DESIGN THE LANDSCAPING. ALL LANDSCAPING WAS DESIGNED BY THORN AND THISTLE GARDENS. THE LANDSCAPING DESIGN WAS PROVIDED TO EEI BY THE CLIENT.

REFERENCE PLANS:

1. "PLAN OF LAND IN EXETER NH. EXETER COUNTRY CLUB" BY GREAT BAY ENGINEERING, INC; DATED DECEMBER 1988; SCALE: 1"=80'; RCRD D-18431.
2. "PLAN OF LAND IN EXETER, NH SHOWING SITE IMPROVEMENTS AT 58 JADY HILL AVE (EXETER COUNTRY CLUB)" BY MILLENNIUM ENGINEERING, INC.; DATED JUNE 4, 2021; SCALE: 1"=40'; NOT RECORDED.
3. "TOWN OF EXETER, NEW HAMPSHIRE WEBSTER AVENUE PUMP STATION & FORCE MAIN UPGRADES EXETER, NEW HAMPSHIRE" (SHEET C-5) BY WRIGHT-PEIRCE (UNDATED); SCALE: 1"=20'; NOT RECORDED.

PLANT LIST:

4	GRASS KARL FOERESTER
6	HYDRANGEA "BLUSHING BRIDE"
15	CATMINT "CAT'S PAJAMAS"
(TO FILL)	DAY LILY
6	ROSES "KNOCKOUT"
6	SPIREA "MAGIC CARPET"
3	GRASS "MORNING LIGHT"
1	HYDRANGEA "QUICKFIRE"
2	LINDEN "GREENSPIRE LITTLELEAF"
2	VIBURNHAM "FRAGRANT SNOWBALL"
3	REDTWIG DOGWOOD "ARCTIC FIRE"
7	SUGAR MAPLE
5	NINEBARK "TINY WINE"

ISS.	DATE:	DESCRIPTION OF ISSUE:	CHK.
3	JUNE 16, 2023	FOR APPROVAL	
2	MAY 23, 2023	FOR APPROVAL	
1	APR 20, 2023	FOR APPROVAL	

DRAWN: JJM	DESIGN: JJM
CHECKED: BDS	CHECKED: BDS

EMANUEL ENGINEERING
civil & structural consultants, land planners
118 Portsmouth Avenue, A202
Stratham, NH 03885
P: 603-772-4400 F: 603-772-4487
www.emanuelengineering.com

CLIENT:

BLIND TIGER, LLC
3 WRIGHT LANE
EXETER, NH 03833

SEAL:

TITLE:

LANDSCAPING PLAN
FOR
EXETER COUNTRY CLUB
58 JADY HILL AVENUE (SITE)
EXETER, NH 03833

PROJECT:	SCALE:	SHEET:
21-157	1"=10'	LA1

TOWN OF EXETER

Planning and Building Department

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

www.exeternh.gov

Date: **June 29, 2023**

To: **Planning Board**

From: **Dave Sharples, Town Planner**

Re: **Tropic Star Development, LLC** **PB Case #23-6**

The Applicant is seeking a minor subdivision of an existing 3.2-acre parcel located at 2 Meeting Place Drive into two (2) parcels. The Applicant is also requesting a site plan review for the proposed construction of a 2,617 square foot, single-story banking facility with drive-thru, parking and associated site improvements. The subject property is located in the C-2, Highway Commercial zoning district and is identified as Tax Map Parcel #55-75.

The Applicant has submitted a minor subdivision application, site plan review application, plans and supporting documents, dated May 9th, 2023 which are enclosed for your review.

A Technical Review Committee meeting was held on June 1, 2023. Copies of the TRC comment letter, dated June 12, 2023 and UEI comment letter, dated June 6, 2023 are enclosed for your review. The applicant has responded to the TRC and UEI comments but I need to write the memo today due to staff vacations and will not have the opportunity to review the revised plans until I return from vacation on July 10th. I will update the board on my review at the meeting.

Revised plans and supporting documents were received on June 23, 2023 and are also provided with these materials for your review.

The Applicant is requesting one (1) waiver in the TEC cover letter, dated May 9, 2023. However, the TRC questioned if this was necessary as the wetlands onsite may be man-made which are exempt from our regulations. Brendan Quigley penned a letter regarding the wetlands dated May 11, 2023 that is enclosed for your review. After review of the letter by myself and Kristen Murphy, we determined that a waiver was not warranted.

I will be prepared with suggested conditions of approval at the meeting in the event the board decides to take action on the request.

Planning Board Motion:

Minor Subdivision Motion: I move that the request of Tropic Star Development, LLC (PB Case #2365) for Minor Subdivision approval be APPROVED / APPROVED WITH THE FOLLOWING CONDITIONS / TABLED / DENIED.

Site Plan Motion: I move that the request of Tropic Star Development, LLC (PB Case #23-6) for Site Plan approval be APPROVED / APPROVED WITH THE FOLLOWING CONDITIONS / TABLED / DENIED.

Thank You.

Enclosures

169 Ocean Boulevard/PO Box 249
Hampton, NH 03842
603.601.8154
TheEngineeringCorp.com
Create | Design | Innovate

Dave Sharples, Town Planner
Town of Exeter Planning Board
Department of Planning & Sustainability
10 Front Street
Exeter, NH 03833

May 9, 2023

Ref. N1264
Planning Board Case #

Re: Letter of Explanation
Proposed Site Development

Dear Mr. Sharples:

On behalf of Tropic Star Development, LLC, the Applicant ("Applicant"), TEC, Inc. is pleased to submit this letter to supplement the enclosed application with supporting documents for review by the Technical Review Committee (TRC) and Planning Board for the Proposed Site Development at 2 Meeting Place Drive, Exeter, NH. The Applicant is proposing to subdivide and develop the existing undeveloped lot at 2 Meeting Place Drive (Assessors Map 55, Lot 75) in the C-2 Zoning District. The Applicant is proposing to construct a 1-story bank with an ATM and drive-thru, associated off-street parking totaling 21 spaces, pedestrian and ADA accommodations, and landscaping and stormwater management infrastructure.

The purpose of the project is to rejuvenate an existing abandoned lot located in a desirable location with frontage along Epping Road. The existing lot is primarily comprised of dense, wooded area with a portion of the lot containing consolidated contaminated soil. This project proposes to remediate this environmental hazard and improve upon the existing conditions by removing all contaminated soils and replacing with new clean material, treating all stormwater runoff created by the impervious surfaces, provide sufficient off-street parking, and utilize municipal utilities stubbed on-site.

The project will require the following approvals and permits from the Planning Board:

Minor Subdivision
A Minor Subdivision is being sought for the lot at 2 Meeting Place Drive (Assessor Map 55, Lot 75). The project proposes to subdivide the lot into two (2) lots and does not require the installation of any new streets or roads or the extension of any municipally owned utilities. The proposed subdivision will allow for a phased approach in developing the lot. The Subdivision Plan complies with all standards established in the Town of Exeter Site Plan Review and Subdivision Regulations Section 7.6.

Site Plan Review
The project will require Site Plan Review by the Planning Board.

Waivers

The project requests a waiver of Section 9.9.2. Wetland Setbacks: 40' no cut / no disturbance buffer of the Site Plan Review and Subdivision Regulations. The project proposes to construct a portion of the site driveway within the 40' setback of the wetlands located at the southeast corner of the subdivided lot. This wetland is in very poor condition and contains multiple piles of debris. This debris is proposed to be removed to reestablish any plants or wildlife which previously occupied this area. Building within the 40' no cut / no disturbance buffer of this wetland will not adversely impact its existing state or purpose.

Enclosed please find the following documents as part of the Site Plan Review Application:

- Completed *"Planning Board Application for Site Plan Review"* (7 copies)
- Completed *"Planning Board Application for Minor Subdivision"* (7 copies)
- Completed *"Preliminary Application to Connect and/or Discharge to Town of Exeter Sewer, Water, or Storm Water Drainage System(s)* (7 copies)
- Completed *"Abutter's List Keyed to Tax Map"* (7 copies)
- Completed *"Checklist for Site Plan Review"* (7 copies)
- Completed *"Letter of Explanation"* (7 copies)
- Completed *"Written Request for Waiver(s) from 'Site Plan Review Regulations'"* (7 copies)
- Letter of Authorization (7 copies)
- Previous Decisions (7 copies)
- Copy of Deeds (7 copies)
- Check for Planning Board Fees
- Copy of Check (7 copies)
- Full-Sized Site Plans (7 copies)
- Drainage Report (3 copies)
- Traffic Impact Assessment (3 copies)
- Pre-Printed 1"x 2 5/8" labels for each abutter, the applicant and all consultants (3 copies)

Please do not hesitate to contact me directly if you have any questions concerning our Application for TRC Review at (603) 601-8154.Thank you for your consideration.

Sincerely,
TEC, Inc.
*"**T**he **E**ngineering **C**orporation"*

Christopher Raymond, PE
Civil Engineer – Design Engineer

Town of Exeter

Planning Board Application for Site Plan Review

October 2019

SITE PLAN REVIEW APPLICATION CHECKLIST

A COMPLETED APPLICATION FOR SITE PLAN REVIEW MUST CONTAIN THE FOLLOWING

1. Application for Hearing (✓)

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.

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:** Felder Kuehl Properties, LLC

   _____ **TELEPHONE: ( )** _____

   ADDRESS: PO Box 181, Bristol, NH 03222

2. **NAME OF APPLICANT:** Tropic Star Development, LLC

   ADDRESS: 321 D Lafayette Road, Hampton, NH 03842

   _____ **TELEPHONE:** (603) 926-7770

3. **RELATIONSHIP OF APPLICANT TO PROPERTY IF OTHER THAN OWNER:** _____

   Representative (see Letter of Authorization)
   (Written permission from Owner is required, please attach.)

4. **DESCRIPTION OF PROPERTY:** Densely wooded and vegetated lot with poorly drained wetlands

   ADDRESS: 2 Meeting Place Drive, Exeter, NH 03833

   TAX MAP: 55 **PARCEL #:** 75 **ZONING DISTRICT:** C-2

   AREA OF ENTIRE TRACT: 3.2 acres **PORTION BEING DEVELOPED:** 1.42 acres

5. **ESTIMATED TOTAL SITE DEVELOPMENT COST $** 2,000,000

6. **EXPLANATION OF PROPOSAL:** Proposed Commercial Bank with ATM and drive-thru

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

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.	Site Plans	7 full-sized copies
B.	Drainage Report	3 copies
C.	Traffic Impact Assessment	3 copies
D.	Copy of Deed	7 copies
E.	Previous Decisions	7 copies
F.	Letter of Authorization	7 copies

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

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

NAME: Chris Raymond (TEC, Inc.)

ADDRESS: 169 Ocean Boulevard / PO Box 249, Hampton, NH 03842

PROFESSION: Civil Engineer **TELEPHONE:** (603) 601-8154

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

- 2,617 SF commercial bank building with ATM and drive-thru
- Sewer, water, underground electric, gas, and tel/data utilities to be installed
- Associated off-street parking, sidewalks, dumpster pad, and stormwater infrastructure to be constructed

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)

All previous decisions have expired for this property (see attached).

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).

The project includes the demolition of an existing stone building foundation within a densely wooded area.

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

Yes, for the excavation of the consilidated area containing led contaminated soil, and for the excavation for the installation of the building foundation and drainage infrastructure.

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 5/8/23 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: PLEASE LIST ALL PERSONS WHOSE PROPERTY IS LOCATED IN NEW HAMPSHIRE AND ADJOINS OR IS DIRECTLY ACROSS THE STREET OR STREAM FROM THE LAND UNDER CONSIDERATION BY THE BOARD. THIS LIST SHALL BE COMPILED FROM THE EXETER TAX ASSESSOR'S RECORDS.

TAX MAP 55-3-1
NAME Seacoast Early Learning
ADDRESS 5 McKay Dr
Exeter, NH 03833

TAX MAP 55-3-2
NAME Integrity Ventures Inc
ADDRESS 21 Red Fox Lane
Barrington, NH 03825

TAX MAP 55-3-3
NAME Colcord Pond Associates LLC
ADDRESS 80 Nashua Rd Suite 24
Londonderry, NH 03053

TAX MAP 55-3-MC
NAME Boulders Realty Corp
ADDRESS PO Box 190
Exeter, NH 03833

TAX MAP 55-74
NAME Petterson Family Trust
ADDRESS 150 Pickpocket Rd
Brentwood, NH 03833

TAX MAP 55-75
NAME Felder Kuehl Properties LLC
ADDRESS PO Box 181
Bristol, NH 03222

TAX MAP 55-75-1
NAME Avesta Four Meeting Place LLC
ADDRESS 307 Cumberland Ave
Portland, ME 04101

TAX MAP 55-75-2
NAME 6 Meeting Place Drive Exeter LP
ADDRESS 307 Cumberland Ave
Portland, ME 04101

TAX MAP 55-75-3
NAME Avesta One Meeting Place LP
ADDRESS 307 Cumberland Ave
Portland, ME 04101

TAX MAP 55-75-4
NAME Avesta Three Meeting Place LP
ADDRESS 307 Cumberland Ave
Portland, ME 04101

TAX MAP 55-75-100
NAME Avesta Housing
ADDRESS 307 Cumberland Ave
Portland, ME 04101

TAX MAP 55-75-200
NAME Meeting Place Condominium Association
ADDRESS PO Box 689
Bristol, NH 03222

TAX MAP 62-112
NAME Great Bay Kids Company Inc
ADDRESS 81 New Hampshire Ave
Portsmouth, NH 03801

TAX MAP 62-114
NAME 78 Epping Road LLC
ADDRESS 78 Epping Rd
Exeter, NH 03833

TAX MAP 63-102-1
NAME Carvalho John M
ADDRESS 1 Brookside Dr-U1
Exeter, NH 03833

TAX MAP 63-102-2
NAME Wachter Julie R
ADDRESS 1 Brookside Dr 2
Exeter, NH 03833

TAX MAP 63-102-3
NAME Signorello Matthew M
ADDRESS 1 Brookside Dr Unit 3
Exeter, NH 03833

TAX MAP 63-102-4
NAME McLellan Mark W
ADDRESS 1 Brookside Dr-U4
Exeter, NH 03833

Please attach additional sheets, if needed

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

TAX MAP 62-102-5
NAME Neal Laura
ADDRESS 1 Brookside Dr Unit 5
Exeter, NH 03833

TAX MAP 62-102-6
NAME Bueno Maria A
ADDRESS 1 Brookside Dr-U6
Exeter, NH 03833

TAX MAP 62-102-7
NAME Oxford Exeter Properties LLC
ADDRESS 5 Whitley Rd
Exeter, NH 03833

TAX MAP 62-102-8
NAME Kulak Edward S
ADDRESS 133 Deer Hill Rd
Brentwood, NH 03833-6512

TAX MAP 62-102-9
NAME DL&PK Realty Trust/Kasnet Peter Trustee
ADDRESS 10 Sunsurf Ave
Hampton, NH 03842

TAX MAP 62-102-10
NAME McGilvray Nathan David
ADDRESS 1 Brookside Dr #10
Exeter, NH 03833

TAX MAP 62-102-11
NAME Khankin Maksym / Romanova Tatiana
ADDRESS 14 Anna Lisa Way
Nottingham, NH 03290

TAX MAP 62-102-12
NAME Oaklands Condo Assoc C/O Great Norther
ADDRESS PO Box 4579 Dept 125
Houston, TX 77210

TAX MAP 62-102-13
NAME Ingalls Jewell L
ADDRESS 2 Brookside Dr-U1
Exeter, NH 03833

TAX MAP 62-102-14
NAME Colarusso Stephen G / Colarusso Debra A
ADDRESS 2 Brookside Dr Unit 2
Exeter, NH 03833

TAX MAP 62-102-15
NAME Pan Hongzhu / Pang Tongguo
ADDRESS 5 Hunter Dr
Newburyport, MA 01950

TAX MAP 62-102-16
NAME Ducharme Travis
ADDRESS 2 Brookside Dr-U4
Exeter, NH 03833

TAX MAP 62-102-17
NAME Krause Jeffrey A
ADDRESS 2 Brookside Dr-U5
Exeter, NH 03833

TAX MAP 62-102-18
NAME Eisfeller Jessica C
ADDRESS 2 Brookside Dr-U6
Exeter, NH 03833

TAX MAP 63-102-19
NAME Zhang Wenhua
ADDRESS 362 Concord Rd
Weston, MA 02493

TAX MAP 63-102-20
NAME Tobin Michael
ADDRESS 2 Brookside Dr #8
Exeter, NH 03833

TAX MAP 63-102-21
NAME Zimmerman Richard
ADDRESS 2 Brookside Dr Unit 9
Exeter, NH 03833

TAX MAP 63-102-22
NAME Nosensopride LLC
ADDRESS 15 Prescott Rd
Windham, NH 03087

Please attach additional sheets, if needed

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

TAX MAP 63-102-23
NAME Peterson Catherine T Trust
ADDRESS 156 Deer Ridge Dr
Ponte Vedra, FL 32081

TAX MAP 63-102-24
NAME Cross Melvin
ADDRESS 2 Brookside Dr Unit 12
Exeter, NH 03833

TAX MAP 63-102-25
NAME Patel Arun / Patel Sanku
ADDRESS 24 Pine Meadows Dr
Exeter, NH 03833

TAX MAP 63-102-26
NAME Pang Tongguo / Pan Hongzhu
ADDRESS 5 Hunter Dr
Newburyport, MA 01950

TAX MAP 63-102-27
NAME Slade Tremaine Martin
ADDRESS 3 Brookside Dr-U3
Exeter, NH 03833

TAX MAP 63-102-28
NAME Dearborn Eva N Rev Tr / Dearborn Eva N
ADDRESS 3 Brookside Dr-U4
Exeter, NH 03833

TAX MAP 63-102-29
NAME 3 Brook 5 Realty Trust
ADDRESS 19 Ridgecrest Dr
Greenland, NH 03840

TAX MAP 63-102-30
NAME Morganelli Paula Lorraine
ADDRESS 3 Brookside Dr #6
Exeter, NH 03833

TAX MAP 63-102-31
NAME Lufkin George A / Lufkin Barbara L
ADDRESS 104 Drinkwater Rd
Kensington, NH 03833

TAX MAP 63-102-32
NAME Johnson Mark / Johnson Carolyn
ADDRESS 3 Brookside Dr-U8
Exeter, NH 03833

TAX MAP 63-102-33
NAME Sawyer Linda D
ADDRESS 3 Brookside Dr Unit 9
Exeter, NH 03833

TAX MAP 63-102-34
NAME Kinsale Properties LLC
ADDRESS 65 Naticook Ave
Litchfield, NH 03052

TAX MAP 63-102-35
NAME Pundyk Mariya Revocable Trust
ADDRESS 20 Lakeview Dr
Nottingham, NH 03290

TAX MAP 63-102-36
NAME Flynn Lawrence J / Stormon-Flynn Mary P
ADDRESS 120 Paradise Rd
Swampscott, MA 01907

TAX MAP 63-102-37
NAME Shaw Daniel
ADDRESS 29 Ham Rd
Raymond, NH 03077

TAX MAP 63-102-38
NAME Swift Emily
ADDRESS 4 Brookside Dr-U2
Exeter, NH 03833

TAX MAP 63-102-39
NAME Price William A / Price Kathleen C
ADDRESS 64 Armand Ave
Lowell, MA 01852

TAX MAP 63-102-40
NAME Pina Shannon
ADDRESS 4 Brookside Dr #4
Exeter, NH 03833

Please attach additional sheets, if needed

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

TAX MAP 63-102-41
NAME Grigorakakis Paraskevi Irrevocable Trust
ADDRESS 28 Erie Street
Manchester, NH 03102

TAX MAP 63-102-42
NAME Rountree Michael E Rev Trust
ADDRESS PO Box 82
Stratham, NH 03885

TAX MAP 63-102-43
NAME Peterson Catherine A Rev Trust
ADDRESS 4 Brookside Dr-U7
Exeter, NH 03833

TAX MAP 63-102-44
NAME Fields Randall
ADDRESS 4 Brookside Dr Unit 8
Exeter, NH 03833

TAX MAP 63-102-45
NAME Zlatin Lev
ADDRESS 615 Springbrook Circle
Portsmouth, NH 03801

TAX MAP 63-102-46
NAME Valley Rachel
ADDRESS 4 Brookside Drive #10
Exeter, NH 03833

TAX MAP 63-102-47
NAME Cammar Properties II LLC
ADDRESS 51 Campground Rd
Lee, NH 03861

TAX MAP 63-102-48
NAME Jenkins Anthony L
ADDRESS 4 Brookside Dr #12
Exeter, NH 03833

TAX MAP 63-102-49
NAME Marchand Tyler Robert
ADDRESS 5 Brookside Dr 1
Exeter, NH 03833

TAX MAP 63-102-50
NAME OLeary Phillip Joseph
ADDRESS 24 Timberlane Dr
Nashua, NH 03062

TAX MAP 63-102-51
NAME Lenners Alycia B
ADDRESS 5 Brookside Dr-U3
Exeter, NH 03833

TAX MAP 63-102-52
NAME Rodrigues Alberto Tiburcio
ADDRESS 5 Brookside Dr-U4
Exeter, NH 03833

TAX MAP 63-102-53
NAME Savinelli Gina C
ADDRESS 5 Brookside Dr U5
Exeter, NH 03833

TAX MAP 63-102-54
NAME Lelito Christine Ellen Family Rev Trust
ADDRESS 5 Brookside Dr Unit 6
Exeter, NH 03833

TAX MAP 63-102-55
NAME Zlatin Lev
ADDRESS 615 Springbrook Circle
Portsmouth, NH 03801

TAX MAP 63-102-56
NAME Chrissis Kathleen R
ADDRESS 5 Brookside Dr-U8
Exeter, NH 03833

TAX MAP 63-102-57
NAME Amero Mary Genise Revocable Trust
ADDRESS 5 Brookside Dr-U9
Exeter, NH 03833

TAX MAP 63-102-58
NAME Collins Michelle
ADDRESS 5 Brookside Dr Unit 10
Exeter, NH 03833

Please attach additional sheets, if needed

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TAX MAP 63-102-59
NAME Butler Janice M
ADDRESS 5 Brookside Dr Unit 11
Exeter, NH 03833

TAX MAP 63-102-60
NAME Plante Brian J
ADDRESS 42 Old Turnpike Rd
Nottingham, NH 03290

TAX MAP 63-102-61
NAME Barbeau Emily M
ADDRESS 7 Wiggin Dr
Newmarket, NH 03857

TAX MAP 63-102-62
NAME Wentworth Chase
ADDRESS 48 Hampton Falls Road
Exeter, NH 03833

TAX MAP 63-102-63
NAME Berry Joanne M
ADDRESS 6 Brookside Dr Unit 3
Exeter, NH 03833

TAX MAP 63-102-64
NAME Solheim Carl
ADDRESS 6 Brookside Dr Unit 4
Exeter, NH 03833

TAX MAP 63-102-65
NAME Magee Penelope
ADDRESS 6 Brookside Dr Unit 5
Exeter, NH 03833

TAX MAP 63-102-66
NAME Wentworth Randal C
ADDRESS 6 Brookside Dr Unit 6
Exeter, NH 03833

TAX MAP 63-102-67
NAME Pilibosian Jeffrey H
ADDRESS 24 Atlantic Ave
Seabrook, NH 03874

TAX MAP 63-102-68
NAME Pan Hongzhu / Pang Tongguo
ADDRESS 5 Hunter Dr
Newburyport, MA 01950

TAX MAP 63-102-69
NAME Rock Joseph S II Trustee
ADDRESS 1275 Maplewood Ave #24
Portsmouth, NH 03801

TAX MAP 63-102-70
NAME Pangalos Harry A
ADDRESS 6 Brookside Dr Unit 10
Exeter, NH 03833

TAX MAP 63-102-71
NAME Fishbaugh Linda M Rev Trust
ADDRESS 5 Highlander Dr
North Hampton, NH 03862

TAX MAP 63-102-72
NAME Wojtowicz Agnes M
ADDRESS 6 Brookside Dr-U12
Exeter, NH 03833

TAX MAP 63-102-MC
NAME Oaklands Condo Assoc
ADDRESS PO Box 4579 Dept 125
Houston, TX 77210

TAX MAP
NAME
ADDRESS

TAX MAP
NAME
ADDRESS

TAX MAP
NAME
ADDRESS

Please attach additional sheets, if needed

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
☑	☐	7.4.1 Names, addresses, and telephone numbers of the owner, applicant, and person(s) or firm(s) preparing the plan.
☑	☐	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.
☑	☐	7.4.3 Title, date, north arrow, scale, and Planning Board Case Number.
☑	☐	7.4.4 Tax map reference for the site under consideration, together with those of abutting properties.
☑	☐	7.4.5 Zoning (including overlay) district references.
☑	☐	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.
☑	☐	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.
☑	☐	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.
☑	☐	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.
☑	☐	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.

☑	☐	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.”
☑	☐	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.
☑	☐	7.4.13 The lines of existing abutting streets and driveway locations within 200-feet of the site.
☑	☐	7.4.14 The location, elevation, and layout of existing catch basins and other surface drainage features.
☑	☐	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.
☑	☐	7.4.16 The size and location of all existing public and private utilities, including off-site utilities to which connection is planned.
☑	☐	7.4.17 The location of all existing easements, rights-of-way, and other encumbrances.
☑	☐	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.
☑	☐	7.4.19 All other features which would fully explain the existing conditions of the site.
☑	☐	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
☑	☐	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.
☑	☐	7.5.2 The location and layout of proposed drainage systems and structures including elevations for catch basins.
☑	☐	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).
☑	☐	7.5.4 High Intensity Soil Survey (HISS) information for the site, including the total area of wetlands proposed to be filled.
☑	☐	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."
☑	☐	7.5.6 Location and timing patterns of proposed traffic control devices.
☑	☐	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.
☑	☐	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.
☑	☐	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.
☑	☐	7.5.10 The location, type, and size of all proposed landscaping, screening, green space, and open space areas.
☑	☐	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.
☑	☐	7.5.12 The location, size, and exterior design of all proposed signs to be located on the site.
☑	☐	7.5.13 The type and location of all solid waste disposal facilities and accompanying screening.

☑	☐	7.5.14 Location of proposed on-site snow storage.
☑	☐	7.5.15 Location and description of all existing and proposed easement(s) and/or right-of-way.
☑	☐	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.
☑	☐	7.5.17 Signature block for Board approval

OTHER PLAN REQUIREMENTS (See Section indicated)

- ☑ 7.7 Construction plan
- ☑ 7.8 Utilities plan
- ☑ 7.9 Grading, drainage and erosion & sediment control plan
- ☐ 7.10 Landscape plan
- ☑ 7.11 Drainage Improvements and Storm Water Management Plan
- ☐ 7.12 Natural Resources Plan
- ☐ 7.13 Yield Plan

Town of Exeter

Planning Board Application for

- **Minor Site Plan Review**
- **Minor Subdivision**
- **Lot Line Adjustment**

January 2019

TOWN OF EXETER, NH
APPLICATION FOR MINOR SITE PLAN REVIEW, MINOR SUBDIVISION and/or LOT LINE ADJUSTMENT

A completed application shall contain the following items, although please note that some items may not apply such as waivers or conditional use permit:

1.	Application for Hearing	(✓)
2.	Abutter's List Keyed to the Tax Map (including name and business address of all professionals responsible for the submission (engineer, landscape architect, wetland scientist, etc.)	(✓)
3.	Checklist for plan requirements	(✓)
4.	Letter of Explanation	(✓)
5.	Written request and justification for waiver(s) from Site Plan/Sub Regulations	
6.	Application to Connect and/or Discharge to Town of Exeter Sewer, Water, or Storm Water Drainage System(s) - if applicable	(✓)
7.	Application Fees	(✓)
8.	Seven (7) copies of 24'x36' plan set	(✓)
9.	Fifteen (15) 11"x 17" copies of the plan set	(✓)
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.

TOWN OF EXETER
MINOR SUBDIVISION, MINOR SITE PLAN, AND/OR LOT LINE ADJUSTMENT APPLICATION

OFFICE USE ONLY

THIS IS AN APPLICATION FOR:

( ) MINOR SITE PLAN
(✓) MINOR (3lots or less) SUBDIVISION (2) LOTS

( ) LOT LINE ADJUSTMENT

_____APPLICATION
_____DATE RECEIVED
_____APPLICATION FEE
_____PLAN REVIEW FEE
_____ABUTTER FEE
_____LEGAL NOTICE FEE
_____INSPECTION FEE
_____TOTAL FEES
_____AMOUNT REFUNDED

1. **NAME OF LEGAL OWNER OF RECORD:** Felder Kuehl Properties, LLC

   ADDRESS: PO Box 181, Bristol, NH 03222

   _____ **TELEPHONE:** ( ) _____

2. **NAME OF APPLICANT:** Tropic Star Development, LLC

   ADDRESS: 321 D Lafayette Road, Hampton, NH 03842

   _____ **TELEPHONE:** (603) 926-7770

3. **RELATIONSHIP OF APPLICANT TO PROPERTY IF OTHER THAN OWNER:** _____

   Representative (see Letter of Authorization)
   (Written permission from Owner is required, please attach.)

4. **DESCRIPTION OF PROPERTY:**

   ADDRESS: 2 Meeting Place Drive, Exeter, NH 03833

   TAX MAP: 55 **PARCEL #:** 75 **ZONING DISTRICT:** C-2

   AREA OF ENTIRE TRACT: 3.2 acres **PORTION BEING DEVELOPED:** 1.42 acres

5. **EXPLANATION OF PROPOSAL:** Minor subdivision (2) of lot located at 2 Meeting Place Drive.

6. **ARE MUNICIPAL SERVICES AVAILABLE?** (YES/NO) _____
IF YES, WATER AND SEWER SUPERINTENDENT MUST GRANT WRITTEN APPROVAL FOR CONNECTION. IF NO, SEPTIC SYSTEM MUST COMPLY WITH W.S.P.C.C. REQUIREMENTS.

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

ITEM:	NUMBER OF COPIES
A. Subdivision Plan	7 copies
B.	
C.	
D.	
E.	
F.	

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

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

NAME: Doucet Survey, LLC
ADDRESS: 102 Kent Place, Newmarket, NH 03857
PROFESSION: Professional Surveyor **TELEPHONE:** (603) 659-6560

10. **LIST ALL IMPROVEMENTS AND UTILITIES TO BE INSTALLED:** _____

2,617 SF commercial bank building with ATM and drive-thru. Sewer, water, underground electric, gas, and tel/data utilties to be installed. Associated parking, sidewalks, dumpster pad, and stormwater infrastructure to be constructed.

11. **HAVE ANY SPECIAL EXCEPTIONS OR VARIANCES BEEN GRANTED BY THE ZONING BOARDOF ADJUSTMENT TO THIS PROPERTY PREVIOUSLY?**

(Please check with the Planning Department Office to verify) (YES NO) _____ IF YES, LIST BELOW AND NOTE ON PLAN.

All previous decisions have expired for this property.

NOTICE:

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

DATE 5/8/23 APPLICANT'S SIGNATURE _____

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

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

TAX MAP 55-3-1
NAME Seacoast Early Learning
ADDRESS 5 McKay Dr
Exeter, NH 03833

TAX MAP 55-3-2
NAME Integrity Ventures Inc
ADDRESS 21 Red Fox Lane
Barrington, NH 03825

TAX MAP 55-3-3
NAME Colcord Pond Associates LLC
ADDRESS 80 Nashua Rd Suite 24
Londonderry, NH 03053

TAX MAP 55-3-MC
NAME Boulders Realty Corp
ADDRESS PO Box 190
Exeter, NH 03833

TAX MAP 55-74
NAME Petterson Family Trust
ADDRESS 150 Pickpocket Rd
Brentwood, NH 03833

TAX MAP 55-75
NAME Felder Kuehl Properties LLC
ADDRESS PO Box 181
Bristol, NH 03222

TAX MAP 55-75-1
NAME Avesta Four Meeting Place LLC
ADDRESS 307 Cumberland Ave
Portland, ME 04101

TAX MAP 55-75-2
NAME 6 Meeting Place Drive Exeter LP
ADDRESS 307 Cumberland Ave
Portland, ME 04101

TAX MAP 55-75-3
NAME Avesta One Meeting Place LP
ADDRESS 307 Cumberland Ave
Portland, ME 04101

TAX MAP 55-75-4
NAME Avesta Three Meeting Place LP
ADDRESS 307 Cumberland Ave
Portland, ME 04101

TAX MAP 55-75-100
NAME Avesta Housing
ADDRESS 307 Cumberland Ave
Portland, ME 04101

TAX MAP 55-75-200
NAME Meeting Place Condominium Association
ADDRESS PO Box 689
Bristol, NH 03222

TAX MAP 62-112
NAME Great Bay Kids Company Inc
ADDRESS 81 New Hampshire Ave
Portsmouth, NH 03801

TAX MAP 62-114
NAME 78 Epping Road LLC
ADDRESS 78 Epping Rd
Exeter, NH 03833

TAX MAP 63-102-1
NAME Carvalho John M
ADDRESS 1 Brookside Dr-U1
Exeter, NH 03833

TAX MAP 63-102-2
NAME Wachter Julie R
ADDRESS 1 Brookside Dr 2
Exeter, NH 03833

TAX MAP 63-102-3
NAME Signorello Matthew M
ADDRESS 1 Brookside Dr Unit 3
Exeter, NH 03833

TAX MAP 63-102-4
NAME McLellan Mark W
ADDRESS 1 Brookside Dr-U4
Exeter, NH 03833

Please attach additional sheets, if needed

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TAX MAP 62-102-5
NAME Neal Laura
ADDRESS 1 Brookside Dr Unit 5
Exeter, NH 03833

TAX MAP 62-102-6
NAME Bueno Maria A
ADDRESS 1 Brookside Dr-U6
Exeter, NH 03833

TAX MAP 62-102-7
NAME Oxford Exeter Properties LLC
ADDRESS 5 Whitley Rd
Exeter, NH 03833

TAX MAP 62-102-8
NAME Kulak Edward S
ADDRESS 133 Deer Hill Rd
Brentwood, NH 03833-6512

TAX MAP 62-102-9
NAME DL&PK Realty Trust/Kasnet Peter Trustee
ADDRESS 10 Sunsurf Ave
Hampton, NH 03842

TAX MAP 62-102-10
NAME McGilvray Nathan David
ADDRESS 1 Brookside Dr #10
Exeter, NH 03833

TAX MAP 62-102-11
NAME Khankin Maksym / Romanova Tatiana
ADDRESS 14 Anna Lisa Way
Nottingham, NH 03290

TAX MAP 62-102-12
NAME Oaklands Condo Assoc C/O Great Norther
ADDRESS PO Box 4579 Dept 125
Houston, TX 77210

TAX MAP 62-102-13
NAME Ingalls Jewell L
ADDRESS 2 Brookside Dr-U1
Exeter, NH 03833

TAX MAP 62-102-14
NAME Colarusso Stephen G / Colarusso Debra A
ADDRESS 2 Brookside Dr Unit 2
Exeter, NH 03833

TAX MAP 62-102-15
NAME Pan Hongzhu / Pang Tongguo
ADDRESS 5 Hunter Dr
Newburyport, MA 01950

TAX MAP 62-102-16
NAME Ducharme Travis
ADDRESS 2 Brookside Dr-U4
Exeter, NH 03833

TAX MAP 62-102-17
NAME Krause Jeffrey A
ADDRESS 2 Brookside Dr-U5
Exeter, NH 03833

TAX MAP 62-102-18
NAME Eisfeller Jessica C
ADDRESS 2 Brookside Dr-U6
Weston, MA 02493

TAX MAP 63-102-19
NAME Zhang Wenhua
ADDRESS 362 Concord Rd
Weston, MA 02493

TAX MAP 63-102-20
NAME Tobin Michael
ADDRESS 2 Brookside Dr #8
Exeter, NH 03833

TAX MAP 63-102-21
NAME Zimmerman Richard
ADDRESS 2 Brookside Dr Unit 9
Exeter, NH 03833

TAX MAP 63-102-22
NAME Nosensopride LLC
ADDRESS 15 Prescott Rd
Windham, NH 03087

Please attach additional sheets, if needed

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TAX MAP 63-102-23
NAME Peterson Catherine T Trust
ADDRESS 156 Deer Ridge Dr
Ponte Vedra, FL 32081

TAX MAP 63-102-24
NAME Cross Melvin
ADDRESS 2 Brookside Dr Unit 12
Exeter, NH 03833

TAX MAP 63-102-25
NAME Patel Arun / Patel Sanku
ADDRESS 24 Pine Meadows Dr
Exeter, NH 03833

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Nottingham, NH 03290

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NAME Shaw Daniel
ADDRESS 29 Ham Rd
Raymond, NH 03077

TAX MAP 63-102-38
NAME Swift Emily
ADDRESS 4 Brookside Dr-U2
Exeter, NH 03833

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NAME Price William A / Price Kathleen C
ADDRESS 64 Armand Ave
Lowell, MA 01852

TAX MAP 63-102-40
NAME Pina Shannon
ADDRESS 4 Brookside Dr #4
Exeter, NH 03833

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NAME Grigorakakis Paraskevi Irrevocable Trust
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Manchester, NH 03102

TAX MAP 63-102-42
NAME Rountree Michael E Rev Trust
ADDRESS PO Box 82
Stratham, NH 03885

TAX MAP 63-102-43
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ADDRESS 4 Brookside Dr-U7
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NAME Fields Randall
ADDRESS 4 Brookside Dr Unit 8
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NAME Zlatin Lev
ADDRESS 615 Springbrook Circle
Portsmouth, NH 03801

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NAME Valley Rachel
ADDRESS 4 Brookside Drive #10
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ADDRESS 51 Campground Rd
Lee, NH 03861

TAX MAP 63-102-48
NAME Jenkins Anthony L
ADDRESS 4 Brookside Dr #12
Exeter, NH 03833

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NAME Marchand Tyler Robert
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TAX MAP 63-102-50
NAME OLeary Phillip Joseph
ADDRESS 24 Timberlane Dr
Nashua, NH 03062

TAX MAP 63-102-51
NAME Lenners Alycia B
ADDRESS 5 Brookside Dr-U3
Exeter, NH 03833

TAX MAP 63-102-52
NAME Rodrigues Alberto Tiburcio
ADDRESS 5 Brookside Dr-U4
Exeter, NH 03833

TAX MAP 63-102-53
NAME Savinelli Gina C
ADDRESS 5 Brookside Dr U5
Exeter, NH 03833

TAX MAP 63-102-54
NAME Lelito Christine Ellen Family Rev Trust
ADDRESS 5 Brookside Dr Unit 6
Exeter, NH 03833

TAX MAP 63-102-55
NAME Zlatin Lev
ADDRESS 615 Springbrook Circle
Portsmouth, NH 03801

TAX MAP 63-102-56
NAME Chrissis Kathleen R
ADDRESS 5 Brookside Dr-U8
Exeter, NH 03833

TAX MAP 63-102-57
NAME Amero Mary Genise Revocable Trust
ADDRESS 5 Brookside Dr-U9
Exeter, NH 03833

TAX MAP 63-102-58
NAME Collins Michelle
ADDRESS 5 Brookside Dr Unit 10
Exeter, NH 03833

Please attach additional sheets, if needed

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

TAX MAP 63-102-59
NAME Butler Janice M
ADDRESS 5 Brookside Dr Unit 11
Exeter, NH 03833

TAX MAP 63-102-60
NAME Plante Brian J
ADDRESS 42 Old Turnpike Rd
Nottingham, NH 03290

TAX MAP 63-102-61
NAME Barbeau Emily M
ADDRESS 7 Wiggin Dr
Newmarket, NH 03857

TAX MAP 63-102-62
NAME Wentworth Chase
ADDRESS 48 Hampton Falls Road
Exeter, NH 03833

TAX MAP 63-102-63
NAME Berry Joanne M
ADDRESS 6 Brookside Dr Unit 3
Exeter, NH 03833

TAX MAP 63-102-64
NAME Solheim Carl
ADDRESS 6 Brookside Dr Unit 4
Exeter, NH 03833

TAX MAP 63-102-65
NAME Magee Penelope
ADDRESS 6 Brookside Dr Unit 5
Exeter, NH 03833

TAX MAP 63-102-66
NAME Wentworth Randal C
ADDRESS 6 Brookside Dr Unit 6
Exeter, NH 03833

TAX MAP 63-102-67
NAME Pilibosian Jeffrey H
ADDRESS 24 Atlantic Ave
Seabrook, NH 03874

TAX MAP 63-102-68
NAME Pan Hongzhu / Pang Tongguo
ADDRESS 5 Hunter Dr
Newburyport, MA 01950

TAX MAP 63-102-69
NAME Rock Joseph S II Trustee
ADDRESS 1275 Maplewood Ave #24
Portsmouth, NH 03801

TAX MAP 63-102-70
NAME Pangalos Harry A
ADDRESS 6 Brookside Dr Unit 10
Exeter, NH 03833

TAX MAP 63-102-71
NAME Fishbaugh Linda M Rev Trust
ADDRESS 5 Highlander Dr
North Hampton, NH 03862

TAX MAP 63-102-72
NAME Wojtowicz Agnes M
ADDRESS 6 Brookside Dr-U12
Exeter, NH 03833

TAX MAP 63-102-MC
NAME Oaklands Condo Assoc
ADDRESS PO Box 4579 Dept 125
Houston, TX 77210

TAX MAP
NAME
ADDRESS

TAX MAP
NAME
ADDRESS

TAX MAP
NAME
ADDRESS

Please attach additional sheets, if needed

CHECK LIST FOR MINOR SITE PLAN REVIEW, MINOR SUBDIVISON AND LOT LINE ADJUSTMENT

APPLICANT	TRC	REQUIRED EXHIBITS, SEE REGULATION 6.6.2.4
☑	☐	a) The name and address of the property owner, authorized agent, the person or firm preparing the plan, and the person or firm preparing any other data to be included in the plan.
☑	☐	b) Title of the site plan, subdivision or lot line adjustment, including Planning Board Case Number.
☑	☐	c) Scale, north arrow, and date prepared.
☑	☐	d) Location of the land/site under consideration together with the names and address of all owners of record of abutting properties and their existing use.
☑	☐	e) Tax map reference for the land/site under consideration, together with those of abutting properties.
☑	☐	f) Zoning (including overlay) district references.
☑	☐	g) A vicinity sketch showing the location of the land/site in relation to the surrounding public street system and other pertinent location features within a distance of 1,000-feet.
☐	☐	h) For minor site plan review only, a description of the existing site and proposed changes thereto, including, but not limited to, buildings and accessory structures, parking and loading areas, signage, lighting, landscaping, and the amount of land to be disturbed.
☑	☐	i) If deemed necessary by the Town Planner, natural features including watercourses and water bodies, tree lines, and other significant vegetative cover, topographic features and any other environmental features which are significant to the site plan review or subdivision design process.
☑	☐	j) If deemed necessary by the Town Planner, existing contours at intervals not to exceed 2-feet with spot elevations provided when the grade is less than 5%. All datum provided shall reference the latest applicable US Coast and Geodetic Survey datum and should be noted on the plan.
☐	☐	k) If deemed necessary by the Town Planner for proposed lots not served by municipal water and sewer utilities, a High Intensity Soil Survey (HISS) of the entire site, or portion thereof. Such soil surveys shall be prepared and stamped by a certified soil scientist in accordance with the standards established by the Rockingham County Conservation District. Any cover letters or explanatory data provided by the certified soil scientist shall also be submitted.
☑	☐	l) State and federal jurisdictional wetlands, including delineation of required setbacks.
☑	☐	m) A note as follows: "The landowner is responsible for complying with all applicable local, State, and Federal wetlands regulations, including any permitting and setback requirements required under these regulations."
☑	☐	n) Surveyed exterior property lines including angles and bearings, distances, monument locations, and size of the entire parcel. A professional land surveyor licensed in New Hampshire must attest to said plan.

☐	☐	o) For minor site plans only, plans are not required to be prepared by a professional engineer or licensed surveyor unless deemed essential by the Town Planner or the TRC.
☑	☐	p) For minor subdivisions and lot line adjustments only, the locations, dimensions, and areas of all existing and proposed lots.
☑	☐	q) The lines of existing abutting streets and driveways locations within 100-feet of the site.
☑	☐	r) The location, elevation, and layout of existing catch basins and other surface drainage features.
☑	☐	s) The footprint location of all existing structures on the site and approximate location of structures within 100-feet of the site.
☑	☐	t) The size and location of all existing public and private utilities.
☑	☐	u) The location of all existing and proposed easements and other encumbrances.
☑	☐	v) All floodplain information, including 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.
☐	☐	w) The location of all test pits and the 4,000-square-foot septic reserve areas for each newly created lot, if applicable.
☑	☐	x) The location and dimensions of all property proposed to be set aside for green space, parks, playgrounds, or other public or private reservations. The plan shall describe the purpose of the dedications or reservations, and the accompanying conditions thereof (if any).
☑	☐	y) A notation shall be included which explains the intended purpose of the subdivision. Include the identification and location of all parcels of land proposed to be dedicated to public use and the conditions of such dedications, and a copy of such private deed restriction as are intended to cover part of all of the tract.
☑	☐	z) Newly created lots shall be consecutively numbered or lettered in alphabetical order. Street address numbers shall be assigned in accordance with Section 9.17 Streets of these regulations.
☑	☐	aa) The following notations shall also be shown: • Explanation of proposed drainage easements, if any • Explanation of proposed utility easement, if any • Explanation of proposed site easement, if any • Explanation of proposed reservations, if any • Signature block for Board approval as follows:
☑	☐	Town of Exeter Planning Board _____ _____ Chairman Date

TOWN OF EXETER, NEW HAMPSHIRE

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

DATE: February 13, 2018

TO: Applicants

FROM: Planning & Building Department

RE: Preliminary Application to Connect and/or Discharge to Town of Exeter Sewer, Water and/or Storm Drainage System(s)

Attached is the "Preliminary Application to Connect and/or Discharge to Town of Exeter Sewer, Water or Storm Water Drainage System(s)". This Application form must be completed by the applicant or the applicant's authorized agent for projects that are subject to Planning Board approval or for a change of use. It is a prerequisite for submission of the "Applications for Sewer Service, Water Service and Storm Drainage Work." All of the application forms referenced above must be completed and approved prior to the issuance of a building permit. This application is intended to address a number of different scenarios and therefore, all sections may not be applicable to your particular situation. Please read the application carefully and fill out as completely as possible. If there are any questions, please feel free to contact the Planning and Building Department Offices. All forms must be submitted to the Planning and Building Department Office for review and distribution.

Please Note: Any approval(s) granted in conjunction with this application will be valid for a period of one (1) year from the date of such approvals(s).

TOWN OF EXETER - DEPARTMENT OF PUBLIC WORKS

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

Project Name . Proposed Bank at 2 Meeting Place Drive

Project Location . 2 Meeting Place Drive, Exeter, NH 03833

Applicant/Owner Name . Tropic Star Development, LLC

Mailing Address . 321 D Lafayette Road, Hampton, NH 03842

Phone Number . (603) 926-7770 email . jmitchellsmre@gmail.com

Project Engineer . TEC, Inc.

Mailing Address . 169 Ocean Boulevard / PO Box 249, Exeter, NH 03833

Phone Number . (603) 601-8154 email . craymond@theengineeringcorp.com

Type of Discharge/Connection ☑ Sewer ☑ Water ☑ Stormwater

Application completed by

Name . Chris Raymond (TEC, Inc.)

Signature Chris Raymond Date 5/9/2023

Reviewed and verified by Planning & Building Department _____

DESIGN FLOWS

The water and sewer design flow shall be based upon the New Hampshire Code of Administrative Rules, Env-Wq 1000 Subdivisions; Individual Sewage Disposal Systems, Table 1008-1 Unit Design Flow Figures (current version) or other methodology which may be deemed acceptable by the Town of Exeter. The minimum fee for a single-family residential unit is based on the design flow for two (2) bedrooms. Existing water and sewer flows may be based on meter readings for the current use.

If the proposed discharge is non-residential or is residential but exceeds 5,000 gallons per day (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 is necessary. Final town approval cannot be made without the state's approval if required.

Stormwater design flows are based on the drainage analysis prepared by the applicant using the most current published precipitation data available.

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

SECTION A: PROPOSED NEW CONNECTIONS OR MODIFICATION OF EXISTING CONNECTIONS

SANITARY SEWER

Description of work . Connect to municipal sewer manhole along Meeting Place Drive

Title of plan . Utility Plan

Total design flow (gpd) . 60

**For any non-residential discharge or residential discharge exceeding 5,000 GPS, or for a change of use, complete Section C of this form.*

Approved _____ Date _____

Water & Sewer Managing Engineer

WATER

Description of work . Connect to municipal water main along Meeting Place Drive.

Title of plan . Utility Plan

Total design flow (gpd) . 60

Approved _____ Date _____

Water & Sewer Managing Engineer

STORMWATER

Description of work . Discharging to drainage swale along Route 27 which connects to Town's closed drainage system

Title of plan . Grading & Drainage Plan

Total design flow (10-year storm, CFS) . 0.32

Approved _____ Date _____

Highway Superintendent

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

SECTION B: IMPACT FEES

Provide the following information to determine if a water and/or sewer impact fee will be required for a new development or a change or increase in use.

Current/prior Use(s)

Describe current use(s) Undeveloped Land

Use	Unit Flow (gpd)	Total Existing Flow
Undeveloped Land	0	0
Total existing flow		0

Proposed Use(s)

Describe proposed use(s) Commercial Bank

Use	Unit Design Flow (gpd)	Total Design Flow
Commercial Bank	60	60
Total proposed flow		60

Impact Fees (80% of the design flow)

Change in flow rate (gpd) 60 x 0.8 = Impact Fee flow rate (gpd) 48

If there is a decrease in flow rates, no water or sewer impact fee will be charged. If there is an increase in flow rates, a water and/or sewer impact fee will be charged using the following formula:

Sewer Impact Fee: Flow increase (gpd) 48 x $4.85 = $232.80

Water Impact Fee: Flow increase (gpd) 48 X $2.00 = $96.00

Approved by Town of Exeter

Town Planner _____ Date _____

Water & Sewer Managing Engineer _____ Date _____

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

SECTION C: SANITARY SEWER CLASSIFICATION AND BASELINE MONITORING

(NON-RESIDENTIAL DISCHARGES OR RESIDENTIAL DISCHARGE OVER 5,000 GPD)

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 CFR 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 Town of Exeter, New Hampshire Ordinances Chapter 15, 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

Property Owner Name _____

Owner's Representative _____

Address _____

Phone _____ email _____

Tenant Name _____

Address _____

Phone _____ email _____

PART II - PRODUCT OR SERVICE INFORMATION

Products Manufactured _____

Services Provided _____

SIC Code(s) _____ Building Area (SF) _____

Number of Employees _____ Days/week of operation _____ Shifts per day _____

PART III - CATEGORY OF SEWER DISCHARGE

Type of Discharge ☐ Septic ☐ Proposed ☐ Existing ☐ Change of Use

Water Use (gpd) _____ (from Section A)

Check all that apply:

☐ Domestic waste only (toilets & sinks)

☐ Domestic waste plus some process wastewater

☐ Federal pre-treatment standards (40 CFR) applies

PART IV - CLASSIFICATION DETERMINATION *(to be completed by Town staff)*

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 _____

See attached sheet for the basis of the determination.

Determined by _____ Title _____ Date _____

Approved _____ Date _____

Water & Sewer Managing Engineer

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 sewer, water and/or stormwater drainage system(s), in the course of determining the town's ability to serve the project. Further, I acknowledge and agree that failure to accurately declare said flow requirements shall be sufficient cause to deny access to the Town of Exeter sewer, water and/or stormwater drainage system(s).

Signature of Applicant _____ Date 5-8-23

Name of Property Owner Felder Kuehl Properties, LLC

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

USER CLASSIFICATION SYSTEM FOR INDUSTRIAL DISCHARGE

CLASS 1: SIGNIFICANT INDUSTRIAL USER

Any industry and/or commercial establishment that:

- Is subject to National Pre-treatment standards as outlined in 40 CFR (Code of Federal Regulations) 403.5 (a) (b).
- Discharges a non-domestic waste stream of 5,000 GPD, or more.
- Contributes a non-domestic waste stream totaling 5% or more of the average dry weather hydraulic or organic (BOD<TSS< etc.) capacity of the Town of Exeter Sewer Treatment Facility.
- Has the reasonable potential, in the opinion of the POT Supervisor, to adversely affect the treatment plant, its workers, or the collection system by reason of inhibition, pass- through pollutants, or sludge contamination.

CLASS 2: MINOR INDUSTRIAL USERS

Small industries and commercial establishments (e.g. restaurants, auto repair shops, cleaners, etc.) whose individual discharges do not significantly impact the Town of Exeter Sewer Treatment Facility or systems, degrade receiving water quality or contaminate the sludge. Industries that have the potential to discharge a non-domestic or process waste stream, but at the present time discharge only sanitary waste, may also be included in this class. However, this class shall not include any categorical industries. Industries and commercial establishments in this classification will require a permit and be subject to all inspection, compliance monitoring, enforcement, and reporting requirements of the pretreatment program.

CLASS 3: INSIGNIFICANT INDUSTRIAL USERS

Users which will be eliminated from participation in Exeter's Pretreatment Program. These include industries and/or commercial establishments that discharge only domestic waste (toilets and sinks only) into the municipal sewer system or do not have any reasonable chance of discharging a non-domestic waste stream to the POTW. Class 3 users will be required to notify the Exeter Sewer Division of any change in discharge quantity or character.

CLASS 4: NON-SYSTEM USER

Any industry, business or commercial establishment identified in the Master List of Industrial Users that are not connected to the Exeter Sewer system or which has ceased to discharge to the system.

Industries and/or commercial establishments classified as Class 1 or Class 2 users will be regulated individually and have specific effluent limitations (including conventional pollutants, where necessary) in the discharge permit. All Class 1 and Class 2 users will require a State Discharge Permit, and be subject to all inspection, compliance monitoring, and enforcement and reporting requirements of the pretreatment program.

LETTER OF AUTHORIZATION

2 Meeting Place Drive
Map/Block: 55//75//

FELDER KUEHL PROPERTIES, LLC with a mailing address of P.O. Box 181 Bristol, NH, as current owner of the property identified as Map/Block: 55//75//, located in Exeter, NH (the "Property"), does hereby authorize Scott Mitchell Real Estate, LLC and/or Tropic Star Development and its engineers, consultants, and attorney to act on our behalf and as our agent concerning applications for any local, state or municipals approvals.

FELDER KUEHL PROPERTIES, LLC

DocuSigned by:
Kimberly J. Kuehl-Lamb Date: 3/4/2022
Authorized Member

TOWN OF EXETER, NEW HAMPSHIRE
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www.exeternh.gov

expired 10/15/22

October 24, 2019

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

Re Zoning Board of Adjustment Case #19-15
Special Exception Requests - Great Bridge Properties, LLC
2 Meeting Place Drive, Exeter, N H Tax Map Parcel #55-75

Dear Attorney Pasay

This letter will serve as official confirmation that the Zoning Board of Adjustment, at its October 15th, 2019 meeting, voted to grant the above-captioned application for a special exception per Article 4, Section 4.2 Schedule I: Permitted Uses and Article 5, Section 5.2 to permit the proposed construction of a "multi-use" structure with first floor commercial and three stories of residential housing pursuant to NH State Workforce Housing Statute §674.58 et seq. on the property located at 2 Meeting Place Drive; and a special exception from Article 4, Section 4.4 Schedule III, Note #12 to allow an increased height of said structure not to exceed fifty (50) feet, as presented

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

If you should have any questions, please do not hesitate to contact the Building Department office

Sincerely,

Joanne T. Petito
Chairwoman
Exeter Zoning Board of Adjustment

cc: Chris Davies, Great Bridge Properties, LLC
W. Robert Felder, Felder Kuehl Properties, LLC
Douglas Eastman, Building Inspector/Code Enforcement Officer
Janet Whitten, Deputy Assessor

JTP bsm

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July 19, 2018

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

Re: Zoning Board of Adjustment Case #1450 – Felder Kuehl Properties, LLC
Request for Extension of Special Exception Approval (proposed multi-use building)
85 Epping Road, Exeter, N.H. Tax Map Parcel #55-75

Dear Attorney Pasay:

This letter will serve as official confirmation that the Zoning Board of Adjustment, at its July 17th, 2018 meeting, voted to grant your request for a one-year extension of the approval for the above-captioned application. The conditions of the special exception approval outlined in the original decision letter dated August 23, 2013, will still be applicable. This approval will now expire on August 21, 2019.

Please contact the Planning and Building Department for the appropriate applications and/or permits necessary to move forward with your proposed project. If you should have any questions relative to this approval, please do not hesitate to contact the Planning & Building Department office.

Sincerely,

Laura J. Davies
Chairwoman
Exeter Zoning Board of Adjustment

cc: Robert Felder, Felder Kuehl Properties, LLC
Dave Sharples, Town Planner
Janet Whitten, Deputy Assessor
Douglas Eastman, Building Inspector/Code Enforcement Officer

LJD:bsm

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www.exeternh.gov

July 24, 2017

Michael J. Donahue, Esquire
Donahue, Tucker & Ciandella, PLLC
16 Windsor Lane
POB 630
Exeter, New Hampshire 03833

Re: Zoning Board of Adjustment Case #1450 – Felder Kuehl Properties, LLC
Request for Extension of Special Exception Approval (proposed multi-use building)
85 Epping Road, Exeter, N.H. Tax Map Parcel #55-75

Dear Attorney Donahue:

This letter will serve as official confirmation that the Zoning Board of Adjustment, at its July 18th, 2017 meeting, voted to grant your request for a one-year extension of the approval for the above-captioned application. The conditions of the special exception approval outlined in the original decision letter dated August 23, 2013, will still be applicable. This approval will now expire on August 21, 2018.

Please contact the Planning and Building Department for the appropriate applications and/or permits necessary to move forward with your proposed project. If you should have any questions relative to this approval, please do not hesitate to contact the Planning & Building Department office.

Sincerely,

Robert V. Prior
Vice Chairman
Exeter Zoning Board of Adjustment

cc: Robert Felder, Felder Kuehl Properties, LLC
Dave Sharples, Town Planner
Janet Whitten, Deputy Assessor
Douglas Eastman, Building Inspector/Code Enforcement Officer

RVP:bsm

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www.exeternh.gov

July 20, 2016

Michael J. Donahue, Esquire
Donahue, Tucker & Ciandella, PLLC
225 Water Street
POB 630
Exeter, New Hampshire 03833

Re: Zoning Board of Adjustment Case #1450 – Felder Kuehl Properties, LLC
Request for Extension of Special Exception Approval
85 Epping Road, Exeter, N.H. Tax Map Parcel #55-75

Dear Attorney Donahue:

This letter will serve as official confirmation that the Zoning Board of Adjustment, at its July 19th, 2016 meeting, voted to grant your request for a one-year extension of the approval for the above-captioned application. The conditions of the special exception approval outlined in the original decision letter dated August 23, 2013, will still be applicable. This approval will now expire on August 20, 2017.

Please contact the Planning and Building Department for the appropriate applications and/or permits necessary to move forward with your proposed project. If you should have any questions relative to this approval, please do not hesitate to contact the Planning & Building Department office.

Sincerely,

Laura J. Davies
Chairwoman
Exeter Zoning Board of Adjustment

cc: Robert Felder, Felder Kuehl Properties, LLC
Dave Sharples, Town Planner
Janet Whitten, Assessing Office
Douglas Eastman, Building Inspector/Code Enforcement Officer

LJD:bsm

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TOWN OF EXETER, NEW HAMPSHIRE

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www.town.exeter.nh.us

August 23, 2013

Michael J. Donahue, Esquire
Donahue, Tucker & Ciandella, PLLC
225 Water Street
POB 630
Exeter, New Hampshire 03833

Re: Zoning Board of Adjustment Case #1450 – Special Exception Request for Felder Kuehl Properties, LLC
85 Epping Road, Exeter, N.H.
Tax Map Parcel #55-75

Dear Attorney Donahue:

This letter will serve as official confirmation that the Zoning Board of Adjustment, at its August 20, 2013 meeting, voted to grant the above-captioned applications for special exception per Article 4, Section 4.2 Schedule I: Permitted Uses and Article 4, Section 4.4 Schedule III: Density and Dimensional Regulations- Note #12 and Article 5, Section 5.2 to permit the proposed construction of a multi-use building not to exceed fifty feet (50') in height on the property located at 85 Epping Road, as presented. This approval was granted subject to the following conditions:

- The conditional approval letter received from the New Hampshire Department of Environmental Services (NHDES) with regard to permitting residential use of the subject property be provided to the Board for inclusion in the case file;
- Prior to any Certificates of Occupancy (C.O.) being issued, the property owner shall provide written documentation from NHDES confirming the environmental conditions of the property;
- The Applicant's development plan, as proposed and amended, is approved by the Planning Board; and
- The proposed building shall not exceed fifty-feet (50') in height.

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

Please contact the Planning and Building Department for the appropriate applications and/or permits necessary to move forward with your proposed project. If you should have any questions relative to this approval, please do not hesitate to contact the Planning & Building Department office.

Sincerely,

Robert V. Prior
Chairman
Exeter Zoning Board of Adjustment

cc: Robert Felder, Felder Kuehl Properties, LLC
Sylvia VonAulock, Town Planner
John DeVittori, Tax Assessor
Douglas Eastman, Building Inspector/Code Enforcement Officer

RVP:bsm

March 17, 2010

Michael J. Donahue, Esquire
Donahue, Tucker & Ciandella, PLLC
225 Water Street
POB 630
Exeter, New Hampshire 03833

Re: Zoning Board of Adjustment Case #1395 – Variance Request
(Request for extension of limits of approval for ZBA Case #1300)
Epping Road, Exeter, N.H.
Tax Map Parcels #55-75

Dear Attorney Donahue:

This letter will serve as official confirmation that the Zoning Board of Adjustment, at its March 16th, 2010 meeting, voted to approve your application for a variance from Article 12, Section 12.4 seeking relief from the three-year limitation on the previous special exception approval granted by the Board on January 17, 2006 for the proposed commercial development on Epping Road (ZBA Case #1300). This approval was granted, as requested, for an extension to November 12, 2013 for the Applicant to substantially complete the improvements shown on the site plan.

If you should have any questions relative to this approval, please do not hesitate to contact the Planning & Building Department office.

Sincerely,

Marc Carbonneau
Vice Chairman
Exeter Zoning Board of Adjustment

cc: Robert Felder, Felder-Kuehl Properties, LLC
Douglas Eastman, Building Inspector/Code Enforcement Officer
Sylvia von Aulock, Town Planner

MC:bsm
F:\Docs\Plan'g & Build'g Dept\ZBA CASES\ZBA-1395.LET.doc

January 20, 2006

Mr. Robert Felder
Felder-Kuehl Properties, LLC
POB 689
Bristol, New Hampshire 03222

Re: Zoning Board of Adjustment Case #1300 – Special Exception request
73-85 Epping Road, Exeter, N.H.
Tax Map Parcels #55-75, 55-76, 63-100 and 63-101

Dear Mr. Felder:

This letter will serve as official confirmation that the Zoning Board of Adjustment, at its January 17th, 2006 meeting, voted to approve your application for a special exception per Article 4, Section 4.4, Schedule III, Note #12 and Article 5. Section 5.2 to permit the construction of a proposed structure exceeding the maximum height requirement in the C-2, Highway Commercial zoning district, as presented. This approval was granted subject to the structure not exceeding fifty feet (50') in height and that site plan review approval be obtained from the Planning Board. It was represented that the additional space on the fourth floor of the structure should be considered in the parking calculations.

Please be advised that in accordance with Article 11, Section 11.40 of the Town of Exeter Zoning Ordinance entitled "Limits of Approval" that all approvals granted by the Board of Adjustment shall only be valid for a period of three (3) years from the date of such approval was granted; therefore, should substantial completion of the improvements, modifications, alterations or changes in the property not occur in this period of time, this approval will expire and you would be required to submit another application to the Board should you wish to proceed.

If you should have any questions relative to this approval, please do not hesitate to contact the Planning Department Office. Please contact the Planning Department office to obtain the appropriate information and application(s) necessary for the site plan review process.

Sincerely,

Michael J. Dawley
Chairman
Exeter Zoning Board of Adjustment

cc: Charles F. Tucker, Esquire
Douglas Eastman, Building Inspector/Code Enforcement Officer
Sylvia von Aulock, Town Planner

MJD:bsm
F:\Docs\Plan'g & Build'g Dept\ZBA CASES\ZBA-1300.LET.doc

TOWN OF EXETER

Planning and Building Department

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

Date: June 12, 2023

To: Matt Perry, TEC
Chris Raymond, TEC
Jim Mitchell, Tropic Star Development, LLC

From: Dave Sharples, Town Planner

Re: Subdivision & Site Plan Review TRC Comments - 2 Meeting Place Drive
PB Case #23-6
Tax Map Parcel #55-75

The following comments are provided as a follow-up for technical review of the subdivision, site plans and supporting documents submitted on 5/9/23 for the above-captioned project. The TRC meeting was held on 6/1/23 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. Monumentation shall be set in accordance with Section 9.25;
3. Please have the Traffic Engineer examine the left hand turn in and out of the site at the access point on Epping Rd. The center turn lane appears to start to taper at this location and it should be examined;

PUBLIC WORKS COMMENTS

No comments, per e-mail dated 6/12/23.

FIRE DEPARTMENT COMMENTS

Basic requirements of the Exeter Fire Department. This list is not all inclusive and other requests may be made during the review process. Unless specifically required by code, some room for compromise is open.

(Rev 5: 9/7/2017) Architectural Review:

- Interior utility room access
- Interior sprinkler room access
- Adequate attic access (sized for FF, if applicable))
- Catwalk access in unfinished areas that have sprinklers (handrails preferred)
- If building has truss roof or floors, must display sign according to ordinance 1301. Knox box required for all buildings with fire alarm or sprinkler systems (ordinance 1803)

Civil/Site Review:

- Hydrant near site access and towards rear of site (if applicable)

Sprinkler Review:

- NFPA 13(R,D) sprinkler system where required
- FDC: 4-inch storz with at least 18" clearance to ground
- Electric bell (no water motor gong)
- Attic protection in 13R systems

Fire Alarm Review:

- Single red beacon or strobe indicator on exterior (not horn-strobe)
- NFPA72 Fire Alarm System where required
- Cat 30 keys for pull stations and FACP

Elevators:

- Heat and smoke top and bottom (heats for the shunt trip)
- Dimensions to accommodate a stretcher (usually a 2500 lbs) 3'6" by 7' at a minimum
- Elevator recall to appropriate floor during an activation
- Sprinkler protection top and bottom if ANY combustible material in shaft. (can omit per NFPA 13 guidelines)
- Phone in car needs to be able to dial 911

NATURAL RESOURCE PLANNER COMMENTS

No comments. The Applicant provided documentation that the buffer affected is a man-made wetland so they are exempt from the Conditional Use Permit (CUP) process.

In order to be heard at the 7/13/23 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 6/23/23,** 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

2955.00

June 6, 2023

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

Re: ***New Bank at Meeting Place***
Design Review Engineering Services
Exeter, New Hampshire

Site Information:

Review No. 1

Tax Map/Lot#:	55 / 75
Address:	2 Meeting Place Drive
Lot Area:	1.42 Acres
Proposed Use:	Commercial
Water:	Town
Sewer:	Town
Zoning District:	C-2
Applicant:	Tropic Star Development
Design Engineer:	TEC

Application Materials Received:

- Site plan set entitled "Proposed Site Development" dated May 9, 2023 prepared by TEC
- Site plan application materials prepared by TEC
- Drainage report prepared by TEC
- Plans received at the TRC meeting on 6/1/23: Lighting Plan, Landscaping Plan, revised Subdivision Plan

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. Permits and approvals required should be listed on the cover sheet.
    - An NDHES Sewer Connection Permit will be required per utility comments below.
    - An EPA CGP Permit may be required (see comments below).

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

- We recommend that the applicant confirm with the NHDES AoT Department that an AoT permit will not be required, due to prior development on the full parcel.

2. The existing features on all site plans are too faint and should be darkened.
3. A fire truck turning plan should be provided.
4. We believe the original intent of the overall layout and design of the Meeting Place subdivision was for the entire lot to be serviced from Meeting Place Drive. The design as shown does not show consideration for Lot B to be serviced from Meeting Place Drive.
    - The current layout would prohibit vehicular access from Meeting Place Drive and would require access from Epping Road. Per discussion at the TRC meeting on 6/1/23, it was noted the rear access is expected to accommodate two-way traffic in the future to access Lot B. Please confirm.
    - Rather than the existing utility stubs serving both lots, the current design would require Lot B to tie into all utilities within the Epping Road ROW. See further comments below regarding the utilities.

Subdivision Plan

5. It is peculiar that the proposed "middle" property line is proposed splitting the stormwater management basin requiring an easement rather than including the basin within the proposed parcel.
6. All easement lines should be shown and labeled.
7. The easement lines shown on other plans for the stormwater management area should be revised to include the discharge pipe. Please also see comment 22 below regarding this pipe.

Demolition and Erosion Control Plan

8. Stormwater BMPs should be shown around the wetland areas. Inlet protection should be indicated at existing catch basins.
9. A note should be added to direct the Contractor to construct a lined concrete washout pit onsite prior to any concrete pours.

Layout and Materials Plan

10. Existing striping on Epping Road should be added to the plan.
11. Regarding internal traffic layout, the potential exists for cross-traffic incidents. Per discussion at the TRC meeting on 6/1/23, it was noted by the Developer that the Bank is not concerned due to low driving speeds and low traffic.
12. Will bollards be placed at the building corners, and if so, will that affect the width of the lanes?
13. We recommend installing mountable curb in the area of the dumpster to provide easier turning movements for garbage trucks.

14. If any equipment pads are required (HVAC, electrical), they should be shown on the plans.

Grading and Drainage Plan

15. Note 3 on the Grading and Drainage Plan lists the area of disturbance as just under an acre. It is unclear if this number reflects the entire area that will be disturbed during construction shown as the Limit of Work. It appears this project may fall under the EPA CGP.

16. The Limit of Work line should be adjusted to include the wet pond discharge pipe trench width, and any clearing around the pipe required for equipment to access the entire length of the pipe.

17. Show the proposed tree line.

Utility Plan

18. Label the slope of the sewer pipe.

19. The notes on the Utility Plan indicate the sewer service will be 4", whereas it is labeled as 6" in the plan view. Confer with the Town DPW on the commercial service size.

20. A table of drainage pipe slopes should be provided.

21. Indicate any tie-ins to the drainage system from foundation drains and/or roof drains/gutters.

22. We note the discharge pipe from the wet pond ends in a developable portion of the abutting lot. It is likely this discharge location will conflict with future development. Consideration should be given to routing the discharge point to a location that will not impede future development.

23. Rims and invert elevations of sewer manholes and drainage structures should be shown together on the Grading and Drainage Plan. Please note we have not assessed minimum cover requirements but will do so once this item is addressed.

24. The size and material of the existing water lines should be added to the plans.

25. All existing utility stubs from Meeting Place Drive should be extended across the lot and stubbed at the property line between Lot A and B to accommodate future tie-ins from Lot B. The water and sewer services from the bank building should tie into the extensions rather than the ends of the existing stubs. An NHDES Sewer Connection Permit will be required.

26. A note should be added to indicate the site contractor must obtain an Exeter utility pipe installer's license and the job supervisor or foreman must be certified by the Town prior to working on any Town-owned water, sewer or drainage pipes or utilities that will connect or may connect to any Town-owned 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.

Detail Sheets

27. The Accessible Parking Stall Striping Detail should indicate 19' long stalls.

28. The Dumpster Pad and Enclosure detail shows a 20' square pad, whereas the site plan measures a 10' square pad. Coordination is needed.

29. A lined concrete washout pit detail should be added.

Stormwater Design and Modeling

30. It is noted all of the stormwater will be discharged offsite onto an abutting lot. It is acknowledged the post flowrates are less than the pre-flowrates. Please provide pre- and post-volumes to ensure more volume of flow will not be discharged onto the abutting lot.

31. Town of Exeter pollutant removal requirements for TP and TN do not appear to be met. Please discuss how the requirements will be met.

32. It doesn't appear that the applicant is using the extreme precipitation storm rates, but rather the standard ones.

33. The water quality hydrocad runs are using 1" of rainfall when they should be using a rainfall "depth" that equates to the effective volume equivalent of 1" of run-off over the site. Depending on the land use ratios, that number is usually between 1.25" and 1.8" rain event to generate 1" of run-off.

34. The soils on the site are HSG C/D and HSG D. There is an area of lead contaminated soil that they are proposing to remove and replace. The Applicant is proposing to replace the lead dirt with sand (HSG A) and then use that area for infiltration to meet drainage needs. It is not generally an acceptable practice to remove and replace soils with a more favorable draining soil in order to facilitate a drainage practice. When it is done, the drainage practice is still designed based on the underlying limiting native soil characteristics. With that said, some augmentation of the soil might be acceptable but a complete replacement as is being proposed for use as a drainage practice would require further review and discussion, possibly confirmation with NHDES.

35. Please confirm the contaminated soil has been evaluated for mobility of the lead.

36. 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

GOVE ENVIRONMENTAL SERVICES, INC.

May 11, 2023

Jim Mitchell
Vice President
Tropic Star Development
321D Lafayette Rd.
Hampton NH 03842

Subject: Wetland Delineation
2 Meeting Place Drive
Exeter, NH

Dear Mr. Mitchell:

I am pleased to provide you with documentation of the delineation performed at this site and review of certain areas in connection with a planned development on a portion of the property. The wetlands were delineated by Gove Environmental Services in June of 2022 utilizing the following standards.

1. *US Army Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1 (Jan 1987) **AND** Regional Supplement to Corps of Engineers Wetland Delineation Manual; Northcentral and Northeast Region, Version 2.0, January 2012.
2. New England Hydric Soils Technical Committee. 2018 Version 4, *Field Indicators for Identifying Hydric Soils in New England.* New England Interstate Water Pollution Control Commission, Lowell, MA.
3. North American Digital Flora: National Wetland Plant List, current version.

The approximately 3-acre property at the corner of Epping Road and Meeting Place Drive and is shown on Exeter Tax Map 55 as Lot 75. The northern third of the property abutting Meeting Place Drive consists of a maintained field. The remainder of the property is wooded but highly disturbed, with remnants of old structures, numerous debris piles, and excavations plainly visible across the area. The undergrowth is typical of such areas and is largely comprised of a dense woody invasive vegetation such as multiflora rose, common buckthorn, bush honeysuckle, poison ivy, and oriental bittersweet. A total of five (5) separate wetland areas were identified on the property and demarcated using consecutively numbered pink "Wetland Delineation" flagging. These are shown on the attached excerpt from the existing conditions plan and have been labeled A through E.

All wetland areas on the property are poorly drained. The larger two southernmost wetlands (A & B) are comparatively natural and are dominated by small elm trees, box elder, and silky dogwood with thin groundcover of sedges. Area C is a section of vegetated swale extending from the drainage system in Meeting Place Drive to a pipe under Epping Road. This constructed drainage feature is vegetated with a mix of grasses, sensitive fern, and weedy species typical of

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www.gesinc.biz
info@gesinc.biz

roadside areas. The remaining two wetland areas (D & E) are small, isolated wetlands that appear to have developed in compacted soil or shallow excavations, likely as a result of demolition activities or other disturbance. Although these areas technically qualify as wetlands under the delineation standards, their overall wetland character is very limited and difficult to define. All wetlands were reviewed in the Spring of 2023 and none were found to support vernal pool habitat.

Exeter Wetlands Conservation District
Based on its character and record plan information, the area identified on the enclosed sketch as Wetland C is a constructed drainage feature. Such areas are specifically excluded from the Natural Resources Protection District under section 9.1.3(D) and should not be subject to the requirements of the District. This should be verified with Exeter planning staff. All other wetlands on the property are poorly drained wetlands, are not exemplary, and do not contain vernal pools. These wetland areas require a 40-foot buffer and are subject to all applicable requirements of the Wetlands Conservation District Ordinance.

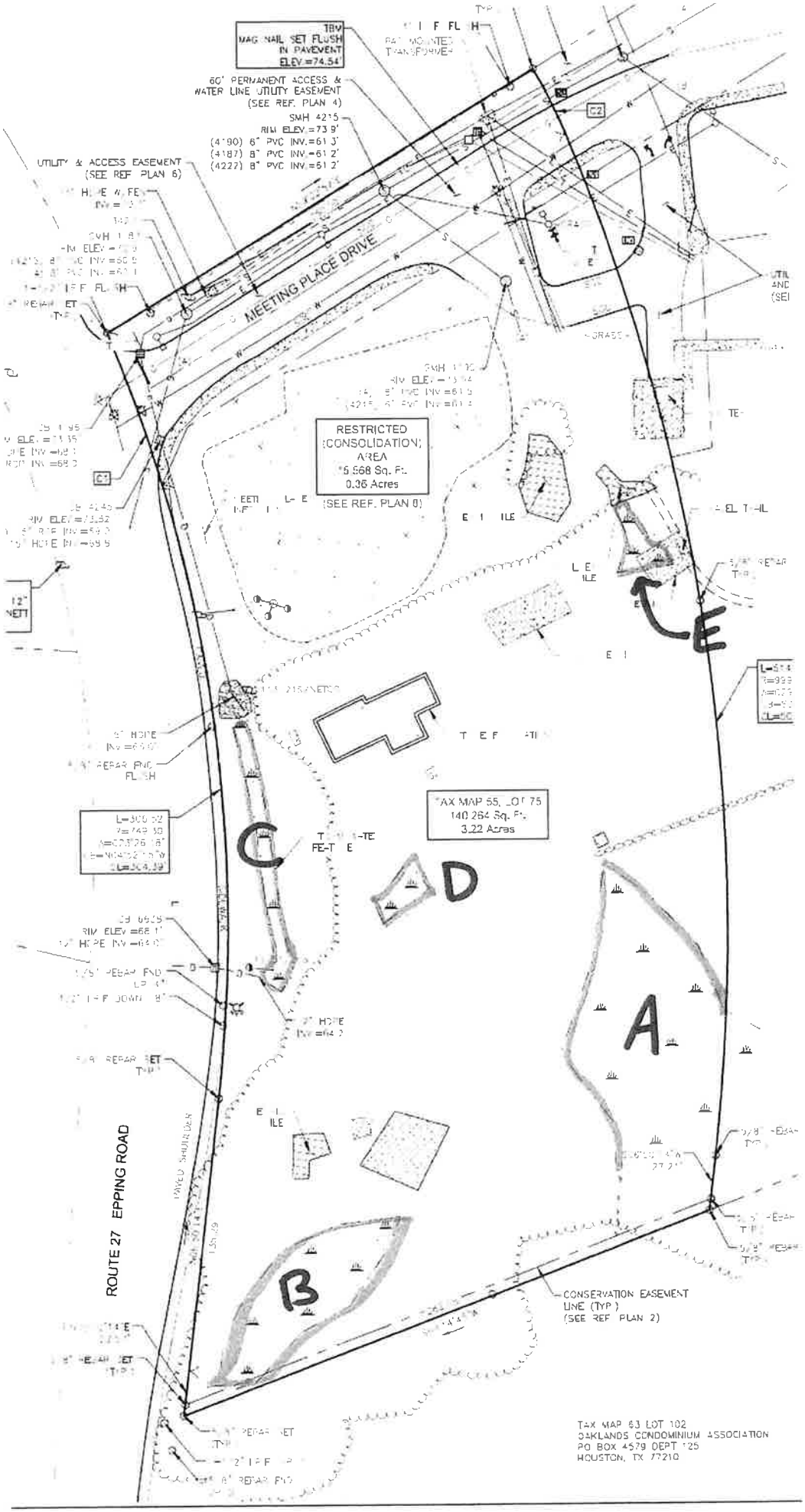
It is my understanding that the current development contemplated at this site is located at the northern end of the property and may be within the 40-foot buffer of wetland E. This would require a Conditional Use Permit which, among other things, will consider the potential impact to the wetland function supported in the wetland. At this time, I do not have details on the proposed work at this location but can offer the following opinion on this wetland. Wetland E is of such low value that it would be difficult to even assess its function, much less the potential impact of work in its buffer, especially in the portion that extends north into the maintained field. I would not consider a *buffer impact* in that location, such as for parking, grading or stormwater management, to have any impact on the overall function of the wetland. Note that this only partially addresses one aspect of the CUP criteria which will still need to be fully addressed in accordance with the Ordinance.

This concludes the delineation report for this property. If you have any questions or if I can be of further assistance, please feel free to contact me at (603) 778-0644.

Sincerely,

Brendan Quigley, NHCWS #249
Gove Environmental Services, Inc.

Enc: Wetland Sketch


TBM
MAG NAIL SET FLUSH
IN PAVEMENT
ELEV.=74.54'
60' PERMANENT ACCESS &
WATER LINE UTILITY EASEMENT
(SEE REF. PLAN 4)
SMH 4215
RIM ELEV.=73.9'
(4190) 6" PVC INV.=61.3'
(4187) 8" PVC INV.=61.2'
(4227) 8" PVC INV.=61.2'
UTILITY & ACCESS EASEMENT
(SEE REF. PLAN 6)
MEETING PLACE DRIVE
RESTRICTED
(CONSOLIDATION)
AREA
*5,568 Sq. Ft.
0.36 Acres
(SEE REF. PLAN 8)
*TAX MAP 55, LOT 75
140,264 Sq. Ft.
3.22 Acres
A
B
C
D
ROUTE 27 EPPING ROAD
CONSERVATION EASEMENT
LINE (TYP.)
(SEE REF. PLAN 2)
TAX MAP 63 LOT 102
OAKLANDS CONDOMINIUM ASSOCIATION
PO BOX 4579 DEPT 125
HOUSTON, TX 77210

169 Ocean Boulevard/PO Box 249
Hampton, NH 03842
603.601.8154
TheEngineeringCorp.com
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Dave Sharples, Town Planner
Town of Exeter Planning Board
Department of Planning & Sustainability
10 Front Street
Exeter, NH 03833

June 23, 2023

Ref. N1264
Planning Board Case #23-6

Re: Cover Letter
Proposed Site Development

Dear Mr. Sharples:

On behalf of Tropic Star Development, LLC, the Applicant ("Applicant"), TEC, Inc. is pleased to submit this letter to supplement the enclosed materials for review by the Planning Board for the Proposed Site Development at 2 Meeting Place Drive, Exeter, NH. The Applicant is proposing to subdivide and develop the existing undeveloped lot at 2 Meeting Place Drive (Assessors Map 55, Lot 75) in the C-2 Zoning District. The Applicant is proposing to construct a 1-story bank with an ATM and drive-thru, associated off-street parking totaling 21 spaces, pedestrian and ADA accommodations, and landscaping and stormwater management infrastructure.

After meeting with the Technical Review Committee on June 1, 2023, the project has been revised to satisfy the comments received by the peer review engineer and TRC. The revisions allow for the site to be more compatible with future development and satisfy all comments received during the TRC review process.

Enclosed please find the following documents as part of the Site Plan Review Application:

- Cover Letter (15 copies)
- Response to UEI Peer Review Comments Letter (15 copies)
- Response to TRC Comments Letter (15 copies)
- Full-Sized Site Plans (7 copies)
- 11"x17" Site Plans (15 copies)
- Drainage Report (3 copies)
- Traffic Impact Assessment (3 copies)

Please do not hesitate to contact me directly if you have any questions concerning our Application for TRC Review at (603) 601-8154.Thank you for your consideration.

Sincerely,
TEC, Inc.
*"**T**he **E**ngineering **C**orporation"*

Christopher Raymond, PE
Civil Engineer – Design Engineer

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Hampton, NH 03842
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Mr. David Sharples, Town Planner
Town Planning Office, Town of Exeter
10 Front Street
Exeter, NH 03833

June 23, 2023

Re: Proposed Site Development
2 Meeting Place Drive Exeter, NH 03833
Response to Peer Review Comments

Dear Mr. Sharples:

On behalf of Tropic Star Development, LLC, the Applicant, we are pleased to provide this letter and revised plans and supporting documents which address the peer review comments we received in the letter from Underwood Engineers, Inc. (UEI), dated June 6, 2023.

In summary, various aspects of the project have been revised to make the site more compatible with future development. This includes relocating the stormwater pond to a less developable area of the site which allows for additional storage capacity to handle future development, stubbing the utilities from Meeting Place Drive at the proposed property line subdividing the lot, and improving the site access and traffic safety. Other changes included minor clarifications or revisions to the site plans and drainage report.

In addition to the high-level summary of changes above, below please find specific responses to comments received in the letter dated June 6, 2023:

General

1. Permits and approvals required should be listed on the cover sheet.
   a. An NDHES Sewer Connection Permit will be required per utility comments below.
   b. An EPA CGP Permit may be required (see comments below).
   c. We recommend that the applicant confirm with the NHDES AoT Department that an AoT permit will not be required, due to prior development on the full parcel.

   TEC Response: The Cover Sheet has been revised to include all required permits and approvals. (See Sheet C-1) If necessary, an NHDES Sewer Connection Permit will be completed a minimum of 30 days prior to start of construction. An EPA CGP is not required for this project as the area of disturbance is less than 1 acre. Confirmation has been made with NHDES that amending the current AoT permit or applying for a new AoT permit are not required.

2. The existing features on all site plans are too faint and should be darkened.

   TEC Response: The existing features have been revised to be darker on all site plans.

3. A fire truck turning plan should be provided.

   TEC Response: A Fire Truck Turning Plan has been provided. (See Sheet C-9)

4. We believe the original intent of the overall layout and design of the Meeting Place subdivision was for the entire lot to be serviced from Meeting Place Drive. The design as shown does not show consideration for Lot B to be serviced from Meeting Place Drive.
   a. The current layout would prohibit vehicular access from Meeting Place Drive and would require access from Epping Road. Per discussion at the TRC meeting on 6/1/23, it was noted the rear access is expected to accommodate two-way traffic in the future to access Lot B. Please confirm.

   TEC Response: The intent of the design is to provide access to both lots from Meeting Place Drive. The drive isle at the rear of the Site is 22' wide to accommodate future two-way traffic and will be striped as shown to facilitate one-way traffic prior to development of Lot B. With this traffic pattern, vehicles will be able to enter the Site from Meeting Place Drive and drive counter-clockwise around the proposed bank to access parking, the ATM, and the drive-thru both prior to and after development of Lot B. A note has been added to Sheet C-4 to clarify the proposed traffic pattern.

   b. Rather than the existing utility stubs serving both lots, the current design would require Lot B to tie into all utilities within the Epping Road ROW. See further comments below regarding the utilities.

   TEC Response: The Utilities Plan has been revised to extend the existing stubbed utilities at the northeast corner of the lot to the proposed lot line to facilitate future development of Lot B. (See Sheet C-5)

Subdivision Plan (Sheet S-1)

5. It is peculiar that the proposed "middle" property line is proposed splitting the stormwater management basin requiring an easement rather than including the basin within the proposed parcel.

TEC Response: The location of the stormwater pond has been relocated to a less developable area of the site, but still resides on both lots since the storage capacity of the pond will compensate for the future development of Lot B. The drainage easement has been revised to account for the change in location as shown on the Construction and Subdivision Plans. (See Sheets C-4 and 7498B).

6. All easement lines should be shown and labeled.

TEC Response: The easement lines are now shown and labeled on the Construction and Subdivision Plans. (See Sheets C-4 and 7498B)

7. The easement lines shown on other plans for the stormwater management area should be revised to include the discharge pipe. Please also see comment 22 below regarding this pipe.

TEC Response: The proposed drainage easement has been revised to include all components of the stormwater management system located on Lot B.

Demolition and Erosion Control Plan (Sheet C-3)

8. Stormwater BMPs should be shown around the wetland areas. Inlet protection should be indicated at existing catch basins.

TEC Response: Perimeter erosion controls have been added around wetland areas, and silt sacks for inlet protection have been indicated at all existing and proposed catch basins. (See Sheet C-6)

9. A note should be added to direct the Contractor to construct a lined concrete washout pit onsite prior to any concrete pours.

TEC Response: A note has been added to Sheet C-2 directing the contractor to construct a lined concrete washout pit onsite prior to any concrete pours. A proposed concrete washout pit location has been added to Sheet C-6 and a detail has been added to Sheet C-13.

Layout and Materials Plan (Sheet C-4)

10. Existing striping on Epping Road should be added to the plan.

TEC Response: The existing pavement striping on Epping Road has been added to the Existing Conditions and Construction Plans. (See Sheets 7498A and C-4)

11. Regarding internal traffic layout, the potential exists for cross-traffic incidents. Per discussion at the TRC meeting on 6/1/23, it was noted by the Developer that the Bank is not concerned due to low driving speeds and low traffic.

TEC Response: The proposed site signage, pavement striping, and low driving speeds are expected to adequately prevent cross-traffic accidents from occurring on Site.

12. Will bollards be placed at the building corners, and if so, will that affect the width of the lanes?

TEC Response: Bollards will not be placed at building corners.

13. We recommend installing mountable curb in the area of the dumpster to provide easier turning movements for garbage trucks.

TEC Response: The curbing has been modified in the area of the dumpster to provide easier turning movements for garbage trucks, and pavement striping has been added to facilitate normal traffic flow. (See Sheet C-4)

14. If any equipment pads are required (HVAC, electrical), they should be shown on the plans.

TEC Response: All electrical equipment will be located on the roof and screened from view. (See Architectural Plans)

Grading and Drainage Plan (Sheets C-6 & C-8)

15. Note 3 on the Grading and Drainage Plan lists the area of disturbance as just under an acre. It is unclear if this number reflects the entire area that will be disturbed during construction shown as the Limit of Work. It appears this project may fall under the EPA CGP.

TEC Response: The limit of disturbance reflects the entire area that will be disturbed during construction, shown as the "limit of work". Since the project has less than 1 acre of disturbance, it does not fall under the EPA CGP. (See Sheet C-6)

16. The Limit of Work line should be adjusted to include the wet pond discharge pipe trench width, and any clearing around the pipe required for equipment to access the entire length of the pipe.

TEC Response: The limit of work has been revised to include all proposed improvements.

17. Show the proposed tree line.

TEC Response: The proposed tree line has been added to the Grading, Drainage and Erosion & Sedimentation Control and Landscaping Plans. (See Sheets C-6 and C-7)

Utility Plan (Sheet C-5)

18. Label the slope of the sewer pipe.

TEC Response: The sewer pipe slopes have been added to the Utilities Plan. (See Sheet C-5)

19. The notes on the Utility Plan indicate the sewer service will be 4", whereas it is labeled as 6" in the plan view. Confer with the Town DPW on the commercial service size.

TEC Response: The sewer service will be 6" which has been confirmed by the Town DPW. The utilities notes have been revised to indicate the sewer service will be 6". (See Sheet C-5)

20. A table of drainage pipe slopes should be provided.

TEC Response: The drainage pipe table has been added to the Drainage Improvements and Stormwater Management Plan. (See Sheet C-8)

21. Indicate any tie-ins to the drainage system from foundation drains and/or roof drains/gutters.

TEC Response: Foundation drains are not proposed. The roof drain (RD-10) ties-in to DMH-11. (See Sheets C-6 and C-8)

22. We note the discharge pipe from the wet pond ends in a developable portion of the abutting lot. It is likely this discharge location will conflict with future development. Consideration should be given to routing the discharge point to a location that will not impede future development.

TEC Response: The proposed stormwater pond has been relocated to a less developable area of the site which is more compatible with future development. (See Sheet C-6)

23. Rims and invert elevations of sewer manholes and drainage structures should be shown together on the Grading and Drainage Plan. Please note we have not assessed minimum cover requirements but will do so once this item is addressed.

TEC Response: Drainage structure and sewer manhole rim and invert elevations are shown together on the Utilities Plan. (See Sheets C-5) Minimum cover requirements have been satisfied for all underground utilities.

24. The size and material of the existing water lines should be added to the plans.

TEC Response: The size and material of the existing water lines have been added to the Utilities Plan. (See Sheet C-5)

25. All existing utility stubs from Meeting Place Drive should be extended across the lot and stubbed at the property line between Lot A and B to accommodate future tie-ins from Lot B. The water and sewer services from the bank building should tie into the extensions rather than the ends of the existing stubs. An NHDES Sewer Connection Permit will be required.

TEC Response: The Utilities Plan has been revised to extend the existing stubbed utilities at the northeast corner of the lot to the proposed lot line to facilitate future development of the subdivided lot. The water and sewer services from the proposed bank tie into the utility extensions rather than the stubs. (See Sheet C-5) If necessary, an NHDES Sewer Connection Permit will be completed a minimum of 30 days prior to start of construction.

26. A note should be added to indicate the site contractor must obtain an Exeter utility pipe installer's license and the job supervisor or foreman must be certified by the Town prior to working on any Town-owned water, sewer or drainage pipes or utilities that will connect or may connect to any Town-owned 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.

TEC Response: The note has been added to the Legend & General Notes Plan. (See Sheet C-2)

Detail Sheets (C-10 – C-16)

27. The Accessible Parking Stall Striping Detail should indicate 19' long stalls.

TEC Response: The accessible parking stall striping detail has been revised to indicate 19' long stalls. (See Sheet C-11)

28. The Dumpster Pad and Enclosure detail shows a 20' square pad, whereas the site plan measures a 10' square pad. Coordination is needed.

TEC Response: The dumpster pad and enclosure detail has been revised to show a 10' square pad. (See Sheet C-11)

29. A lined concrete washout pit detail should be added.

TEC Response: A lined concrete washout pit detail has been added to the Construction Details (See Sheet C-13).

Stormwater Design and Modeling

30. It is noted all of the stormwater will be discharged off-site onto an abutting lot. It is acknowledged the post-flowrates are less than the pre-flowrates. Please provide pre- and post-volumes to ensure more volume of flow will not be discharged onto the abutting lot.

TEC Response: The pre- and post- volumes have been included in Table 4 of the Drainage Report. The volume of flow discharged to the abutting lots decreases post-development over pre-development conditions.

31. Town of Exeter pollutant removal requirements for TP and TN do not appear to be met. Please discuss how the requirements will be met.

TEC Response: The proposed wet pond has been changed to a proposed bioretention pond which meets both TP and TN requirements for the Town of Exeter. (See Drainage Report)

32. It doesn't appear that the applicant is using the extreme precipitation storm rates, but rather the standard ones.

TEC Response: The extreme precipitation values from the Northeast Regional Climate Center are now utilized in the HydroCAD stormwater model. (See Drainage Report)

33. The water quality HydroCAD runs are using 1" of rainfall when they should be using a rainfall " depth" that equates to the effective volume equivalent of 1" of run-off over the site. Depending on the land use ratios, that number is usually between 1.25" and 1.8" rain event to generate 1" of run-off.

TEC Response: The HydroCAD rainfall events have been corrected to reflect 1" of run-off. These values are 1.97" of rainfall for the bioretention pond and 1.72" of rainfall for the subsurface infiltration basin. (See Drainage Report)

34. The soils on the site are HSG C/D and HSG D. There is an area of lead contaminated soil that they are proposing to remove and replace. The Applicant is proposing to replace the lead dirt with sand (HSG A) and then use that area for infiltration to meet drainage needs. It is not generally an acceptable practice to remove and replace soils with a more favorable draining soil in order to facilitate a drainage practice. When it is done, the drainage practice is still designed based on the underlying limiting native soil characteristics. With that said, some augmentation of the soil might be acceptable but a complete replacement as is being proposed for use as a drainage practice would require further review and discussion, possibly confirmation with NHDES.

TEC Response: The infiltration practice has been revised to use a more conservative infiltration value of 0.20 in/hr associated with HSG C Silt, the underlying soil. Soil properties were determined by Boring GZ-3, as seen in Appendix B of the Drainage Report.

35. Please confirm the contaminated soil has been evaluated for mobility of the lead.

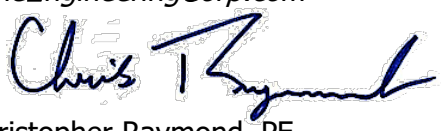
TEC Response: The lead contaminated soil has been evaluated by Carriage House Consulting, Inc. in a Remedial Action Plan dated 5/10/23. The site is recognized by the NHDES as Site #200502096. The original remediation work resulting in an Activity and Use Restriction (AUR) was completed under NHDES project #0014474 and current remediation work is proposed under project #0041726. These reports confirm that the lead contamination has not mobilized outside of the confines of the consolidated area.

36. **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.

TEC Response: The project will be registered with the PTAP Database prior to construction.

Please do not hesitate to contact me directly if you have any questions at (603) 601-8154.
Thank you for your consideration.

Sincerely,
TEC, Inc.
"TheEngineeringCorp.com"



Christopher Raymond, PE
Civil Engineer – Design Engineer

169 Ocean Boulevard/PO Box 249
Hampton, NH 03842
603.601.8154
TheEngineeringCorp.com
Create | Design | Innovate

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

June 23, 2023

Re: Response to TRC Comments - 2 Meeting Place Drive
PB Case #23-6
Tax Map Parcel #55-75

Dear Mr. Sharples:

On behalf of Tropic Star Development, LLC, the Applicant, we are pleased to provide this letter and revised plans and supporting documents which address the TRC comments we received in the letter from the Town of Exeter Planning and Building Department, dated June 12, 2023.

In summary, various aspects of the project have been revised to make the site more compatible with future development. This includes relocating the stormwater pond to a less developable area of the site which allows for additional storage capacity to handle future development, stubbing the utilities from Meeting Place Drive at the proposed property line subdividing the lot, and improving the site access and traffic safety. Other changes included minor clarifications or revisions to the site plans and drainage report.

In addition to the high-level summary of changes above, below please find specific responses to comments received in the letter dated June 6, 2023:

Town Planner

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

   TEC Response: There is an area of lead contaminated soil on the site. The site is recognized by the NHDES as Site #200502096. The original remediation work was completed under NHDES project #0014474 resulting in an Activity and Use Restriction (AUR). Current remediation work is proposed under project #0041726. Please see attached the Remedial Action Plan completed by Carriage House Consulting, Inc. dated 5/10/23.

2. Monumentation shall be set in accordance with Section 9.25;

   TEC Response: A note regarding monumentation has been added to the Subdivision Plan. (See Sheet 7498B)

3. Please have the Traffic Engineer examine the left hand turn in and out of the site at the access point on Epping Rd. The center turn lane appears to start to taper at this location and it should be examined;

   TEC Response: The access point on Epping Road is designated as a right-in only. The

existing pavement striping in Epping Road has been added to show the center turn lane. (Please see the Traffic Impact Assessment)

Fire Department Civil/Site Review

Basic requirements of the Exeter Fire Department. This list is not all inclusive and other requests may be made during the review process. Unless specifically required by code, some room for compromise is open.

- Hydrant near site access and towards rear of site (if applicable)

TEC Response: A fire hydrant has been added in the southeast corner of the site towards the rear of the property and approximately 64' from the FDC on the proposed building. The FDC is located on the southeast elevation of the proposed bank. (See Sheet C-5)

Please do not hesitate to contact me directly if you have any questions at (603) 601-8154. Thank you for your consideration.

Sincerely,
TEC, Inc.
"TheEngineeringCorp.com"

Christopher Raymond, PE

Site Plans

Proposed Site Development

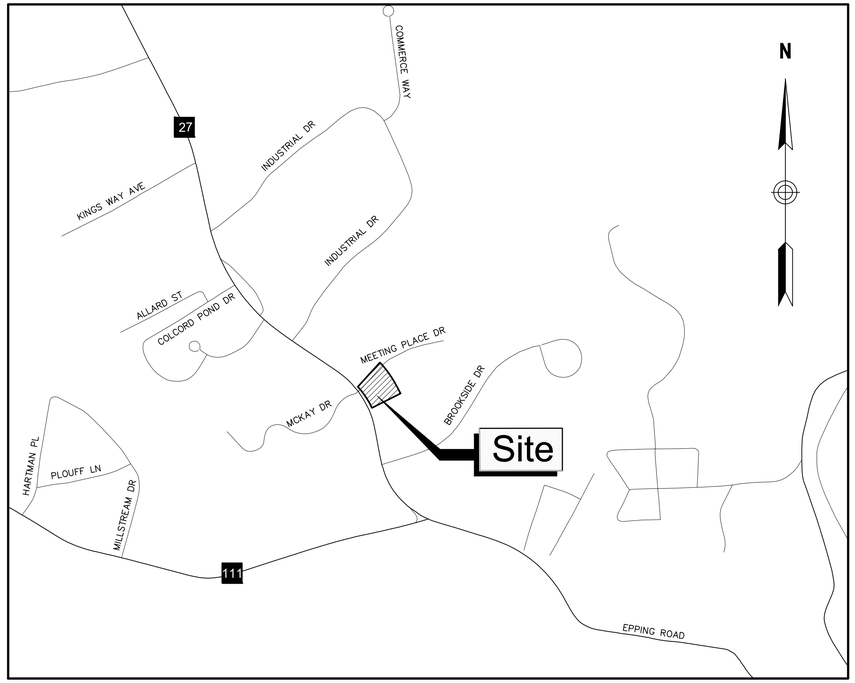
2 Meeting Place Drive,
Exeter, NH 03833
Assessor's Map 55, Lot 75

Site Plans Index

No.	Drawing Title	Latest Issue
C-1	Title & Index Sheet	June 23, 2023
C-2	Legend & General Notes	June 23, 2023
C-3	Demolition Plan	June 23, 2023
C-4	Construction Plan	June 23, 2023
C-5	Utilities Plan	June 23, 2023
C-6	Grading, Drainage and Erosion & Sedimentation Control Plan	June 23, 2023
C-7	Landscaping Plan	June 23, 2023
C-8	Drainage Improvements and Stormwater Management Plan	June 23, 2023
C-9	Fire Truck Turning Plan	June 23, 2023
C-10	Construction Details	June 23, 2023
C-11	Construction Details	June 23, 2023
C-12	Construction Details	June 23, 2023
C-13	Construction Details	June 23, 2023
C-14	Construction Details	June 23, 2023
C-15	Construction Details	June 23, 2023
C-16	Construction Details	June 23, 2023

Reference Plans Index

No.	Drawing Title	Latest Issue
7498A	Existing Conditions Plan (Doucet)	June 2022
7498B	Subdivision Plan (Doucet)	June 2023
A111 - A202	Architectural Plan & Elevations	May 31, 2023
SL-1	Site Lighting Plan	May 15, 2023



LOCATION MAP

250 0 250 500

SCALE IN FEET

Town of Exeter Planning Board

CHAIRMAN DATE

Planning Board Case #: 23-6

TEC The Engineering Corp

TEC, Inc.

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www.TheEngineeringCorp.com

DESIGNED BY	MWP
DRAWN BY	MWC
CHECKED BY	CPR
DATE	5/9/2023
SCALE	As Noted

OWNER/APPLICANT

Tropic Star Development LLC,
321 D Lafayette Road,
Hampton, NH 03842

REVISIONS

1. Peer Review & TRC Comments 6/23/23

ISSUED FOR

Permitting

PROJECT TITLE

Proposed Commercial Development

PROJECT LOCATION

2 Meeting Place Dr.
Exeter NH 03833

DRAWING TITLE

Title & Index Sheet

STATE OF NEW HAMPSHIRE
CHRISTOPHER P. RAYMOND No.16305 LICENSED PROFESSIONAL ENGINEER

PROJECT NO. N1264

TEC CAD FILE N1264_COV

DRAWING NO. C-1

SHEET 1 OF 16

GENERAL NOTES

1. CONTRACTOR SHALL NOTIFY DIG–SAFE (1–888–344–7233) AND THE LOCAL MUNICIPAL WATER & SEWER DEPT. AT LEAST 72 HOURS BEFORE EXCAVATING.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS. A 6–FOOT TEMPORARY CHAINLINK FENCE SHALL BE PROVIDED AROUND ALL CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL LEAVE NO UNSECURED OPEN EXCAVATIONS.
3. ACCESSIBLE ROUTES, PARKING SPACES, RAMPS, SIDEWALKS AND WALKWAYS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE FEDERAL AMERICANS WITH DISABILITIES ACT/ARCHITECTURAL ACCESS BOARD (AAB), AND WITH STATE AND LOCAL LAWS AND REGULATIONS (WHICHEVER ARE MORE STRINGENT).
4. WITHIN THE LIMITS OF THE BUILDING FOOTPRINT, THE SITE CONTRACTOR SHALL PERFORM EARTHWORK OPERATIONS REQUIRED UP TO SUBGRADE ELEVATIONS.
5. WORK WITHIN THE LOCAL RIGHT–OF–WAY SHALL CONFORM TO LOCAL MUNICIPAL STANDARDS. WORK WITHIN STATE RIGHT–OF–WAY SHALL CONFORM TO THE LATEST EDITION OF THE STATE HIGHWAY DEPARTMENT STANDARD SPECIFICATION FOR HIGHWAYS AND BRIDGES.
6. UPON AWARD OF CONTRACT, CONTRACTOR SHALL MAKE NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN NECESSARY PERMITS, PAY FEES, AND POST BONDS ASSOCIATED WITH THE WORK INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS, AND IN THE CONTRACT DOCUMENTS. DO NOT CLOSE OR OBSTRUCT ROADWAYS, SIDEWALK, AND FIRE HYDRANTS, WITHOUT APPROPRIATE PERMITS.
7. TRAFFIC SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
8. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
9. IN THE EVENT THAT SUSPECTED CONTAMINATED SOIL, GROUNDWATER, AND OTHER MEDIA ARE ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION ACTIVITIES BASED ON VISUAL, OLFACTORY, OR OTHER EVIDENCE, THE CONTRACTOR SHALL STOP WORK IN THE VICINITY OF THE SUSPECT MATERIAL TO AVOID FURTHER SPREADING OF THE MATERIAL, AND SHALL NOTIFY THE OWNER IMMEDIATELY SO THAT THE APPROPRIATE TESTING AND SUBSEQUENT ACTION CAN BE TAKEN.
10. CONTRACTOR SHALL PREVENT DUST, SEDIMENT, AND DEBRIS FROM EXITING THE SITE AND SHALL BE RESPONSIBLE FOR CLEANUP, REPAIRS AND CORRECTIVE ACTION IF SUCH OCCURS.
11. CONTRACTOR SHALL CONTROL STORMWATER RUNOFF DURING CONSTRUCTION TO PREVENT ADVERSE IMPACTS TO OFF SITE AREAS, AND SHALL BE RESPONSIBLE TO REPAIR RESULTING DAMAGES, IF ANY, AT NO COST TO OWNER.

GRADING, DRAINAGE AND UTILITY NOTES

1. THE LOCATIONS, SIZES, AND TYPES OF EXISTING UNDERGROUND UTILITIES ARE SHOWN AS AN APPROXIMATE REPRESENTATION ONLY. THE OWNER OR ITS REPRESENTATIVE(S) HAVE NOT INDEPENDENTLY VERIFIED THIS INFORMATION AS SHOWN ON THE PLANS. THE UTILITY INFORMATION SHOWN DOES NOT GUARANTEE THE ACTUAL EXISTENCE, SERVICEABILITY, OR OTHER DATA CONCERNING THE UTILITIES, NOR DOES IT GUARANTEE AGAINST THE POSSIBILITY THAT ADDITIONAL UTILITIES MAY BE PRESENT THAT ARE NOT SHOWN ON THE PLANS. PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION THE CONTRACTOR SHALL VERIFY AND DETERMINE THE EXACT LOCATION, SIZES, AND ELEVATION OF EXISTING UTILITIES.
2. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, OR EXISTING CONDITIONS DIFFER FROM THOSE SHOWN SUCH THAT THE WORK CANNOT BE COMPLETED AS INTENDED, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED IN WRITING TO THE OWNER'S REPRESENTATIVE FOR THE RESOLUTION OF THE CONFLICT. FAILURE TO PROVIDE OR PERFORM THE ABOVE PRIOR TO PERFORMING ANY WORK SHALL NOT BE GROUNDS FOR EXTRA PAYMENTS TO THE CONTRACTOR.
3. AT ALL LOCATIONS WHERE EXISTING CURBING OR PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING CURB OR PAVEMENT SHALL BE SAW CUT TO A CLEAN, SMOOTH EDGE. BLEND NEW PAVEMENT, CURBS, AND EARTHWORK SMOOTHLY INTO EXISTING BY MATCHING LINES, GRADES, AND JOINTS.
4. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES, AS REQUIRED.
5. ALL UTILITY COVERS, GRATES, ETC. SHALL BE ADJUSTED TO BE FLUSH WITH THE PAVEMENT FINISH GRADE UNLESS OTHERWISE NOTED.
6. INSTALL ALL UTILITIES (INCLUDING CONCRETE PADS) PER UTILITY COMPANY AND TOWN OF EXETER REQUIREMENTS.
7. EXISTING TREES AND SHRUBS OUTSIDE THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON PRIOR APPROVAL OF THE OWNER.
8. ALL SANITARY SEWER PIPE SHALL BE SDR–35 PVC UNLESS OTHERWISE NOTED.
9. WATER LINE SHALL BE CLASS 52 CEMENT LINED DUCTILE IRON.
10. ALL DRAINAGE PIPING SHALL BE HDPE UNLESS OTHERWISE NOTED.
11. INSULATE SANITARY PIPES WHERE INVERT DEPTH IS LESS THAN FIVE (5) FEET BELOW FINISHED GRADE.
12. CONTRACTOR SHALL PROTECT ALL UNDERGROUND DRAINAGE, SEWER AND UTILITY FACILITIES FROM EXCESSIVE VEHICULAR LOADS DURING CONSTRUCTION. ANY DAMAGE TO THESE FACILITIES RESULTING FROM CONSTRUCTION LOADS WILL BE RESTORED TO ORIGINAL CONDITION (AT NO ADDITIONAL COST TO THE OWNER) BY THE CONTRACTOR.
13. ALL UTILITY CONNECTIONS SHALL BE COORDINATED WITH TOWN STAFF.
14. FIRE ALARM CONNECTION LOCATIONS AND ROUTING ARE SUBJECT TO REVIEW AND APPROVAL BY THE FIRE DEPARTMENT.
15. THE CONTRACTOR SHALL REMOVE ALL EROSION CONTROL BARRIERS AFTER REVEGETATION OF DISTURBED AREAS AND AFTER APPROVAL BY THE LOCAL APPROVING AUTHORITY.
16. EXCAVATION REQUIRED IN THE PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER.
17. THE CONTRACTOR SHALL SCHEDULE THEIR WORK TO ALLOW THE FINISHED SUBGRADE ELEVATIONS TO DRAIN PROPERLY WITHOUT PUDDLING. SPECIFICALLY, ALLOW WATER TO ESCAPE WHERE PROPOSED CURB MAY RETAIN RUNOFF PRIOR TO APPLICATION OF THE FINISH SUBGRADE AND/OR SURFACE PAVING.
18. UNLESS OTHERWISE INDICATED, ABANDONED EXISTING UTILITY LINES SHALL BE CAPPED AND ABANDONED IN PLACE UNLESS THEY CONFLICT WITH PROPOSED IMPROVEMENTS, WHERE THEY SHALL THEN BE REMOVED. CAP REMAINING PORTIONS WHERE PARTIALLY REMOVED.
19. ALL WATER SPECS/MATERIALS SHALL BE DESIGNED TO MEET TOWN OF EXETER REQUIREMENTS AND WILL BE COORDINATED WITH THE DEPARTMENT OF PUBLIC WORKS.
20. MINIMUM MANHOLE DIAMETER IS 4'. CONTRACTOR SHALL VERIFY, THROUGH SHOP DRAWING SUBMITTALS TO THE ENGINEER, ACTUAL SIZES NEEDED TO ACCOMMODATE SPECIFIED PIPES.
21. 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.
22. THE SITE CONTRACTOR MUST OBTAIN A TOWN OF EXETER UTILITY PIPE INSTALLER'S LICENSE. THE JOB SUPERVISOR OR FOREMAN SHALL BE CERTIFIED BY THE TOWN PRIOR TO WORKING ON A TOWN–OWNED WATER, SEWER, OR DRAINAGE SYSTEM OR UTILITIES THAT MAY CONNECT TO A TOWN–OWNED WATER, SEWER, OR DRAINAGE SYSTEM. A LICENSED SUPERVISOR OR FOREMAN SHALL BE PRESENT AT THE JOB SITE DURING CONSTRUCTION OF ALL SUCH UTILITIES.

GENERAL SYMBOLS

EXISTING	PROPOSED	
		CATCH BASIN
		DRAIN MANHOLE
		SEWER MANHOLE
		ELECTRIC MANHOLE
		TELEPHONE MANHOLE
		MANHOLE
HH	HH	HANDHOLE
B		BOLLARD
WG		WATER GATE
		FIRE HYDRANT
GG		GAS GATE
		STREET SIGN
		LIGHT POLE
		WALL MOUNTED LIGHT
		UTILITY POLE
		GUY POLE
MW	MW	GUY WIRE
		MONITORING WELL
TP–3	TP–#	TEST PIT (W/ I.D.)
	EOP	EDGE OF PAVEMENT
MCC	MCC	MONOLITHIC CONCRETE CURB
	ECC	EXTRUDED CONCRETE CURB
		GUARD RAIL
	X	CHAINLINK FENCE
		DRAINAGE LINE
	S	SEWER LINE
	W	WATER LINE
G	G	GAS LINE
		UNDERGROUND ELECTRIC/TELEPHONE LINE
OHW	OHW	OVERHEAD WIRE
		STONE WALL
		TREE LINE
		ENTRANCE/EXIT DOOR
N00° 00' 00"E	N00° 00' 00"E	CITY LAYOUT
N00° 00' 00"E	N00° 00' 00"E	PROPERTY LINE

PAVEMENT MARKINGS AND SIGNING SYMBOLS

EXISTING	PROPOSED	
CW	CW	CROSSWALK, 12" WHITE LINE (WIDTH NOTED)
SL	SL	STOP LINE, 12" WHITE LINE 4' BEHIND CW (TYP.)
SWEL,SWLL	SWL,SWEL,SWLL	SOLID WHITE LINE–4"
SYEL, SYLL	SWL,SYEL, SYLL	SOLID YELLOW LINE–4"
DYCL	DYCL	DOUBLE YELLOW CENTER LINE– 2–4" LINES
	VAN	ADA–ACCESSIBLE PARKING SPACE

ABBREVIATIONS

GENERAL

ABAN	ABANDON
AC	ACRES
ACR	ACCESSIBLE CURB RAMP
AD	AREA DRAIN
ADJ	ADJUST
APPROX	APPROXIMATE
BLDG	BUILDING
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BOT	BOTTOM OF TRENCH
CC	CONCRETE CURB
CCB	CAPE COD BERM
CEM	CEMENT
CLF	CHAIN LINK FENCE
CO	CLEAN OUT
COMM	COMMUNITY
CONC	CONCRETE
DIA	DIAMETER
ELEV	ELEVATION
EOP	EDGE OF PAVEMENT
EOS	EDGE OF SURFACE
EXIST	EXISTING
FND	FOUNDATION
GE	GRANITE EDGING
GFA	GROSS FLOOR AREA
HMA	HOT MIX ASPHALT
LA	LANDSCAPE AREA
LF	LINEAR FEET
MAX	MAXIMUM
MCC	MONOLITHIC CONCRETE CURB
MIN	MINIMUM
NTS	NOT TO SCALE
PCC	PRECAST CONRETE CURB
PROP	PROPOSED
PVMT	PAVEMENT
R	RADIUS
REM	REMOVE
REMOD	REMODEL
RET	RETAIN
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
SW	SIDEWALK
TOS	TOP OF SLOPE
TOT	TOP OF TRENCH
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
VCG	VERTICAL GRANITE CURB

UTILITIES

ACCMP	ASPHALT COATED CORRUGATED METAL PIPE
BC	BOTTOM OF CHANNEL
CB	CATCH BASIN
CAP	CORRUGATED ALUMINUM PIPE
CIP	CAST IRON PIPE
CIT	CHANGE IN TYPE
CLDI	CEMENT LINED DUCTILE IRON
COND	CONDUIT
CO	CLEAN OUT
DCB	DOUBLE CATCH BASIN
DIP	DUCTILE IRON PIPE
DMH	DRAINAGE MANHOLE
ETC	ELECTRIC, TELEPHONE, & CABLE
F&G	FRAME AND GRATE
F&C	FRAME AND COVER
FES	FLARED END SECTION
GV	GAS VALVE
GI	GUTTER INLET
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HYD	HYDRANT
INV	INVERT ELEVATION
PERF	PERFORATED
PVC	POLYVINYL CHLORIDE PIPE
PWW	PAVED WATER WAY
RCP	REINFORCED CONCRETE PIPE (CLASS III)
SMH	SEWER MANHOLE
TEL	TELEPHONE
TSV	TAPPING SLEEVE AND VALVE
UP	UTILITY POLE
VCP	VITRIFIED CLAY PIPE
WV	WATER VALVE

ALIGNMENT/GRADING

CC	CENTER OF CURVE
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PI	POINT OF INTERSECTION
PNT	POINT
PRC	POINT OF REVERSE CURVE
PT	POINT OF TANGENT

PROPOSED CONSTRUCTION SEQUENCING

1. SELECTIVELY REMOVE VEGETATION FOR COMPOST FILTER TUBE INSTALLATION;
2. INSTALL COMPOST FILTER TUBE;
3. INSTALL CONSTRUCTION FENCING AT LIMITS OF WORK, AND NO–DISTURB/TREE SAVE AREAS, IF ANY;
4. STABILIZE CONSTRUCTION ENTRANCES;
5. PREPARE CONSTRUCTION TRAILER/STAGING LOCATION;
6. CONDUCT SITE DEMOLITION AS NECESSARY;
7. CONSTRUCT NEW SEDIMENT BASINS AS NECESSARY;
8. STRIP AND STOCKPILE TOPSOIL AS NECESSARY;
9. TEMPORARILY STABILIZE TOPSOIL STOCKPILES (SEED AND SILT FENCE (GRASSED AREA) OR COMPOST FILTER TUBE OR STRAW BALES (PAVEMENT AREA) AROUND TOE OF SLOPE);
10. CONDUCT EARTHWORK CUTS AND FILLS TO BRING SITE TO GRADE;
11. CONSTRUCT UTILITIES (WATER, SEWER, STORM DRAIN, ETC.);
12. INITIATE BUILDING CONSTRUCTION;
13. CONSTRUCT DRIVEWAY/PARKING/SIDEWALK PAVEMENT AREAS THROUGH BINDER COURSE;
14. COMPLETE BUILDING CONSTRUCTION;
15. FINISH GRADE LANDSCAPING AREAS;
16. PERMANENTLY STABILIZE LANDSCAPING AREAS WITH SEED/LANDSCAPING;
17. CONSTRUCT DRIVEWAY/PARKING AREAS THROUGH TOP COURSE; AND
18. REMOVE ALL TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES UPON PERMANENT SITE STABILIZATION AND APPROVAL BY THE ENGINEER AND THE TOWN OF EXETER.

The Engineering Corp

TEC, Inc.

169 Ocean Boulevard, Unit 101
PO Box 249
Hampton, NH 03842
(603) 601-8154
www.TheEngineeringCorp.com

DESIGNED BY	MWP
DRAWN BY	MWC
CHECKED BY	CPR
DATE	5/9/2023
SCALE	Not to Scale

OWNER/APPLICANT

Tropic Star Development LLC,
321 D Lafayette Road,
Hampton, NH 03842

REVISIONS

1. Peer Review & TRC Comments 6/23/23

ISSUED FOR

Permitting

PROJECT TITLE

Proposed Commercial Development

PROJECT LOCATION

2 Meeting Place Dr.
Exeter NH 03833

DRAWING TITLE

Legend & General Notes

STATE OF NEW HAMPSHIRE – CHRISTOPHER P. RAYMOND No.16305 LICENSED – PROFESSIONAL ENGINEER

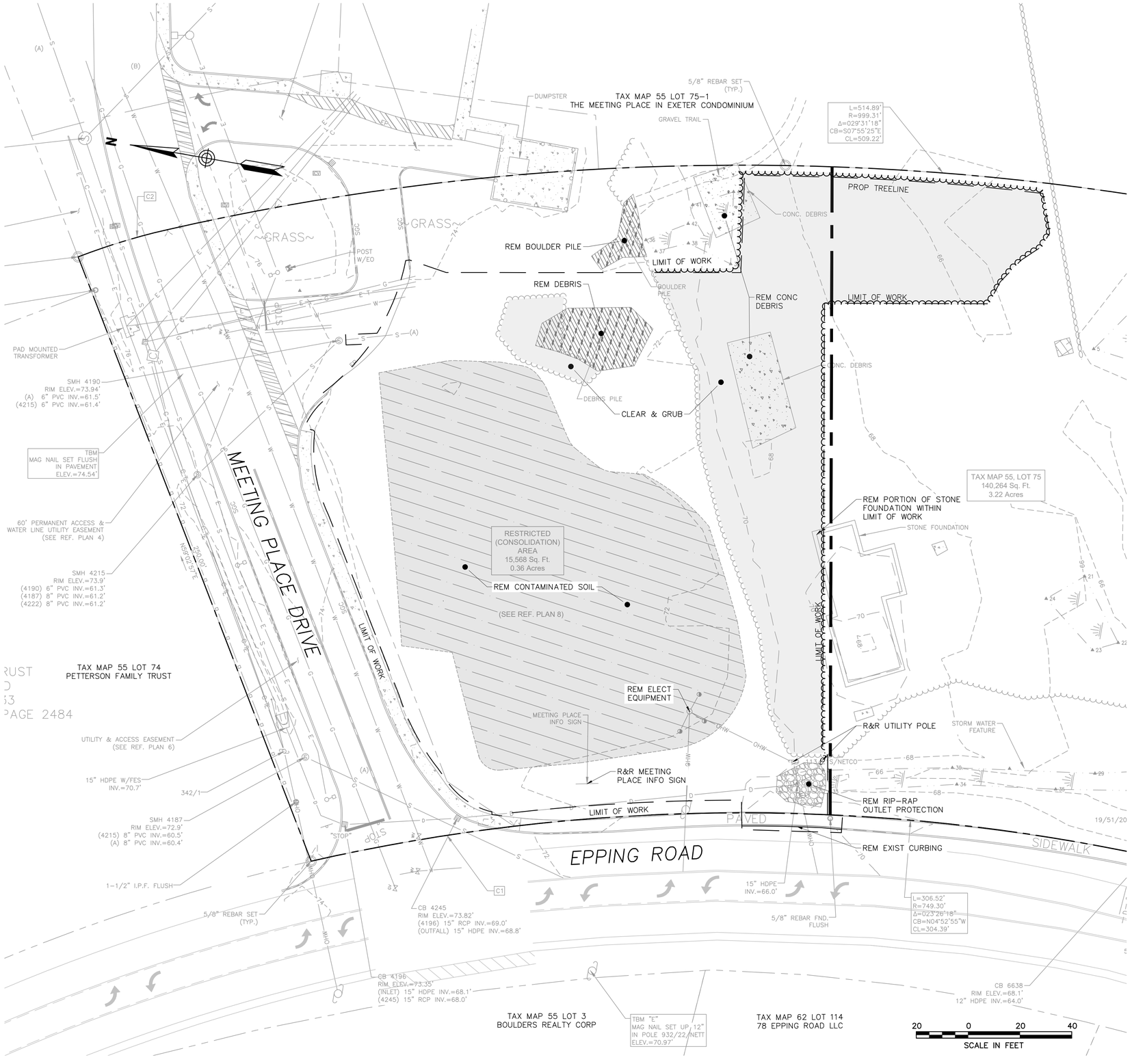
PROJECT NO. N1264

TEC CAD FILE N1264_LEG

DRAWING NO. C-2

SITE DEMOLITION NOTES:

1. DELINEATED CONTAMINATED SOIL TO BE REMOVED AND DISPOSED OF BY QUALIFIED PERSONNEL IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL STANDARDS. CONFIRMATORY SOIL SAMPLING TO BE COMPLETED PRIOR TO INITIATING FURTHER DEMOLITION ACTIVITIES.
2. ALL UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND ELEVATIONS OF EACH UTILITY PRIOR TO REMOVING OR RELOCATING. CONTRACTOR SHALL NOTIFY DIG-SAFE (1-888-344-7233) AND THE LOCAL MUNICIPAL WATER & SEWER DEPT. AT LEAST 72 HOURS BEFORE EXCAVATING.
3. THE CONTRACTOR IS TO REMOVE AND TO DISPOSE OF EXISTING MANMADE SURFACE FEATURES WITHIN THE LIMITS OF WORK INCLUDING BUILDINGS, STRUCTURES, PAVEMENTS, SLABS, CURBING, FENCES, UTILITY POLES, SIGNS, ETC. UNLESS INDICATED OTHERWISE ON THE DRAWINGS. REMOVE AND DISPOSE OF EXISTING UTILITIES, FOUNDATIONS, AND UNSUITABLE MATERIAL WITHIN THE PROPOSED BUILDING FOOTPRINT, TEN FEET BEYOND AND BENEATH PROPOSED EXTERIOR COLUMNS, AND CONFLICTING WITH ANY PROPOSED SITE WORK, PER DRAWINGS AND SPECIFICATIONS.
4. ALL UTILITIES AND STUBS WITHIN MEETING PLACE DRIVE TO BE MAINTAINED AND PROTECTED DURING CONSTRUCTION.
5. THE CONTRACTOR SHALL DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES, AND STATUTES.
6. ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED AND APPROVED PRIOR TO DEMOLITION.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS. A 6-FOOT TEMPORARY CHAIN LINK FENCE SHALL BE PROVIDED AROUND ALL CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL LEAVE NO UNSECURED OPEN EXCAVATIONS.
8. ALL EXISTING DRAINAGE STRUCTURES SHALL REMAIN IN PLACE AND FUNCTIONAL UNTIL THE PROPOSED DRAINAGE SYSTEM IS OPERATIONAL, UNLESS OTHERWISE NOTED BY THE ENGINEER.
9. THE CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST 72 HOURS PRIOR TO BEGINNING ANY DEMOLITION.
10. IN THE EVENT THAT SUSPECTED CONTAMINATED SOIL, GROUNDWATER, AND OTHER MEDIA ARE ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION ACTIVITIES BASED ON VISUAL, OLFACTORY, OR OTHER EVIDENCE, THE CONTRACTOR SHALL STOP WORK IN THE VICINITY OF THE SUSPECT MATERIAL TO AVOID FURTHER SPREADING OF THE MATERIAL, AND SHALL NOTIFY THE OWNER IMMEDIATELY SO THAT THE APPROPRIATE TESTING AND SUBSEQUENT ACTION CAN BE TAKEN.
11. SEE REMEDIAL ACTION WORK PLAN AND SOIL MANAGEMENT PLAN FROM CARRIAGEHOUSE CONSULTING, INC. DATED MAY 9, 2023 FOR THE REMOVAL OF CONTAMINATED SOIL.



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DRAWN BY	MWC
CHECKED BY	CPR
DATE	5/9/2023
SCALE	1"=20'

OWNER/APPLICANT

Tropic Star Development LLC,
321 D Lafayette Road,
Hampton, NH 03842

REVISIONS

1. Peer Review & TRC Comments 6/23/23

ISSUED FOR
Permitting

PROJECT TITLE
Proposed Commercial Development

PROJECT LOCATION
2 Meeting Place Dr.
Exeter NH 03833

DRAWING TITLE
Demolition Plan

STATE OF NEW HAMPSHIRE
CHRISTOPHER D. RAYMOND
No.16305
LICENSED PROFESSIONAL ENGINEER

PROJECT NO. N1264
TEC CAD FILE N1264_DEMO
DRAWING NO. C-3
SHEET 3 OF 16

ZONING TABLE

ZONING DISTRICT	COMMERCIAL HIGHWAY (C-2)	
PROPOSED USE	COMMERCIAL BANK	
PROPOSED USE ALLOWABLE BY	RIGHT	
DIMENSIONAL REQUIREMENTS	REQUIRED	PROVIDED
LOT AREA	20,000 SF	62,014 SF
LOT WIDTH	150 FT	202 FT
LOT DEPTH	100 FT	250 FT
FRONTAGE	150 FT	202 FT
FRONT YARD SETBACK	50 FT	96 FT
SIDE YARD SETBACK ONE/BOTH	20 FT / 40 FT	50 FT, 108 FT
REAR YARD SETBACK	50 FT	117 FT
BUILDING HEIGHT/STORIES	35 FT	<35 FT
BUILDING COVERAGE (MAX)	30%	6.3%
OPEN SPACE (MIN)	15%	36.7%

PARKING TABLE

REQUIRED PARKING	BUSINESS OFFICE: 1 SPACE REQUIRED PER 250 SQUARE FEET OF GROSS FLOOR AREA = 2,671 SF/250 SF/SPACE TOTAL REQUIRED PARKING = 11 SPACES	
PROPOSED PARKING	21 SPACES	
PARKING REQUIREMENTS	REQUIRED	PROVIDED
HANDICAP ACCESSIBLE	2	2
ELECTRIC VEHICLE CHARGING	1	1
AISLE WIDTH	22 FT	22 FT
STALL WIDTH	9 FT	9 FT
LENGTH OF SPACE	19 FT	19 FT

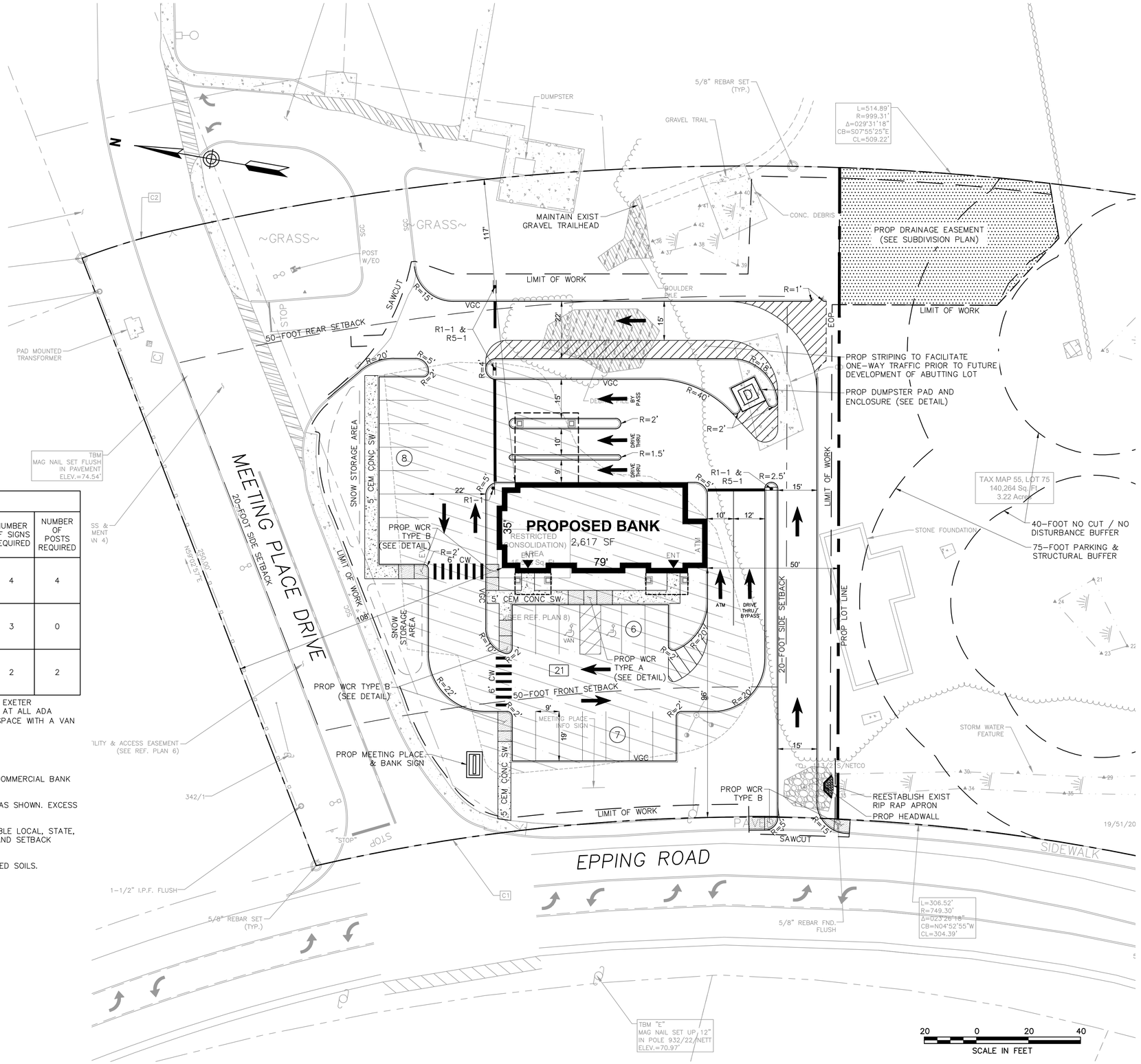
TRAFFIC SIGN SUMMARY

ID NUMBER	SIZE OF SIGN (in)			TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	NUMBER OF POSTS REQUIRED
	WIDTH	HEIGHT	LEGEND	LETTER HEIGHT	VERTICAL SPACING	ROUTE MARKER		
R1-1	30	30	STOP	SEE MUTCD SIGN STANDARDS			4	4
R5-1	24	24	DO NOT ENTER				3	0
R7-8*	12	24	RESERVED PARKING				2	2

* HANDICAP PARKING SIGNS SHALL BE IN ACCORDANCE WITH TOWN OF EXETER STANDARDS, AND ADA REGULATIONS. VAN SIGNS SHALL BE LOCATED AT ALL ADA SPACES. PER ADA ACCESSIBILITY GUIDELINES (AMENDED 2010) ANY SPACE WITH A VAN SIGN IS NOT INTENDED TO BE RESTRICTED ONLY TO VANS

NOTES:

1. THE INTENT OF THIS PLAN IS TO CONSTRUCT A 1-STORY 2,617 SF COMMERCIAL BANK WITH 2 DRIVE THRU KIOSKS, OFFICE SPACE, AND ATM.
2. SNOW STORAGE AREAS TO BE LOCATED WITHIN LANDSCAPED AREAS AS SHOWN. EXCESS SNOW IS TO BE REMOVED FROM THE SITE.
3. 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.
4. WETLAND SETBACKS SHOWN ARE FOR WETLANDS WITH POORLY DRAINED SOILS.



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PROJECT TITLE

Proposed Commercial Development

PROJECT LOCATION

2 Meeting Place Dr.
Exeter NH 03833

DRAWING TITLE

Construction Plan

STATE OF NEW HAMPSHIRE - CHRISTOPHER R. RAYMOND No.16305 LICENSED PROFESSIONAL ENGINEER -

PROJECT NO. N1264

TEC CAD FILE N1264_CO

DRAWING NO. C-4

SHEET 4 OF 16

UTILITY SERVICE PROVIDER	
WATER	PENNICHUCK EAST
SEWER	TOWN OF EXETER
GAS	UNITIL
ELECTRIC	EVERSOURCE, UNITIL
TELEPHONE	CONSOLIDATED COMMUNICATIONS
INTERNET	COMCAST

NOTES:

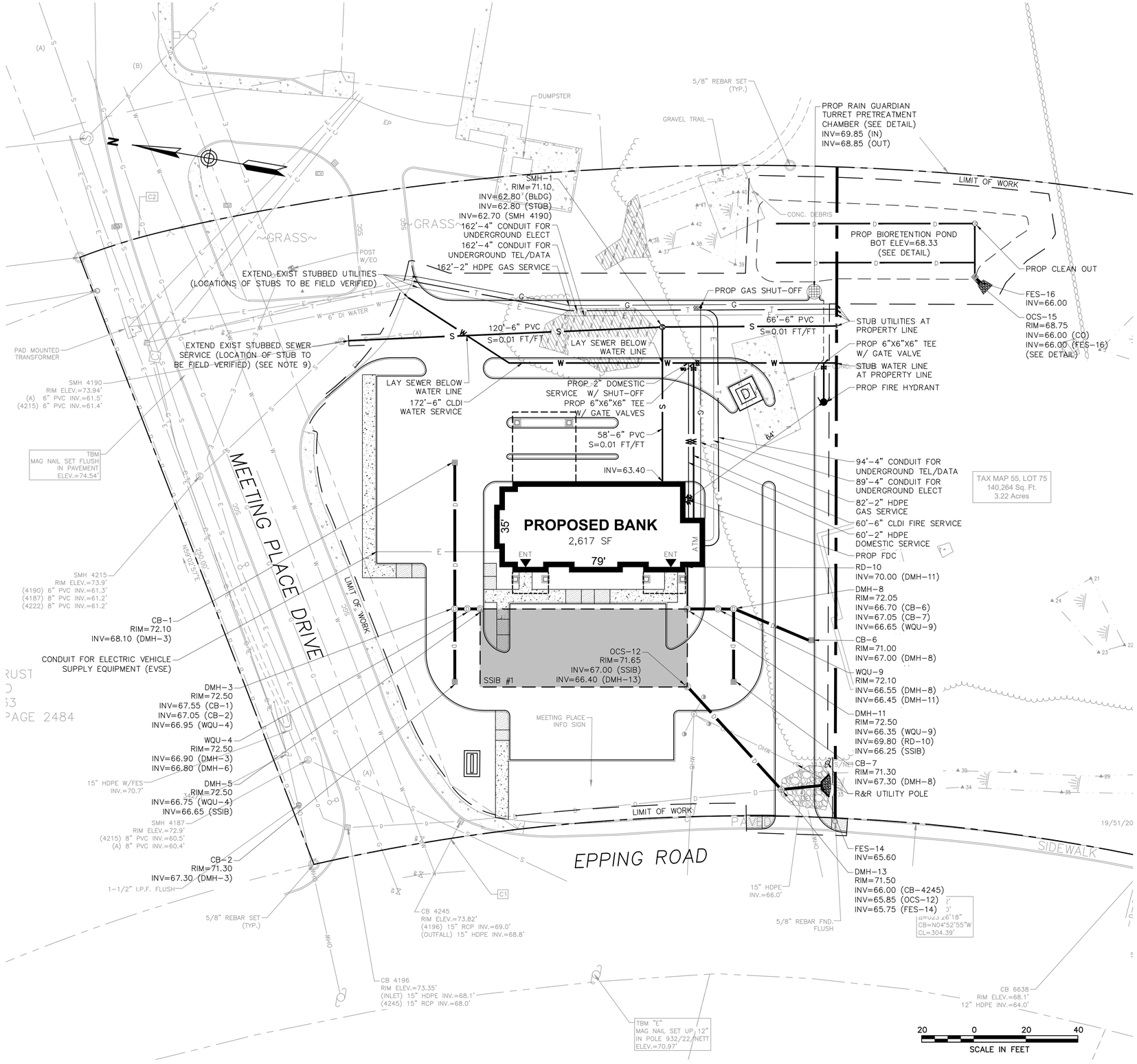
1. THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION AND TELEPHONE LINES SHALL BE UNDERGROUND WHERE FEASIBLE THROUGHOUT THE SITE FOR WHICH DEVELOPMENT IS PROPOSED. CONDUIT DIAMETER TO BE BETWEEN 3" AND 5".
2. THE SUBJECT PARCEL IS SERVED BY MUNICIPAL WATER AND SEWER.
3. THE UTILITY POLE TO BE REMOVED AND RELOCATED WILL BE COORDINATED WITH EVERSOURCE/UNITIL.
4. ALL PROPOSED UTILITY LOCATIONS ARE APPROXIMATE, FINAL TIE IN LOCATIONS TO BE COORDINATED WITH TOWN OF EXETER MUNICIPAL SERVICES DEPARTMENT AND PRIVATE UTILITY COMPANIES PRIOR TO CONSTRUCTION.
5. SEWER SERVICE TO BE 6" SDR 35 PVC.
6. ALL DRAINAGE PIPES SHALL BE 12" HDPE UNLESS OTHERWISE NOTED.
7. CONDUIT FOR ELECTRIC VEHICLE PARKING SPACE TO BE INSTALLED; CHARGING STATION TO BE DETERMINED AFTER OCCUPANCY.
8. ELECTRICAL EQUIPMENT TO BE LOCATED ON ROOF AND SCREENED FROM VIEW (SEE ARCHITECTURAL PLANS).
9. IF NECESSARY, NHDES SEWER CONNECTION PERMIT TO BE SUBMITTED AT LEAST 30 DAYS PRIOR TO CONSTRUCTION.

SEWER DESIGN FLOW CALCULATIONS:

DESIGN FLOWS ARE BASED UPON THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES, ENV-WQ 1000; INDIVIDUAL SEWAGE DISPOSAL SYSTEMS, TABLE 1008-1 UNIT DESIGN FLOW FIGURES.

UNIT DESIGN FLOW FOR OFFICE BUILDING WITHOUT CAFETERIA:
10 GPD/EMPLOYEE
NUMBER OF EMPLOYEES: 6

DESIGN FLOW = (UNIT DESIGN FLOW)(NUMBER OF EMPLOYEES)
= (10 GPD/EMPLOYEE)(6 EMPLOYEES)
= 60 GPD



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PROJECT TITLE

Proposed Commercial Development

PROJECT LOCATION

2 Meeting Place Dr.
Exeter NH 03833

DRAWING TITLE

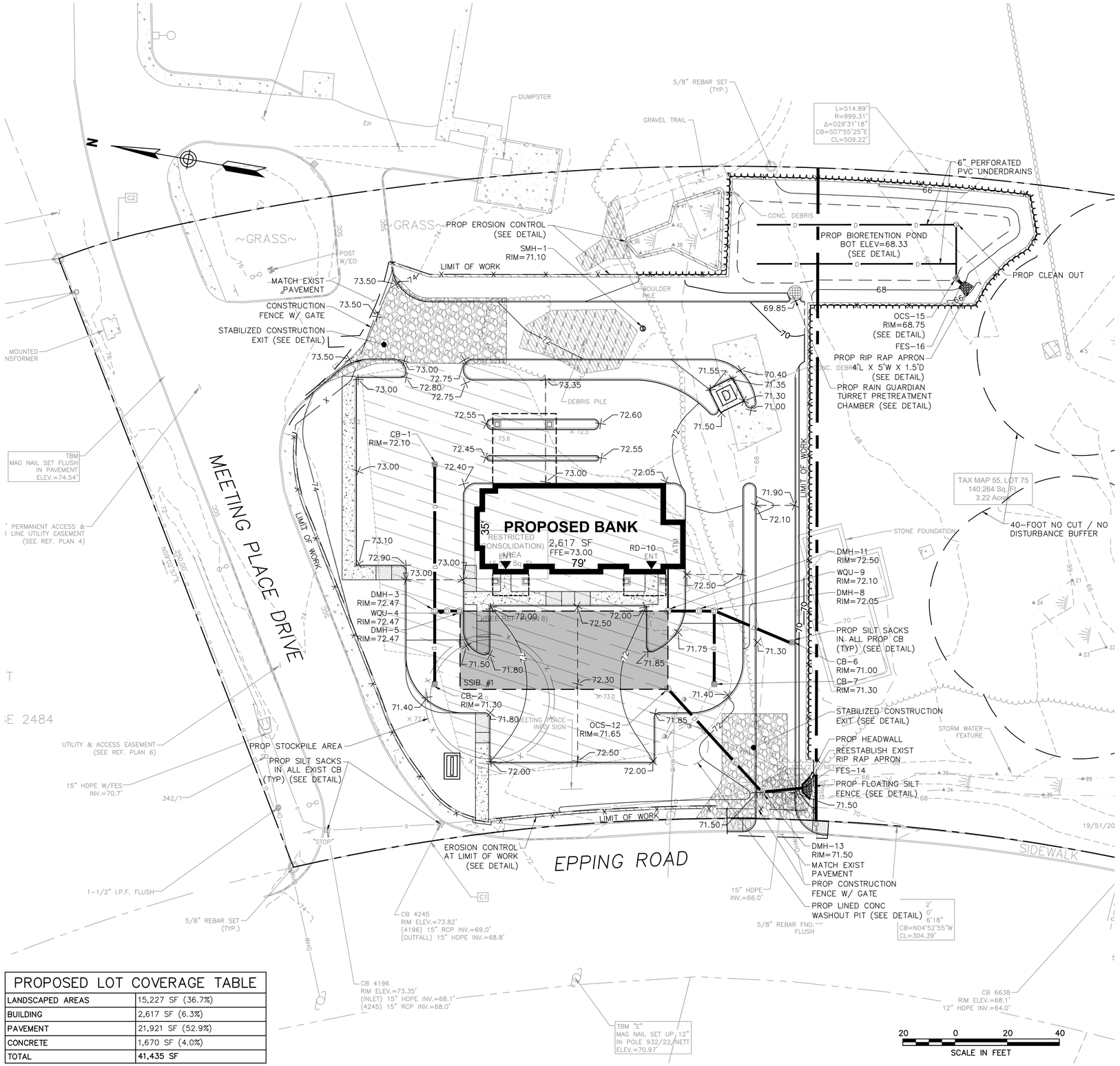
Utilities Plan

STATE OF NEW HAMPSHIRE - CHRISTOPHER D. RAYMOND No.16305 LICENSED PROFESSIONAL ENGINEER -

PROJECT NO. N1264
TEC CAD FILE N1264_UT
DRAWING NO. C-5
SHEET 5 OF 16

GRADING, DRAINAGE, EROSION & SEDIMENTATION CONTROL NOTES:

1. THERE WILL BE NO GRADING WITHIN 5 FEET OF ANY EXTERIOR PROPERTY LINE.
2. PROJECT IS LOCATED IN AN AREA OF MINIMAL FLOOD HAZARD (ZONE X) (MAP 33015C0402E).
3. TOTAL AREA OF DISTURBANCE = 41,435 SF.
4. PRIOR TO ANY LAND DISTURBANCE ACTIVITIES COMMENCING ON THE SITE, THE DEVELOPER SHALL PHYSICALLY MARK LIMITS OF NO LAND DISTURBANCE ON THE SITE WITH TAPE, SIGNS, OR ORANGE CONSTRUCTION FENCE, SO THAT WORKERS CAN SEE THE AREA TO BE PROTECTED.
5. APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO SOIL DISTURBANCE. MEASURES SHALL BE TAKEN TO CONTROL EROSION WITHIN THE PROJECT AREA. WETLAND AREAS AND SURFACE WATERS SHALL BE PROTECTED FROM SEDIMENT.
6. RUNOFF SHALL BE CONTROLLED AND CONVEYED INTO STORM DRAINS AND OTHER OUTLETS SO IT WILL NOT ERODE THE LAND OR CAUSE OFF-SITE DAMAGE; SEDIMENT IN RUNOFF SHALL BE TRAPPED BY USING STAKED HAY BALES, COMPOST FILTER TUBES, SILT SACKS, OR SEDIMENTATION TRAPS, OR OTHER APPROVED EROSION CONTROL DEVICES.
7. SEDIMENT BASINS SHALL BE CONSTRUCTED WHERE NECESSARY TO DETAIN RUNOFF AND TO TRAP SEDIMENT DURING CONSTRUCTION.
8. SEDIMENT SHALL BE REMOVED ONCE THE VOLUME REACHES ¼ TO ½ THE HEIGHT OF THE SILT FENCE OR HAY BALE.
9. EROSION AND SEDIMENT CONTROLS SHALL BE COORDINATED WITH THE SEQUENCE OF GRADING, DEVELOPMENT AND CONSTRUCTION OPERATIONS; CONTROL MEASURES SHALL BE IN EFFECT PRIOR TO COMMENCEMENT OF EACH INCREMENT/PHASE OF THE PROCESS.
10. SOIL AND OTHER MATERIALS SHALL NOT BE STOCKPILED OR REDISTRIBUTED, EITHER TEMPORARILY OR PERMANENTLY, IN LOCATIONS OR IN SUCH A MANNER AS WOULD CAUSE IMPEDANCE OF ABUTTING BUSINESS OR PROPERTY OWNERS.
11. TOPSOIL SHALL BE STRIPPED FROM DISTURBED AREAS, STOCKPILED IN APPROVED AREAS AND STABILIZED WITH TEMPORARY VEGETATIVE COVER IF IT IS TO BE LEFT FOR MORE THAN THIRTY (30) CALENDAR DAYS; PERIMETER SEDIMENT CONTROLS SHALL BE INSTALLED AROUND EACH AREA OF STOCKPILED TOPSOIL.
12. SOIL STOCKPILES SHALL BE STABILIZED OR COVERED AT THE END OF EACH WORKDAY.
13. STOCKPILED MATERIAL NOT UTILIZED ONSITE SHALL BE REMOVED IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
14. THE AREA OF DISTURBANCE SHALL BE KEPT TO A MINIMUM. DISTURBED AREAS REMAINING IDLE FOR MORE THAN 14 DAYS SHALL BE STABILIZED.
15. FOR ACTIVE CONSTRUCTION AREAS SUCH AS BORROW OR STOCKPILE AREAS, ROADWAY IMPROVEMENTS AND AREAS WITHIN 50 FEET OF A BUILDING UNDER CONSTRUCTION, A PERIMETER SEDIMENT CONTROL SYSTEM SHALL BE INSTALLED AND MAINTAINED TO CONTAIN SOIL.
16. A TRACKING PAD SHALL BE CONSTRUCTED AT ALL ENTRANCE/EXIT POINTS OF THE SITE TO REDUCE THE AMOUNT OF SOIL CARRIED ONTO ROADWAYS AND OFF THE SITE.
17. DUST SHALL BE CONTROLLED AT THE SITE.
18. TEMPORARY SEEDING, MULCHING OR OTHER SUITABLE STABILIZATION METHODS SHALL BE USED TO PROTECT EXPOSED SOIL AREAS DURING CONSTRUCTION.
19. PERMANENT SEEDING SHOULD BE UNDERTAKEN IN THE SPRING FROM MARCH THROUGH MAY, AND IN LATE SUMMER AND EARLY FALL FROM AUGUST TO OCTOBER 15. DURING PEAK SUMMER MONTHS AND IN THE FALL AFTER OCTOBER 15, WHEN SEEDING IS FOUND TO BE IMPRACTICAL, AN APPROPRIATE TEMPORARY MULCH SHALL BE APPLIED. PERMANENT SEEDING MAY BE UNDERTAKEN DURING THE SUMMER IF PLANS PROVIDE FOR ADEQUATE MULCHING AND WATERING.
20. PERMANENT VEGETATION AND EROSION CONTROL STRUCTURES, AS NECESSARY, SHALL BE INSTALLED PREFERABLY IMMEDIATELY AFTER CONSTRUCTION IS COMPLETED BUT OTHER WISE NO LATER THAN THE FIRST FULL SPRING SEASON IMMEDIATELY THEREAFTER; THEY SHALL COMPLY WITH THE EROSION AND SEDIMENTATION VEGETATIVE PRACTICES RECOMMENDED BY THE U.S. SOIL CONSERVATION SERVICE.
21. MONITORING AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES THROUGHOUT THE COURSE OF CONSTRUCTION SHALL BE REQUIRED.
22. TEMPORARY SEDIMENT TRAPPING DEVICES SHALL NOT BE REMOVED UNTIL PERMANENT STABILIZATION IS ESTABLISHED IN ALL CONTRIBUTORY DRAINAGE AREAS. SIMILARLY, STABILIZATION SHALL BE ESTABLISHED PRIOR TO CONVERTING SEDIMENT TRAPS/BASINS INTO PERMANENT (POST-CONSTRUCTION) STORMWATER MANAGEMENT FACILITIES. ALL FACILITIES USED AS TEMPORARY MEASURES SHALL BE CLEANED PRIOR TO BEING PUT INTO FINAL OPERATIONS.
23. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AFTER FINAL SITE STABILIZATION. DISTURBED SOIL AREAS RESULTING FROM THE REMOVAL OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED WITHIN 30 DAYS. THE APPLICANT'S ENGINEER SHALL SUBMIT WRITTEN CERTIFICATION THAT THIS CONDITION HAS BEEN MET.
24. CONTRACTOR SHALL CONSTRUCT A LINED CONCRETE WASHOUT PIT ONSITE PRIOR TO ANY CONCRETE POURS.



PROPOSED LOT COVERAGE TABLE	
LANDSCAPED AREAS	15,227 SF (36.7%)
BUILDING	2,617 SF (6.3%)
PAVEMENT	21,921 SF (52.9%)
CONCRETE	1,670 SF (4.0%)
TOTAL	41,435 SF

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DATE	5/9/2023
SCALE	1"=20'

OWNER/APPLICANT

Tropic Star Development LLC,
321 D Lafayette Road,
Hampton, NH 03842

REVISIONS

1. Peer Review & TRC Comments 6/23/23

ISSUED FOR

Permitting

PROJECT TITLE

Proposed Commercial Development

PROJECT LOCATION

2 Meeting Place Dr.
Exeter NH 03833

DRAWING TITLE

Grading, Drainage and Erosion & Sedimentation Control Plan

STATE OF NEW HAMPSHIRE - CHRISTOPHER P. RAYMOND No.16305 - LICENSED PROFESSIONAL ENGINEER

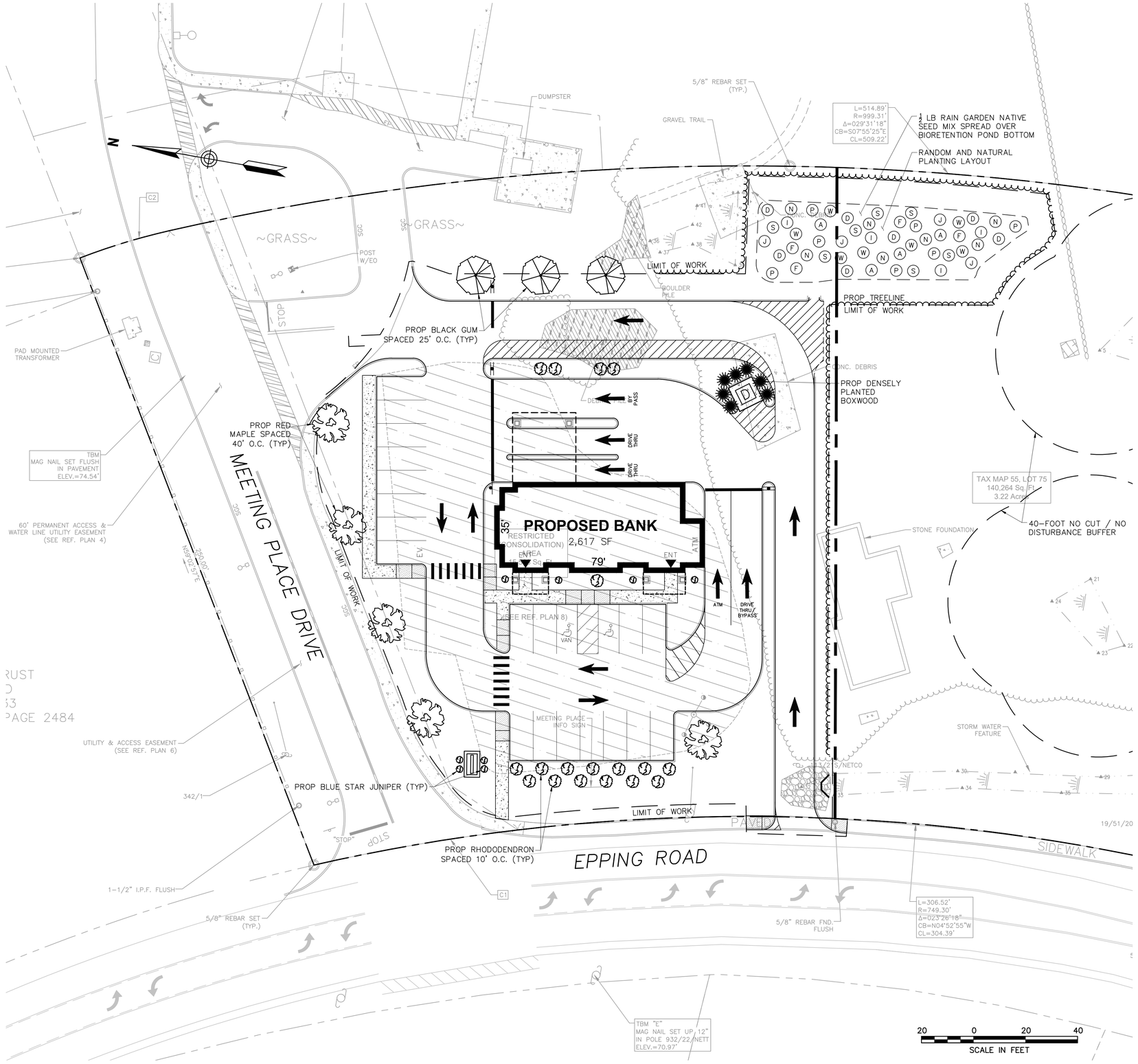
PROJECT NO. N1264
TEC CAD FILE N1264_GD
DRAWING NO. C-6
SHEET 6 OF 16

LANDSCAPING PLANTING TABLE		
SYMBOL	NAME	QUANTITY
	RHODODENDRON (Rhododendron arboreum)	18
	BLUE STAR JUNIPER (Juniperus squamata)	8
	RED MAPLE (Acer rubrum)	5
	BLACK GUM (Nyssa sylvatica)	3
	BOXWOOD (Buxus sempervirens)	7

BIORETENTION POND PLANTING TABLE		
SYMBOL	NAME	QUANTITY
D	SILKY DOGWOOD (Cornus amomum)	7
P	PUSSY WILLOW (Salix discolor)	7
S	SPECKLED ALDER (Alnus incana)	7
W	WINTERBERRY (Ilex verticillata)	7
N	NORTHERN ARROWWOOD (Viburnum dentatum)	7
F	SENSITIVE FERN (Onoclea sensibilis)	4
I	BLUE FLAG IRIS (Iris versicolor)	4
J	JOE-PYE WEED (Eutrochium purpureum)	4
A	NEW ENGLAND ASTER (Symphyotrichum novae-angliae)	4
	RAIN GARDEN NATIVE SEEDMIX	½ LB

BIORETENTION POND PLANTING NOTES:

1. FINAL SPECIES SHALL BE DETERMINED PRIOR TO CONSTRUCTION. SPECIES SHALL BE NATIVE AND DROUGHT TOLERANT FACULTATIVE WETLAND SPECIES.
2. WOODY VEGETATION SHALL NOT BE PLANTED NEAR INFLOW LOCATIONS OR DIRECTLY ABOVE UNDERDRAIN.



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Proposed Commercial Development

PROJECT LOCATION

2 Meeting Place Dr.
Exeter NH 03833

DRAWING TITLE

Landscaping Plan

STATE OF NEW HAMPSHIRE - CHRISTOPHER P. RAYMOND No.16305 - LICENSED PROFESSIONAL ENGINEER -

PROJECT NO. N1264

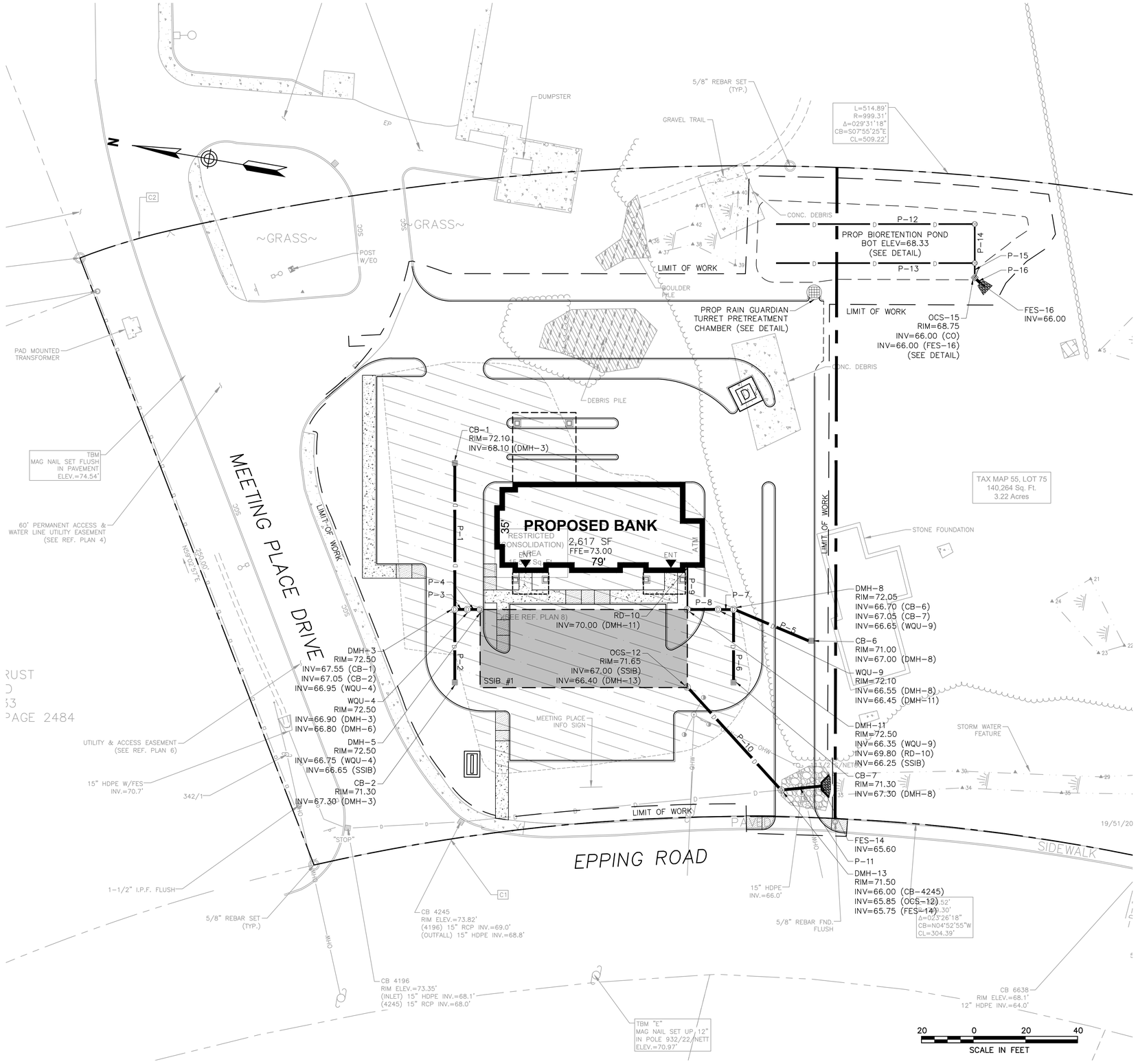
TEC CAD FILE N1264_LA

DRAWING NO. C-7

SHEET 7 OF 16

DRAINAGE PIPING TABLE

	SIZE	LENGTH	SLOPE (FT/FT)
P-1	12"	54'-0"	0.01
P-2	12"	25'-9"	0.01
P-3	12"	2'-4"	0.01
P-4	12"	2'-6"	0.01
P-5	12"	27'-4"	0.01
P-6	12"	25'-9"	0.01
P-7	12"	3'-6"	0.01
P-8	12"	9'-4"	0.01
P-9	6"	15'-6"	0.01
P-10	12"	51'-0"	0.01
P-11	12"	11'-10"	0.01
P-12	6"	76'-4"	0.01
P-13	6"	76'-4"	0.01
P-14	6"	19'-0"	0.01
P-15	6"	3'-3"	0.01
P-16	12"	2'-0"	0.01



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Hampton, NH 03842

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PROJECT TITLE

Proposed Commercial Development

PROJECT LOCATION

2 Meeting Place Dr.
Exeter NH 03833

DRAWING TITLE

Drainage Improvements and Stormwater Management Plan

STATE OF NEW HAMPSHIRE - CHRISTOPHER P. RAYMOND No.16305 - LICENSED PROFESSIONAL ENGINEER -

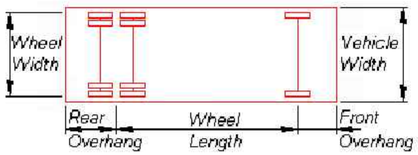
PROJECT NO. N1264

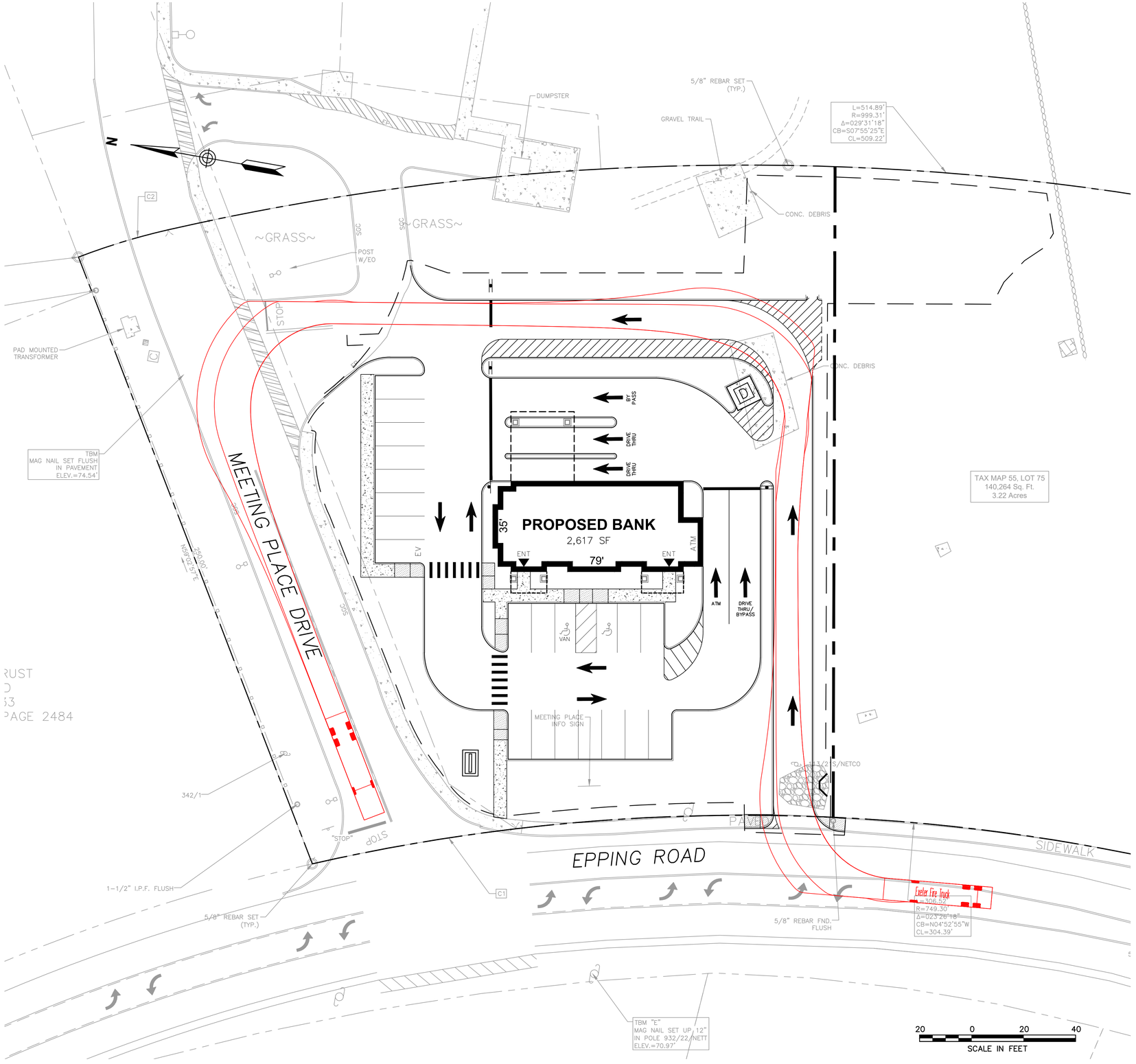
TEC CAD FILE N1264_DR

DRAWING NO. C-8

SHEET 8 OF 16

109' REAR MOUNT LADDER KME FIRE APPARATUS	
WHEEL WIDTH	8.333'
WHEEL LENGTH	19.750'
VEHICLE WIDTH	8.333'
FRONT OVERHANG	10.000'
REAR OVERHANG	10.000'
TIRE DIAMETER	3.600'
REAR AXLE COUNT	2
REAR AXLE OFFSET	4.500'





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PROJECT TITLE

Proposed Commercial Development

PROJECT LOCATION

2 Meeting Place Dr.
Exeter NH 03833

DRAWING TITLE

Fire Truck Turning Plan

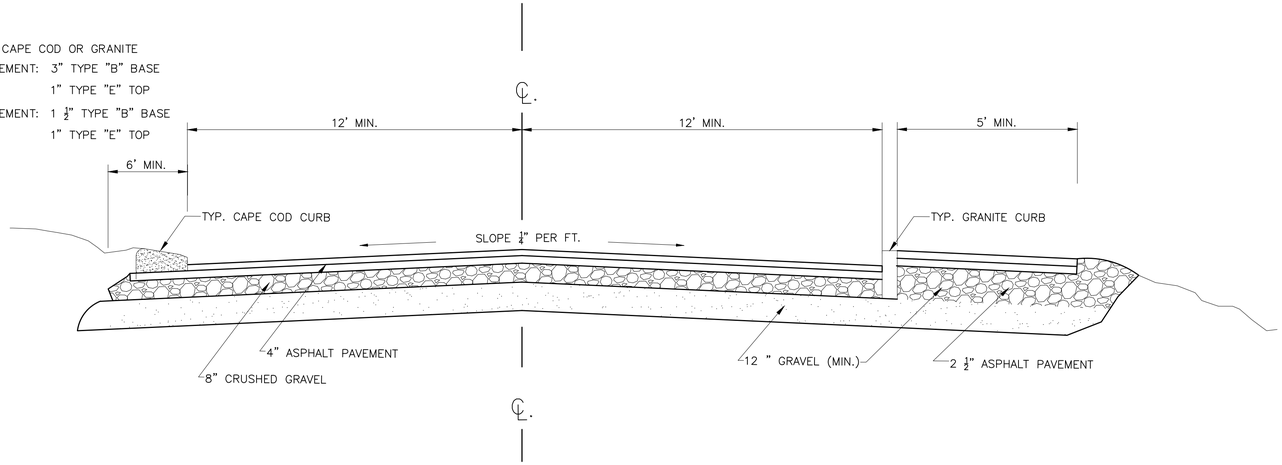
STATE OF NEW HAMPSHIRE - CHRISTOPHER D. RAYMOND No.16305 LICENSED PROFESSIONAL ENGINEER -

PROJECT NO. N1264

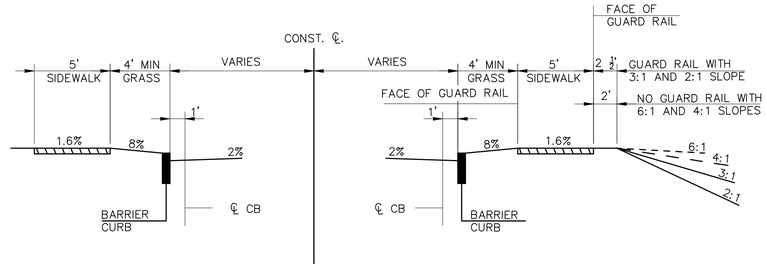
TEC CAD FILE N1264_TR

DRAWING NO. C-9

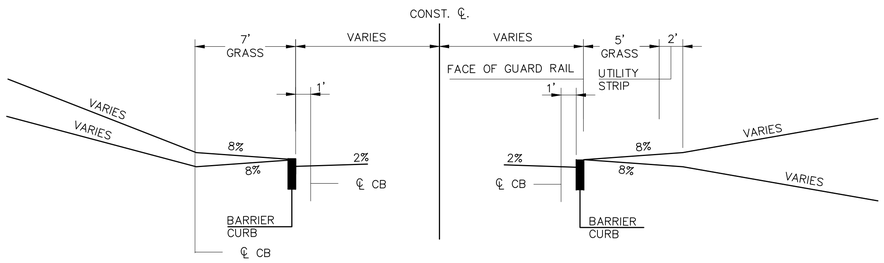
NOTES:
1. CURBS TO BE CAPE COD OR GRANITE
2. ROADWAY PAVEMENT: 3" TYPE "B" BASE
   1" TYPE "E" TOP
3. SIDEWALK PAVEMENT: 1 ½" TYPE "B" BASE
   1" TYPE "E" TOP



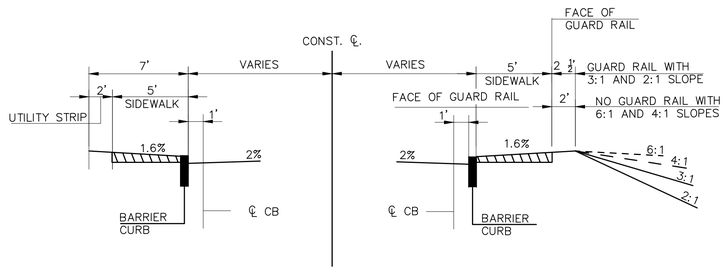
TYPICAL CURBED ROADWAY
N.T.S.



SIDEWALK AND GRASS STRIP
N.T.S.



NO FORMAL SIDEWALK
N.T.S.

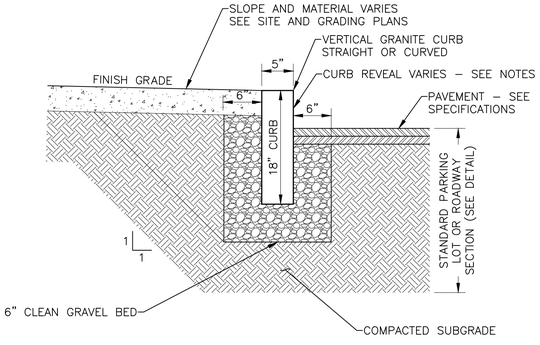


SIDEWALK
N.T.S.

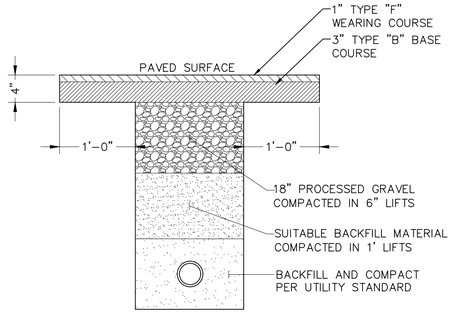
NOTES:
1. ON MULTILANE TYPICAL, A 10' (MIN.) ADJACENT TO THE CURB SHOULD BE PROVIDED FOR SNOW STORAGE WHEN PRACTICABLE
2. WHEN PRACTICABLE, A 4' (MIN.) GRASS STRIP WILL BE PLACED IN ADVANCE OF ALL SIDEWALKS
3. DIMENSIONS SHOWN ARE DESIRABLE BUT MAY BE VARIED WHEN CONDITIONS WARRANT,
4. 8% SLOPE ON GRASS STRIPS SHOWN, MAY BE VARIED TO IMPROVE MATCH TO ADJACENT PROPERTIES
5. CURB REVEAL NORMALLY: 7" BARRIER CURB – AT SIDEWALK LOCATIONS. (TAPER ENDS 0" TO 7" IN 8')
   6" SLOPE CURB – ON URBAN ISLANDS. (TAPER ENDS 0" TO 6" IN 8')

NOTES:
1. THE CURB REVEAL SHALL BE 7" WHERE ADJACENT TO SIDEWALKS AND 6" ON URBAN ISLANDS

RADIUS	MAX LENGTH
<21'	USE CURVED CURB
12'	3'
22'–28'	4'
29'–35'	5'
36'–42'	6'
43'–49'	7'
50'–56'	8'
57'–60'	9'
OVER 60'	10'

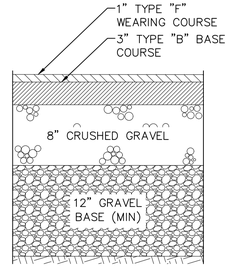


VERTICAL GRANITE CURB
N.T.S.



NOTES:
1. AFTER PROPER BACKFILLING AND COMPACTION, ADJECENT PAVEMENT MUST BE SAW CUT A MINIMUM OF ONE FOOT AROUND THE PERIMETER OF THE EXCAVATION. PAVEMENT MUST BE REMOVED.
2. INSTALL A 3" BASE COURSE OF APSHALT, LEAVING ONE INCH REVEAL
3. AFTER FOURTEEN DAYS, ANF BEFORE THRITY DAYS, INSTALL WEARING COURSE.
4. APPLY EMULSION SELAANT AND PERIMETER OF JOINT OVERLAPPING BAS COURSE. INSTALL 1" WEARING COURSE TYPE F ASPHALT TO GRADE. APPLY LIGHT SAND TO ABSORB EXCESS JOINT SEALANT.

PAVEMENT PATCHING STANDARDS
N.T.S.



NOTES:
1. 12" GRAVEL BASE SHALL BE SPREAD IN TWO 6" LIFTS, COMPACTED BY VIBRATORY ROLLER TO OPTIMUM DENSITY – 95% BY PROCTOR.
2. GRAVEL BASE SHALL BE AS SPECIFIED IN SECTION 304 OF NHDOT SPECS.
3. ASPHALT SHALL BE AS SPECIFIED IN SECTION 410 OF NHDOT SPECS.

STANDARD DUTY ROADWAY PAVEMENT
N.T.S.

TEC, Inc.
169 Ocean Boulevard, Unit 101
PO Box 249
Hampton, NH 03842
(603) 601-8154
www.TheEngineeringCorp.com

DESIGNED BY	MWP
DRAWN BY	MWC
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SCALE	Not to Scale

OWNER/APPLICANT

Tropic Star Development LLC,
321 D Lafayette Road,
Hampton, NH 03842

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1. Peer Review & TRC Comments 6/23/23

ISSUED FOR
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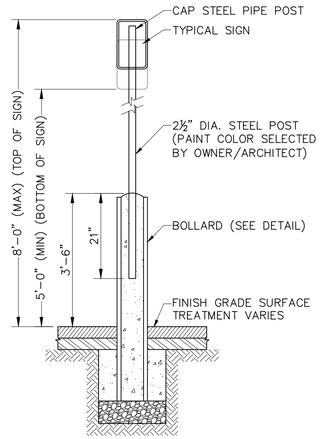
PROJECT LOCATION
2 Meeting Place Dr.
Exeter NH 03833

DRAWING TITLE
Construction Details

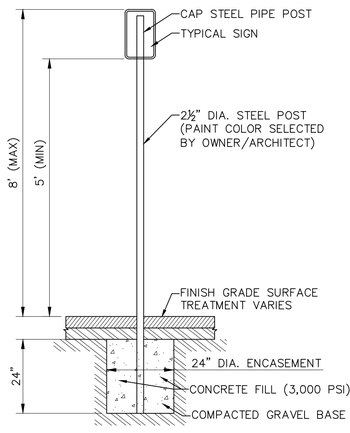
STATE OF NEW HAMPSHIRE – CHRISTOPHER P. RAYMOND No.16305 – LICENSED PROFESSIONAL ENGINEER

PROJECT NO. N1264
TEC CAD FILE N1264_DET
DRAWING NO. C-10
SHEET 10 OF 16



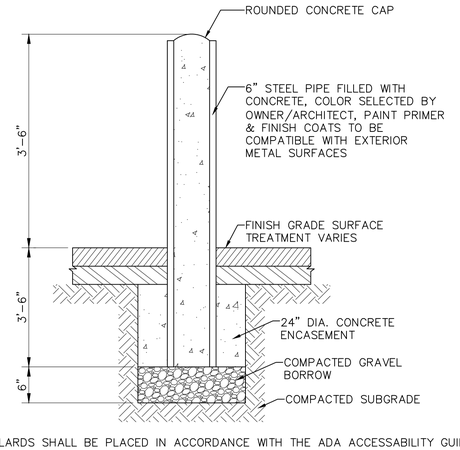
BOLLARD MOUNTED SIGN

N.T.S.



SIGN POST

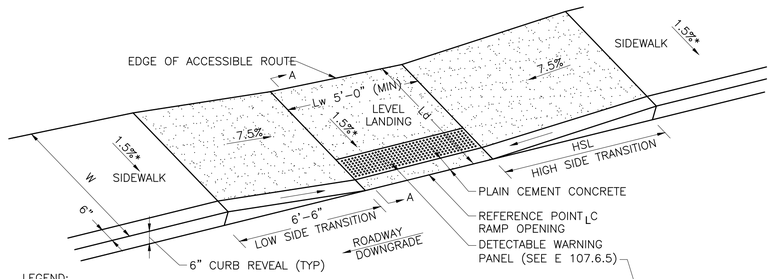
N.T.S.



NOTES:
1. BOLLARDS SHALL BE PLACED IN ACCORDANCE WITH THE ADA ACCESSABILITY GUIDELINES. A MINIMUM CLEAR WIDTH OF 36" SHALL BE PROVIDED TO MAINTAIN AN ACCESSIBLE PATH.
2. BOLLARDS SHALL BE INSTALLED TO PROTECT ALL SERVICE CONNECTIONS, METERS, AND REAR BUILDING CORNERS IN PROPOSED AREAS.

BOLLARD

N.T.S.

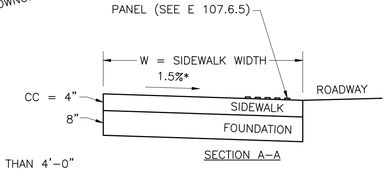


LEGEND:

HSL = HIGH SIDE TRANSITION LENGTH (SEE E 107.9.0)
W = SIDEWALK WIDTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

NOTES:

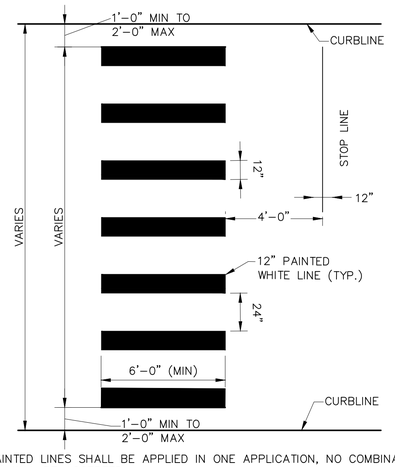
1. USABLE SIDEWALK WIDTH PER AAB = W-6"
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. ROADWAY GUTTER SLOPE MEASURED IN UPSTATION DIRECTION
4. SEE E 107.6.5 FOR DETECTABLE WARNING PANEL DETAILS
5. SEE E 107.2.1 FOR ALL OTHER DETAILS



SECTION A-A

WHEEL CHAIR RAMP TYPE A

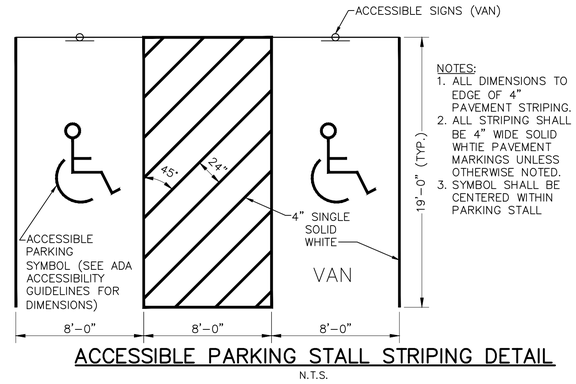
N.T.S.



NOTES:
1. ALL 12" PAINTED LINES SHALL BE APPLIED IN ONE APPLICATION, NO COMBINATION OF LINES (TWO - 6" LINES) WILL BE ACCEPTED.
2. LAYOUT OF CROSSWALKS SHALL BE APPROVED THE ENGINEER PRIOR TO APPLICATION OF PAINT.
3. ALL CROSSWALKS INSTALLED SHALL CONFORM TO THE RELEVANT PROVISIONS OF THE MASSACHUSETTS HIGHWAY DEPARTMENT "STANDARD SPECIFICATION FOR HIGHWAY AND BRIDGES" DATED 1988.
4. THE PAVEMENT MARKINGS FOR CROSSWALKS WITHIN THE PUBLIC WAY MAY VARY AND SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO THE APPLICATION OF PAINT.

CROSSWALK PAVEMENT MARKING

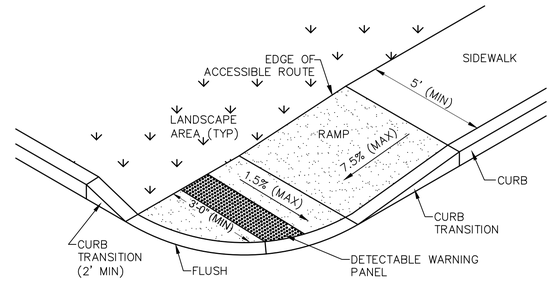
N.T.S.



NOTES:
1. ALL DIMENSIONS TO EDGE OF 4" PAVEMENT STRIPING.
2. ALL STRIPING SHALL BE 4" WIDE SOLID WHITE PAVEMENT MARKINGS UNLESS OTHERWISE NOTED.
3. SYMBOL SHALL BE CENTERED WITHIN PARKING STALL

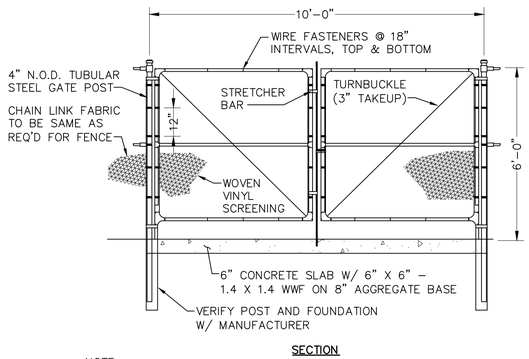
ACCESSIBLE PARKING STALL STRIPING DETAIL

N.T.S.



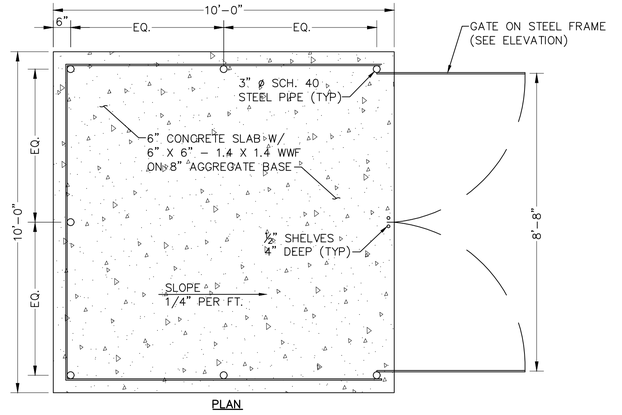
WHEELCHAIR RAMP TYPE B

N.T.S.



SECTION

NOTE:
1. NOMINAL OUTSIDE DIAMETER (N.O.D.) OF GATE FRAME AND BRACE TUBE TO BE 1.66" UP TO 6" IN WIDTH, AND 1.90" IF OVER 6' IN WIDTH.



PLAN

DUMPSTER PAD AND ENCLOSURE

N.T.S.

TEC
The Engineering Corp
TEC, Inc.
169 Ocean Boulevard, Unit 101
PO Box 249
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PROJECT NO. N1264
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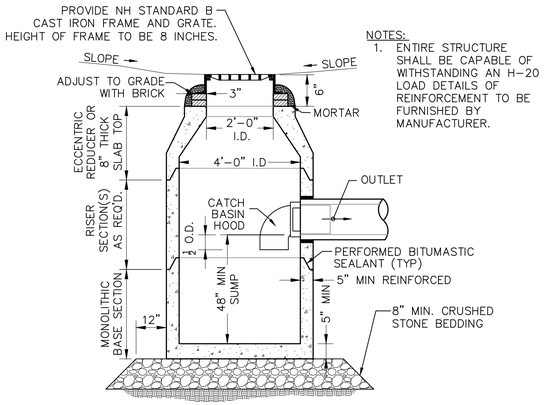
DRAWING NO. C-11
SHEET 11 OF 16

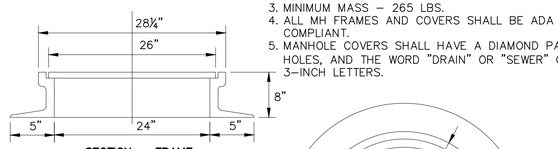


NOTES:
1. ENTIRE STRUCTURE SHALL BE CAPABLE OF WITHSTANDING AN H-20 LOAD DETAILS OF REINFORCEMENT TO BE FURNISHED BY MANUFACTURER.

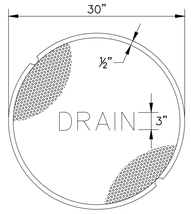
DEEP SUMP CATCH BASIN WITH HOOD

N.T.S.

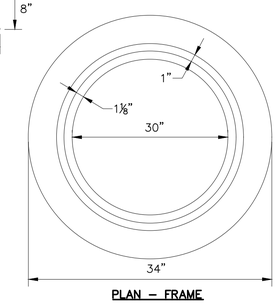
NOTES:
1. FRAME AND COVER SHALL BE RATED FOR HL-93 LOADING.
2. MATERIAL – CAST IRON.
3. MINIMUM MASS – 265 LBS.
4. ALL MH FRAMES AND COVERS SHALL BE ADA AND AAB COMPLIANT.
5. MANHOLE COVERS SHALL HAVE A DIAMOND PATTERN, PICK HOLES, AND THE WORD "DRAIN" OR "SEWER" CAST IN 3-INCH LETTERS.



SECTION – FRAME



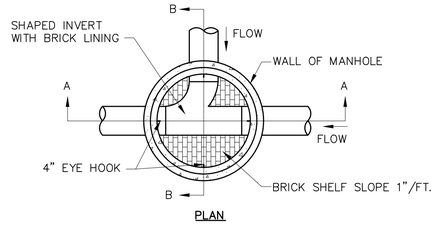
PLAN – COVER



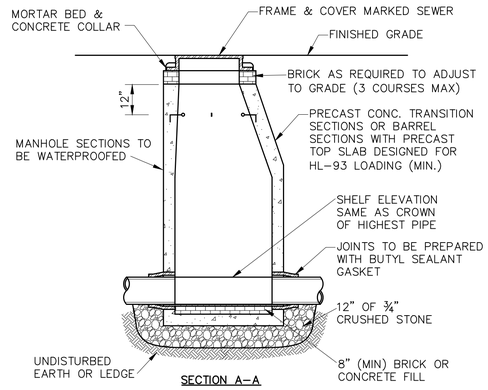
PLAN – FRAME

MANHOLE FRAME & COVER

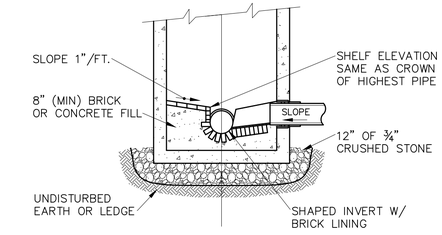
N.T.S.



PLAN



SECTION A–A



SECTION B–B

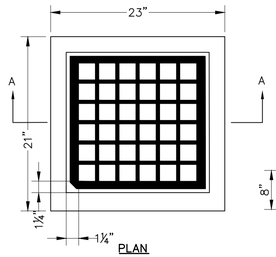
SEWER MANHOLE

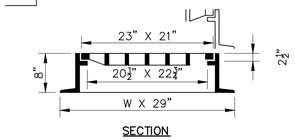
N.T.S.

1. IT IS THE INTENTION THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAS ADEQUATE SPACE, STRENGTH AND LEAK PROOF QUALITIES CONSIDERED SHALL BE AN ASSEMBLY OF PRECAST SECTIONS. THE COMPLETE STRUCTURE SHALL BE OF SUCH NECESSARY FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS, SHALL BE AS SHOWN ON THE DRAWING. MANHOLES MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF EIGHT TONS (8 TONS) (H-20 LOADING) WITHOUT FAILURE AND PREVENT LEAKAGE IN EXCESS OF ONE GALLON PER DAY PER VERTICAL FOOT OF MANHOLE, CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE. A PERIOD, GENERALLY IN EXCESS OF 25 YEARS, IS TO BE UNDERSTOOD IN BOTH CASES.
2. BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED.
3. PRECAST CONCRETE BARREL SECTIONS, CONES AND BASES SHALL CONFORM TO ASTM C478.
4. LEAKAGE TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS.
5. INVERTS AND SHELVES MANHOLES HALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW AT CHANGES IN DIRECTION. THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE, TANGENT TO THE CENTERLINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY.
6. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A THIRTY INCH (30") CLEAR OPENING; MINIMUM HEIGHT THREE INCH (3") LETTERS WITH THE WORD, "SEWER" OR "DRAIN: SHALL BE PLAINLY CAST ON THE CENTER OF EACH COVER.
7. BEDDING SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33.
8. MANHOLE STEPS ARE NOT PERMITTED.
9. FOUR STAINLESS STEEL, 4" EYE HOOKS SHALL BE LOCATED 1' FROM THE CONCRETE TOP SLAB, AT FOUR EQUAL INTERVALS.

TYPICAL MANHOLE: TOWN OF EXETER STANDARD DETAILS #4 & #12

N.T.S.

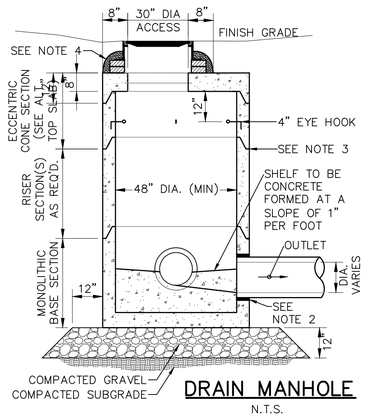




NOTES:
1. FRAME AND GRATE SHALL BE RATED FOR HS-20 LOADING.
2. USE 3 FLANGE FRAMES AT CURB INLET.
3. MIN FRAME WEIGHT:
   4 FLANGE – 257 LB
   3 FLANGE – 240 LB
4. ALL CB FRAME AND GRATES SHALL BE ADA AND AAB COMPLIANT.

NH TYPE B STANDARD CATCH BASIN FRAME WITH GALVANIZED STEEL OR CAST IRON GRATE

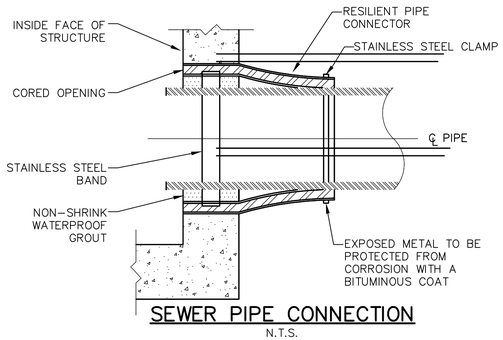
N.T.S.



NOTES:
1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR. (2 COURSES TYP 5 COURSES MAX)

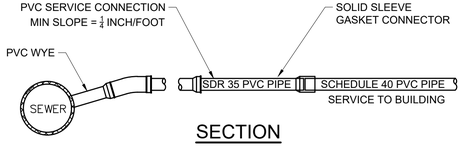
DRAIN MANHOLE

N.T.S.

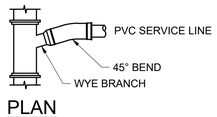


SEWER PIPE CONNECTION

N.T.S.



SECTION



PLAN

SEWER SERVICE

N.T.S.

TEC, Inc.
169 Ocean Boulevard, Unit 101
PO Box 249
Hampton, NH 03842
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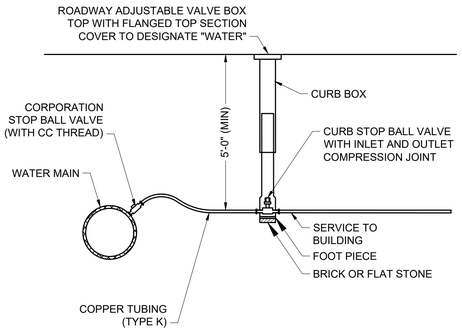
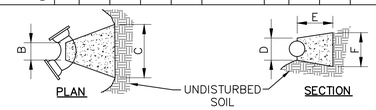
SHEET 12 OF 16



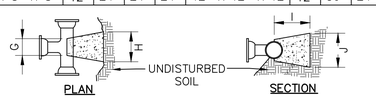
NOTES:
1. ALL WATER LINES 4" OR GREATER SHALL BE DUCTILE IRON WITH AN 8 MIL POLYETHYLENE WRAP. CONTRACTOR MAY FORGO WRAPPING PIPE IF THE DUCTILE IRON PIPE IS ZINC-COATED, TEES AND OTHER CONNECTIONS WILL STILL NEED TO BE WRAPPED.
2. WATER SERVICE LINES SHALL BE COPPER TUBING (TYPE K) BETWEEN MAIN AND CURB STOP.
3. SERVICE BETWEEN CURB STOP AND BUILDING MAY BE SDR 9 CTS (BLUE) PLASTIC POLYETHYLENE RATED FOR 250 PSI.

WATER SERVICE CONNECTION
N.T.S.

BENDS	B	C	D	E	F	BENDS	B	C	D	E	F
6" 11-¼°	8"	15"	12"	24"	12"	6" 45°	8"	30"	12"	24"	14"
6" 22-½°	8"	19"	12"	24"	13"	6" 90°	8"	30"	12"	24"	27"
8" 11-¼°	8"	20"	12"	24"	12"	8" 45°	8"	30"	12"	24"	24"
8" 22-½°	8"	22"	12"	24"	17"	8" 90°	8"	38"	12"	24"	36"
12" 11-¼°	8"	30"	12"	24"	15"	12" 45°	8"	40"	12"	24"	40"
12" 22-½°	8"	35"	12"	24"	25"	12" 90°	8"	60"	12"	24"	52"

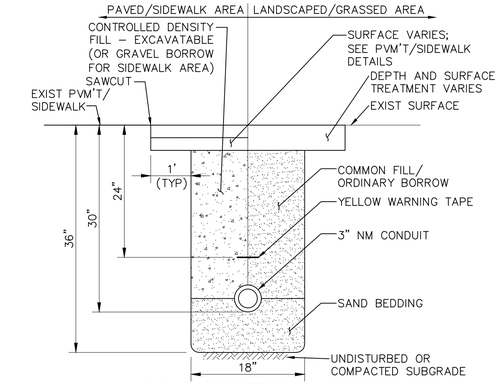


TEES	G	H	I	J	TEES	G	H	I	J
6" X 6" X 6"	12"	24"	24"	18"	12" X 12" X 6"	12"	24"	24"	18"
8" X 8" X 6"	12"	24"	24"	18"	12" X 12" X 8"	12"	24"	24"	24"
8" X 8" X 8"	12"	24"	24"	24"	12" X 12" X 12"	12"	36"	24"	36"

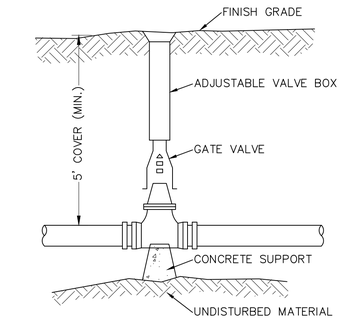


NOTES:
1. PROVIDE BLOCKS FOR TAPPING SLEEVES, DEAD ENDS, GATE VALVES AND VERTICAL BENDS, SAME SIZE AS REQ. FOR TEES. PROVIDE ANCHOR RODS AT VERTICAL BENDS AND GATE VALVES.
2. CONCRETE SHALL NOT BE PLACED AGAINST PIPE BEYOND FITTING.
3. CONCRETE SHALL BE 3000 PSI – TYPE 1

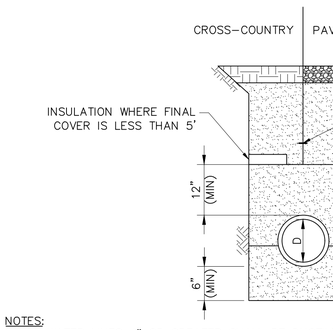
CONCRETE THRUST BLOCK
N.T.S.



CONDUIT TRENCH DETAIL
N.T.S.

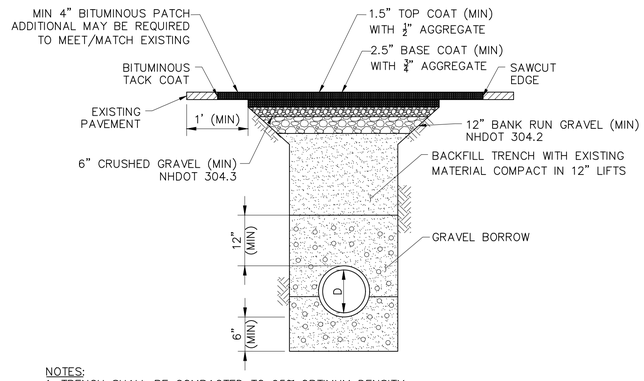


WATER GATE VALVE
N.T.S.



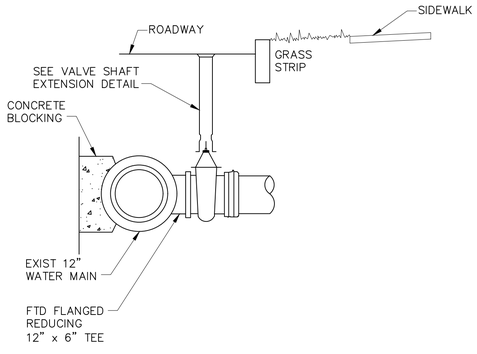
NOTES:
1. ALL WATER LINES 4" OR GREATER SHALL BE DUCTILE IRON WITH AN 8 MIL POLYETHYLENE WRAP. CONTRACTOR MAY FORGO WRAPPING PIPE IF THE DUCTILE IRON PIPE IS ZINC-COATED, TEES AND OTHER CONNECTIONS WILL STILL NEED TO BE WRAPPED.

WATERLINE TRENCH
N.T.S.

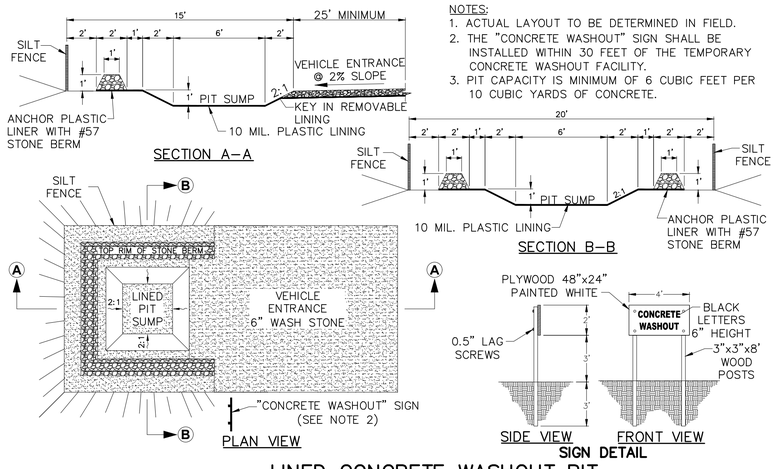


NOTES:
1. TRENCH SHALL BE COMPACTED TO 95% OPTIMUM DENSITY.
2. ALL WORK SHALL COMPLY WITH THE CITY OF DOVER CONSTRUCTION GUIDELINES AND PROCEDURES.
3. WHEN TRENCHING IN CONCRETE ROADWAY MINIMUM BINDER SHALL BE 8".

TYPICAL TRENCH DETAIL
N.T.S.

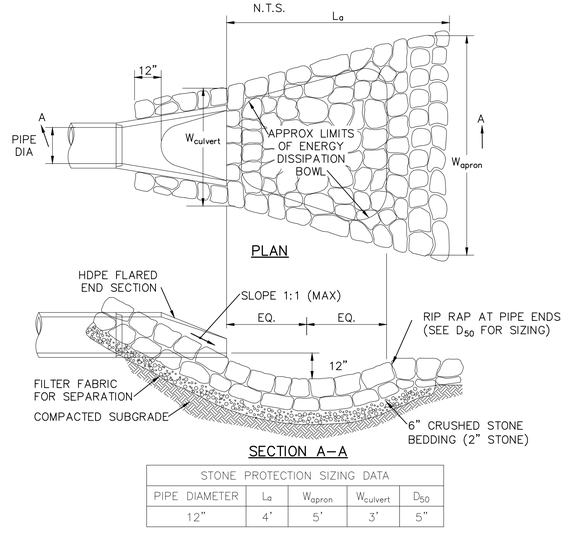


FIRE SERVICE CONNECTION
N.T.S.



NOTES:
1. ACTUAL LAYOUT TO BE DETERMINED IN FIELD.
2. THE "CONCRETE WASHOUT" SIGN SHALL BE INSTALLED WITHIN 30 FEET OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. PIT CAPACITY IS MINIMUM OF 6 CUBIC FEET PER 10 CUBIC YARDS OF CONCRETE.

LINED CONCRETE WASHOUT PIT
N.T.S.



STONE PROTECTION SIZING DATA				
PIPE DIAMETER	La	Wapron	Wculvert	D50
12"	4'	5'	3'	5"

STONE PROTECTION AT FLARED END SECTION
N.T.S.

TEC, Inc.
169 Ocean Boulevard, Unit 101
PO Box 249
Hampton, NH 03842
(603) 601-8154
www.TheEngineeringCorp.com

DESIGNED BY	MWP
DRAWN BY	MWC
CHECKED BY	CPR
DATE	5/9/2023
SCALE	Not to Scale

OWNER/APPLICANT

Tropic Star Development LLC,
321 D Lafayette Road,
Hampton, NH 03842

REVISIONS

1.	Peer Review & TRC Comments	6/23/23

ISSUED FOR
Permitting

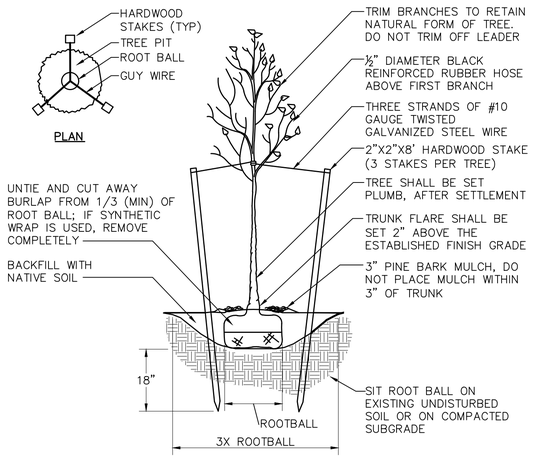
PROJECT TITLE
Proposed Commercial Development

PROJECT LOCATION
2 Meeting Place Dr.
Exeter NH 03833

DRAWING TITLE
Construction Details

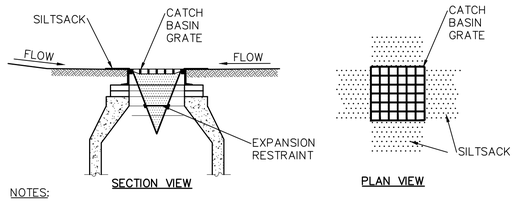
STATE OF NEW HAMPSHIRE – CHRISTOPHER P. RAYMOND No. 16305 – LICENSED PROFESSIONAL ENGINEER

PROJECT NO. N1264
TEC CAD FILE N1264_DET
DRAWING NO. C-13
SHEET 13 OF 16



TREE PLANTING

N.T.S.

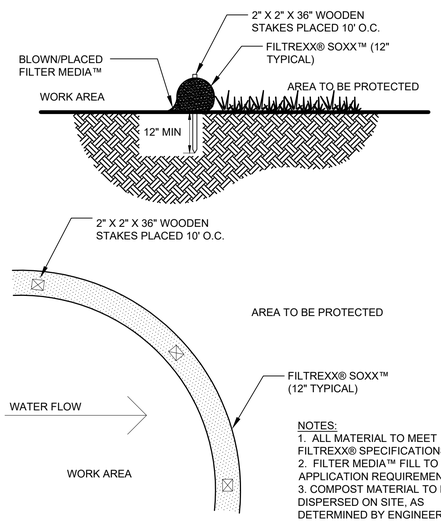


NOTES:

1. INSTALL SILTSACK IN EXISTING CATCH BASINS BEFORE COMMENCING WORK, AND IN NEW CATCH BASINS IMMEDIATELY AFTER INSTALLATION OF STRUCTURE. MAINTAIN UNTIL BINDER COURSE PAVING IS COMPLETE OR A PERMANENT STAND OF GRASS HAS BEEN ESTABLISHED.
2. GRATE TO BE PLACED OVER SILTSACK.
3. SILTSACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.

INLET PROTECTION – SILT SACK IN CATCH BASIN

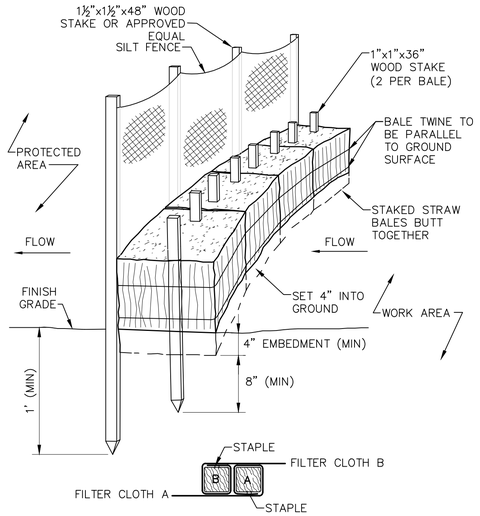
N.T.S.



NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. FILTER MEDIA™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

SILTSOXX PERIMETER EROSION BARRIER DETAIL

N.T.S.



WOOD STAKE JOINT DETAIL

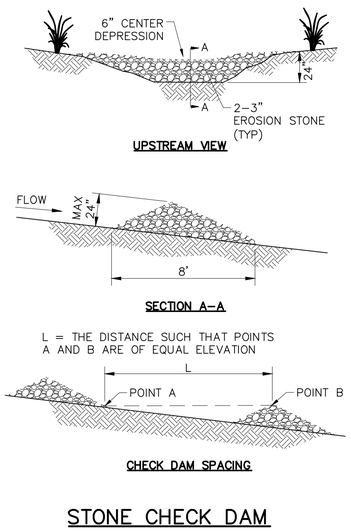
NOTES:

1. FILTER CLOTH SHALL BE FASTENED SECURELY TO POSTS WITH STAPLES. POSTS SHALL BE SPACED 8'–10' ON CENTER.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
3. ENTRENCH SILT FENCE BUT NOT HAY BALES.
4. INSPECTIONS SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED, OR WHEN SEDIMENT ACCUMULATES TO HALF THE HEIGHT OF FENCING.

EROSION CONTROL BARRIER

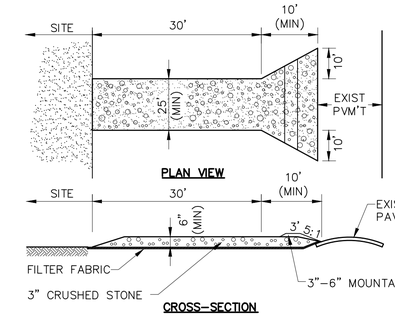
N.T.S.

NOTE:
KEY STONE INTO CHANNEL BANKS AND EXTEND IT BEYOND THE ABUTMENTS A MINIMUM OF 18" TO PREVENT FLOW AROUND THE DAM.



STONE CHECK DAM

N.T.S.

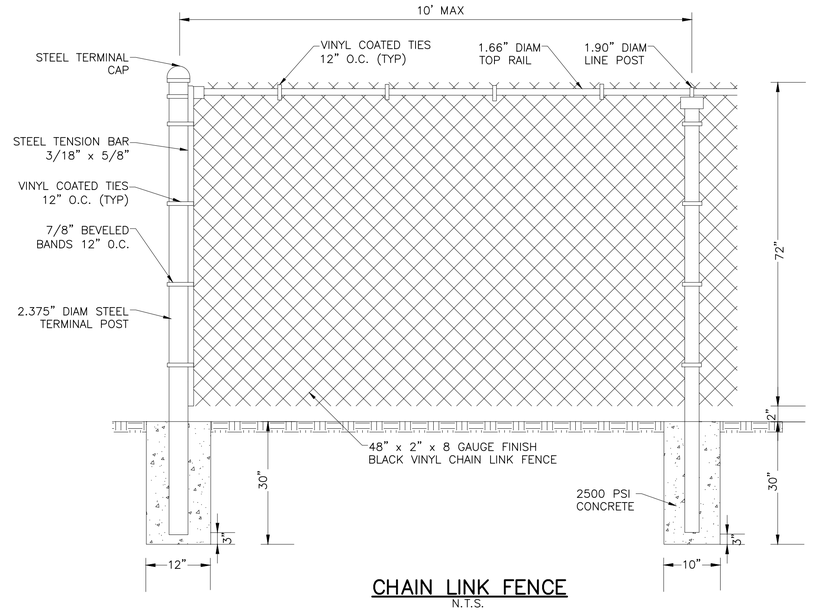


CROSS–SECTION

NOTES:
1. ENTRANCE WIDTH SHALL BE A TWENTY–FIVE (25) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL 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 OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY. BERM SHALL BE PERMITTED. PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED AS NEEDED.
3. STABILIZED CONSTRUCTION EXIT SHALL BE REMOVED PRIOR TO FINAL FINISH MATERIALS BEING INSTALLED.

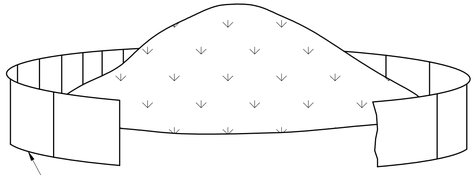
STABILIZED CONSTRUCTION EXIT

N.T.S.



CHAIN LINK FENCE

N.T.S.



SOIL STOCKPILE

N.T.S.

TEC, Inc.
169 Ocean Boulevard, Unit 101
PO Box 249
Hampton, NH 03842
(603) 601-8154
www.TheEngineeringCorp.com

DESIGNED BY	MWP
DRAWN BY	MWC
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321 D Lafayette Road,
Hampton, NH 03842

REVISIONS

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PROJECT TITLE

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PROJECT LOCATION

2 Meeting Place Dr.
Exeter NH 03833

DRAWING TITLE

Construction Details

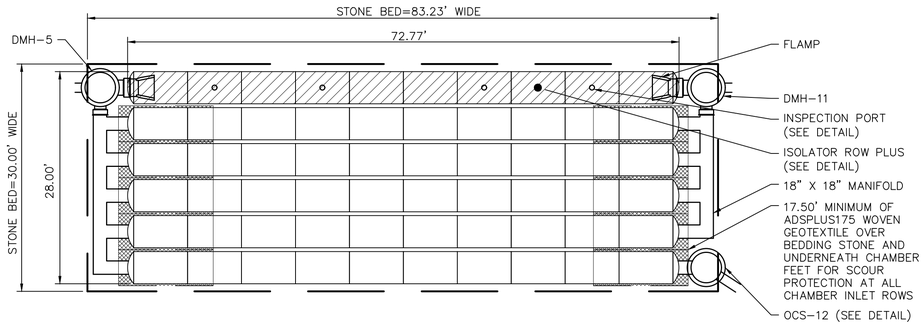
STATE OF NEW HAMPSHIRE – CHRISTOPHER P. RAYMOND No.16305 LICENSED PROFESSIONAL ENGINEER

PROJECT NO. N1264

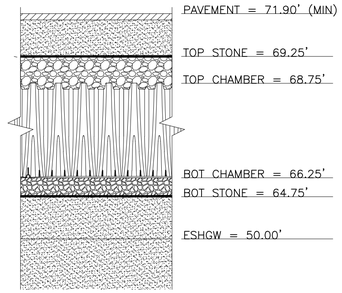
TEC CAD FILE N1264_DET

DRAWING NO. C-14

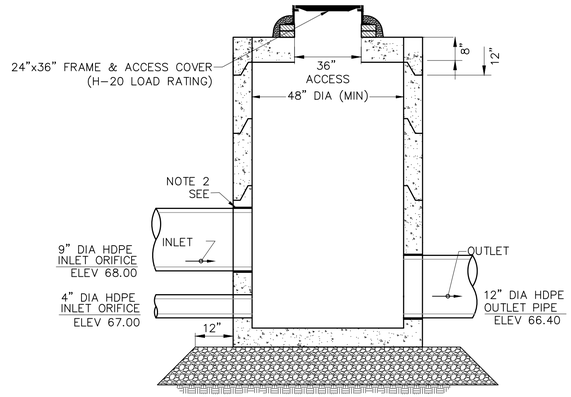
SHEET 14 OF 16



PLAN VIEW

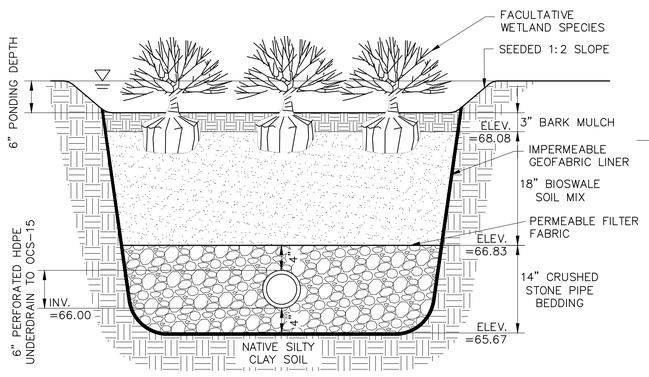


SECTION VIEW



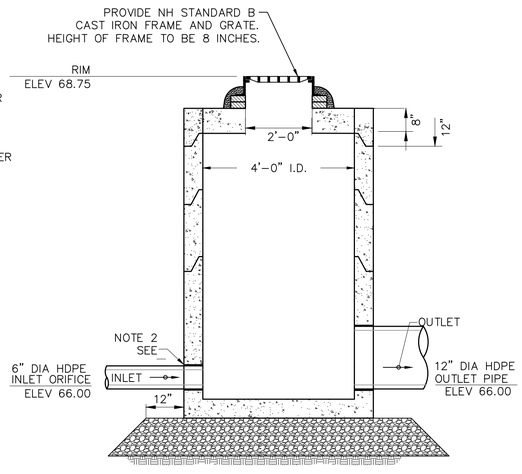
OUTLET CONTROL STRUCTURE (OCS) 12

SSIB #1 (ADS STORMTECH SC-740)
N.T.S.



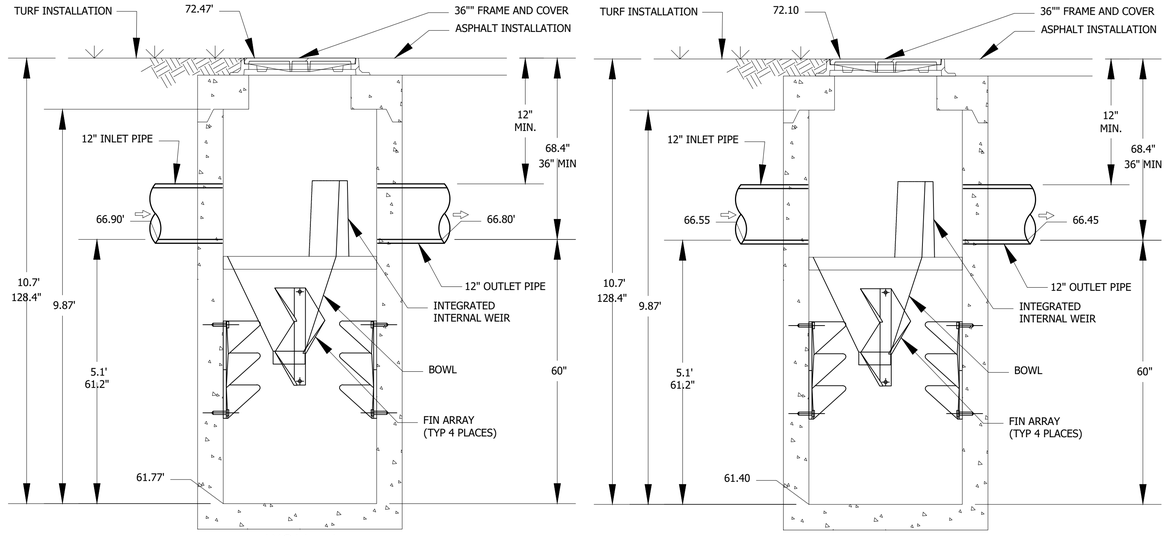
NOTES:
1. DO NOT PLACE THE BIORETENTION SYSTEM INTO SERVICE UNTIL THE BMP HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
2. DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITES (RUNOFF, WATER FROM EXCAVATIONS) TO THE BIORETENTION AREA DURING ANY STAGE OF CONSTRUCTION.
3. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.
4. VEGETATION SHALL BE NON-INVASIVE SPECIES AND PLACED IN A RANDOM NATURAL LAYOUT. SEE SHEET C-7 FOR PLANTING TABLE. FINAL SPECIES SHALL BE DETERMINED PRIOR TO CONSTRUCTION.
5. POND SHALL HAVE A 6" PONDING DEPTH.

SECTION VIEW



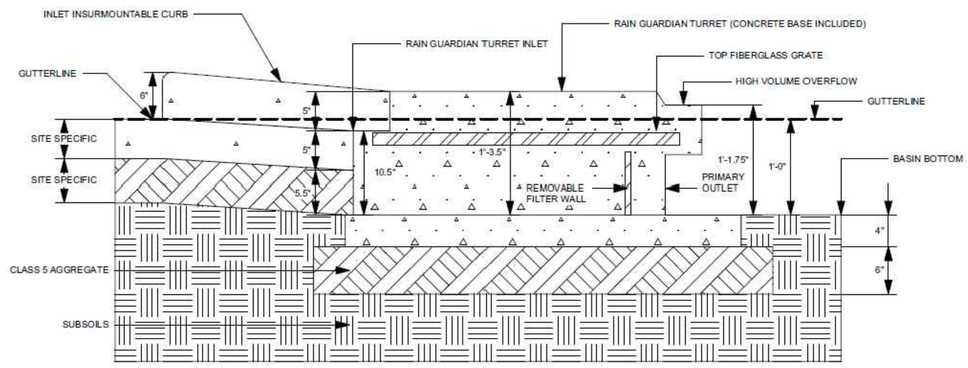
OUTLET CONTROL STRUCTURE (OCS) 15

BIORETENTION POND
N.T.S.

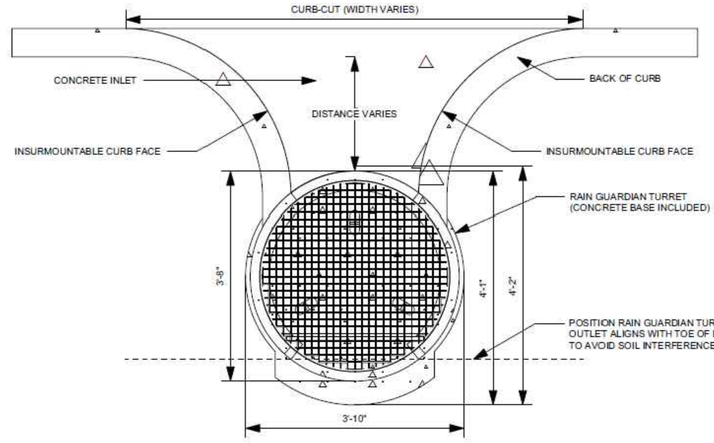


WQU-4 WQU-9

WATER QUALITY UNIT (WQU) (BARRACUDA S3)
N.T.S.



SECTION VIEW



NOTES:
1. THE TOP OF THE CLASS 5 BASE (COMPACTED TO 95% STANDARD PROCTOR) IS PRECISELY 1'-4" BELOW THE GUTTERLINE ELEVATION.

NOTES:
1. INLET WIDTH AND DISTANCE BETWEEN BACK OF CURB AND RAIN GUARDIAN MAY VARY WITH SITE CONDITIONS.
2. CONCRETE BASE EXTENDS BEYOND THE FILTER WALL OF THE RAIN GUARDIAN TO SERVE AS A SPLASH DISSIPATER.

PLAN VIEW

RAIN GUARDIAN TURRET PRETREATMENT CHAMBER
N.T.S.

TEC, Inc.
169 Ocean Boulevard, Unit 101
PO Box 249
Hampton, NH 03842
(603) 601-8154
www.TheEngineeringCorp.com

DESIGNED BY	MWP
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STATE OF NEW HAMPSHIRE - CHRISTOPHER P. RAYMOND No.16305 - PROFESSIONAL ENGINEER - LICENSED

PROJECT NO. N1264
TEC CAD FILE N1264_DET
DRAWING NO. C-15
SHEET 15 OF 16

ADS
Advanced Drainage Systems, Inc.

ADS SiteAssist™
FOR STORMTECH INSTALLATION INSTRUCTIONS VISIT OUR APP

SC-740 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-740.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 550 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-740 SYSTEM

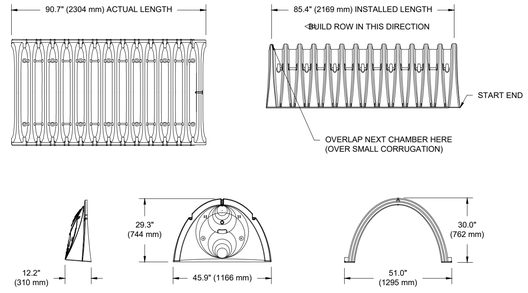
1. STORMTECH SC-740 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-740 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

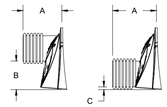
CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 30.0" X 85.4"	(1295 mm X 762 mm X 2169 mm)
CHAMBER STORAGE	45.9 CUBIC FEET	(1.30 m³)
MINIMUM INSTALLED STORAGE*	74.9 CUBIC FEET	(2.12 m³)
WEIGHT	75.0 lbs.	(33.6 kg)

*ASSUMES 6" (152 mm) STONE ABOVE, BELOW, AND BETWEEN CHAMBERS



PRE-FAB STUB AT BOTTOM OF END CAP WITH FLAMP END WITH "BR"
PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
PRE-CORED END CAPS END WITH "PC"

PART #	STUB	A	B	C
SC740EPE06T / SC740EPE06TPC	6" (150 mm)	10.9" (277 mm)	18.5" (470 mm)	---
SC740EPE06B / SC740EPE06BPC			---	0.5" (13 mm)
SC740EPE08T /SC740EPE08TPC	8" (200 mm)	12.2" (310 mm)	16.5" (419 mm)	---
SC740EPE08B / SC740EPE08BPC			---	0.6" (15 mm)
SC740EPE10T / SC740EPE10TPC	10" (250 mm)	13.4" (340 mm)	14.5" (368 mm)	---
SC740EPE10B / SC740EPE10BPC			---	0.7" (18 mm)
SC740EPE12T / SC740EPE12TPC	12" (300 mm)	14.7" (373 mm)	12.5" (318 mm)	---
SC740EPE12B / SC740EPE12BPC			---	1.2" (30 mm)
SC740EPE15T / SC740EPE15TPC	15" (375 mm)	18.4" (467 mm)	9.0" (229 mm)	---
SC740EPE15B / SC740EPE15BPC			---	1.3" (33 mm)
SC740EPE18T / SC740EPE18TPC	18" (450 mm)	19.7" (500 mm)	5.0" (127 mm)	---
SC740EPE18B / SC740EPE18BPC			---	1.6" (41 mm)
SC740EPE24B*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)
SC740EPE24BR*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)

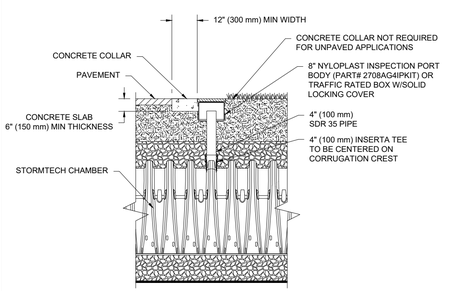
ALL STUBS, EXCEPT FOR THE SC740EPE24B/SC740EPE24BR ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

* FOR THE SC740EPE24B/SC740EPE24BR THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

SC-740 TECHNICAL SPECIFICATIONS

SC-740 ISOLATOR ROW PLUS DETAIL



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION CREST.

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

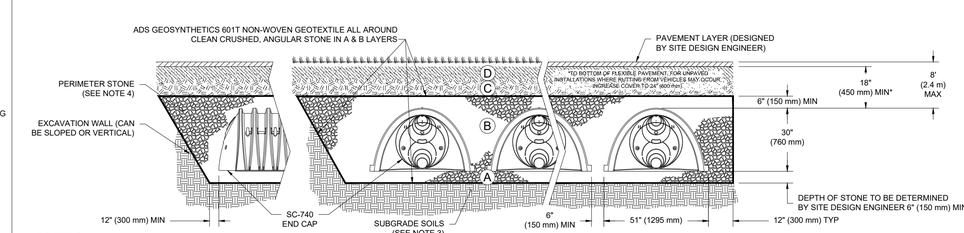
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

4" PVC INSPECTION PORT DETAIL (SC SERIES CHAMBER)

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

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



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 550 LBS/FT/%, THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418, AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

SC-740 CROSS SECTION DETAIL

TEC, Inc.
169 Ocean Boulevard, Unit 101
PO Box 249
Hampton, NH 03842
(603) 601-8154
www.TheEngineeringCorp.com

DESIGNED BY	MWP
DRAWN BY	MWC
CHECKED BY	CPR
DATE	5/9/2023
SCALE	Not to Scale

OWNER/APPLICANT

Tropic Star Development LLC,
321 D Lafayette Road,
Hampton, NH 03842

REVISIONS
1. Peer Review & TRC Comments 6/23/23

ISSUED FOR
Permitting

PROJECT TITLE
Proposed Commercial Development

PROJECT LOCATION
2 Meeting Place Dr.
Exeter NH 03833

DRAWING TITLE
Construction Details

STATE OF NEW HAMPSHIRE - CHRISTOPHER R. RAYMOND No.16305 - LICENSED PROFESSIONAL ENGINEER

PROJECT NO. N1264
TEC CAD FILE N1264_DET
DRAWING NO. C-16
SHEET 16 OF 16

LEGEND

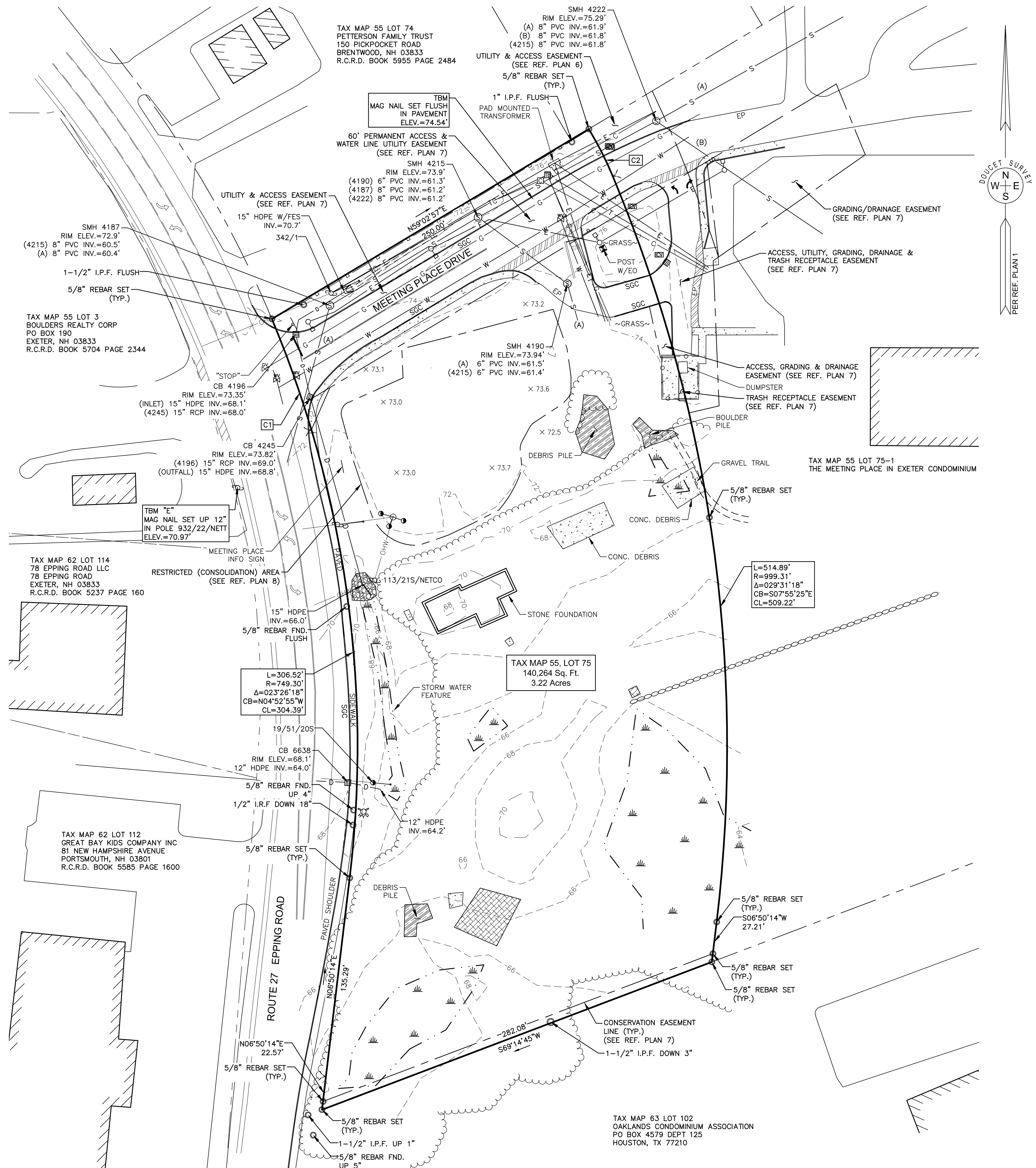
EXISTING LOT LINE	DRILL HOLE FOUND (D.H.F.)
APPROXIMATE ABUTTERS LOT LINE	PIPE/ROD FOUND
EXISTING EASEMENT LINE	UTILITY POLE
RESTRICTED (CONSOLIDATION) AREA	UTILITY POLE & GUY WIRE
MAJOR CONTOUR LINE	GUY POLE
MINOR CONTOUR LINE	LIGHT POLE W/ARM
STONE WALL	CATCH BASIN
CHAIN LINK FENCE	FES FLARED END SECTION
STOCKADE FENCE	SEWER MANHOLE
OVERHEAD WIRE	FIRE HYDRANT
DRAIN LINE	WATER GATE VALVE
SEWER LINE	IRRIGATION CONTROL VALVE
WATER LINE	GAS GATE VALVE
GAS LINE	SIGN
ELECTRIC LINE	SQUARE POST
TELEPHONE LINE	POST
CABLE/INTERNET LINE	TELEPHONE BOX
TREE LINE	CABLE BOX
EDGE OF DELINEATED WETLAND	CONC. CONCRETE
WETLAND AREA	D.H. DRILL HOLE
CONCRETE	DYL DOUBLE YELLOW LINE
RIP RAP	EP EDGE OF PAVEMENT
PILE	EO ELECTRIC OUTLET
LEDGE OUTCROP	HDPE HIGH DENSITY POLYETHYLENE PIPE
× 100.0 SPOT GRADE	I.P.F. IRON PIPE FOUND
	I.R.F. IRON ROD FOUND
	PVC POLYVINYL CHLORIDE PIPE
	RCP REINFORCED CONCRETE PIPE
	SGC SLOPED GRANITE CURB
	SWL SINGLE WHITE LINE

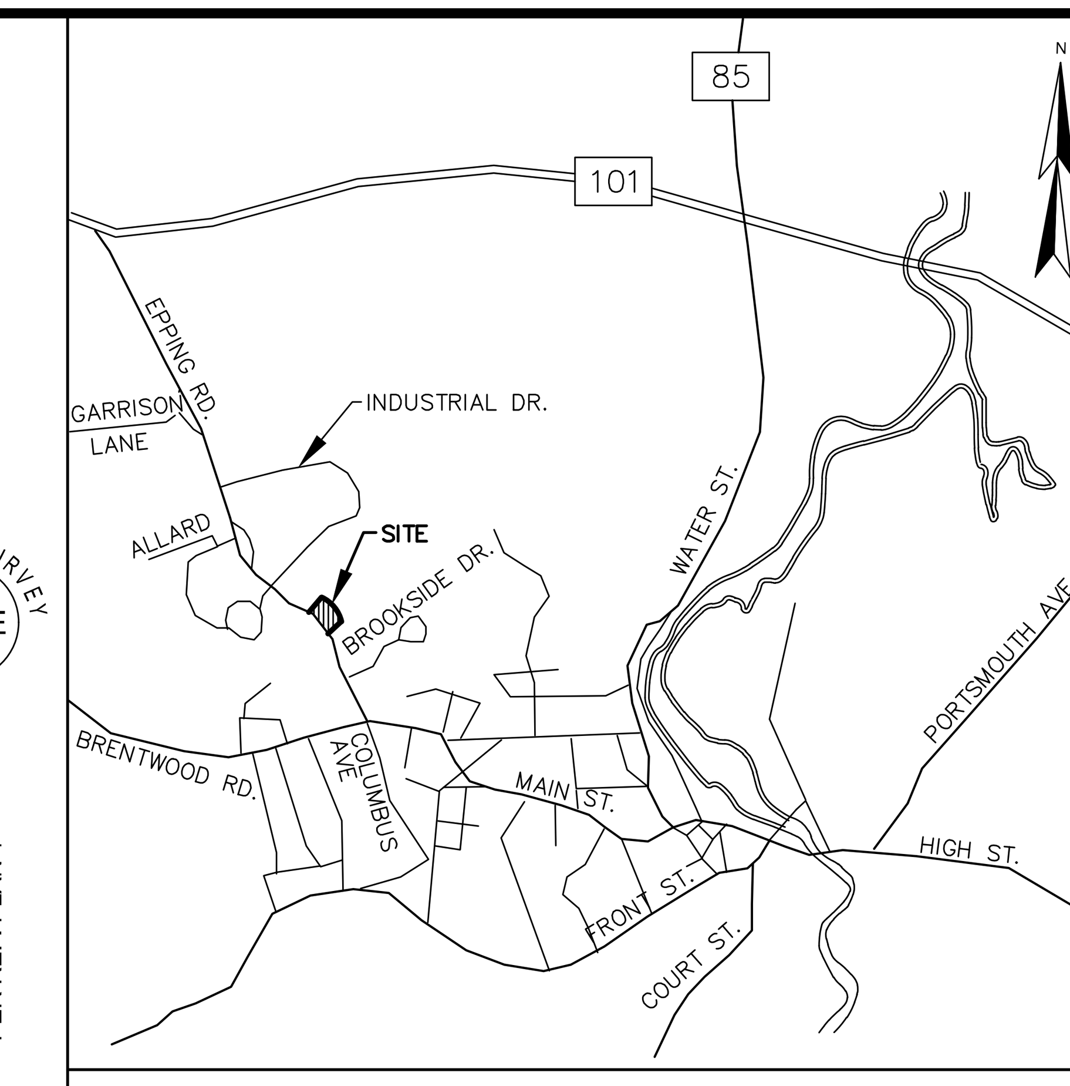
NOTES:

1. REFERENCE: TAX MAP 55, LOT 75
   EPPING ROAD & MEETING PLACE DRIVE
   EXETER, NEW HAMPSHIRE
2. TOTAL PARCEL AREA: 140,264 SQ. FT. OR 3.22 AC.
3. OWNER OF RECORD: FELDER KUEHL PROPERTIES LLC
   PO BOX 181
   BRISTOL, NH 03222
   R.C.R.D. BOOK 4364, PAGE 1252
   R.C.R.D. BOOK 4372, PAGE 2677
4. ZONE: C-2
5. FIELD SURVEY PERFORMED BY DOUCET SURVEY DURING 2006, 2012, AND 2022. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.
6. HORIZONTAL DATUM BASED ON REFERENCE PLAN 1.
7. VERTICAL DATUM REPORTED TO BE NGVD 29, BASED ON TOWN SEWER INVERT INFORMATION PROVIDED BY CIVILWORKS.
8. JURISDICTIONAL WETLANDS DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. DURING JUNE 2022 IN ACCORDING TO THE:
   - US ARMY CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1 (JANUARY, 1987).
   - REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION (2012).
   - NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS: NORTHEAST (REGION 1). U.S. FISH AND WILDLIFE SERVICE (2013).
   - CODE OF ADMINISTRATIVE RULES. WETLANDS BOARD, STATE OF NEW HAMPSHIRE (CURRENT).
   - FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 8.0, 2016 AND (FOR DISTURBED SITES) FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 4. NEHSTC (MAY 2017).
10. FLOOD HAZARD ZONE: "X", PER FIRM MAP #33015C0402E, DATED 05/17/2005.
11. 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.
12. UTILITIES SHOWN HEREON ARE BASED ON SURFACE EVIDENCE, MARKINGS PROVIDED BY TMD SERVICES, AND INFORMATION PROVIDED BY CONTRACTOR.
13. 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.
14. 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.
15. 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.

REFERENCE PLANS:

1. "SUBDIVISION PLAN CKT & ASSOCIATES EXETER, NH" REVISED DECEMBER 11, 1998 BY HOLDEN ENGINEERING & SURVEYING, INC. R.C.R.D. PLAN D-26858.
2. "SUBDIVISION PLAN OF TAX MAP 55, LOTS 75 & 76 & TAX MAP 63, LOTS 100 & 101 FOR FELDER KUEHL PROPERTIES, LLC," BY DOUCET SURVEY, INC, DATED FEBRUARY 7, 2005, R.C.R.D. PLAN D-33893.
3. "LOT CONSOLIDATION AND LOT LINE ADJUSTMENT BETWEEN FELKON, INC. AND FELDER KUEHL PROPERTIES, LLC TAX MAP 54, LOT 2; TAX MAP 55 LOTS 75 & 76 & TAX MAP 63, LOTS 100 & 101 ROUTE 27 & INDUSTRIAL DRIVE EXETER, NEW HAMPSHIRE." DATED MAY 19, 2005 R.C.R.D PLAN D-34048.
4. "PROPOSED EASEMENT PLAN, FELDER KUEHL PROPETIES, LLC, FOR THE TOWN OF EXETER" DATED NOVEMBER 16, 2006 AND REVISED THROUGH DECEMBER 15, 2006, BY DOUCET SURVEY, INC., R.C.R.D. PLAN D-34533.
5. "LOT LINE ADJUSTMENT, BETWEEN TAX MAP 55, LOTS 75 & 75-1" DATED FEBRUARY 6, 2008 AND REVISED THROUGH JUNE 17, 2008, BY DOUCET SURVEY, INC., R.C.R.D. PLAN D-36171.
6. "EASEMENT PLAN FOR FELDER KUEHL PROPERTIES, LLC" DATE MARCH 12, 2008 AND REVISED THROUGH MAY 28, 2009, BY DOUCET SURVEY, INC., R.C.R.D. PLAN D-36172.
7. "AMENDED EASEMENT PLAN THE MEETING PLACE IN EXETER CONDOMINIUM TAX MAP 55, LOTS 75 & 75-1 LAND UNIT 1, LAND UNIT 2 AND LAND UNIT 3 OWNERS: THE MEETING PLACE EXETER UNIT 1, INC. 6 MEETING PLACE DRIVE EXETER LIMITED PARTNERSHIP AVESTA ONE MEETING PLACE LP FELDER KUEHL PROPERTIES, LLC. ROUTE 27 (EPPING ROAD) EXETER, NEW HAMPSHIRE" DATED JULY 24, 2014 LAST REVISED DECEMBER 15, 2014 BY DOUCET SURVEY INC. R.C.R.D. PLAN D-38636.
8. "ACTIVITY AND USE RESTRICTION AREA PLAN FOR FELDER KUEHL PROPERTIES, LLC ROUTE 27 (EPPING ROAD) (TAX MAP 55 LOT 75) EXETER, NEW HAMPSHIRE" DATED APRIL 11, 2013 LAST REVISED MARCH 4, 2019 BY DOUCET SURVEY INC. R.C.R.D. PLAN D-41379.





Location Map (n.t.s.)

CURVE TABLE					
CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	79.56'	749.30'	6°05'00"	N19°38'34"W	79.52'
C2	36.07'	250.00'	8°15'59"	S26°49'04"E	36.04'

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 916 STEVEN V. MICHAUD

SIGNATURE

40 0 40 80

SCALE: 1 INCH = 40 FT.

EXISTING CONDITIONS PLAN
FOR
TROPIC START DEVELOPMENT
OF
TAX MAP 55 LOT 75
EPPING ROAD & MEETING PLACE DRIVE
EXETER, NEW HAPMSHIRE

NO.	DATE	DESCRIPTION	BY

DRAWN BY:	W.D.C.	DATE:	JUNE, 2022
CHECKED BY:	S.V.M.	DRAWING NO.	7498A
JOB NO.	7498	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

LEGEND

EXISTING LOT LINE		UTILITY POLE	
PROPOSED LOT LINE		UTILITY POLE & GUY WIRE	
APPROXIMATE ABUTTERS LOT LINE		GUY POLE	
EXISTING EASEMENT LINE		LIGHT POLE W/ARM	
PROPOSED EASEMENT LINE		CATCH BASIN	
LOT LINE SETBACK		SEWER MANHOLE	
STONE WALL		FIRE HYDRANT	
CHAIN LINK FENCE		WATER GATE VALVE	
STOCKADE FENCE		GAS GATE VALVE	
OVERHEAD WIRE		TELEPHONE BOX	
EDGE OF DELINEATED WETLAND		POST	
WETLAND AREA		CABLE BOX	
40' WETLAND SETBACK LINE	D.H.	DRILL HOLE	
75' WETLAND SETBACK LINE	I.P.F.	IRON PIPE FOUND	
CONCRETE	I.R.F.	IRON ROD FOUND	
RIP RAP	TYP.	TYPICAL	

- DRILL HOLE FOUND (D.H.F.)
- PIPE/ROD FOUND
- 5/8" REBAR W/ID CAP TO BE SET
- 4"X4" GRANITE BOUND TO BE SET

NOTES:

1. REFERENCE: TAX MAP 55, LOT 75
   EPPING ROAD & MEETING PLACE DRIVE
   EXETER, NEW HAMPSHIRE

2. TOTAL PARCEL AREA:

   EXISTING:

   TAX MAP 55, LOT 75
   PARCEL AREA: 140,264 SQ. FT. OR 3.22 AC.

   PROPOSED:

   LOT 75 AREA: 62,014 SQ. FT. OR 1.42 AC.
   LOT 75-1 AREA: 78,250 SQ. FT. OR 1.80 AC.

3. OWNER OF RECORD: FELDER KUEHL PROPERTIES LLC
   PO BOX 181
   BRISTOL, NH 03222
   R.C.R.D. BOOK 4364, PAGE 1252
   R.C.R.D. BOOK 4372, PAGE 2677

   APPLICANT: TROPIC STAR DEVELOPMENT, LLC (603) 926-7770
   PLANNING BOARD CASE #: PB23-6

4. ZONE: C-2
   DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA	20,000 sq.ft.
MIN. FRONTAGE	150 ft.
MIN. FRONT/REAR SETBACK	50 ft.
MIN. SIDE SETBACK	20 ft.
WETLAND SETBACKS (POORLY DRAINED SOILS)	40 ft. NO CUT/NO DISTURB BUFFER 75 ft. PARKING/STRUCTURAL SETBACK

5. FIELD SURVEY PERFORMED BY DOUCET SURVEY DURING 2006, 2012, AND 2022. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.

6. HORIZONTAL DATUM BASED ON REFERENCE PLAN 1.

7. VERTICAL DATUM REPORTED TO BE NGVD 29, BASED ON TOWN SEWER INVERT INFORMATION PROVIDED BY CIVILWORKS.

8. JURISDICTIONAL WETLANDS DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. DURING JUNE 2022 IN ACCORDING TO THE:
   - US ARMY CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1 (JANUARY, 1987).
   - REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION (2012).
   - NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS: NORTHEAST (REGION 1). U.S. FISH AND WILDLIFE SERVICE (2013).
   - CODE OF ADMINISTRATIVE RULES. WETLANDS BOARD, STATE OF NEW HAMPSHIRE (CURRENT).
   - FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 8.0, 2016 AND (FOR DISTURBED SITES) FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 4. NEHSTC (MAY 2017).

10. FLOOD HAZARD ZONE: "X", PER FIRM MAP #33015C0402E, DATED 05/17/2005.

11. 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.

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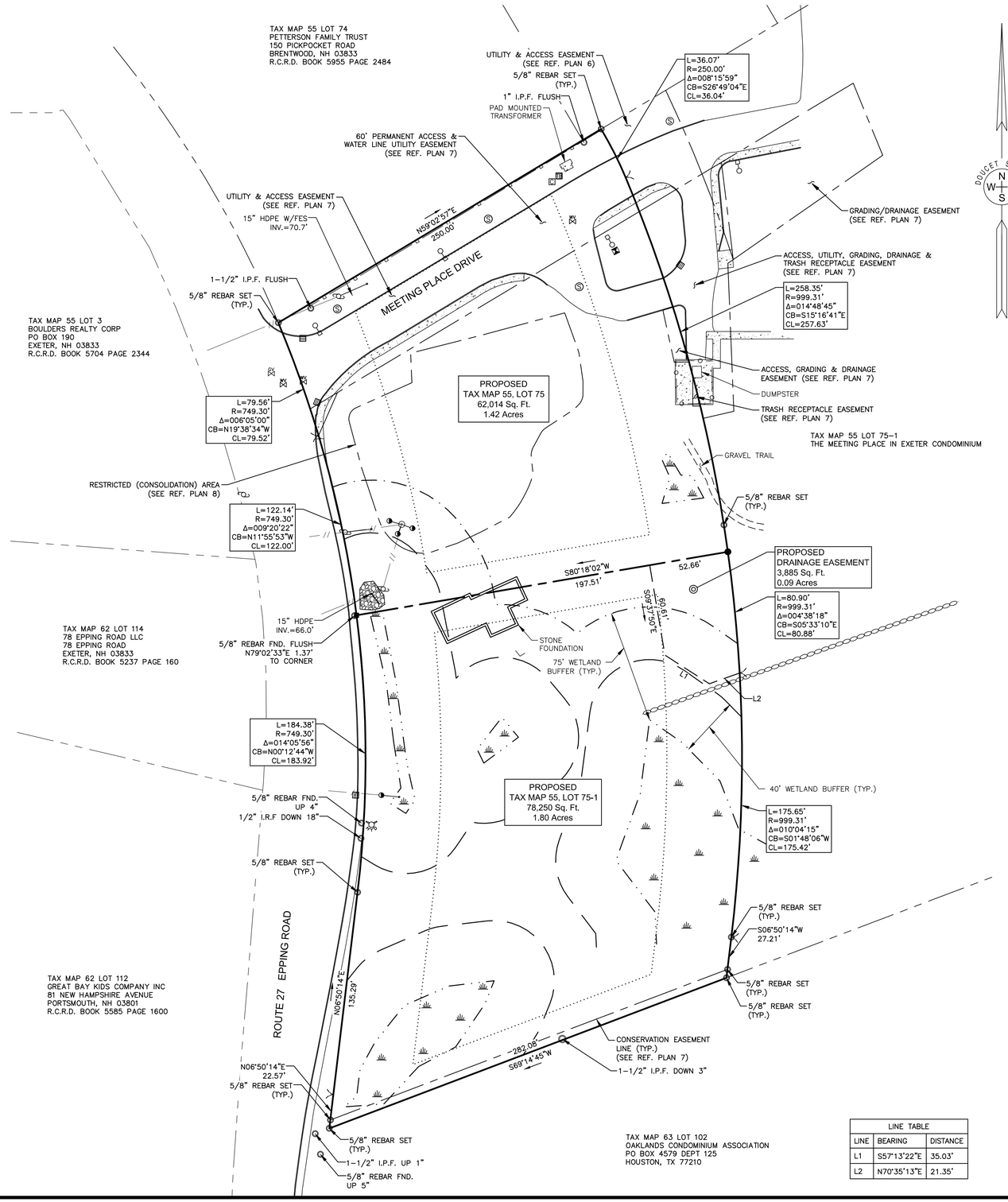
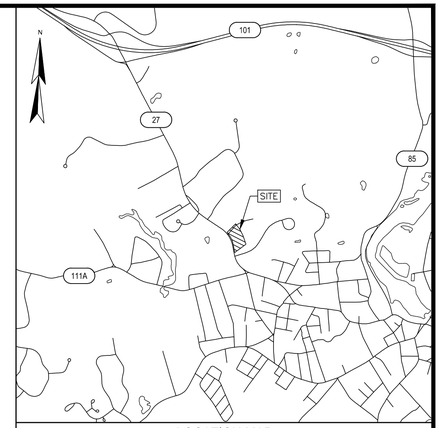
13. ALL WATER, SEWER, ROAD (INCLUDING PARKING LOT), AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 9.5 GRADING, DRAINAGE, AND EROSION & SEDIMENT CONTROL AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER, NEW HAMPSHIRE.

REFERENCE PLANS:

1. "SUBDIVISION PLAN CKT & ASSOCIATES EXETER, NH" REVISED DECEMBER 11, 1998 BY HOLDEN ENGINEERING & SURVEYING, INC. R.C.R.D. PLAN D-26858.
2. "SUBDIVISION PLAN OF TAX MAP 55, LOTS 75 & 76 & TAX MAP 63, LOTS 100 & 101 FOR FELDER KUEHL PROPERTIES, LLC," BY DOUCET SURVEY, INC, DATED FEBRUARY 7, 2005, R.C.R.D. PLAN D-33893.
3. "LOT CONSOLIDATION AND LOT LINE ADJUSTMENT BETWEEN FELKON, INC. AND FELDER KUEHL PROPERTIES, LLC TAX MAP 54, LOT 2; TAX MAP 55 LOTS 75 & 76 & TAX MAP 63, LOTS 100 & 101 ROUTE 27 & INDUSTRIAL DRIVE EXETER, NEW HAMPSHIRE." DATED MAY 19, 2005 R.C.R.D PLAN D-34048.
4. "PROPOSED EASEMENT PLAN, FELDER KUEHL PROPETIES, LLC, FOR THE TOWN OF EXETER" DATED NOVEMBER 16, 2006 AND REVISED THROUGH DECEMBER 15, 2006, BY DOUCET SURVEY, INC., R.C.R.D. PLAN D-34533.
5. "LOT LINE ADJUSTMENT, BETWEEN TAX MAP 55, LOTS 75 & 75-1" DATED FEBRUARY 6, 2008 AND REVISED THROUGH JUNE 17, 2008, BY DOUCET SURVEY, INC., R.C.R.D. PLAN D-36171.
6. "EASEMENT PLAN FOR FELDER KUEHL PROPERTIES, LLC" DATE MARCH 12, 2008 AND REVISED THROUGH MAY 28, 2009, BY DOUCET SURVEY, INC., R.C.R.D. PLAN D-36172.
7. "AMENDED EASEMENT PLAN THE MEETING PLACE IN EXETER CONDOMINIUM TAX MAP 55, LOTS 75 & 75-1 LAND UNIT 1, LAND UNIT 2 AND LAND UNIT 3 OWNERS: THE MEETING PLACE PLACE EXETER UNIT 1, INC. 6 MEETING PLACE DRIVE EXETER LIMITED PARTNERSHIP AVESTA ONE MEETING PLACE LP FELDER KUEHL PROPERTIES, LLC. ROUTE 27 (EPPING ROAD) EXETER, NEW HAMPSHIRE" DATED JULY 24, 2014 LAST REVISED DECEMBER 15, 2014 BY DOUCET SURVEY INC. R.C.R.D. PLAN D-38636.
8. "ACTIVITY AND USE RESTRICTION AREA PLAN FOR FELDER KUEHL PROPERTIES, LLC ROUTE 27 (EPPING ROAD) (TAX MAP 55 LOT 75) EXETER, NEW HAMPSHIRE" DATED APRIL 11, 2013 LAST REVISED MARCH 4, 2019 BY DOUCET SURVEY INC. R.C.R.D. PLAN D-41379.



LINE TABLE		
LINE	BEARING	DISTANCE
L1	S57°13'22"E	35.03'
L2	N70°35'13"E	21.35'



LOCATION MAP
SCALE: 1 INCH = 2000 FT.

APPROVED BY THE EXETER PLANNING BOARD

CHAIRPERSON _____ DATE _____

STATE OF NEW HAMPSHIRE — No. 916 STEVEN V. MICHAUD — LICENSED LAND SURVEYOR

SIGNATURE

I CERTIFY THAT THIS SURVEY AND PLAN WERE PREPARED BY ME OR BY THOSE UNDER MY DIRECT SUPERVISION AND FALLS UNDER THE URBAN SURVEY CLASSIFICATION OF THE NH CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS. I CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. RANDOM TRAVERSE SURVEY BY TOTAL STATION, WITH A PRECISION GREATER THAN 1:15,000.

L.L.S. #916

6/21/23 DATE

THE CERTIFICATIONS SHOWN HEREON ARE INTENDED TO MEET REGISTRY OF DEED REQUIREMENTS AND ARE NOT A CERTIFICATION TO TITLE OR OWNERSHIP OF PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE ACCORDING TO CURRENT TOWN ASSESSORS RECORDS.

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

SUBDIVISON PLAN

FOR

TROPIC STAR DEVELOPMENT

OF

TAX MAP 55 LOT 75

EPPING ROAD & MEETING PLACE DRIVE

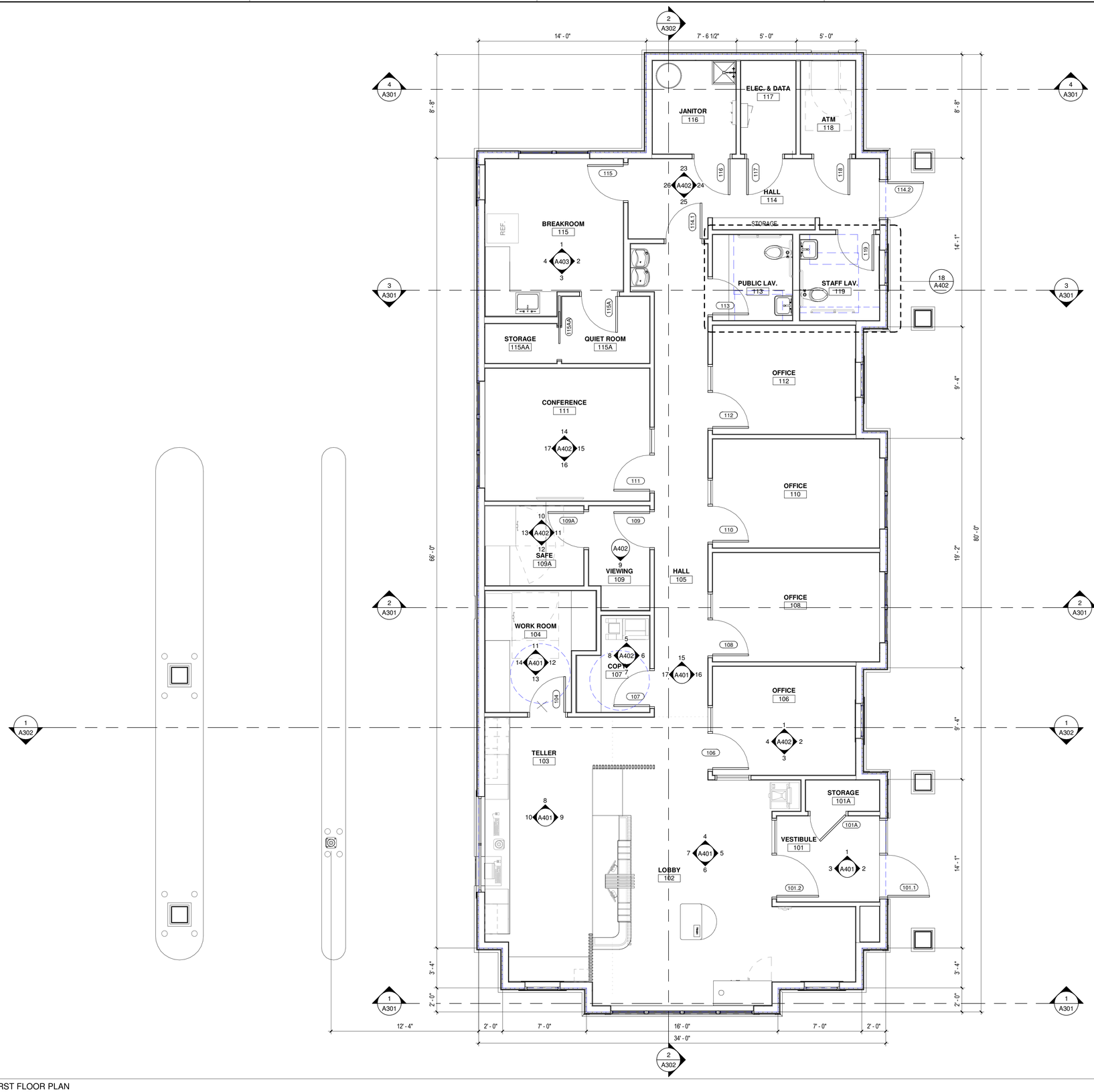
EXETER, NEW HAPMSHIRE

NO.	DATE	DESCRIPTION	BY

DRAWN BY:	J.R.P.	DATE:	MAY, 2023
CHECKED BY:	S.V.M.	DRAWING NO.	7498B
JOB NO.	7498	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

FILE NAME: Y:\PROJECTS\7498 CAD\DRAWING DATA\OUTLOOK\2023-06-21\7498B 2023-06-21.dwg LAYOUT NAME: 22X34 SUB PLAN PLOTTED: Wednesday, June 21, 2023 - 12:06pm



1 FIRST FLOOR PLAN
A111 1/4" = 1'-0"

GENERAL PLAN NOTES

1. ARCHITECTURAL DATUM = 100'-0". THE ARCHITECTURAL DATUM IS INDEPENDENT OF ELEVATIONS SHOWN ON THE CIVIL DRAWINGS. SEE CIVIL DRAWINGS FOR CORRESPONDING DATUM IN HEIGHT ABOVE SEA LEVEL.
2. ALL DIMENSIONS AT NEW WALLS ARE TO OUTSIDE FACE OF STUD, FACE OF CONCRETE, FACE OF MASONRY, OR CENTER OF OPENING, U.N.O. AT EXISTING WALLS DIMENSIONS ARE TO FINISH FACE OF WALL.
3. DO NOT SCALE DRAWINGS. CONTACT ARCHITECT FOR ANY DISCREPANCY PRIOR TO COMMENCING WITH ANY WORK.
4. REFER TO DIMENSION PLANS FOR GENERAL PARTITION NOTES & PARTITION TYPES.
5. VERIFY FIELD CONDITIONS PRIOR TO COMMENCEMENT OF EACH PORTION OF THE WORK. NOTIFY ARCHITECT OF DISCREPANCIES.
6. ALL LUMBER IN DIRECT CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED INCLUDING ALL SILL PLATES FOR WOOD STUD WALLS.
7. REVIEW PRIOR TO INSTALLATION, ANY CONFLICT OF ENGINEERING TRADE DEVICES (I.E. FIRE ALARM STROBES) WITH ARCHITECTURAL DETAILS AND BRING THOSE DISCREPANCIES TO THE ARCHITECT FOR REVIEW.
8. PROVIDE BLOCKING FOR MILLWORK, MECHANICAL FIXTURES, PLUMBING FIXTURES AND OTHER ITEMS IDENTIFIED IN THE CONSTRUCTION DOCUMENTS.
9. COORDINATE MISC. STEEL REQUIREMENTS FOR MOUNTING / HANGING OWNER SUPPLIED EQUIPMENT.

FLOOR PLAN LEGEND

- 101 — DOOR TAG, SEE DOOR SCHEDULE
- X — WINDOW TAG, SEE WINDOW SCHEDULE
- A — KEYNOTE, SEE FLOOR PLAN KEYNOTE LEGEND

FLOOR PLAN KEYNOTES

WARRENSTREET ARCHITECTS
27 Warren Street Concord NH 03301
T 603.225.0640 F 603.225.0621 www.warrenstreet.coop

NEW HAMPSHIRE MUTUAL BANCORP
OWNER, C/O: ALISON WHYNOT
89 N. MAIN STREET
PO BOX 2826
CONCORD, NH 03302
P. (603) 225-2793

CONNESTON CONSTRUCTION, INC.
GENERAL CONTRACTOR
132 S. MAIN STREET
LACONIA, NH 03246
P. (603) 524-3776

PROJECT TITLE / ADDRESS:
MEREDITH VILLAGE SAVINGS BANK EXETER BRANCH

SCALE: AS NOTED
JOB #: 3769
DWN BY: LL
CHK BY: JH
PRINT DATE: 5/31/2023 5:40:10 PM

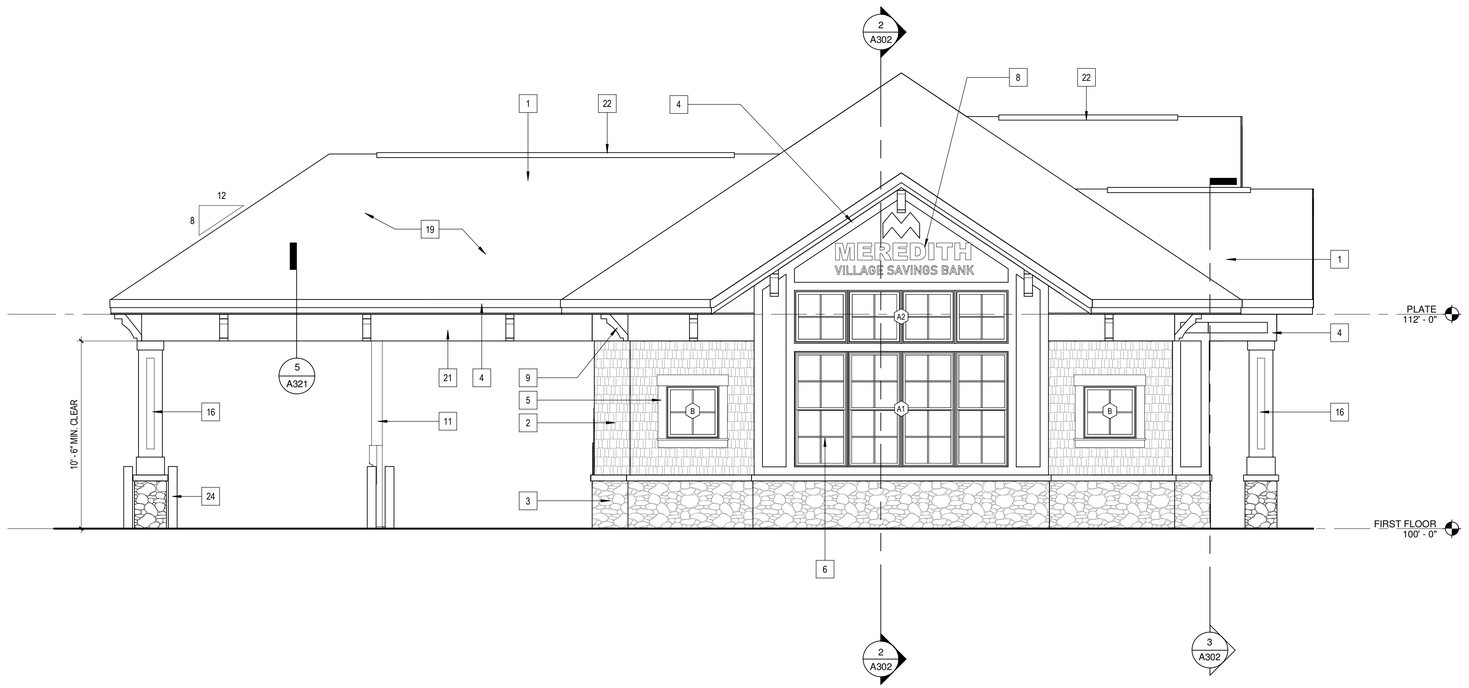
ISSUE DATE:
5/31/2023
SCHEMATIC DESIGN

REVISION	DATE	COMMENTS

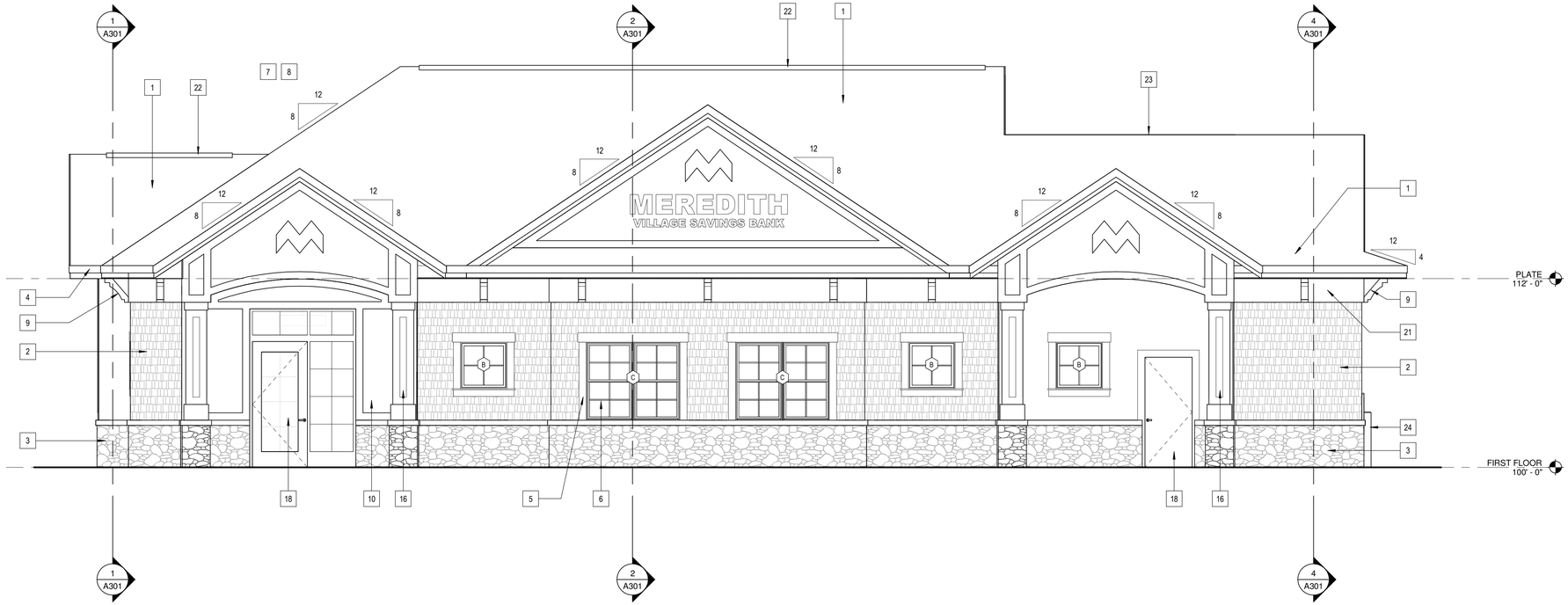
FLOOR PLAN

A111

SHEET NUMBER: 1 OF 3 ARCHITECTURAL



1 FRONT ELEVATION
A201 1/4" = 1'-0"



2 ENTRY ELEVATION
A201 1/4" = 1'-0"

GENERAL ELEVATION NOTES

1. REFER TO MECH DWGS FOR LOCATIONS OF LOUVERS AND VENTS. CONFIRM FINAL POSITION WITH ARCHITECT PRIOR TO ORDERING.

ELEVATION LEGEND

A — KEYNOTE, SEE ELEVATION KEYNOTE LEGEND

X — WINDOW TAG, SEE DOOR SCHEDULE SHEET

ELEVATION KEYNOTES

KEY #	DESCRIPTION
1	30 YR ASPHALT SHINGLE ROOF. BASIS OF DESIGN: CERTAINTEED, LANDMARK, WEATHERED WOOD. G.C. TO SUBMIT COLOR SAMPLES TO ARCHITECT FOR FINAL SELECTION.
2	COMPOSITE SHINGLE SIDING.
3	STONE VENEER WALL BASE W/GRAY GRANITE CAP. BASIS OF DESIGN: ELDERADO, SHADOW ROCK, TETON. G.C. TO SUBMIT COLOR SAMPLES TO ARCHITECT FOR FINAL SELECTION.
4	1X WHITE PVC TRIM
5	1X4 WHITE PVC OPENING TRIM
6	VINYL WINDOW. COLOR: WHITE
7	SIGNAGE LIGHTING (TBD)
8	SIGNAGE (TBD)
9	18" PVC DECORATIVE BRACKET. COLOR: WHITE
10	KNOX BOX
11	FREE STANDING PNEUMATIC TUBE
12	THRU-WALL ATM
13	THRU-WALL NIGHTDROP BOX
14	TRANSACTION WINDOW W/ THRU-WALL DRAWER
15	MECHANICAL SCREEN
16	18" SQUARE COLUMN, WHITE PVC WRAP W/ STONE BASE
17	LOCATION OF UTILITY CONNECTIONS & METERS
18	METAL DOOR. COLOR: WHITE
19	AREA OF FUTURE SOLAR ARRAY
20	CLEARANCE SIGN
21	1X WHITE PVC SHEET ON 1X4 WD BLOCKING @ FULL PERIMETER. ALL JOINTS @ 8'-0" O.C. MAX.
22	RIDGE VENT
23	METAL COPING ROOF VENT
24	6" DIA. STEEL BOLLARD. 48" ABOVE GRADE. 48" FOOTING BELOW GRADE. PROVIDE CAUTION PVC SLEEVE.

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PROJECT TITLE / ADDRESS:
MEREDITH VILLAGE SAVINGS BANK EXETER BRANCH

SCALE: AS NOTED
JOB #: 3769
DWN BY: LL
CHK BY: JH

PRINT DATE: 5/31/2023 5:40:12 PM

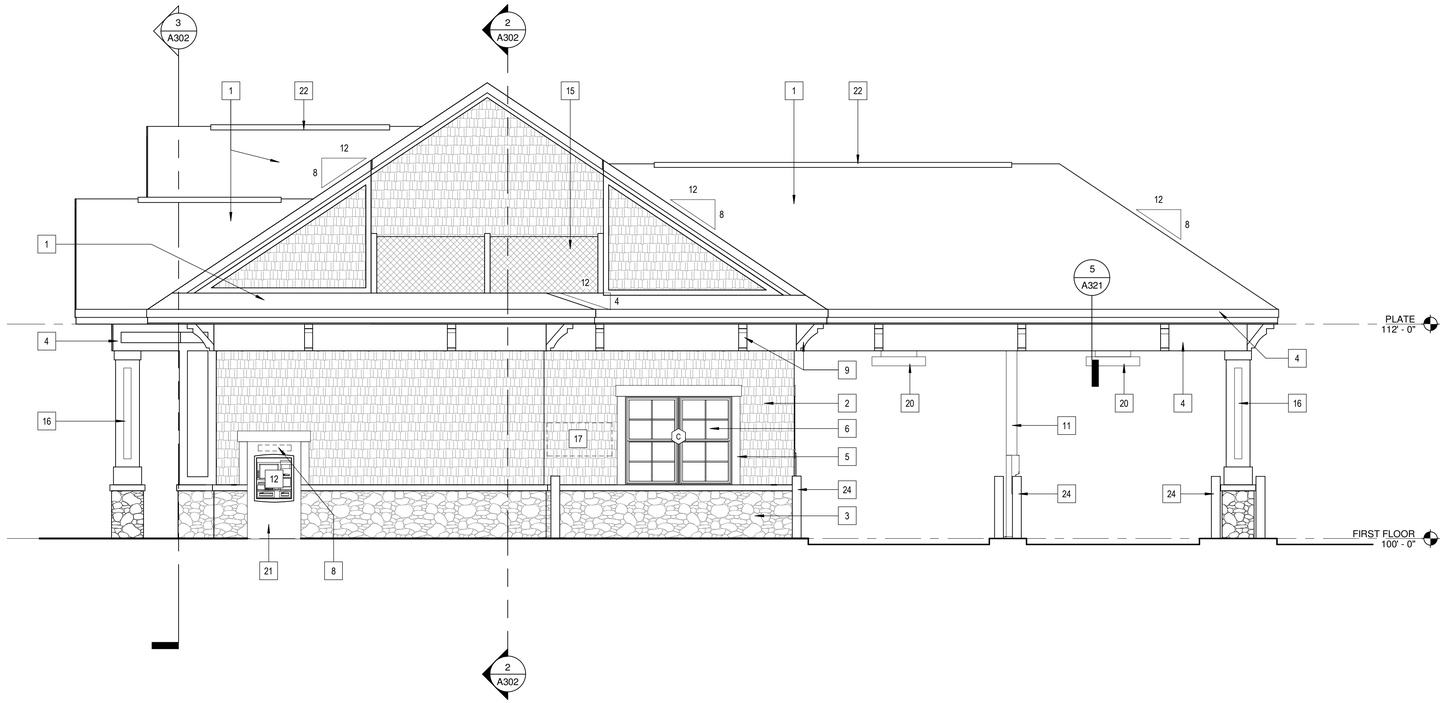
ISSUE DATE:
5/31/2023
SCHEMATIC DESIGN

REVISION	DATE	COMMENTS

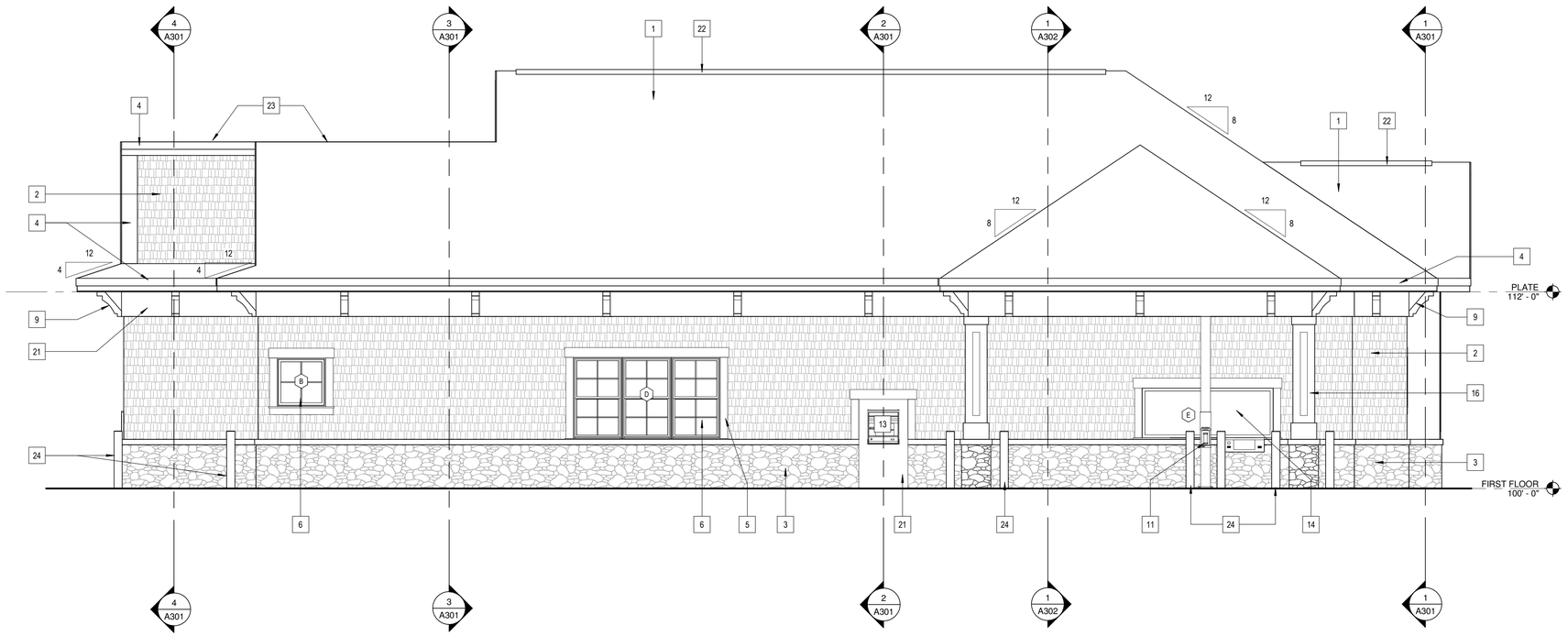
EXTERIOR ELEVATIONS

A201

SHEET NUMBER: 2 OF 3 ARCHITECTURAL



1 REAR ELEVATION
A202 1/4" = 1'-0"



2 DRIVE-THRU ELEVATION
A202 1/4" = 1'-0"

GENERAL ELEVATION NOTES

1. REFER TO MECH DWGS FOR LOCATIONS OF LOUVERS AND VENTS. CONFIRM FINAL POSITION WITH ARCHITECT PRIOR TO ORDERING.

ELEVATION LEGEND

A — KEYNOTE, SEE ELEVATION KEYNOTE LEGEND

X — WINDOW TAG, SEE DOOR SCHEDULE SHEET

ELEVATION KEYNOTES

KEY #	DESCRIPTION
1	30 YR ASPHALT SHINGLE ROOF. BASIS OF DESIGN: CERTAINTEED, LANDMARK, WEATHERED WOOD. G.C. TO SUBMIT COLOR SAMPLES TO ARCHITECT FOR FINAL SELECTION.
2	COMPOSITE SHINGLE SIDING.
3	STONE VENEER WALL BASE W/GRAY GRANITE CAP. BASIS OF DESIGN: ELDERADO, SHADOW ROCK, TETON. G.C. TO SUBMIT COLOR SAMPLES TO ARCHITECT FOR FINAL SELECTION.
4	1X WHITE PVC TRIM
5	1X4 WHITE PVC OPENING TRIM
6	VINYL WINDOW. COLOR: WHITE
7	SIGNAGE LIGHTING (TBD)
8	SIGNAGE (TBD)
9	18" PVC DECORATIVE BRACKET. COLOR: WHITE
10	KNOX BOX
11	FREE STANDING PNEUMATIC TUBE
12	THRU-WALL ATM
13	THRU-WALL NIGHTDROP BOX
14	TRANSACTION WINDOW W/ THRU-WALL DRAWER
15	MECHANICAL SCREEN
16	18" SQUARE COLUMN, WHITE PVC WRAP W/ STONE BASE
17	LOCATION OF UTILITY CONNECTIONS & METERS
18	METAL DOOR. COLOR: WHITE
19	AREA OF FUTURE SOLAR ARRAY
20	CLEARANCE SIGN
21	1X WHITE PVC SHEET ON 1X4 WD BLOCKING @ FULL PERIMETER. ALL JOINTS @ 8'-0" O.C. MAX.
22	RIDGE VENT
23	METAL COPING ROOF VENT
24	6" DIA. STEEL BOLLARD. 48" ABOVE GRADE. 48" FOOTING BELOW GRADE. PROVIDE CAUTION PVC SLEEVE.

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P. (603) 524-3776

PROJECT TITLE / ADDRESS:
MEREDITH VILLAGE SAVINGS BANK EXETER BRANCH

SCALE: AS NOTED DWN BY: LL
JOB #: 3769 CHK BY: JH

PRINT DATE: 5/31/2023 5:40:14 PM

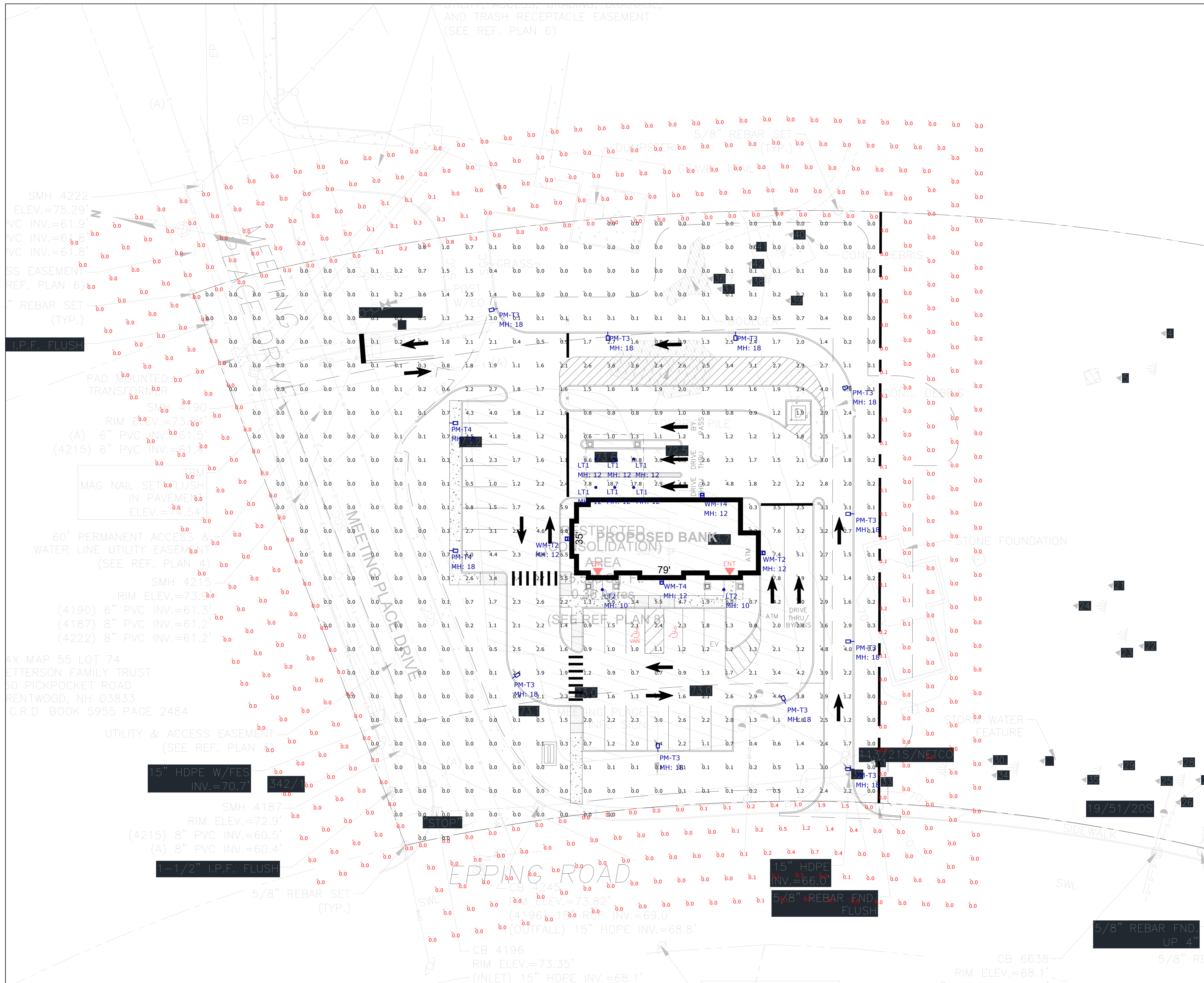
ISSUE DATE:
5/31/2023
SCHEMATIC DESIGN

REVISION	DATE	COMMENTS

EXTERIOR ELEVATIONS

A202

SHEET NUMBER: 3 OF 3 ARCHITECTURAL



1 Site Lighting Photometrics

SCALE: 1"=30'-0"

Luminaire Schedule							
Symbol	Label	Qty	Part Number	LLF	BUG Rating	Fixture Wattage	Fixture Lumens
	LT1	6	Vantage # A6VOFLEDU-2030K-M6060-SCL-ZDM	0.900	B2-U0-G0	25.8	1921
	LT2	2	Vantage # A6VOFLEDU-0730K-M6060-SCL-ZDM	0.900	B1-U0-G0	9.4	721
	PM-T3	10	Visionaire # VSX-II-T3-15L-3K-UNV-SAM-BK-HS	0.900	B0-U0-G1	102	4363
	PM-T4	2	Visionaire # VSX-II-T4-15L-3K-UNV-SAM-BK-HS	0.900	B1-U0-G2	102	5148
	WM-T2	2	Visionaire # VSC-II-T2-32LC-5-3K-UNV-WM-BK	0.900	B2-U0-G2	52	6313
	WM-T4	2	Visionaire # VSC-II-T4-32LC-5-3K-UNV-WM-BK	0.900	B1-U0-G1	52	5917

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Drive Thru	Illuminance	Fc	16.60	21.3	10.0	1.66	2.13
Front Left Canopy	Illuminance	Fc	5.69	9.3	2.3	2.47	4.04
Front Right Canopy	Illuminance	Fc	5.08	9.1	1.4	3.63	6.50
Horizontal Crosswalk	Illuminance	Fc	3.22	6.0	2.3	1.40	2.61
Property Line	Illuminance	Fc	0.03	1.9	0.0	N.A.	N.A.
Site Points	Illuminance	Fc	1.22	20.4	0.0	N.A.	N.A.
Vertical Crosswalk	Illuminance	Fc	1.70	2.3	1.0	1.70	2.30

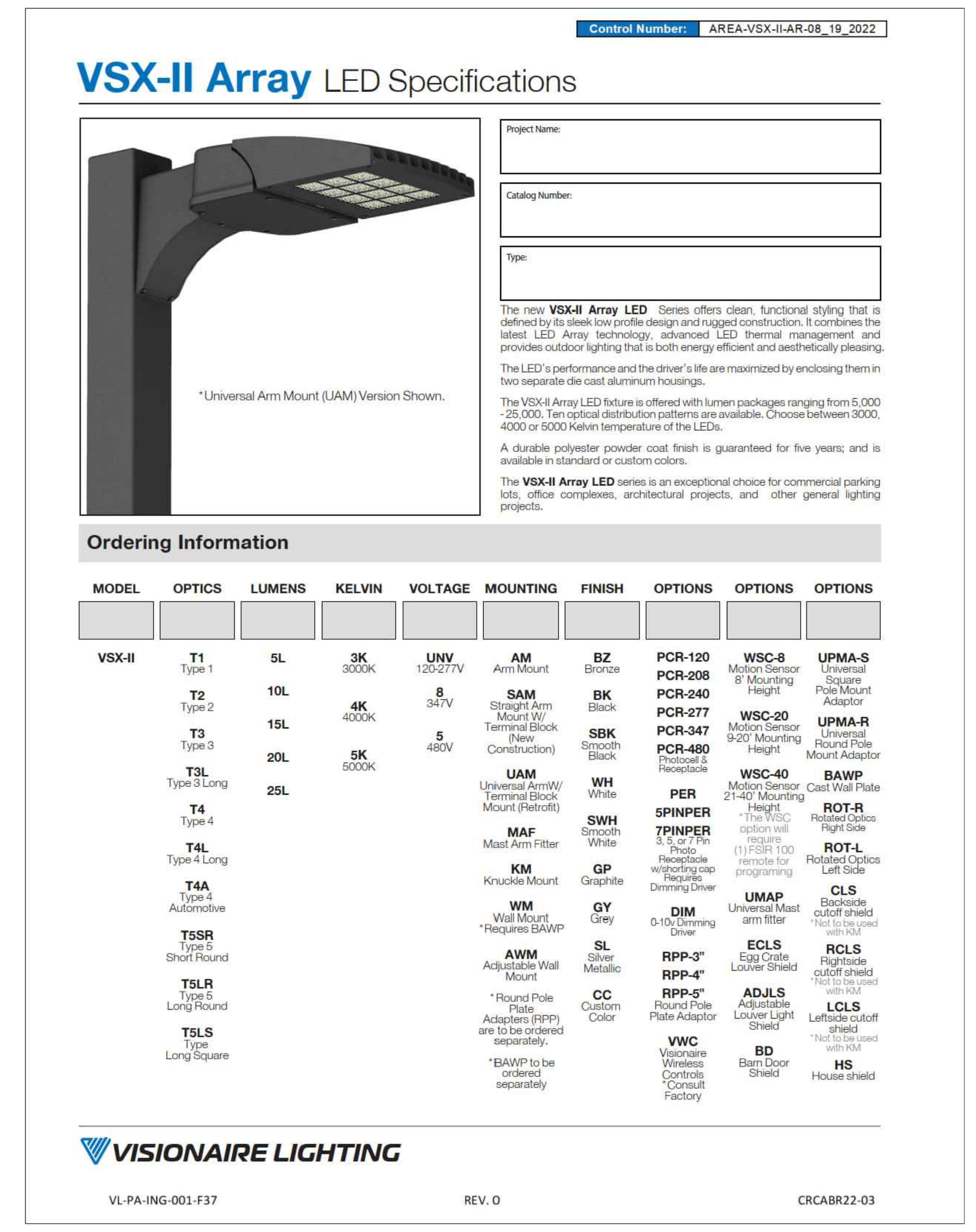
NOTES:

A. A LIGHT LOSS FACTOR OF 0.900 HAS BEEN APPLIED TO FIXTURES UNLESS OTHERWISE NOTED. REFER TO LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR AND LUMEN INFORMATION.

B. SEE "MH" ON LIGHTING FIXTURE TAG LOCATED ON PLAN FOR MOUNTING HEIGHT INFORMATION.

C. CALCULATION POINTS ARE TAKEN AT GRADE.

D. CALCULATION RESULTS ARE BASED ON IES STANDARDS UNLESS OTHERWISE REQUESTED.



Control Number: AREA-VSX-II-AR-08_19_2022

VSX-II Array LED Specifications

*Universal Arm Mount (UAM) Version Shown.

Project Name:

Catalog Number:

Type:

The new **VSX-II Array LED** Series offers clean, functional styling that is defined by its sleek low profile design and rugged construction. It combines the latest LED Array technology, advanced LED thermal management and provides outdoor lighting that is both energy efficient and aesthetically pleasing.

The LED's performance and the driver's life are maximized by enclosing them in two separate die cast aluminum housings.

The VSX-II Array LED fixture is offered with lumen packages ranging from 5,000 - 25,000. Ten optical distribution patterns are available. Choose between 3000, 4000 or 5000 Kelvin temperature of the LEDs.

A durable polyester powder coat finish is guaranteed for five years; and is available in standard or custom colors.

The **VSX-II Array LED** series is an exceptional choice for commercial parking lots, office complexes, architectural projects, and other general lighting projects.

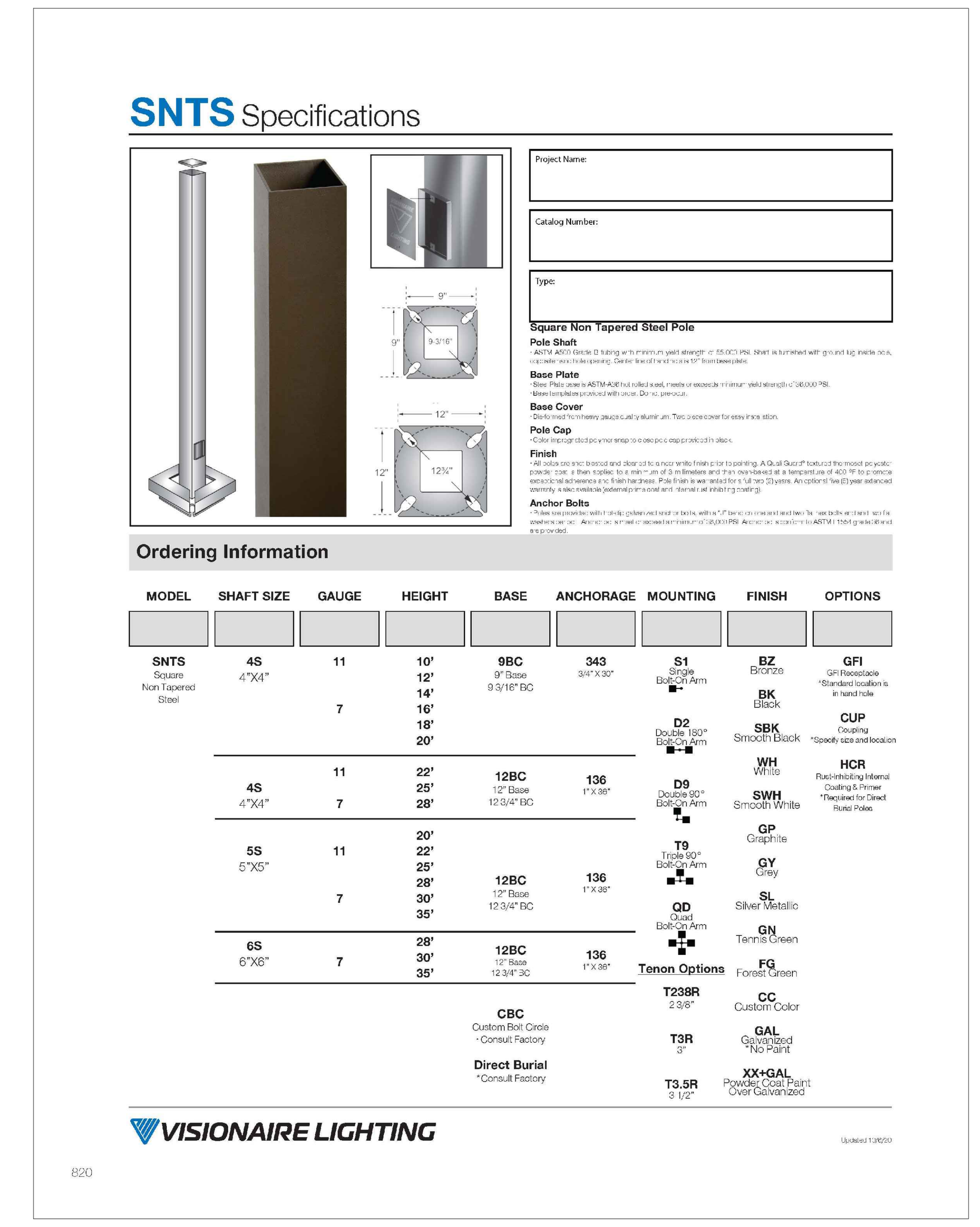
Ordering Information

MODEL	OPTICS	LUMENS	KELVIN	VOLTAGE	MOUNTING	FINISH	OPTIONS	OPTIONS	OPTIONS
VSX-II	T1 Type 1; T2 Type 2; T3 Type 3; T3L Type 3 Long; T4 Type 4; T4L Type 4 Long; T4A Type 4 Automotive; T5SR Type 5 Short Round; T5LR Type 5 Long Round; T5LS Type Long Square	5L; 10L; 15L; 20L; 25L	3K 3000K; 4K 4000K; 5K 5000K	UNV 120-277V; 8 347V; 5 480V	AM Arm Mount; SAM Straight Arm Mount W/ Terminal Block (New Construction); UAM Universal ArmW/ Terminal Block Mount (Retrofit); MAF Mast Arm Fitter; KM Knuckle Mount; WM Wall Mount *Requires BAWP; AWM Adjustable Wall Mount; *Round Pole Plate Adapters (RPP) are to be ordered separately. *BAWP to be ordered separately	BZ Bronze; BK Black; SBK Smooth Black; WH White; SWH Smooth White; GP Graphite; GY Grey; SL Silver Metallic; CC Custom Color	PCR-120; PCR-208; PCR-240; PCR-277; PCR-347; PCR-480 Photocell & Receptacle; PER; 5PINPER; 7PINPER 3, 5, or 7 Pin Photo Receptacle w/shorting cap Requires Dimming Driver; DIM 0-10v Dimming Driver; RPP-3"; RPP-4"; RPP-5" Round Pole Plate Adaptor; VWC Visionaire Wireless Controls *Consult Factory	WSC-8 Motion Sensor 8' Mounting Height; WSC-20 Motion Sensor 9-20' Mounting Height; WSC-40 Motion Sensor 21-40' Mounting Height *The WSC option will require (1) FSIR 100 remote for programing; UMAP Universal Mast arm fitter; ECLS Egg Crate Louver Shield; ADJLS Adjustable Louver Light Shield; BD Barn Door Shield	UPMA-S Universal Square Pole Mount Adaptor; UPMA-R Universal Round Pole Mount Adaptor; BAWP Cast Wall Plate; ROT-R Rotated Optics Right Side; ROT-L Rotated Optics Left Side; CLS Backside cutoff shield *Not to be used with KM; RCLS Rightside cutoff shield *Not to be used with KM; LCLS Leftside cutoff shield *Not to be used with KM; HS House shield

VISIONAIRE LIGHTING

VL-PA-ING-001-F37 REV. 0 CRCABR22-03

2 Fixture Specification - Visionaire VSX Array



SNTS Specifications

Project Name:

Catalog Number:

Type:

Square Non Tapered Steel Pole

Pole Shaft

Base Plate

Base Cover

Pole Cap

Finish

Anchor Bolts

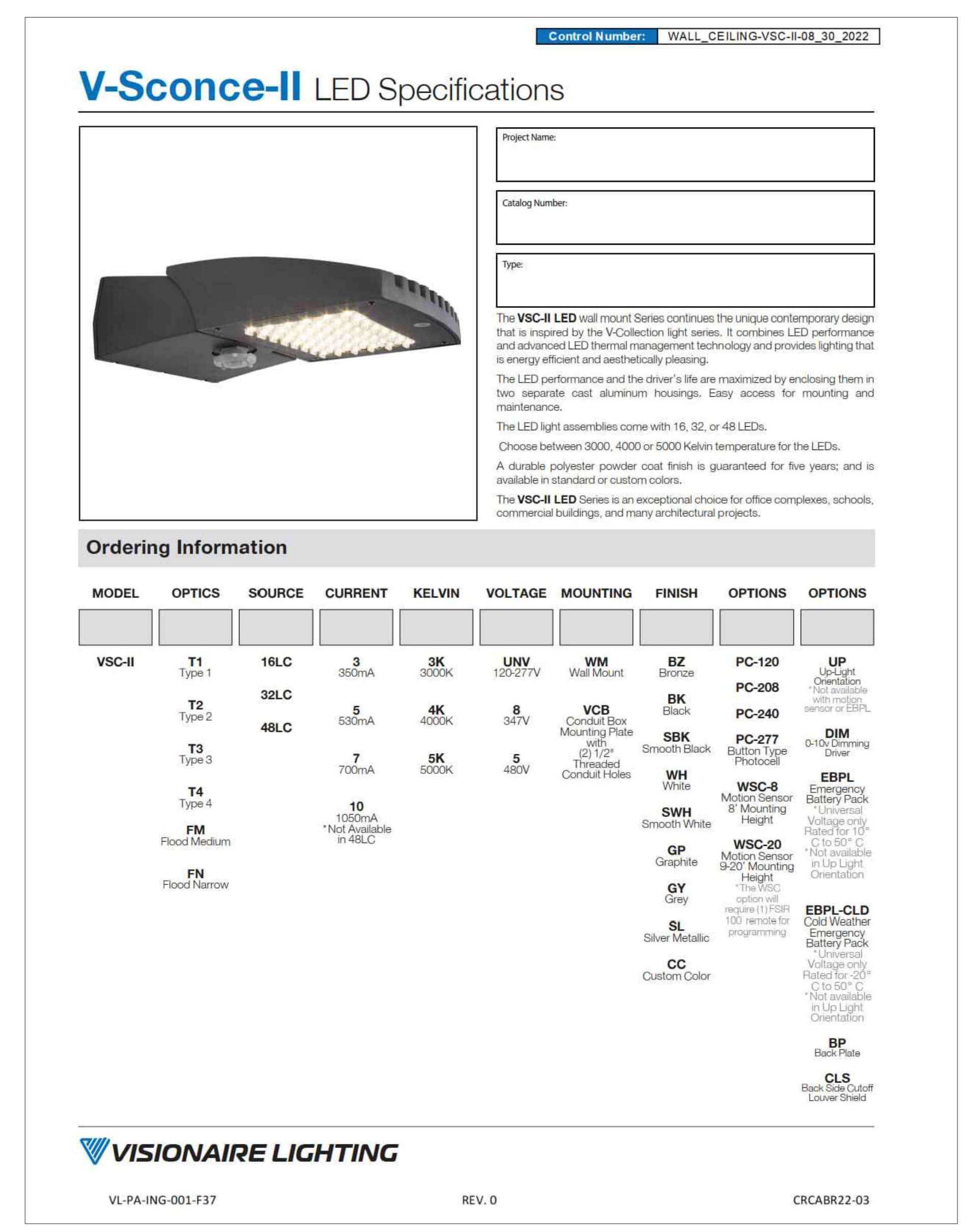
Ordering Information

MODEL	SHAFT SIZE	GAUGE	HEIGHT	BASE	ANCHORAGE	MOUNTING	FINISH	OPTIONS
SNTS Square Non Tapered Steel	4S 4"X4"	11; 7	10', 12', 14', 16', 18', 20'	9BC 9" Base 9 3/16" BC	343 3/4" X 30"	S1 Single Bolt-On Arm; D2 Double 180° Bolt-On Arm; D9 Double 90° Bolt-On Arm; T9 Triple 90° Bolt-On Arm; QD Quad Bolt-On Arm; Tenon Options: T238R 2 3/8"; T3R 3"; T3.5R 3 1/2"	BZ Bronze; BK Black; SBK Smooth Black; WH White; SWH Smooth White; GP Graphite; GY Grey; SL Silver Metallic; GN Tennis Green; FG Forest Green; CC Custom Color; GAL Galvanized *No Paint; XX+GAL Powder Coat Paint Over Galvanized	GFI GFI Receptacle *Standard location is in hand hole; CUP Coupling *Specify size and location; HCR Rust-Inhibiting Internal Coating & Primer *Required for Direct Burial Poles
	4S 4"X4"	11; 7	22', 25', 28'	12BC 12" Base 12 3/4" BC	136 1" X 36"			
	5S 5"X5"	11; 7	20', 22', 25', 28', 30', 35'	12BC 12" Base 12 3/4" BC	136 1" X 36"			
	6S 6"X6"	7	28', 30', 35'	12BC 12" Base 12 3/4" BC	136 1" X 36"			
				CBC Custom Bolt Circle *Consult Factory; Direct Burial *Consult Factory				

VISIONAIRE LIGHTING

820

3 Pole Specification - Visionaire SNTS



Control Number: WALL_CEILING-VSC-II-08_30_2022

V-Sconce-II LED Specifications

Project Name:

Catalog Number:

Type:

The **VSC-II LED** wall mount Series continues the unique contemporary design that is inspired by the V-Collection light series. It combines LED performance and advanced LED thermal management technology and provides lighting that is energy efficient and aesthetically pleasing.

The LED performance and the driver's life are maximized by enclosing them in two separate cast aluminum housings. Easy access for mounting and maintenance.

The LED light assemblies come with 16, 32, or 48 LEDs.

Choose between 3000, 4000 or 5000 Kelvin temperature for the LEDs.

A durable polyester powder coat finish is guaranteed for five years; and is available in standard or custom colors.

The **VSC-II LED** Series is an exceptional choice for office complexes, schools, commercial buildings, and many architectural projects.

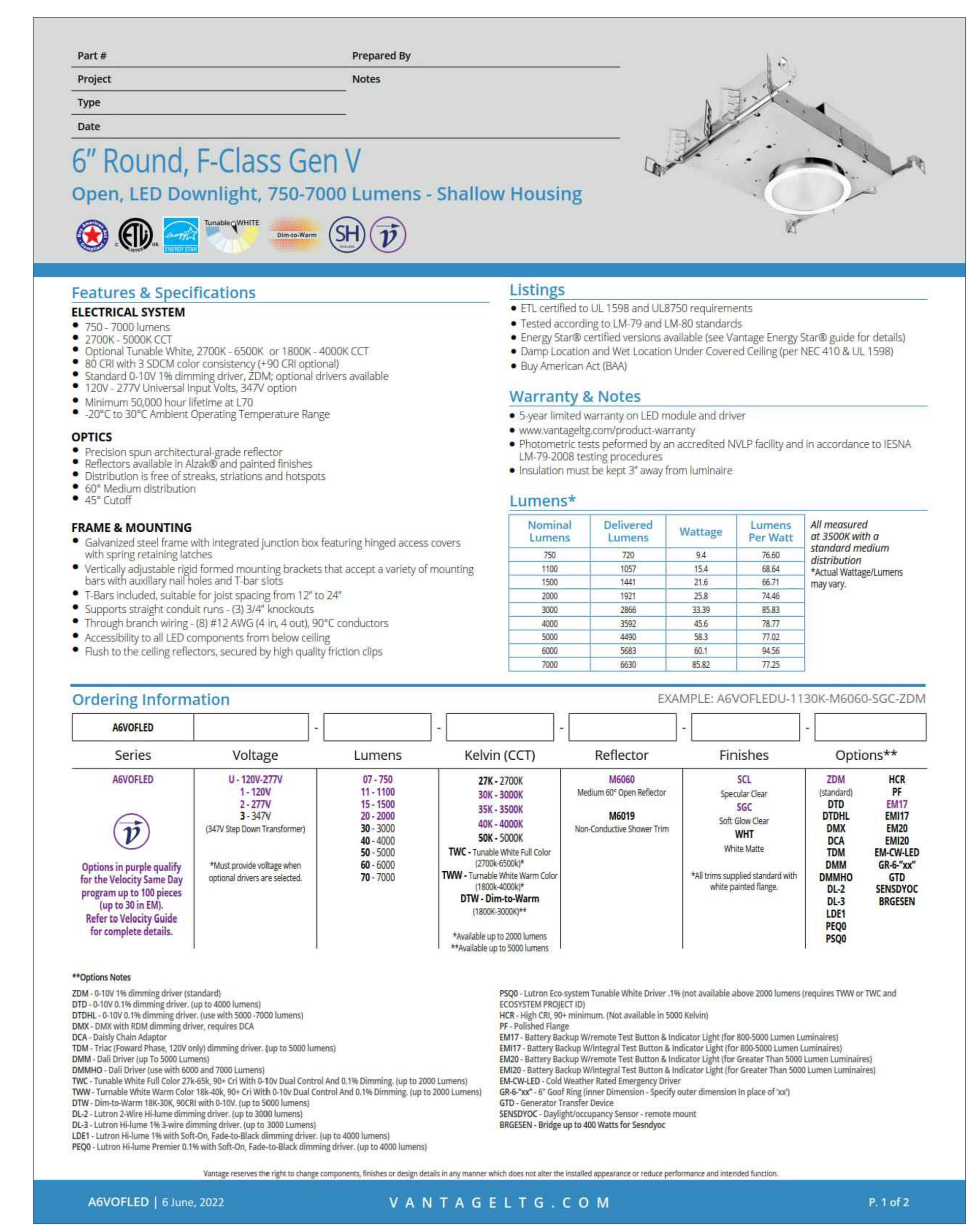
Ordering Information

MODEL	OPTICS	SOURCE	CURRENT	KELVIN	VOLTAGE	MOUNTING	FINISH	OPTIONS	OPTIONS
VSC-II	T1 Type 1; T2 Type 2; T3 Type 3; T4 Type 4; FM Flood Medium; FN Flood Narrow	16LC; 32LC; 48LC	3 350mA; 5 530mA; 7 700mA; 10 1050mA *Not Available in 48LC	3K 3000K; 4K 4000K; 5K 5000K	UNV 120-277V; 8 347V; 5 480V	WM Wall Mount; VCB Conduit Box Mounting Plate with (2) 1/2" Threaded Conduit Holes	BZ Bronze; BK Black; SBK Smooth Black; WH White; SWH Smooth White; GP Graphite; GY Grey; SL Silver Metallic; CC Custom Color	PC-120; PC-208; PC-240; PC-277 Button Type Photocell; WSC-8 Motion Sensor 8' Mounting Height; WSC-20 Motion Sensor 9-20' Mounting Height *The WSC option will require (1) FSIR 100 remote for programming	UP Up-Light Orientation *Not available with motion sensor or EBPL; DIM 0-10v Dimming Driver; EBPL Emergency Battery Pack *Universal Voltage only Rated for 10° C to 50° C *Not available in Up Light Orientation; EBPL-CLD Cold Weather Emergency Battery Pack *Universal Voltage only Rated for -20° C to 50° C *Not available in Up Light Orientation; BP Back Plate; CLS Back Side Cutoff Louver Shield

VISIONAIRE LIGHTING

VL-PA-ING-001-F37 REV. 0 CRCABR22-03

4 Fixture Specification - Visionaire VSC



Part # / Prepared By / Project / Notes / Type / Date

6" Round, F-Class Gen V

Open, LED Downlight, 750-7000 Lumens - Shallow Housing

Features & Specifications

ELECTRICAL SYSTEM
- 750 - 7000 lumens
- 2700K - 5000K CCT
- Optional Tunable White, 2700K - 6500K or 1800K - 4000K CCT
- 80 CRI with 3 SDCM color consistency (+90 CRI optional)
- Standard 0-10V 1% dimming driver, ZDM; optional drivers available
- 120V - 277V Universal Input Volts, 347V option
- Minimum 50,000 hour lifetime at L70
- -20°C to 30°C Ambient Operating Temperature Range

OPTICS
- Precision spun architectural-grade reflector
- Reflectors available in Alzak® and painted finishes
- Distribution is free of streaks, striations and hotspots
- 60° Medium distribution
- 45° Cutoff

FRAME & MOUNTING
- Galvanized steel frame with integrated junction box featuring hinged access covers with spring retaining latches
- Vertically adjustable rigid formed mounting brackets that accept a variety of mounting bars with auxiliary nail holes and T-bar slots
- T-Bars included, suitable for joist spacing from 12" to 24"
- Supports straight conduit runs - (3) 3/4" knockouts
- Through branch wiring - (8) #12 AWG (4 in, 4 out), 90°C conductors
- Accessibility to all LED components from below ceiling
- Flush to the ceiling reflectors, secured by high quality friction clips

Listings
- ETL certified to UL 1598 and UL8750 requirements
- Tested according to LM-79 and LM-80 standards
- Energy Star® certified versions available (see Vantage Energy Star® guide for details)
- Damp Location and Wet Location Under Covered Ceiling (per NEC 410 & UL 1598)
- Buy American Act (BAA)

Warranty & Notes
- 5-year limited warranty on LED module and driver
- www.vantageltg.com/product-warranty
- Photometric tests peformed by an accredited NVLP facility and in accordance to IESNA LM-79-2008 testing procedures
- Insulation must be kept 3" away from luminaire

Lumens*

Nominal Lumens	Delivered Lumens	Wattage	Lumens Per Watt
750	720	9.4	76.60
1100	1057	15.4	68.64
1500	1441	21.6	66.71
2000	1921	25.8	74.46
3000	2866	33.39	85.83
4000	3592	45.6	78.77
5000	4490	58.3	77.02
6000	5683	60.1	94.56
7000	6630	85.82	77.25

All measured at 3500K with a standard medium distribution *Actual Wattage/Lumens may vary.

Ordering Information — EXAMPLE: A6VOFLEDU-1130K-M6060-SGC-ZDM

Series	Voltage	Lumens	Kelvin (CCT)	Reflector	Finishes	Options**
A6VOFLED	U - 120V-277V; 1 - 120V; 2 - 277V; 3 - 347V (347V Step Down Transformer) *Must provide voltage when optional drivers are selected.	07 - 750; 11 - 1100; 15 - 1500; 20 - 2000; 30 - 3000; 40 - 4000; 50 - 5000; 60 - 6000; 70 - 7000	27K - 2700K; 30K - 3000K; 35K - 3500K; 40K - 4000K; 50K - 5000K; TWC - Tunable White Full Color (2700K-6500K)*; TWW - Tunable White Warm Color (1800K-4000K)*; DTW - Dim-to-Warm (1800K-3000K)** *Available up to 2000 lumens **Available up to 5000 lumens	M6060 Medium 60° Open Reflector; M6019 Non-Conductive Shower Trim	SCL Specular Clear; SGC Soft Glow Clear; WHT White Matte *All trims supplied standard with white painted flange.	ZDM (standard); DTD; DTDHL; DMX; DCA; TDM; DMM; DMMHO; DL-2; DL-3; LDE1; PEQ0; PSQ0; HCR; PF; EM17; EMI17; EM20; EMI20; EM-CW-LED; GR-6-"xx"; GTD; SENSDYOC; BRGESEN

Options in purple qualify for the Velocity Same Day program up to 100 pieces (up to 30 in EM). Refer to Velocity Guide for complete details.

**Options Notes

A6VOFLED | 6 June, 2022 VANTAGELTG.COM P. 1 of 2

5 Fixture Specification - Vantage F-Class (6")

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Experience the light™
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TEC The Engineering Corp
169 Ocean Boulevard, Unit 101
PO Box 249
Hampton, NH 03842

2 Meeting Place Dr - Exeter, NH

Site Lighting Photometrics, Schedules & Specifications

DATE: May 15, 2023	
PROJECT NUMBER: 23-0619	
DRAWN BY: AD	
CHECKED BY:TJ	
APPROVED BY:TJ	
SCALE: AS NOTED	

REVISIONS	DESCRIPTION	DATE
1		
2		
3		
4		
5		
6		
7		

SL1

282 Merrimack Street, 2nd Floor
Lawrence, MA 01843
978.794.1792
TheEngineeringCorp.com
Create | Design | Innovate

TECHNICAL MEMORANDUM

TO: Tropic Star Development
321 D Lafayette Road
Hampton, NH 03842

DATE: June 15, 2023
REVISED

FROM: Samuel W. Gregorio, PE, PTOE, RSP_1, Senior Engineer
Rebecca L. Dean, Project Engineer

PROJECT NO.: N1264

RE: Proposed Bank; 2 Meeting Place Drive – Exeter, New Hampshire
Traffic Impact Assessment

INTRODUCTION

TEC, Inc. (TEC) has been retained by Tropic Star Development (the "Applicant") to prepare a Traffic Impact Assessment (TIA) for a proposed 2,617 square foot (SF) bank with two (2) drive-in lanes (the "Project") to be located at 2 Meeting Place Drive in Exeter, New Hampshire. The project will be located on the northeast corner of the Epping Road (Route 27) / Meeting Place Drive / McKay Drive intersection. The site is located in the Highway Commercial (C-2) Zoning District. Access/egress to the site is proposed by a right-in access driveway along Epping Road and a full access/egress driveway along Meeting Place Drive.

TEC has evaluated the traffic operations and safety characteristics of the study area under both existing year and future year conditions consistent with the *Guidelines for the Development of Traffic Impact and Access Studies (TIAS)* issued by the New Hampshire Department of Transportation (NHDOT)[1], the Town of Exeter Site Plan Rules and Regulations - Section 7.14.4, and the standards of the Traffic Engineering and Transportation Planning professions for the preparation of such reports. The future year examines traffic operations under an opening-year (2024) and future 11-year planning horizon (2034) for traffic volume projections, which includes an evaluation of conditions with and without the development. The findings and recommendations for the improvements are based on the detailed traffic analyses included in this technical memorandum.

EXISTING CONDITIONS

Study Area Intersections

The following intersections were included in the study area:

1. Epping Road (Route 27) / McKay Drive / Meeting Place Drive
2. Epping Road (Route 27) / *Proposed Site Driveway [South]*

[1] *Guidelines for the Development of Traffic Impact and Access Studies (TIAS)*; New Hampshire Department of Transportation; February 19, 2010.

3. Meeting Place Drive / Bus Turn-Out [West] / *Proposed Site Driveway [East]*

The study area intersections are shown graphically in Figure 1.

Geometry

Roadways

Epping Road (Route 27)

Epping Road, signed as NH Route 27, is a northwest-southeast minor arterial roadway which is under the jurisdiction of the Town of Exeter. For the purposes of this TIA, the cardinal direction of Epping Road will be noted as east-west. The corridor provides regional connection from Epping to the north and Downtown Exeter to the south. Epping Road generally provides a single travel lane in each direction with directional flow separated by a marked centerline. The posted speed limit along the corridor in the vicinity of the project is signed as 30 miles per hour (mph). Sidewalks along Epping Road are intermittent and there is no formal bicycle accommodation provided along the corridor.

Intersections

Epping Road (Route 27) / McKay Drive / Meeting Place Drive

McKay Drive and Meeting Place Drive intersect Epping Road, to form a four-way unsignalized intersection. The McKay Drive northbound and Meeting Place Drive southbound approaches are under stop control while the Epping Road eastbound and westbound approaches are free flowing. Both the Epping Road eastbound and westbound approaches consist of a left-turn lane and a shared through / right-turn lane. Each directional left-turn lane is in the form of a two-way left-turn lane (TWLTL) for area businesses. The McKay Drive northbound approach consists of a shared left-turn / through lane and an exclusive right-turn lane with directional flow separated by a marked, but faded, centerline. The Meeting Place Drive southbound approach consists of a single general-purpose travel lane with directional flow unmarked. A sidewalk is provided along the southerly side of Epping Road through the intersection and along the northerly side of Epping Road east of the intersection. A sidewalk is also provided along the easterly side of Meeting Place Drive. There is no formal bicycle accommodation provided at the intersection.

Meeting Place Drive / Bus Turn-Out [West] / Proposed Site Driveway [East]

The Bus Turn-Out intersects Meeting Place Drive in two places to form two (2) separate three-way unsignalized intersections. For the purposes of this TIA, an evaluation of the southernmost intersection is provided where the bus-turn-out approach will become the full access/egress driveway for the development. Overall, existing traffic operations at this location are insignificant and therefore analysis at this location only occurs during the Build Conditions. Under Exiting Conditions, the bus turn-out operates one-way counterclockwise and therefore the approach for the southernmost intersection currently experiences only entering movements. Meeting Place Drive through the intersection is free flowing in both directions. A sidewalk is present along the easterly side of Meeting Place Drive and along the outside of the bus turn-out roadway. There is no formal bicycle accommodation provided at the intersection.

Not to Scale

Figure 1

Project Location Map

TEC The Engineering Corp

Public Transportation

Amtrak and the Cooperative Alliance for Seacoast Transportation (COAST) provide train and bus services, respectively, to the Town of Exeter. These routes include stops greater than half a mile away from the Project site and are not expected to be significantly impacted by the project land use and its location. The Town of Exeter also has local public transportation for senior citizens above the age of fifty-five and residents of Exeter with a documented disability. This service is scheduled through Transportation for Seacoast Citizens (TASC).

There is not expected to be significant public transportation use by the subject location and therefore, no credit has been taken on the project's estimated trip generation for the potential use pf public transportation by residents.

Existing Traffic Volumes

Traffic volume data for this report was obtained from manual Turning Movement Counts (TMCs) and supplemented with Automatic Traffic Recorder (ATR) counts conducted at the study area intersections. The details of the data collection effort for this project are described below.

Turning Movement Counts

Manual TMCs were conducted at the intersection of Epping Road / McKay Drive / Meeting Place Drive during the typical weekday (7:00 AM – 7:00 PM) on Wednesday, April 5, 2023. Area schools were in regular session during the time of traffic counts. The traffic counts represent a reasonable reflection of traffic for a post COVID-19 pandemic condition. The peak hours of traffic were determined to be 7:00 AM to 8:00 AM during the weekday morning and 3:45 PM – 4:45 PM during the weekday evening. A detailed summary of the TMCs, partitioned into 15-minute intervals, is provided within Attachment A.

Automatic Traffic Recorder Counts

ATR counts were conducted along Epping Road, south of Meeting Place Drive, from Tuesday, April 11, 2023, through Wednesday, April 12, 2023 to gather daily traffic volume data, vehicle speeds, and vehicle classifications during a continuous 48-hour time period. A summary of the weekday ATR traffic data is presented in Table 1. A detailed summary of the ATR data, partitioned into 15-minute intervals, is provided within Attachment B.

Table 1 – Existing Weekday Traffic Volume Summary

Location	Weekday Traffic Volume[a]	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
		Traffic Volume[b]	K Factor[c]	Directional Distribution[d]	Traffic Volume	K Factor	Directional Distribution
Epping Road, south of Meeting Place Drive	11,884	976	8.2	58.3% NB	1,079	9.1	51.9% SB

[a] Daily traffic expressed in vehicles per day
[b] Hourly traffic expressed in vehicles per hour
[c] Percent of daily traffic volumes which occurs during the peak hour
[d] Percent of peak hour volume in the predominant direction of travel

Epping Road carries approximately 11,884 vehicles per day (vpd) on an average weekday. Directional distribution along the roadway is more prominent in the commuter direction along Epping Road in conjunction with the location of Route 101 to the north. Speed data indicates that the average speed and 85th percentile speed along Epping Road is 31 mph and 34 mph in the northbound direction, respectively, and 33 mph and 37 mph in the eastbound direction, respectively. Both speed designations are in excess of the posted 30 mph speed zone.

Seasonal Adjustment

To account for seasonal adjustment for the localized roadways around the site, TEC utilized NHDOT's weekday seasonal correction factors as published in 2019 (most recent publication). For urban highways, traffic volumes in the month of April are 9 percent lower (factor of 1.09 in 2019 of the average month) than peak-month conditions. Therefore, the April 2023 traffic volumes were upwardly adjusted by 9 percent to reflect a conservative analysis condition. The compiled seasonal adjustment data is provided in Attachment C. The resulting 2023 Existing Year Conditions weekday morning and weekday evening peak hour traffic volumes are illustrated in Figure 2.

Note that the nearest NHDOT permanent count station is located on Route 125 in Lee. The count station would denote a 16% increase in traffic volumes to reflect peak month conditions; however, as noted in the December 2020 *Corridor Study - Epping Road (NH Route 27)*[2], the corridor see very little seasonal fluctuation. The above-mentioned 9% seasonal adjustment factor utilized based on the typical urban highways is therefore conservative.

SAFETY ANALYSIS

Crash History Analysis

Crash reports for the study area intersection were compiled and analyzed for the most recent six-year period (2017 – 2022) on file with the Town of Exeter Police Department. The motor vehicle crash data was reviewed to determine if any crash trends exist within the study area. A summary of the vehicle crash data and intersection crash rates are provided in Table 2.

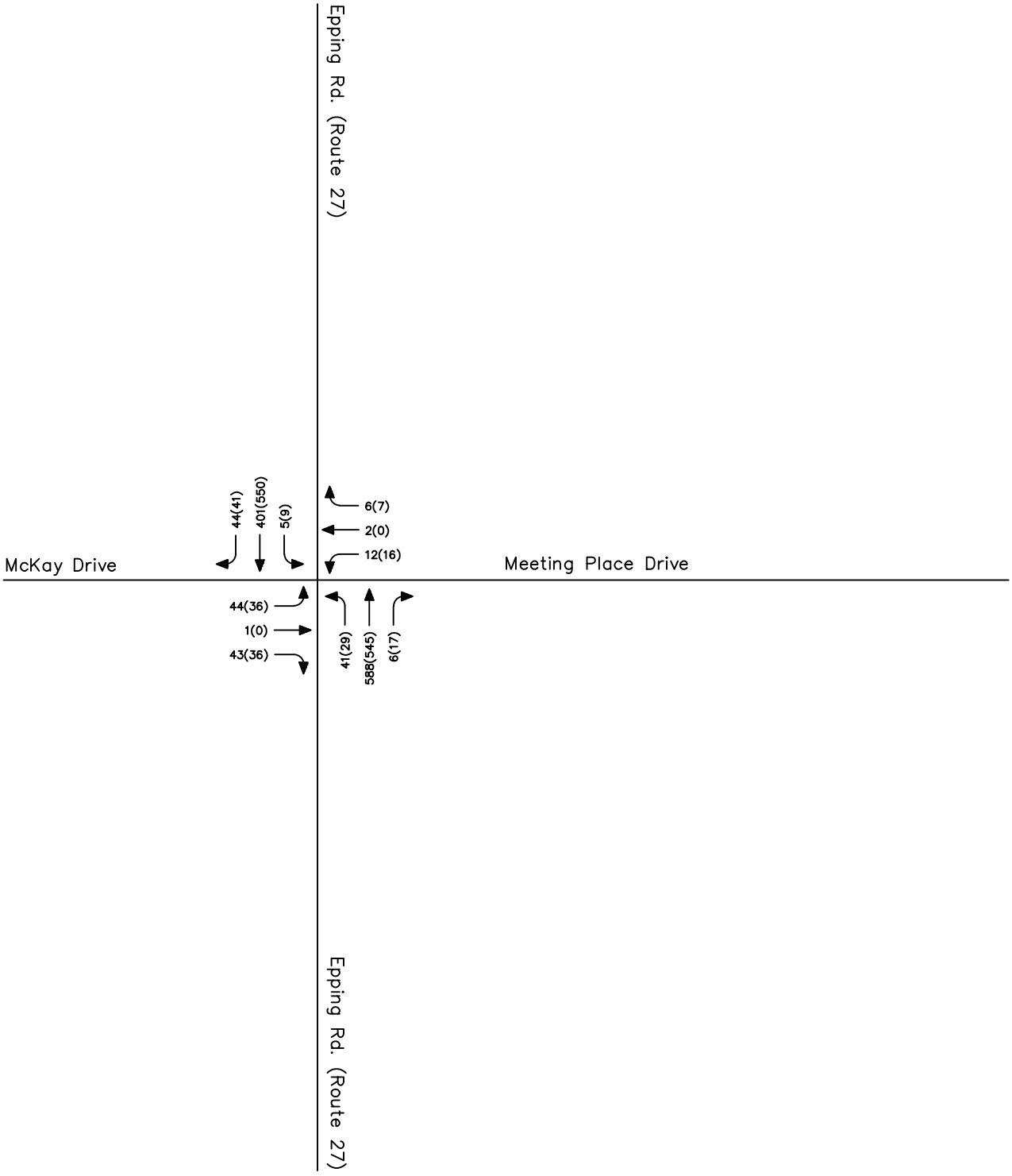
Crash Data Summary

Epping Road / Meeting Place Drive / McKay Drive

The intersection of Epping Road / Meeting Place Drive / McKay Drive experienced six (6) crashes over the six-year study period, yielding a crash rate of 0.21 crashes per million entering vehicles (MEV). One-half (3 of 6) crashes at this location were reported as angled crashes. One crash (1) was a single vehicle crash, and one (1) crash was a head-on crash. The number of reported crashes at this location is low, averaging one (1) crash per year which indicates no noticeable crash trends. A compilation of detailed crash data is provided in Attachment D.

[2] *Corridor Study - Epping Road (NH Route 27) – Exeter, NH*; prepared by VHB, Inc.; Bedford, NH; December 2020

Not to Scale



XXX(XXX) = Weekday Morning(Weekday Evening)

Figure 2

2023 Existing Conditions
Weekday Morning and Weekday Evening
Peak Hour Traffic Volumes

The Engineering Corp

Table 2 – Intersection Crash Summary

Parameter		Epping Rd / Meeting Place Dr / McKay Dr
Crash Year	2017	2
	2018	0
	2019	1
	2020	1
	2021	1
	2022	1
	TOTAL	***6***
Average Annual Rate per MEV		***1.00 0.21***
Manner of Collision	Angle	3
	Rear-end	1
	Sideswipe	0
	Single Vehicle	1
	Other/NR	1
	TOTAL	***6***
Road Surface Conditions	Dry	5
	Wet	0
	Snow / Ice	0
	Other / Unknown	1
	TOTAL	***6***
Injury Status (Crash Severity)	Property Damage	4
	Non-Fatal Injury	2
	Not Reported	0
	TOTAL	***6***
Day of Week	Monday-Friday	4
	Saturday-Sunday	2
	TOTAL	***6***
Time of Day	6:00AM-9:00AM	0
	9:00AM-3:00PM	3
	3:00PM-6:00PM	2
	6:00PM-6:00AM	1
	TOTAL	***6***

Sight Distance Measurements

TEC measured the available sight distances at the proposed full access/egress driveway location along Meeting Place Drive. The available sight lines were compared to minimum requirements established by the American Association of State Highway and Transportation Officials (AASHTO).

Sight distance represents the length of the roadway that is visible to a driver traveling within the roadway. Two types of sight distance are typically evaluated for driveways and intersections: stopping sight distance (SSD) and intersection sight distance (ISD). SSD is the minimum distance required for a driver traveling along a roadway to perceive an object in the roadway and stop safely in advance of the object when traveling on a wet pavement surface. SSD is measured from an eye height of 3.5-feet to an object height of 2-feet above the ground, which is equivalent to a driver viewing the taillight of a vehicle ahead. SSD is measured along the centerline of the travel lane approaching the driveway or intersection.

ISD represents the length of the roadway visible to a driver waiting to exit a driveway or minor street. Minimum ISD requirements are based on the distance required for a driver to exit a minor street onto a major street without requiring an approaching vehicle to reduce its speed from the design speed to less than 70 percent of the design speed. ISD is measured from an eye height of 3.5-feet to an object height of 3.5-feet and is measured from a distance of 14.5-feet beyond the edge of the travel-way of the major roadway to represent a driver waiting to exit a driveway or minor roadway.

SSD is typically considered the critical sight distance, as it represents the minimum distance required for safe stopping, while ISD represents an acceptable speed reduction for approaching vehicles. The ISD, however, must be at least equal to the minimum required SSD in order to prevent a driver from entering the roadway when an approaching vehicle is too close to stop safely. The guidance provided by AASHTO states:

> *"If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions. However, in some cases, this may require a major-road vehicle to stop or slow to accommodate the maneuver by a minor-road vehicle. To enhance traffic operations, intersection sight distances that exceed stopping sight distances are desirable along the major road."*

Tables 3 and 4 provide a summary of the available SSD and ISD, respectively, at the egressing site driveway along Meeting Place Drive.

Table 3 – Existing Stopping Sight Distance Measurements

Approach / Direction	Operating Speed	AASHTO Recommended Minimum	Measured Stopping Sight Distance
Site Dwy. [East] at Meeting Place Dr.:			
Meeting Place Drive Northbound	25 MPH	155 FT	200 FT
Meeting Place Drive Southbound	25 MPH	155 FT	>400 FT

Table 4 – Existing Intersection Sight Distance Measurements

Approach / Direction	Operating Speed	AASHTO Recommended Minimum	AASHTO Desired Minimum	Measured Intersection Sight Distance
Site Driveway [East] at Meeting Place Dr:				
Looking (left) to the South	25 MPH	155 FT	280 FT	200 FT
Looking (right) to the North	25 MPH	155 FT	280 FT	180 FT

Meeting Place Drive is a private way and is signed with a custom 10 mph speed limit sign. Upon field observations, vehicles along the roadway operated at approximately 25 mph. As shown in Table 3, the SSD along Meeting Place Drive at the proposed site driveway exceeds AASHTO minimum recommendations for 25 mph. Table 4 notes that the ISD for a vehicle exiting the site driveway along Meeting Place Drive does not meet desired sight line lengths; however, the AASHTO minimum sight lines, in the form of the SSD, are met.

FUTURE CONDITIONS

Traffic volumes in the study area were projected to the years 2024 and 2034, reflecting a 1-year opening year (short-range) and 11-year future year (long-range) planning horizon according to NHDOT standards for TIAs. The traffic conditions under No-Build conditions were developed to document the operating conditions independent of the proposed project, including all existing traffic, new traffic resulting from background growth, and traffic from specific developments in the vicinity of the site. Anticipated site generated traffic volumes for the proposed mixed-use development were superimposed upon the No-Build traffic networks to reflect the Build conditions with the proposed project.

Background Traffic Growth

Traffic growth is a function of the expected land development in the immediate area and the surrounding region. Several methods can be used to estimate this growth. Traffic engineers frequently employ an annual percentage increase in traffic growth, which is applied to all traffic volumes under study. The drawback to such a procedure is that some turning volumes may actually grow at either a higher or a lower rate at particular intersections.

An alternative procedure identifies the location and type of planned development, estimates the traffic to be generated, and assigns it to the area roadway network. This procedure produces a more realistic estimate of growth for local traffic. However, the drawback of this procedure is that the potential growth in population and development external to the study area would not be accounted for in the traffic projections.

To provide a conservative analysis framework, both procedures were considered.

General Background Growth

To project traffic to a future horizon year, TEC utilized NHDOT published year-by-year annual growth data between 2009 and 2019 prior to the onset of COVID-19. There is no NHDOT Permanent count station in the immediate vicinity (nearest station for similar roadway along Route 125 in Lee); therefore, the regional growth from Region E – Southeast New Hampshire was utilized. The data indicates that traffic volumes between 2009 and 2019 grew 0.97 percent in Region E. For the purposes of this study, a growth rate of 1.00 percent was used to provide a conservative analysis. NHDOT historic growth rate data have been included in Attachment E.

Specific Development by Others

TEC coordinated with the Town of Exeter Planning & Sustainability Department to identify nearby private / public development projects in the vicinity of the study area that are either in the planning process or were recently approved but not yet occupied. Based on these discussions, there are no other projects expected to contribute notable new traffic to the study intersection.

A recent *Corridor Study - Epping Road (NH Route 27)* prepared by VHB, Inc. (VHB) in December 2020 identified several vacant parcels along Epping Road in the area of the proposed development including the parcel with the subject bank development. The study projects traffic volumes for these potential parcels based on the associated zoning district. This overall projection of potential traffic is utilized in the corridor study to identify opportunities and concerns so that

countermeasures can be assigned accordingly. For the purposes of this TIA, development on these individual parcels has not been specifically identified and therefore have not been included in this TIA.

No-Build Traffic Volumes

The 2024 Opening Year and 2034 Future Year No-Build weekday morning and weekday evening peak hour traffic volume networks were developed by applying the 1.0 percent per year compounded annual background traffic growth rate to the 2023 Existing Conditions peak hour traffic volumes over the 1-year opening and 11-year future planning horizon. The resulting 2024 Opening Year No-Build and 2034 Future Year No-Build weekday morning and weekday evening peak hour traffic volume networks are illustrated in Figure 3.

Site Generated Traffic

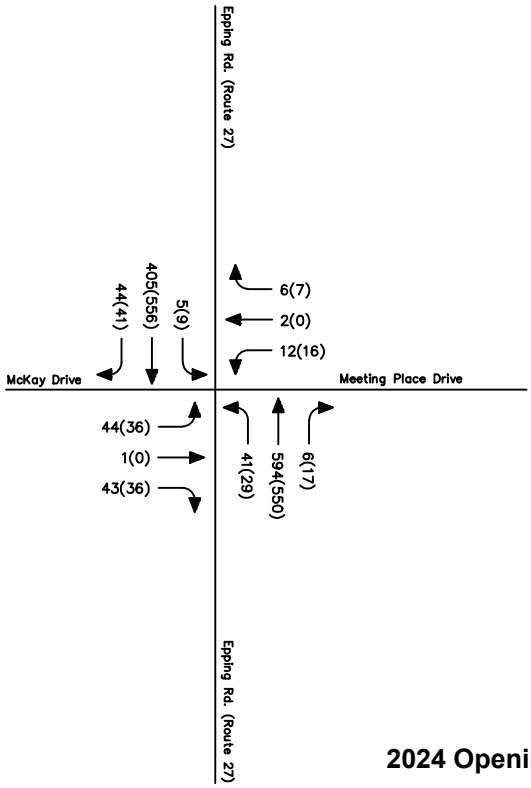
The project proposes constructing a 2,617 SF bank with two (2) drive-in lanes on-site. TEC estimated the site generated traffic based on industry-standard trip rates published in the Institute of Transportation Engineers (ITE) publication, *Trip Generation, 11th Edition* for LUC 912 – Drive-In Bank. The publication identifies two independent variables to estimate site trips: including square footage and number of drive-in lanes. Both independent variables were examined for the purpose of this study. Utilizing the building square footage as the independent variable consistently results in the conservative estimation of site trips. For the purposes of this TIA, square footage was used to project future projections of traffic to/from the site.

Pass-by Trips

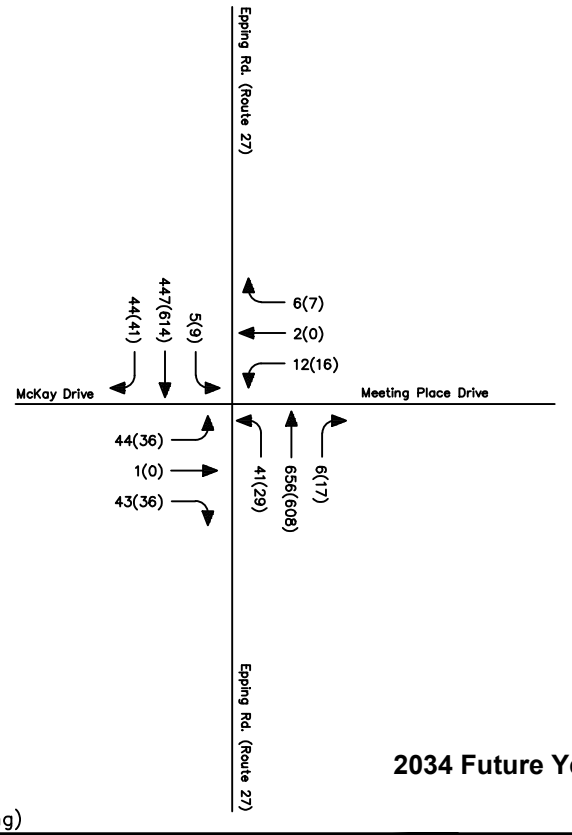
Not all the trips generated by the proposed development will be new to the roadway network. Many of the trips generated by the proposed bank are already present in the existing traffic flow passing by the site and may decide to visit the site on their way to another destination. For example, a driver travelling along Epping Road on the way home from work may stop at the bank then continue their trip home. These vehicle trips are known as “pass-by” trips and are subtracted from the total trips to calculate the total primary (or “new”) trips that affect the volume of traffic within the study area away from the site. Based on information contained in the industry standard ITE publication *Trip Generation Handbook, 3rd Edition*, approximately 26 to 35 percent of the bank’s site-generated traffic is expected to be pass-by traffic.

Table 5 provides a summary of the resulting trip generation estimate for each independent variable. The detailed trip generation calculation worksheets are provided in Attachment F.

Not to Scale



2024 Opening Year No-Build Conditions



2034 Future Year No-Build Conditions

XXX(XXX) = Weekday Morning(Weekday Evening)

Figure 3

No Build Conditions
Weekday Morning and Weekday Evening
Peak Hour Traffic Volumes

The Engineering Corp

Table 5 – Trip Generation Summary

Time Period	Drive-In Bank (LUC 912) By SF	Drive-In Bank (LUC 912) By Lanes	Pass-by Trips By SF	Total External Trips by SF
Weekday Daily				
IN	**131**	125	34	**97**
OUT	**131**	125	34	**97**
TOTAL	**262**	250	68	**194**
Weekday Morning				
IN	**15**	10	4	**11**
OUT	**11**	7	4	**7**
TOTAL	**26**	17	8	**18**
Weekday Evening				
IN	**28**	26	10	**18**
OUT	**27**	28	10	**17**
TOTAL	**55**	54	20	**35**
Saturday Daily				
IN	**113**	-	29	**84**
OUT	**113**	-	29	**84**
TOTAL	**226**	-	58	**168**
Saturday Midday				
IN	**35**	27	9	**26**
OUT	**34**	28	9	**25**
TOTAL	**69**	55	18	**51**

As shown in Table 5, the proposed bank development is anticipated to generate approximately 194 new vehicle trips (97 entering and 97 exiting) during the average weekday with 18 new vehicle trips (11 entering and 7 exiting) during the weekday morning peak hour and 35 new vehicle trips (18 entering and 17 exiting) during the weekday evening peak hour. During a typical Saturday, the bank is anticipated to generate approximately 168 new vehicle trips (84 entering and 84 exiting) with 51 new vehicle trips (26 entering and 25 exiting) during the Saturday midday peak hour.

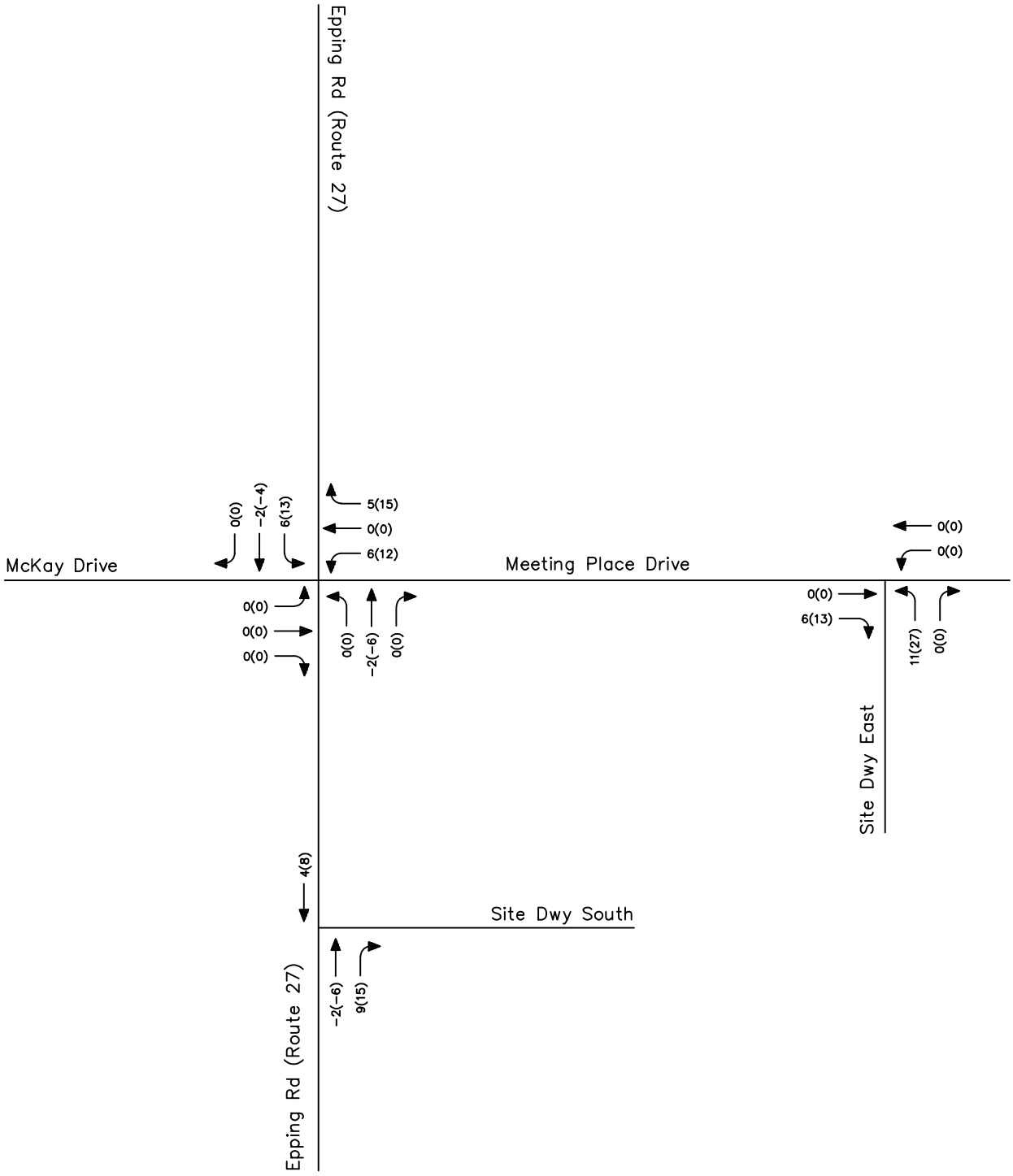
Trip Distribution

The distribution of the site generated traffic volumes was based on existing traffic patterns along Epping Road during each of the analysis peak hours. The resulting trip distribution is provided in Table 6. The resulting site-generated traffic volume network is presented in Figure 4.

Table 6 - Trip Distribution Summary

Direction	AM Peak Hour	PM Peak Hour
Epping Road to/from north	40%	50%
Epping Road to/from south	60%	50%
Total	**100%**	**100%**

Not to Scale



XXX(XXX) = Weekday Morning(Weekday Evening)

Figure 4

Site Trip Generation
Weekday Morning and Weekday Evening
Peak Hour Traffic Volumes

The Engineering Corp

Access to Site

Access/egress to the site is proposed by a right-in access driveway along Epping Road and a full access/egress driveway along Meeting Place Drive. The right-in nature of the access driveway along Epping Road is not conducive for vehicles to utilize the driveway from Epping Road southbound as a left-turn in the TWLTL based on the location of the internal drive-through lanes and internal parking. Therefore even if the driveway serviced left-turn entrance movements from Epping Road southbound, no site generated traffic would be assigned to this movement. Should site generated traffic utilize this movement to access the site, the number of vehicles overall would be negligible as the overall site traffic is significantly low. The assignment of site generated traffic from Epping Road southbound has been directed as Meeting Place Drive.

Build Traffic Volumes

The 2024 Opening Year and 2034 Future Year traffic volume networks consist of the 2024 and 2034 No-Build traffic volumes, respectively, with the addition of the site generated traffic for the proposed bank development. The resulting 2024 Opening Year Build and 2034 Future Year Build weekday morning and weekday evening peak hour traffic volume networks are presented in Figure 5.

TRAFFIC IMPACT ANALYSIS

To assess the quality of future traffic flow with each alternative, roadway capacity and vehicle queue analyses were conducted under 2023 Existing Conditions, 2024 Opening Year No-Build, 2034 Future Year No-Build, 2024 Opening Year Build and 2034 Future Year Build Conditions. Capacity analyses provide an indication of how well the roadway facilities serve the traffic demands placed upon them, with vehicle queue analyses providing a secondary measure of the operational characteristics of an intersection or section of roadway under study. Synchro 11™ software was used to perform the analysis. The unsignalized intersection capacity and queue analysis were conducted using methodology from the *Highway Capacity Manual (HCM) 6th Edition*. For the purpose of this TIA, the driveway location along Epping Road experiences a negligible amount of impact to traffic operations as the northbound right-turn movement is effectively free flow and therefore was not included in the formal analysis.

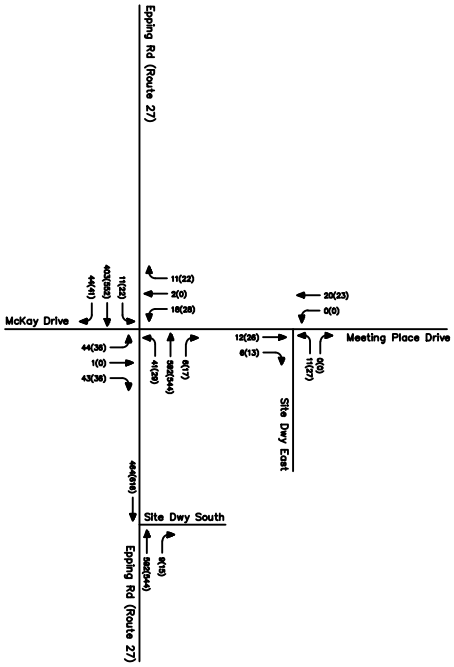
Methodology

Levels of Service

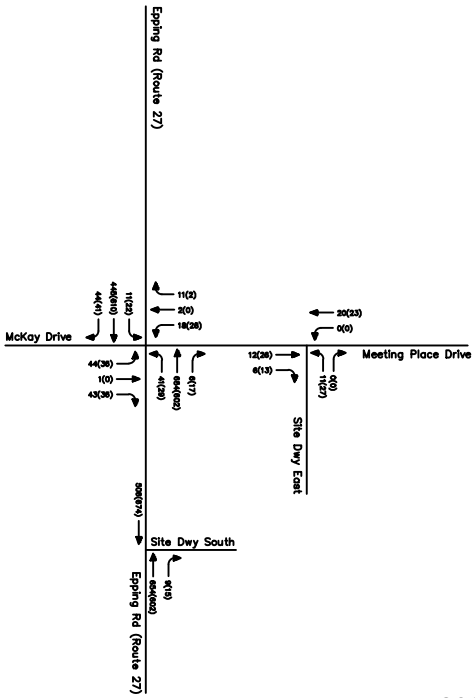
A primary result of capacity analyses is the assignment of level-of-service to traffic facilities under various traffic-flow conditions.[3] The concept of level-of-service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

[3] The capacity analysis methodology is based on the concepts and procedures presented in the *Highway Capacity Manual 6th Edition*; Transportation Research Board; Washington, DC; 2017

Not to Scale



2024 Opening Year Build Conditions



2034 Future Year Build Conditions

XXX(XXX) = Weekday Morning(Weekday Evening)

Figure 5

Build Conditions
Weekday Morning and Weekday Evening
Peak Hour Traffic Volumes

The Engineering Corp

Six levels of service are defined for each type of facility. They are given letter designations from A to F, with level of service (LOS) A representing the best-operating conditions and LOS F representing the worst. Since the level of service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of levels of service, depending on the time of day, day of week, or period of year.

Queue Length Analysis

Vehicle queue analyses are a direct measurement of an intersection's ability to process vehicles under various traffic control and volume scenarios and lane use arrangements. The vehicle queue analysis was performed using the Synchro 11™ intersection capacity analysis software, which is also based upon the methodology and procedures presented in the *HCM*. Synchro reports the 95th percentile queues for unsignalized intersections, which are based on the number of vehicles that experience a delay of six seconds or more at an intersection and is a function of the traffic signal timing; vehicle arrival patterns during the analysis period; and the saturation flow rate. The 50th percentile or average vehicle queue is the average number of vehicles that are projected to be delayed by six seconds or more at the intersection under study during the analysis period. The 95th percentile vehicle queue is the vehicle queue length that will be exceeded only five percent of the time, or approximately three minutes out of 60 minutes during the peak one hour of the day. During the remaining 57 minutes, the vehicle queue length will be less than the 95th percentile queue length.

Parameters for Traffic Impact Analysis

Unsignalized Intersections

The levels of service of two-way stop-controlled unsignalized intersections are determined by the application of a procedure described in the *HCM 6th Edition*. The level of service is measured in terms of average control delay. Mathematically, control delay is a function of the capacity and degree of saturation of the lane group and/or approach under study and is a quantification of motorist delay associated with traffic control devices such as traffic signals and stop signs. Control delay includes the effects of initial deceleration delay approaching a stop sign, stopped delay, queue move-up time, and final acceleration delay from a stopped condition. Definitions for the level of service at unsignalized intersections are also given in the *HCM 6th Edition*. Table 7 summarizes the relationship between LOS and control delay. The tabulated control delay criterion may be applied in assigning LOS designations to individual lane groups, to individual intersection approaches, or to entire intersections.

Table 7 – Level of service Criteria for Unsignalized Intersections [a]

Level of Service (v/c ≤ 1.0)	Level of Service (v/c > 1.0)	Average Control Delay (sec/veh)	Description
A	F	≤10.0	LOS A represents a condition with little or no control delay to minor street traffic.
B	F	10.1 to 15.0	LOS B represents a condition with short control delays to minor street traffic.
C	F	15.1 to 25.0	LOS C represents a condition with average control delays to minor street traffic.
D	F	25.1 to 35.0	LOS D represents a condition with long control delays to minor street traffic.
E	F	35.1 to 50.0	LOS E represents operating conditions at or near capacity level, with exceptionally long control delays to minor street traffic.
F	F	>50.0	LOS F represents a condition where minor street demand volume exceeds capacity of an approach lane, with excessive control delays resulting.

[a] Source: *Highway Capacity Manual 6th Edition*; Transportation Research Board; Washington D.C.; 2017

Traffic Impact Analysis Results

Level of service analyses were conducted for the 2023 Existing Condition, 2024 Opening Year No Build Condition, 2034 Future Year No Build Condition, 2024 Opening Year Build Condition, and 2034 Future Year Build Condition for the study area intersection. The results of the intersection capacity analysis are summarized in Tables 8 and 9 for the 2024 Opening Year and 2034 Future Year, respectively. The capacity analysis worksheets are provided in Attachment G.

The minimal increase in traffic volumes as a result of the site is not anticipated to change the level of service for any movement during both the 2024 Opening Year and 2034 Future Year conditions with exception to 1) the Epping Road eastbound left turn during the weekday morning hour of 2034 in which the delay increases by 0.1 seconds and trips the LOS A to LOS B threshold and 2) the movements along the Meeting Place Drive southbound approach during the weekday evening peak hour of 2034 in which the delay will slightly elevate from LOS E to LOS F. Although LOS F is experienced on this movement, as well as other movements both in the No Build and Build conditions, the volume-to-capacity (v/c) ratios for all movements in all scenarios will be well below 1.00 indicating that adequate capacity exist to accommodate the additional limited traffic volumes. In addition, the queues experience on any movements are not expected to be more than four (4) vehicles in which the site generated traffic will only increase the queue on the Meeting Place Drive; which will result in a queue of three (3) vehicles during the 2034 condition weekday morning period and four (4) vehicles during the 2034 condition weekday evening period.

Table 8 – 2024 Opening Year - Capacity and Queue Analysis Summary

	2023 Existing Condition				2024 Opening Year No Build Condition				2024 Opening Year Build Condition			
Intersection / Lane Group	**V/C[a]**	**Delay[b]**	**LOS[c]**	**Queue[d]**	**V/C**	**Delay**	**LOS**	**Queue**	**V/C**	**Delay**	**LOS**	**Queue**
Epping Road / McKay Drive / Meeting Place Drive												
Weekday Morning Peak Period												
Epping Road EBL	0.01	9.6	A	<25	0.01	9.6	A	<25	0.02	9.6	A	<25
Epping Road WBL	0.05	8.7	A	<25	0.05	8.7	A	<25	0.05	8.7	A	<25
McKay Drive NBLT	0.54	68.8	F	63	0.55	70.9	F	65	0.57	75.5	F	68
McKay Drive NBR	0.11	12.1	B	<25	0.11	12.2	B	<25	0.11	12.2	B	<25
Meeting Place Drive SB	0.27	41.7	E	25	0.27	42.5	E	25	0.41	49.6	E	45
Weekday Evening Peak Period												
Epping Road EBL	0.01	8.7	A	<25	0.01	8.7	A	<25	0.02	8.7	A	<25
Epping Road WBL	0.03	9.0	A	<25	0.03	9.0	A	<25	0.03	9.0	A	<25
McKay Drive NBLT	0.38	49.6	E	40	0.38	50.7	F	40	0.42	57.8	F	45
McKay Drive NBR	0.10	13.4	B	<25	0.10	13.5	B	<25	0.10	13.5	B	<25
Meeting Place Drive SB	0.24	36.7	E	<25	0.24	37.2	E	<25	0.49	47.7	E	60

Table 9 – 2034 Future Year - Capacity and Queue Analysis Summary

	2023 Existing Condition				2034 Future Year No Build Condition				2034 Future Year Build Condition			
Intersection / Lane Group	**V/C[a]**	**Delay[b]**	**LOS[c]**	**Queue[d]**	**V/C**	**Delay**	**LOS**	**Queue**	**V/C**	**Delay**	**LOS**	**Queue**
Epping Road / McKay Drive / Meeting Place Drive												
Weekday Morning Peak Period												
Epping Road EBL	0.01	9.6	A	<25	0.01	9.9	A	<25	0.02	10.0	B	<25
Epping Road WBL	0.05	8.7	A	<25	0.05	8.8	A	<25	0.05	8.8	A	<25
McKay Drive NBLT	0.54	68.8	F	63	0.68	103.6	F	83	0.72	115.7	F	88
McKay Drive NBR	0.11	12.1	B	<25	0.11	12.8	B	<25	0.11	12.7	B	<25
Meeting Place Drive SB	0.27	41.7	E	25	0.33	54.6	F	33	0.51	68.0	F	58
Weekday Evening Peak Period												
Epping Road EBL	0.01	8.7	A	<25	0.01	8.9	A	<25	0.02	8.9	A	<25
Epping Road WBL	0.03	9.0	A	<25	0.04	9.2	A	<25	0.04	9.2	A	<25
McKay Drive NBLT	0.38	49.6	E	40	0.47	68.4	F	50	0.52	79.2	F	58
McKay Drive NBR	0.10	13.4	B	<25	0.11	14.4	B	<25	0.11	14.3	B	<25
Meeting Place Drive SB	0.24	36.7	E	<25	0.30	47.3	E	30	0.60	67.6	F	78

[a] Volume-to-capacity ratio,
[b] Delay expressed in seconds per vehicle (average)
[c] Level of service,
[d] 50th/95th Percentile Queue [95th Percentile Queue only for unsignalized intersections

QUEUE STORAGE

Data and documentation for queue storage potential is not provided as an industry standard. To estimate the potential bank queue storage, TEC utilize guidance from two (2) past studies on the subject matter that are typically utilized; including: Mike Spack's "*Drive-Through Queue Generation*" (2012) and Mark Stuecheli's "*New Drive-Through Stacking Information for Banks and Coffee Shops*" (2009).

Queue Storage Estimation

The Spack study indicates that the average maximum number of vehicles queued at a drive-in bank was approximately six (6) vehicles over two-lanes. This would generally equate to three (3) vehicles per lane (exclusive of the ATM lane). The Stuecheli study indicates that the maximum number of vehicles queued per lane at a drive-in bank is four (4) vehicles; however, the study notes that the single occurrence of four (4) vehicles only a few minutes. The study also indicated that the maximum number of vehicles queued in ATM lanes was two (2) to five (5) vehicles with only a single location in the study experiencing the five (5) vehicle mark and all other bank facilities experiencing three (3) or less.

Queue Space Provided On-Site

Based on the site plan, and an assumed 20-foot front bumper-to-front bumper spacing within the queue, there is available space to accommodate fourteen (14) vehicles to stack on-site with seven (7) vehicles in both the ATM lane and seven (7) in the drive-through lane prior to obstructing parking on-site. TEC would find that the queue space available would generally be sufficient to cover the typical queuing conditions for standard design. For those minimal occasions above the average maximum queue, any queue would be on-site and not directly affect operations on Epping Road or Meeting Place Drive.

PARKING

Town of Exeter Zoning Bylaws

The Town of Exeter Zoning By-Laws contains minimal off-street parking supply requirements for various land uses; however, does not provide specific parking requirements for bank uses. The closest land use similar to other communities is for a general business office. The bylaw states that business office uses will require one (1) parking space per 250 SF. This equates to eleven (11) parking spaces required on-site by zoning. Based on a parking supply of twenty-one (21) spaces throughout the site, the proposed parking supply on-site will be in general conformance with the Town of Exeter Zoning By-Laws.

Institute of Transportation Engineers Parking Demand Estimates

Projections from the industry standard ITE publication *Parking Generation, 5th Edition* for LUC 912 – Drive-In Bank denote an 85th percentile peak parking demand of sixteen (16) spaces based on square footage on a typical weekday and thirteen (13) spaces based on square footage for a typical Saturday. Square footage was used in this calculation as those parking would be accessing the building as opposed to using the drive-through lanes. Based on a parking supply of twenty-one (21) spaces throughout the site, the proposed parking supply on-site is in excess

of the ITE peak parking demand estimates. Detailed parking demand generation worksheets are included in Attachment H.

CONCLUSIONS

TEC has examined the potential traffic operational and safety impacts associated with the proposed bank located along Epping Road and Meeting Place Drive in Exeter, New Hampshire. The following is a summary of the results and conclusions of this effort:

- The proposed bank will consist of a single 2,617 SF building with two (2) drive-in located on the northeast corner of the Epping Road / Meeting Place Drive / McKay Drive intersection.
- Access/egress to the site is proposed by a right-in access driveway along Epping Road and a full access/egress driveway along Meeting Place Drive.
- The SSD along Meeting Place Drive at the proposed site driveway exceeds AASHTO minimum recommendations for 25 mph. Table 4 notes that the ISD for a vehicle exiting the site driveway along Meeting Place Drive does not meet 'desired' sight line lengths; however, the AASHTO minimum sight lines are met.
- The proposed bank development is anticipated to generate approximately 194 new vehicle trips (97 entering and 97 exiting) during the average weekday with 18 new vehicle trips (11 entering and 7 exiting) during the weekday morning peak hour and 35 new vehicle trips (18 entering and 17 exiting) during the weekday evening peak hour. During a typical Saturday, the bank is anticipated to generate approximately 168 new vehicle trips (84 entering and 84 exiting) with 51 new vehicle trips (26 entering and 25 exiting) during the Saturday midday peak hour.
- The minimal increase in traffic volumes as a result of the site is not anticipated to change the level of service for any movement during both the 2024 Opening Year and 2034 Future Year conditions with exception to 1) the Epping Road eastbound left turn during the weekday morning hour of 2034 in which the delay increases by less than one (1) second per vehicle which crosses the LOS A to LOS B threshold and 2) the movements along the Meeting Place Drive southbound approach (bank exiting traffic) during the weekday evening peak hour of 2034 in which the delay will slightly elevate from LOS E to LOS F.
- Although LOS F is experienced on this movement, as well as other movements both in the No Build and Build conditions, the v/c ratios for all movements in all scenarios will be well below 1.00 indicating that adequate capacity exist to accommodate the additional limited traffic volumes.
- Queues experience on any movements are not expected to be more than four (4) vehicles in which the site generated traffic will only increase the queue on the Meeting Place Drive, which will result in a queue of three (3) vehicles during the 2034 condition weekday morning period and four (4) vehicles during the 2034 condition weekday evening period.
- The site is designed to accommodate fourteen (14) vehicles to stack on-site with seven (7) vehicles in both the ATM lane and seven (7) in the drive-through lane prior to obstructing parking on-site. TEC would find that the queue space available

would generally be sufficient to cover the typical queuing conditions for standard design.

- Parking on-site meets both the Town of Exeter Zoning Bylaws and ITE parking demand estimates for the bank use.

In conclusion, the additional traffic to be added by the project is expected to have a negligible impact on all study area intersections and can be reasonably accommodated along the existing roadway network. The impact of the site generated traffic does not warrant site specific traffic mitigation within the project area.

Attachment A

Turning Movement Counts (TMCs)

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 1

Groups Printed- Cars - Trucks

	From North			From East			From South			From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	2	64	3	2	1	5	9	172	1	11	0	10	280
07:15 AM	1	100	8	2	0	0	12	137	3	9	0	6	278
07:30 AM	0	111	16	1	0	0	9	114	1	8	0	14	274
07:45 AM	2	93	17	7	1	1	13	116	1	16	1	13	281
Total	5	368	44	12	2	6	43	539	6	44	1	43	1113
08:00 AM	1	102	10	2	0	1	9	111	0	13	0	10	259
08:15 AM	3	78	13	3	0	5	13	129	3	17	0	12	276
08:30 AM	0	70	13	0	0	3	9	89	1	12	0	12	209
08:45 AM	1	63	6	2	0	3	7	98	1	15	0	5	201
Total	5	313	42	7	0	12	38	427	5	57	0	39	945
09:00 AM	2	85	4	0	0	3	6	77	1	11	0	4	193
09:15 AM	4	90	1	2	0	3	5	141	3	9	0	1	259
09:30 AM	1	62	7	6	0	4	1	74	2	4	0	2	163
09:45 AM	4	65	4	0	0	2	3	50	1	5	0	5	139
Total	11	302	16	8	0	12	15	342	7	29	0	12	754
10:00 AM	2	58	5	0	0	1	2	79	2	2	0	4	155
10:15 AM	1	69	3	3	0	3	4	73	2	4	0	3	165
10:30 AM	2	73	3	2	0	4	1	77	2	2	0	2	168
10:45 AM	2	53	3	4	0	0	3	85	2	3	0	6	161
Total	7	253	14	9	0	8	10	314	8	11	0	15	649
11:00 AM	1	68	4	4	0	2	11	89	4	8	0	5	196
11:15 AM	1	73	5	1	0	4	1	82	2	2	0	2	173
11:30 AM	4	116	13	1	0	2	1	80	0	8	0	3	228
11:45 AM	4	93	4	0	0	4	5	81	2	7	0	5	205
Total	10	350	26	6	0	12	18	332	8	25	0	15	802
12:00 PM	5	98	8	0	0	4	2	91	4	9	0	1	222
12:15 PM	3	87	8	3	1	3	4	80	1	8	0	3	201
12:30 PM	3	72	4	3	0	5	2	97	0	7	0	6	199
12:45 PM	4	98	8	2	0	3	4	75	1	8	0	2	205
Total	15	355	28	8	1	15	12	343	6	32	0	12	827
01:00 PM	2	79	4	3	0	5	5	86	2	7	0	5	198
01:15 PM	3	64	4	3	0	4	6	93	3	7	0	4	191
01:30 PM	1	82	2	1	0	3	4	82	2	4	0	3	184
01:45 PM	3	81	4	2	0	0	6	91	2	5	0	2	196
Total	9	306	14	9	0	12	21	352	9	23	0	14	769
02:00 PM	3	85	5	0	0	4	1	89	2	2	0	3	194
02:15 PM	2	70	3	5	0	5	2	80	1	3	0	4	175
02:30 PM	5	129	13	1	0	2	3	77	4	4	0	6	244
02:45 PM	5	125	10	3	0	4	6	83	1	8	1	7	253
Total	15	409	31	9	0	15	12	329	8	17	1	20	866
03:00 PM	1	130	8	3	0	2	1	119	8	5	0	9	286
03:15 PM	1	96	5	5	0	2	3	100	6	3	1	1	223
03:30 PM	3	119	10	1	0	4	9	107	1	3	0	6	263
03:45 PM	2	119	9	5	0	4	3	113	5	6	0	7	273
Total	7	464	32	14	0	12	16	439	20	17	1	23	1045
04:00 PM	0	127	6	6	0	0	5	138	3	7	0	11	303
04:15 PM	4	136	14	1	0	1	10	126	6	10	0	7	315
04:30 PM	3	123	12	4	0	2	11	123	3	13	0	11	305
04:45 PM	3	123	8	1	0	4	9	94	3	10	0	12	267
Total	10	509	40	12	0	7	35	481	15	40	0	41	1190
05:00 PM	4	122	6	2	0	4	7	107	5	4	0	7	268
05:15 PM	2	113	8	3	0	2	4	88	5	4	0	4	233
05:30 PM	3	130	7	5	0	3	2	91	2	1	0	3	247

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023

Groups Printed- Cars - Trucks

	From North			From East			From South			From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
05:45 PM	0	103	5	0	0	3	3	87	1	7	0	0	209
Total	9	468	26	10	0	12	16	373	13	16	0	14	957
06:00 PM	5	98	6	3	1	0	5	71	3	6	0	2	200
06:15 PM	1	94	5	1	0	2	0	64	2	3	0	4	176
06:30 PM	2	77	4	0	0	1	7	67	2	2	0	5	167
06:45 PM	4	62	5	1	0	2	1	46	2	2	0	2	127
Total	12	331	20	5	1	5	13	248	9	13	0	13	670
Grand Total	115	4428	333	109	4	128	249	4519	114	324	3	261	10587
Apprch %	2.4	90.8	6.8	45.2	1.7	53.1	5.1	92.6	2.3	55.1	0.5	44.4	
Total %	1.1	41.8	3.1	1	0	1.2	2.4	42.7	1.1	3.1	0	2.5	
Cars	113	4315	332	106	4	125	249	4377	110	324	3	260	10318
% Cars	98.3	97.4	99.7	97.2	100	97.7	100	96.9	96.5	100	100	99.6	97.5
Trucks	2	113	1	3	0	3	0	142	4	0	0	1	269
% Trucks	1.7	2.6	0.3	2.8	0	2.3	0	3.1	3.5	0	0	0.4	2.5

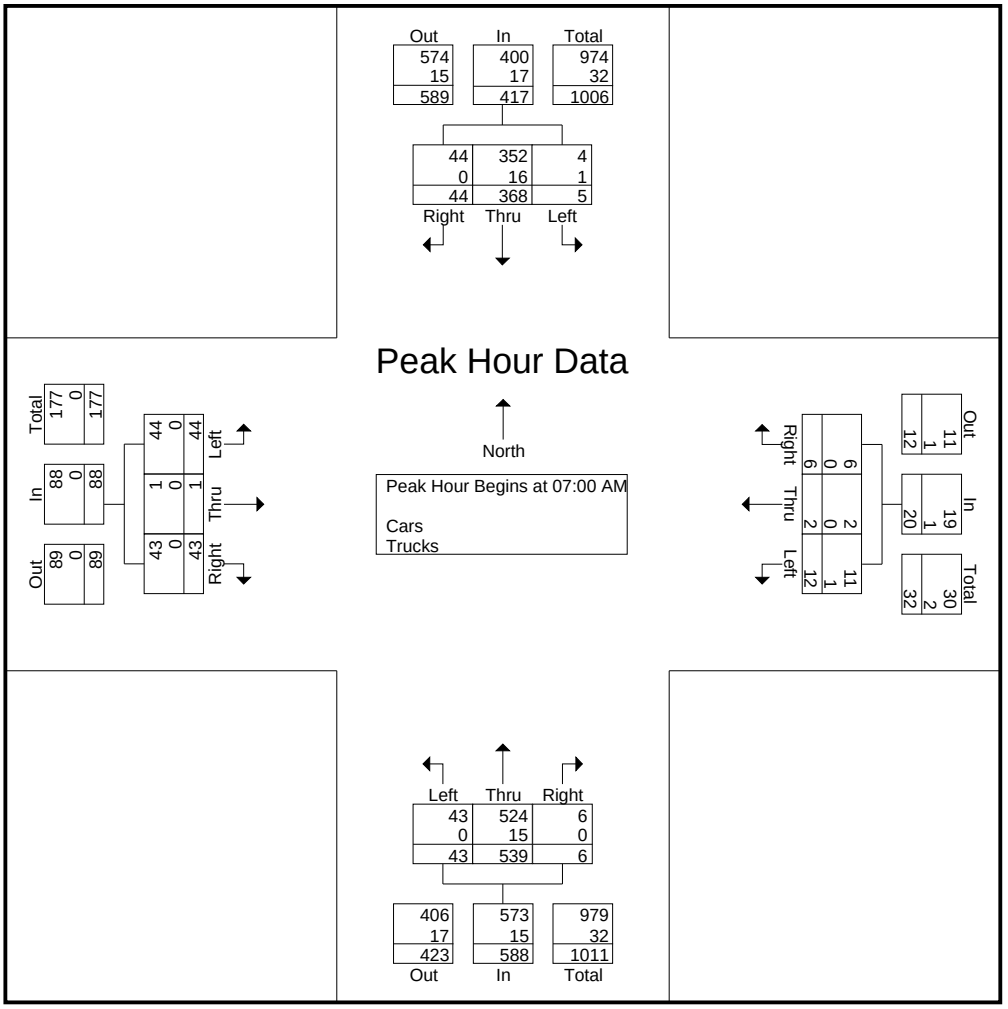
	From North				From East				From South				From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**2**	64	3	69	2	**1**	**5**	8	9	**172**	1	**182**	11	0	10	21	280
07:15 AM	1	100	8	109	2	0	0	2	12	137	**3**	152	9	0	6	15	278
07:30 AM	0	**111**	16	**127**	1	0	0	1	9	114	1	124	8	0	**14**	22	274
07:45 AM	2	93	**17**	112	**7**	1	1	**9**	**13**	116	1	130	**16**	**1**	13	**30**	**281**
Total Volume	5	368	44	417	12	2	6	20	43	539	6	588	44	1	43	88	1113
% App. Total	1.2	88.2	10.6		60	10	30		7.3	91.7	1		50	1.1	48.9		
PHF	.625	.829	.647	.821	.429	.500	.300	.556	.827	.783	.500	.808	.688	.250	.768	.733	.990
Cars	4	352	44	400	11	2	6	19	43	524	6	573	44	1	43	88	1080
% Cars	80.0	95.7	100	95.9	91.7	100	100	95.0	100	97.2	100	97.4	100	100	100	100	97.0
Trucks	1	16	0	17	1	0	0	1	0	15	0	15	0	0	0	0	33
% Trucks	20.0	4.3	0	4.1	8.3	0	0	5.0	0	2.8	0	2.6	0	0	0	0	3.0

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 3



Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

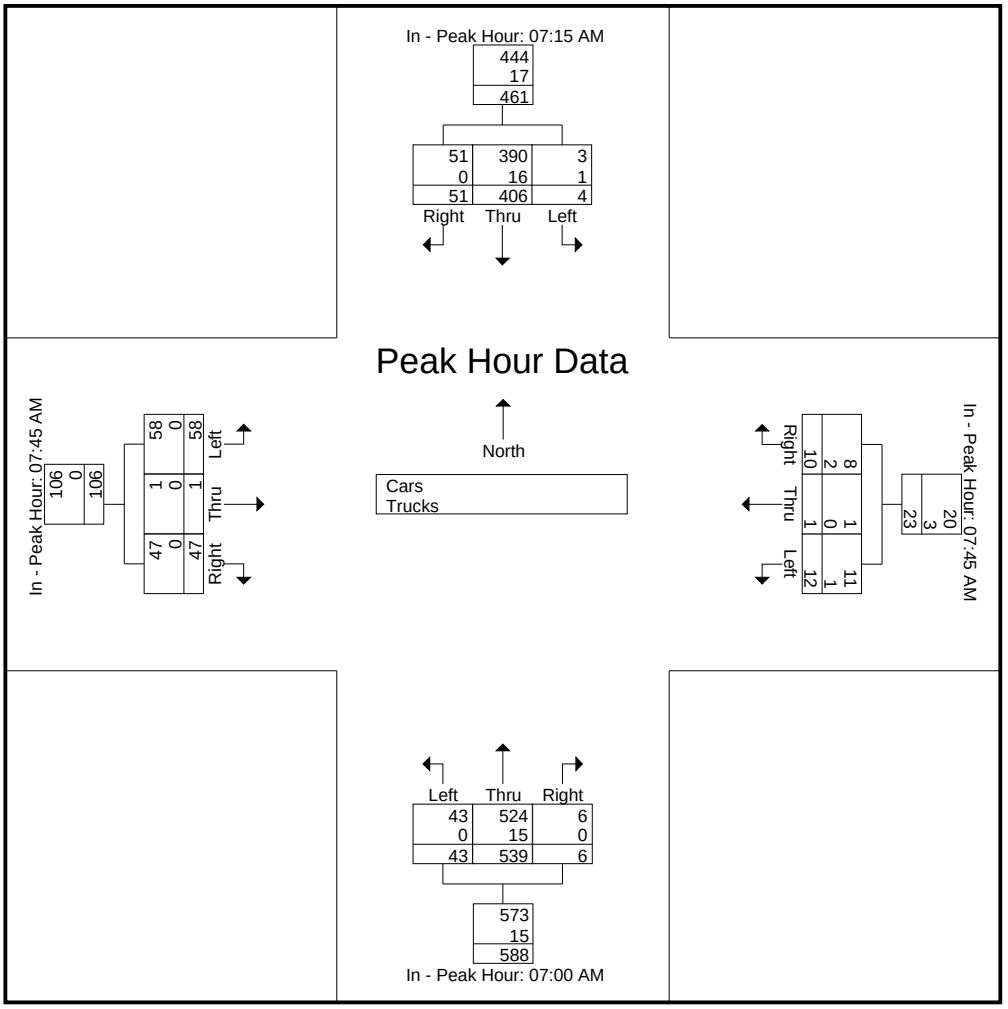
	07:15 AM				07:45 AM				07:00 AM				07:45 AM			
+0 mins.	1	100	8	109	**7**	**1**	1	**9**	9	**172**	1	**182**	16	**1**	**13**	**30**
+15 mins.	0	**111**	16	**127**	2	0	1	3	12	137	**3**	152	13	0	10	23
+30 mins.	**2**	93	**17**	112	3	0	**5**	8	9	114	1	124	**17**	0	12	29
+45 mins.	1	102	10	113	0	0	3	3	**13**	116	1	130	12	0	12	24
Total Volume	4	406	51	461	12	1	10	23	43	539	6	588	58	1	47	106
% App. Total	0.9	88.1	11.1		52.2	4.3	43.5		7.3	91.7	1		54.7	0.9	44.3	
PHF	.500	.914	.750	.907	.429	.250	.500	.639	.827	.783	.500	.808	.853	.250	.904	.883
Cars	3	390	51	444	11	1	8	20	43	524	6	573	58	1	47	106
% Cars	75	96.1	100	96.3	91.7	100	80	87	100	97.2	100	97.4	100	100	100	100
Trucks	1	16	0	17	1	0	2	3	0	15	0	15	0	0	0	0
% Trucks	25	3.9	0	3.7	8.3	0	20	13	0	2.8	0	2.6	0	0	0	0

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 4



Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 11:30 AM

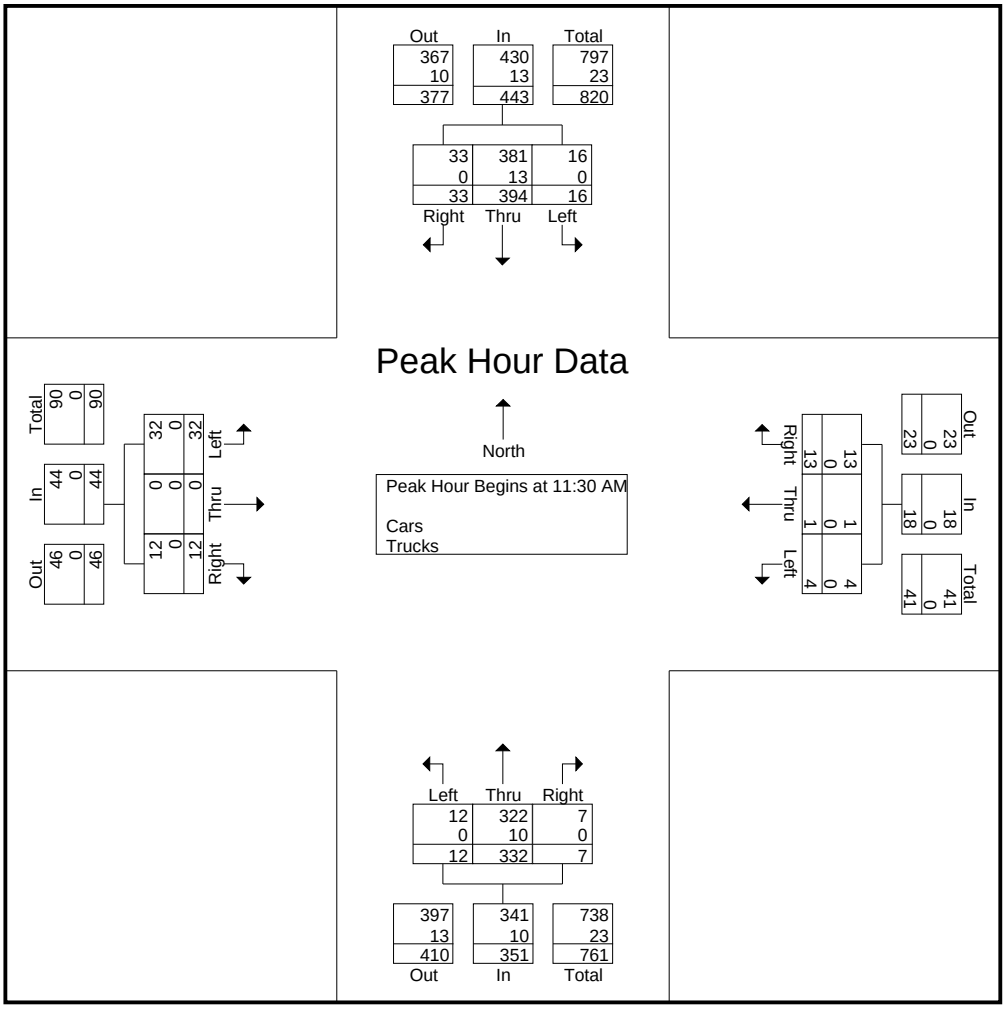
11:30 AM	4	**116**	**13**	**133**	1	0	2	3	1	80	0	81	8	0	3	11	**228**
11:45 AM	4	93	4	101	0	0	**4**	4	**5**	81	2	88	7	0	**5**	**12**	205
12:00 PM	**5**	98	8	111	0	0	4	4	2	**91**	**4**	**97**	**9**	0	1	10	222
12:15 PM	3	87	8	98	**3**	**1**	3	**7**	4	80	1	85	8	0	3	11	201
Total Volume	16	394	33	443	4	1	13	18	12	332	7	351	32	0	12	44	856
% App. Total	3.6	88.9	7.4		22.2	5.6	72.2		3.4	94.6	2		72.7	0	27.3		
PHF	.800	.849	.635	.833	.333	.250	.813	.643	.600	.912	.438	.905	.889	.000	.600	.917	.939
Cars	16	381	33	430	4	1	13	18	12	322	7	341	32	0	12	44	833
% Cars	100	96.7	100	97.1	100	100	100	100	100	97.0	100	97.2	100	0	100	100	97.3
Trucks	0	13	0	13	0	0	0	0	0	10	0	10	0	0	0	0	23
% Trucks	0	3.3	0	2.9	0	0	0	0	0	3.0	0	2.8	0	0	0	0	2.7

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 5



Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

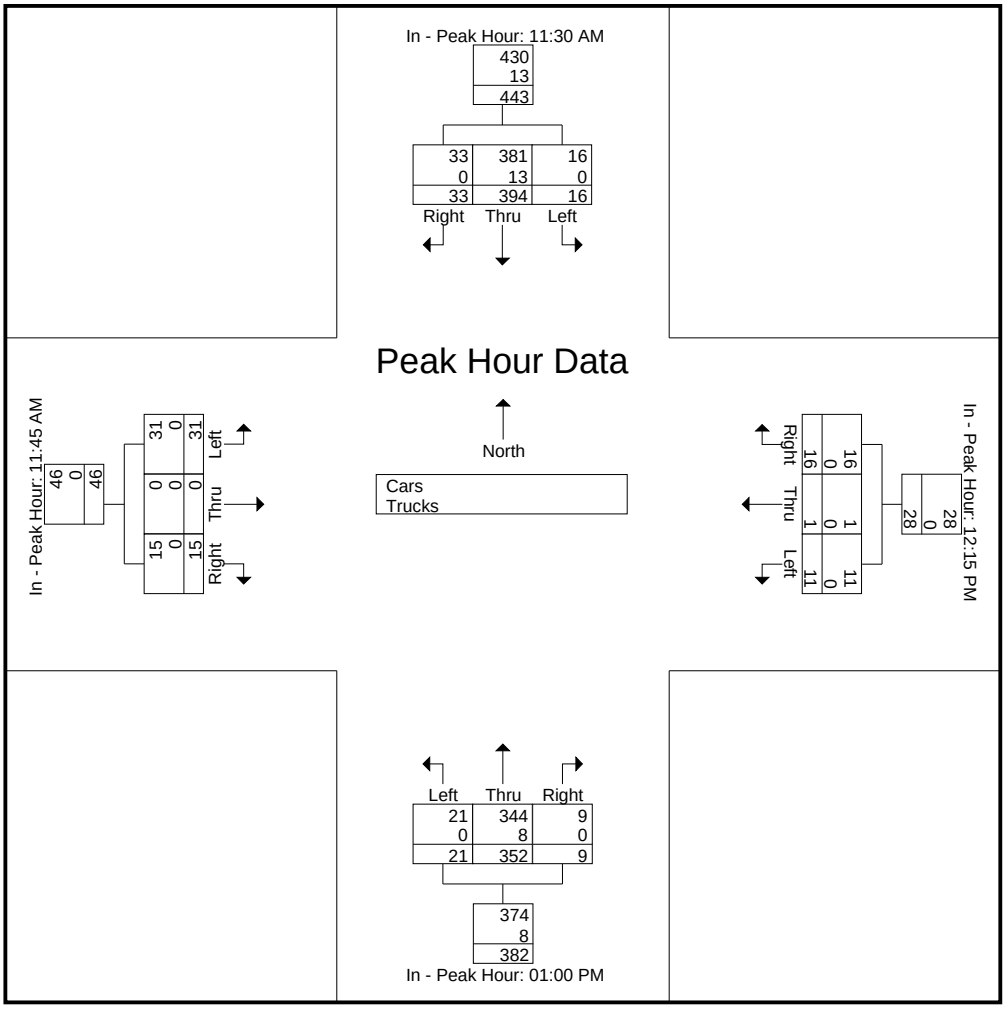
	11:30 AM				12:15 PM				01:00 PM				11:45 AM			
+0 mins.	4	**116**	**13**	**133**	**3**	**1**	3	7	5	86	2	93	7	0	5	12
+15 mins.	4	93	4	101	3	0	**5**	**8**	**6**	**93**	**3**	**102**	**9**	0	1	10
+30 mins.	**5**	98	8	111	2	0	3	5	4	82	2	88	8	0	3	11
+45 mins.	3	87	8	98	3	0	5	8	6	91	2	99	7	0	**6**	**13**
Total Volume	16	394	33	443	11	1	16	28	21	352	9	382	31	0	15	46
% App. Total	3.6	88.9	7.4		39.3	3.6	57.1		5.5	92.1	2.4		67.4	0	32.6	
PHF	.800	.849	.635	.833	.917	.250	.800	.875	.875	.946	.750	.936	.861	.000	.625	.885
Cars	16	381	33	430	11	1	16	28	21	344	9	374	31	0	15	46
% Cars	100	96.7	100	97.1	100	100	100	100	100	97.7	100	97.9	100	0	100	100
Trucks	0	13	0	13	0	0	0	0	0	8	0	8	0	0	0	0
% Trucks	0	3.3	0	2.9	0	0	0	0	0	2.3	0	2.1	0	0	0	0

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 6



Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 03:45 PM

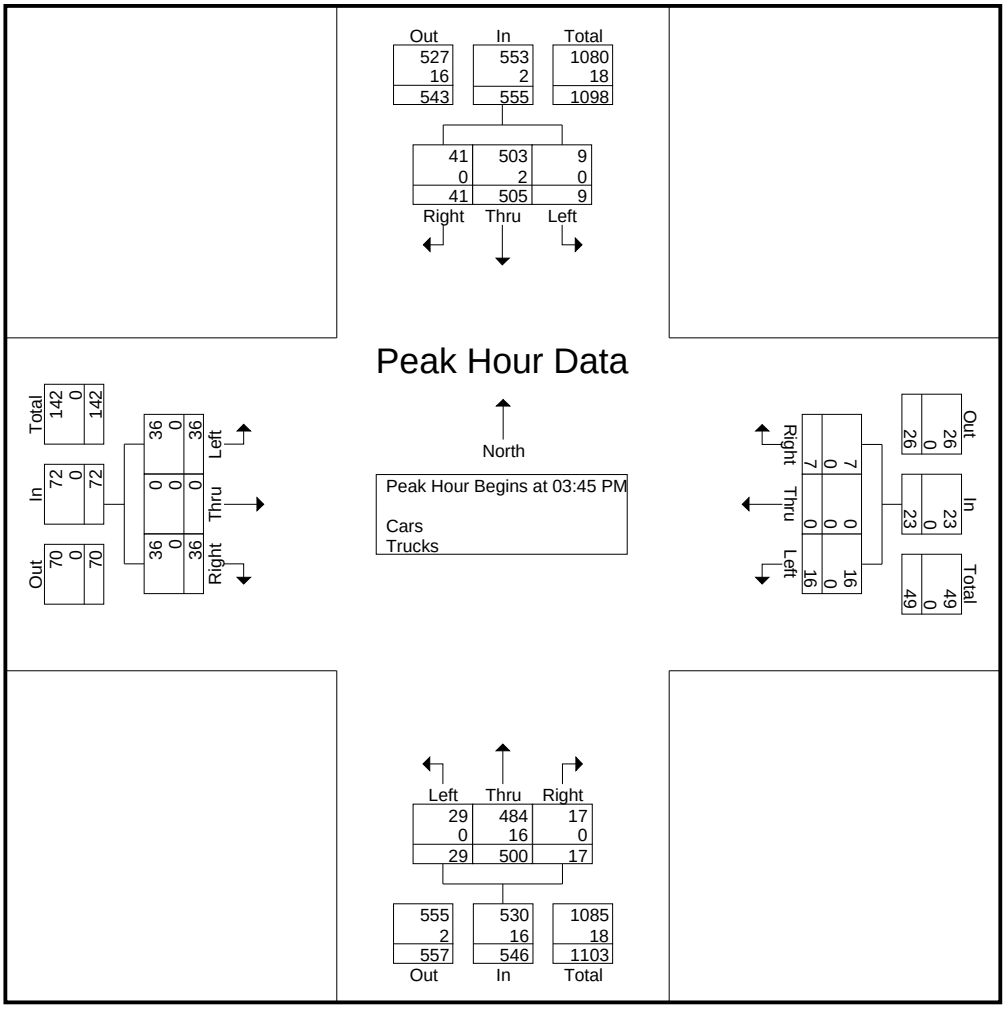
03:45 PM	2	119	9	130	5	0	**4**	**9**	3	113	5	121	6	0	7	13	273
04:00 PM	0	127	6	133	**6**	0	0	6	5	**138**	3	**146**	7	0	**11**	18	303
04:15 PM	**4**	**136**	**14**	**154**	1	0	1	2	10	126	**6**	142	10	0	7	17	**315**
04:30 PM	3	123	12	138	4	0	2	6	**11**	123	3	137	**13**	0	11	**24**	305
Total Volume	9	505	41	555	16	0	7	23	29	500	17	546	36	0	36	72	1196
% App. Total	1.6	91	7.4		69.6	0	30.4		5.3	91.6	3.1		50	0	50		
PHF	.563	.928	.732	.901	.667	.000	.438	.639	.659	.906	.708	.935	.692	.000	.818	.750	.949
Cars	9	503	41	553	16	0	7	23	29	484	17	530	36	0	36	72	1178
% Cars	100	99.6	100	99.6	100	0	100	100	100	96.8	100	97.1	100	0	100	100	98.5
Trucks	0	2	0	2	0	0	0	0	0	16	0	16	0	0	0	0	18
% Trucks	0	0.4	0	0.4	0	0	0	0	0	3.2	0	2.9	0	0	0	0	1.5

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 7



Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

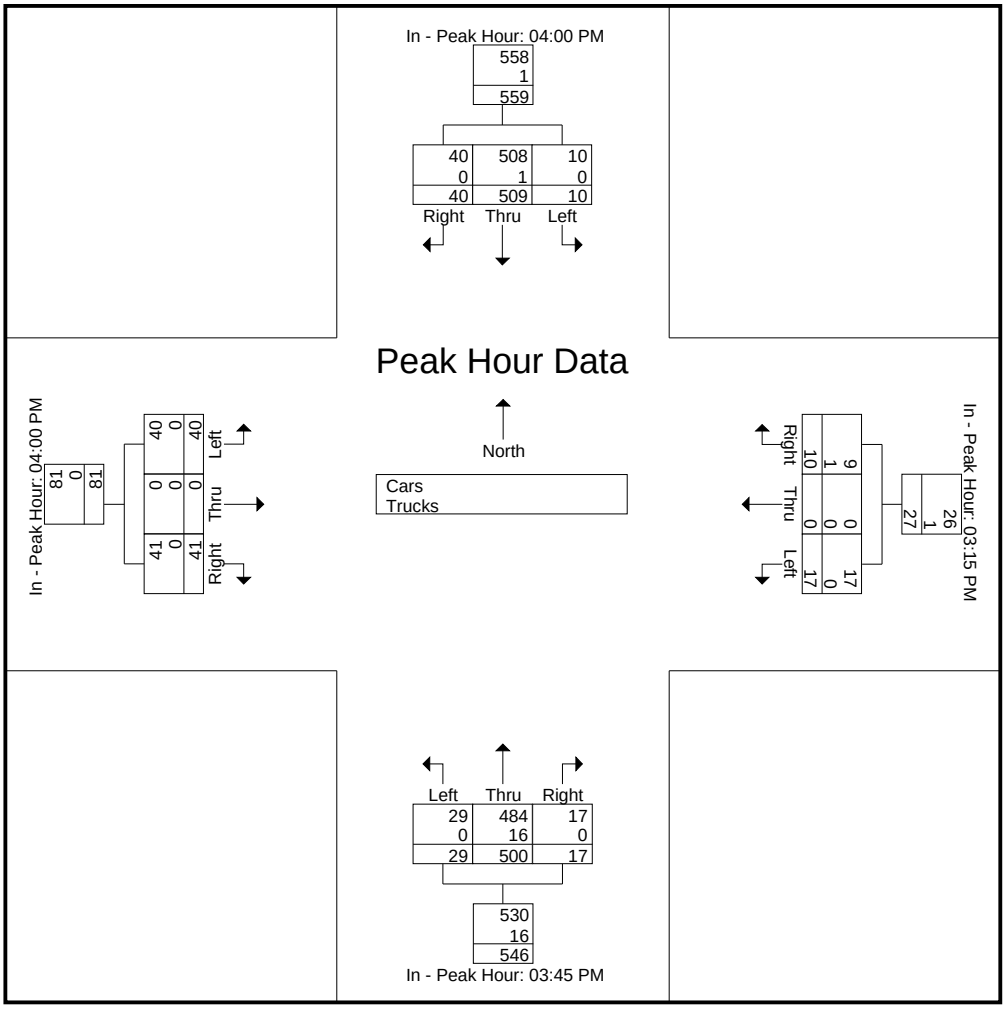
	04:00 PM				03:15 PM				03:45 PM				04:00 PM			
+0 mins.	0	127	6	133	5	0	2	7	3	113	5	121	7	0	11	18
+15 mins.	**4**	**136**	**14**	**154**	1	0	**4**	5	5	**138**	3	**146**	10	0	7	17
+30 mins.	3	123	12	138	5	0	4	**9**	10	126	**6**	142	**13**	0	11	**24**
+45 mins.	3	123	8	134	**6**	0	0	6	**11**	123	3	137	10	0	**12**	22
Total Volume	10	509	40	559	17	0	10	27	29	500	17	546	40	0	41	81
% App. Total	1.8	91.1	7.2		63	0	37		5.3	91.6	3.1		49.4	0	50.6	
PHF	.625	.936	.714	.907	.708	.000	.625	.750	.659	.906	.708	.935	.769	.000	.854	.844
Cars	10	508	40	558	17	0	9	26	29	484	17	530	40	0	41	81
% Cars	100	99.8	100	99.8	100	0	90	96.3	100	96.8	100	97.1	100	0	100	100
Trucks	0	1	0	1	0	0	1	1	0	16	0	16	0	0	0	0
% Trucks	0	0.2	0	0.2	0	0	10	3.7	0	3.2	0	2.9	0	0	0	0

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 8



Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 9

Groups Printed- Cars

	From North			From East			From South			From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	2	61	3	2	1	5	9	168	1	11	0	10	273
07:15 AM	1	94	8	2	0	0	12	134	3	9	0	6	269
07:30 AM	0	107	16	1	0	0	9	110	1	8	0	14	266
07:45 AM	1	90	17	6	1	1	13	112	1	16	1	13	272
Total	4	352	44	11	2	6	43	524	6	44	1	43	1080
08:00 AM	1	99	10	2	0	1	9	108	0	13	0	10	253
08:15 AM	2	73	13	3	0	4	13	117	2	17	0	12	256
08:30 AM	0	66	13	0	0	2	9	85	1	12	0	12	200
08:45 AM	1	61	6	2	0	3	7	91	1	15	0	5	192
Total	4	299	42	7	0	10	38	401	4	57	0	39	901
09:00 AM	2	82	4	0	0	3	6	73	1	11	0	4	186
09:15 AM	4	85	1	2	0	3	5	135	3	9	0	1	248
09:30 AM	1	56	7	5	0	4	1	69	1	4	0	2	150
09:45 AM	4	65	4	0	0	2	3	49	1	5	0	5	138
Total	11	288	16	7	0	12	15	326	6	29	0	12	722
10:00 AM	2	56	5	0	0	1	2	75	2	2	0	4	149
10:15 AM	1	65	3	3	0	3	4	70	2	4	0	3	158
10:30 AM	2	65	3	1	0	4	1	74	1	2	0	2	155
10:45 AM	2	52	3	4	0	0	3	83	2	3	0	6	158
Total	7	238	14	8	0	8	10	302	7	11	0	15	620
11:00 AM	1	68	3	4	0	2	11	87	4	8	0	4	192
11:15 AM	1	71	5	1	0	4	1	77	2	2	0	2	166
11:30 AM	4	114	13	1	0	2	1	78	0	8	0	3	224
11:45 AM	4	89	4	0	0	4	5	80	2	7	0	5	200
Total	10	342	25	6	0	12	18	322	8	25	0	14	782
12:00 PM	5	91	8	0	0	4	2	88	4	9	0	1	212
12:15 PM	3	87	8	3	1	3	4	76	1	8	0	3	197
12:30 PM	3	69	4	3	0	5	2	94	0	7	0	6	193
12:45 PM	4	97	8	2	0	3	4	71	1	8	0	2	200
Total	15	344	28	8	1	15	12	329	6	32	0	12	802
01:00 PM	2	78	4	3	0	5	5	85	2	7	0	5	196
01:15 PM	3	61	4	3	0	4	6	92	3	7	0	4	187
01:30 PM	1	76	2	1	0	3	4	80	2	4	0	3	176
01:45 PM	3	78	4	2	0	0	6	87	2	5	0	2	189
Total	9	293	14	9	0	12	21	344	9	23	0	14	748
02:00 PM	3	82	5	0	0	4	1	83	2	2	0	3	185
02:15 PM	2	70	3	5	0	5	2	79	1	3	0	4	174
02:30 PM	5	128	13	1	0	2	3	75	4	4	0	6	241
02:45 PM	5	116	10	3	0	4	6	82	1	8	1	7	243
Total	15	396	31	9	0	15	12	319	8	17	1	20	843
03:00 PM	1	125	8	3	0	2	1	118	8	5	0	9	280
03:15 PM	1	95	5	5	0	1	3	95	5	3	1	1	215
03:30 PM	3	119	10	1	0	4	9	101	1	3	0	6	257
03:45 PM	2	118	9	5	0	4	3	106	5	6	0	7	265
Total	7	457	32	14	0	11	16	420	19	17	1	23	1017
04:00 PM	0	127	6	6	0	0	5	131	3	7	0	11	296
04:15 PM	4	136	14	1	0	1	10	126	6	10	0	7	315
04:30 PM	3	122	12	4	0	2	11	121	3	13	0	11	302
04:45 PM	3	123	8	1	0	4	9	94	3	10	0	12	267
Total	10	508	40	12	0	7	35	472	15	40	0	41	1180
05:00 PM	4	122	6	2	0	4	7	106	5	4	0	7	267
05:15 PM	2	113	8	3	0	2	4	88	5	4	0	4	233
05:30 PM	3	130	7	5	0	3	2	91	2	1	0	3	247
05:45 PM	0	103	5	0	0	3	3	86	1	7	0	0	208
Total	9	468	26	10	0	12	16	371	13	16	0	14	955

Accurate Counts

978-664-2565

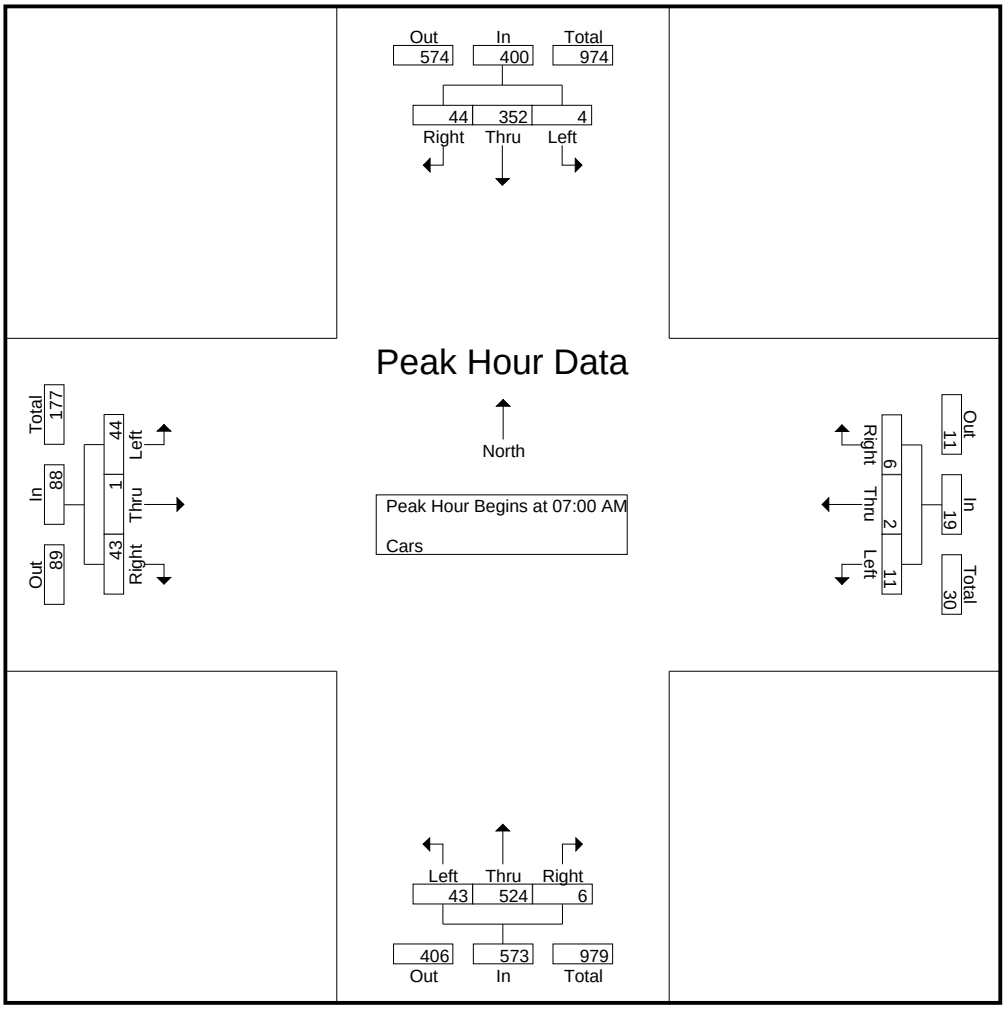
N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 10

Groups Printed- Cars

	From North			From East			From South			From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 PM	5	98	6	3	1	0	5	71	3	6	0	2	200
06:15 PM	1	94	5	1	0	2	0	64	2	3	0	4	176
06:30 PM	2	76	4	0	0	1	7	66	2	2	0	5	165
06:45 PM	4	62	5	1	0	2	1	46	2	2	0	2	127
Total	12	330	20	5	1	5	13	247	9	13	0	13	668
Grand Total	113	4315	332	106	4	125	249	4377	110	324	3	260	10318
Apprch %	2.4	90.7	7	45.1	1.7	53.2	5.3	92.4	2.3	55.2	0.5	44.3	
Total %	1.1	41.8	3.2	1	0	1.2	2.4	42.4	1.1	3.1	0	2.5	

	From North				From East				From South				From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**2**	61	3	66	2	**1**	**5**	**8**	9	**168**	1	**178**	11	0	10	21	**273**
07:15 AM	1	94	8	103	2	0	0	2	12	134	**3**	149	9	0	6	15	269
07:30 AM	0	**107**	16	**123**	1	0	0	1	9	110	1	120	8	0	**14**	22	266
07:45 AM	1	90	**17**	108	**6**	1	1	8	**13**	112	1	126	**16**	**1**	13	**30**	272
Total Volume	4	352	44	400	11	2	6	19	43	524	6	573	44	1	43	88	1080
% App. Total	1	88	11		57.9	10.5	31.6		7.5	91.4	1		50	1.1	48.9		
PHF	.500	.822	.647	.813	.458	.500	.300	.594	.827	.780	.500	.805	.688	.250	.768	.733	.989



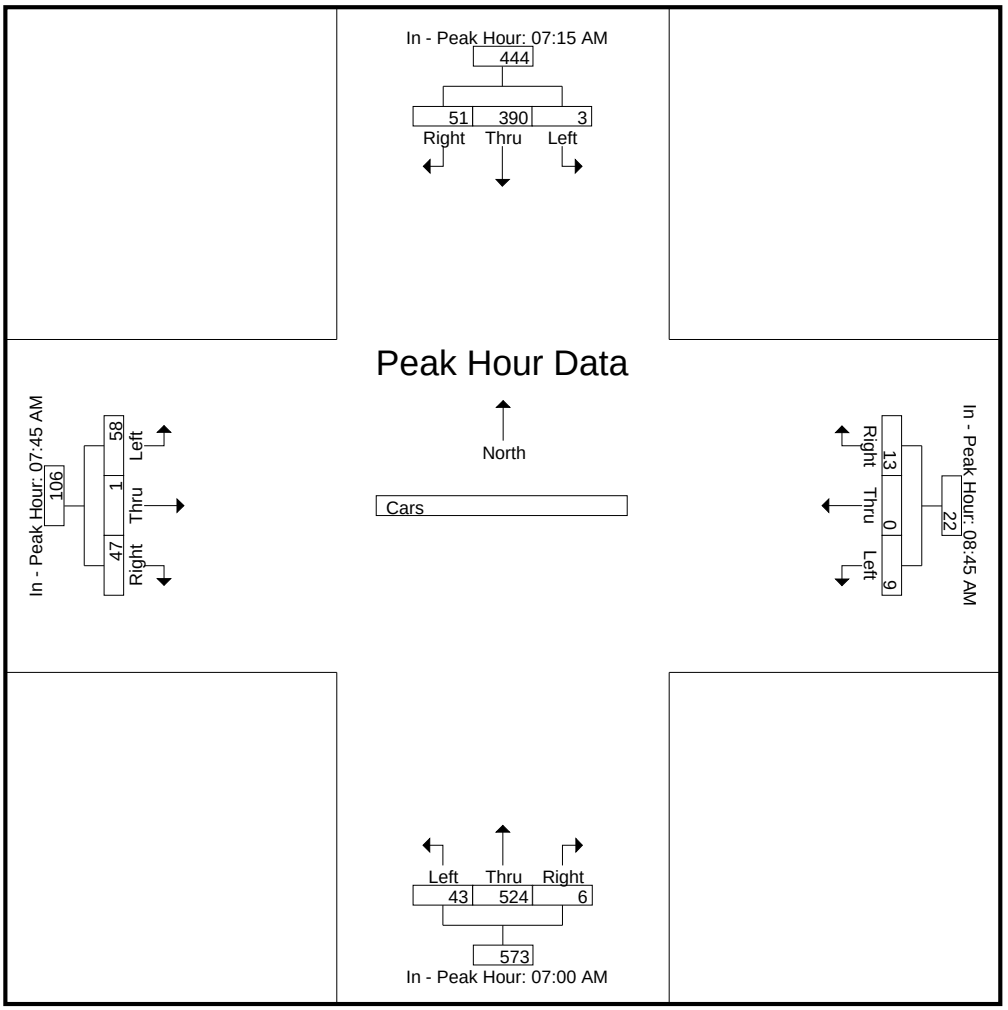
Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023

	From North				From East				From South				From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				08:45 AM				07:00 AM				07:45 AM				
+0 mins.	**1**	94	8	103	2	0	3	5	9	**168**	1	**178**	16	**1**	**13**	**30**	
+15 mins.	0	**107**	16	**123**	0	0	3	3	12	134	**3**	149	13	0	10	23	
+30 mins.	1	90	**17**	108	2	0	3	5	9	110	1	120	**17**	0	12	29	
+45 mins.	1	99	10	110	**5**	0	**4**	**9**	**13**	112	1	126	12	0	12	24	
Total Volume	3	390	51	444	9	0	13	22	43	524	6	573	58	1	47	106	
% App. Total	0.7	87.8	11.5		40.9	0	59.1		7.5	91.4	1		54.7	0.9	44.3		
PHF	.750	.911	.750	.902	.450	.000	.813	.611	.827	.780	.500	.805	.853	.250	.904	.883	



Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 11:30 AM

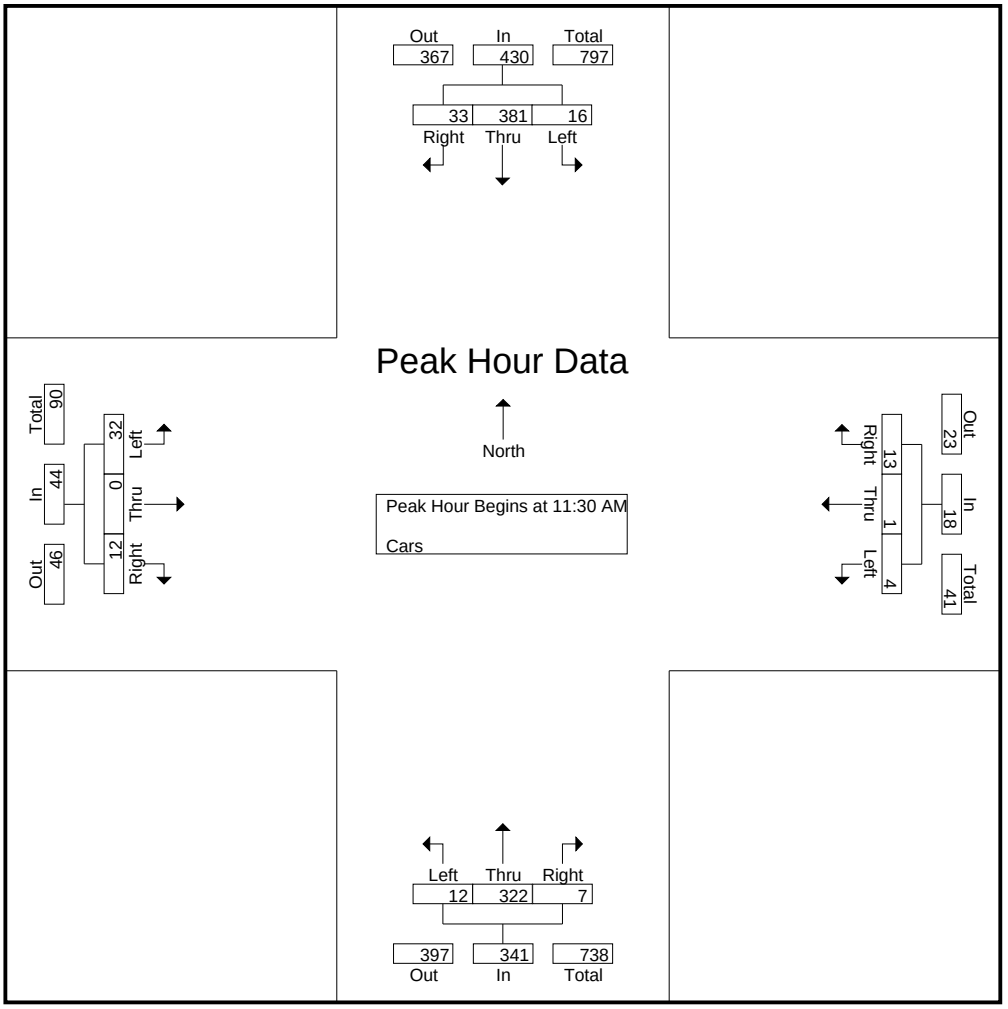
11:30 AM	4	**114**	**13**	**131**	1	0	2	3	1	78	0	79	8	0	3	11	**224**
11:45 AM	4	89	4	97	0	0	**4**	4	**5**	80	2	87	7	0	**5**	**12**	200
12:00 PM	**5**	91	8	104	0	0	4	4	2	**88**	**4**	**94**	**9**	0	1	10	212
12:15 PM	3	87	8	98	**3**	**1**	3	**7**	4	76	1	81	8	0	3	11	197
Total Volume	16	381	33	430	4	1	13	18	12	322	7	341	32	0	12	44	833
% App. Total	3.7	88.6	7.7		22.2	5.6	72.2		3.5	94.4	2.1		72.7	0	27.3		
PHF	.800	.836	.635	.821	.333	.250	.813	.643	.600	.915	.438	.907	.889	.000	.600	.917	.930

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 12



Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

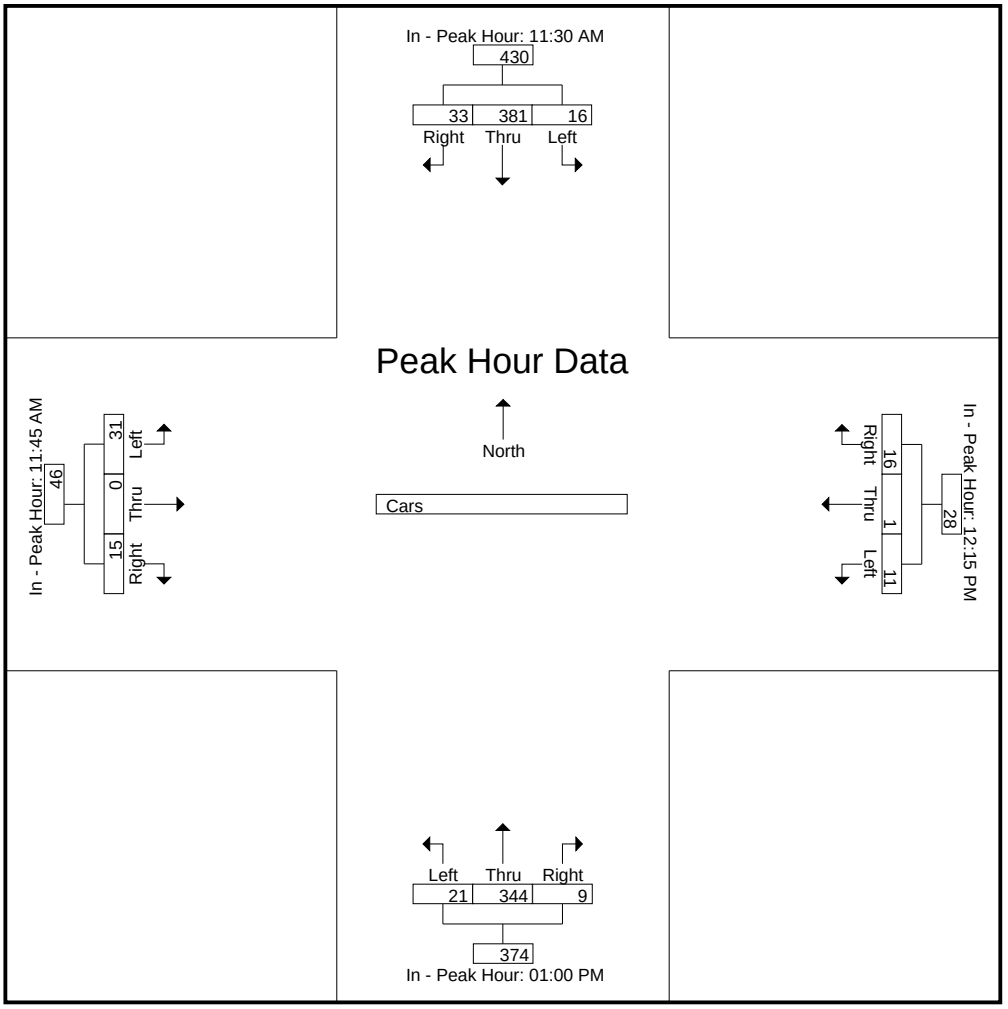
	11:30 AM				12:15 PM				01:00 PM				11:45 AM			
+0 mins.	4	**114**	**13**	**131**	**3**	**1**	3	7	5	85	2	92	7	0	5	12
+15 mins.	4	89	4	97	3	0	**5**	**8**	**6**	**92**	**3**	**101**	**9**	0	1	10
+30 mins.	**5**	91	8	104	2	0	3	5	4	80	2	86	8	0	3	11
+45 mins.	3	87	8	98	3	0	5	8	6	87	2	95	7	0	**6**	**13**
Total Volume	16	381	33	430	11	1	16	28	21	344	9	374	31	0	15	46
% App. Total	3.7	88.6	7.7		39.3	3.6	57.1		5.6	92	2.4		67.4	0	32.6	
PHF	.800	.836	.635	.821	.917	.250	.800	.875	.875	.935	.750	.926	.861	.000	.625	.885

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 13



Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:00 PM

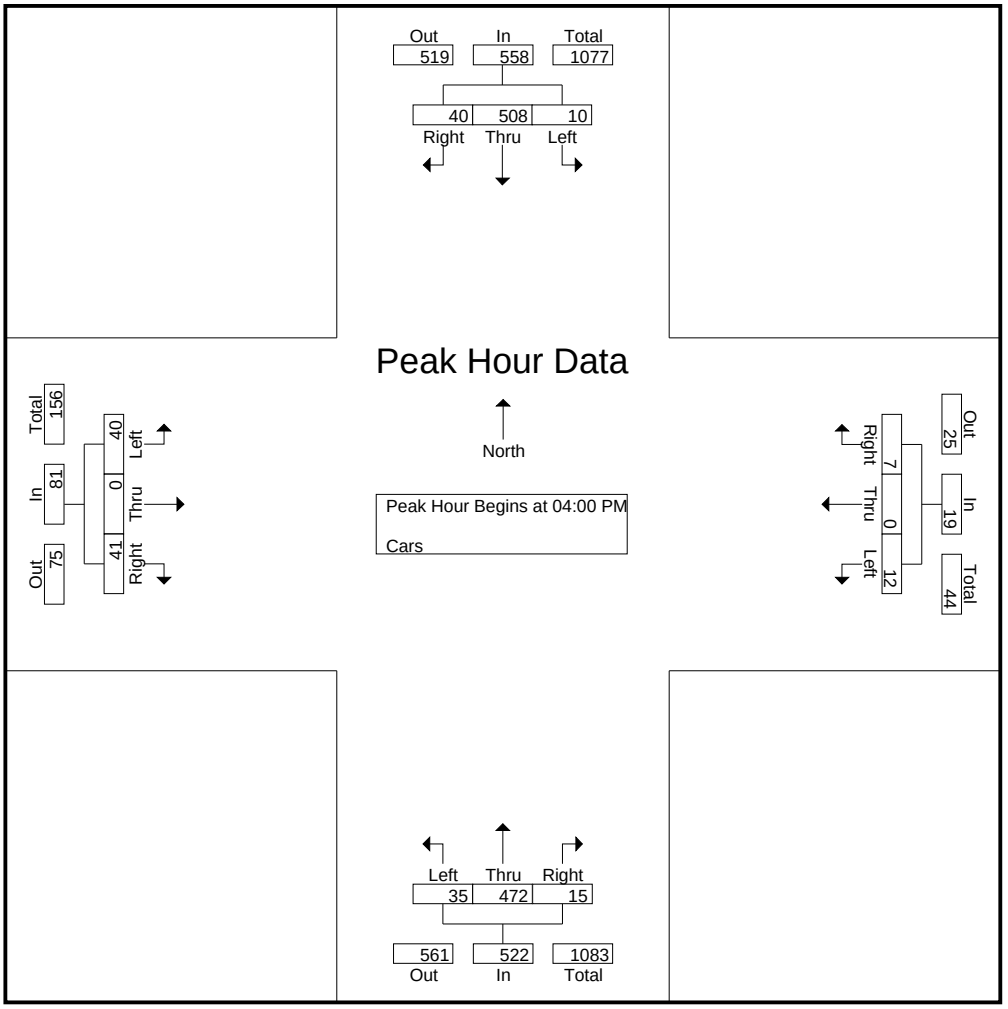
04:00 PM	0	127	6	133	**6**	0	0	**6**	5	**131**	3	139	7	0	11	18	296
04:15 PM	**4**	**136**	**14**	**154**	1	0	1	2	10	126	**6**	**142**	10	0	7	17	**315**
04:30 PM	3	122	12	137	4	0	2	6	**11**	121	3	135	**13**	0	11	**24**	302
04:45 PM	3	123	8	134	1	0	**4**	5	9	94	3	106	10	0	**12**	22	267
Total Volume	10	508	40	558	12	0	7	19	35	472	15	522	40	0	41	81	1180
% App. Total	1.8	91	7.2		63.2	0	36.8		6.7	90.4	2.9		49.4	0	50.6		
PHF	.625	.934	.714	.906	.500	.000	.438	.792	.795	.901	.625	.919	.769	.000	.854	.844	.937

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 14



Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

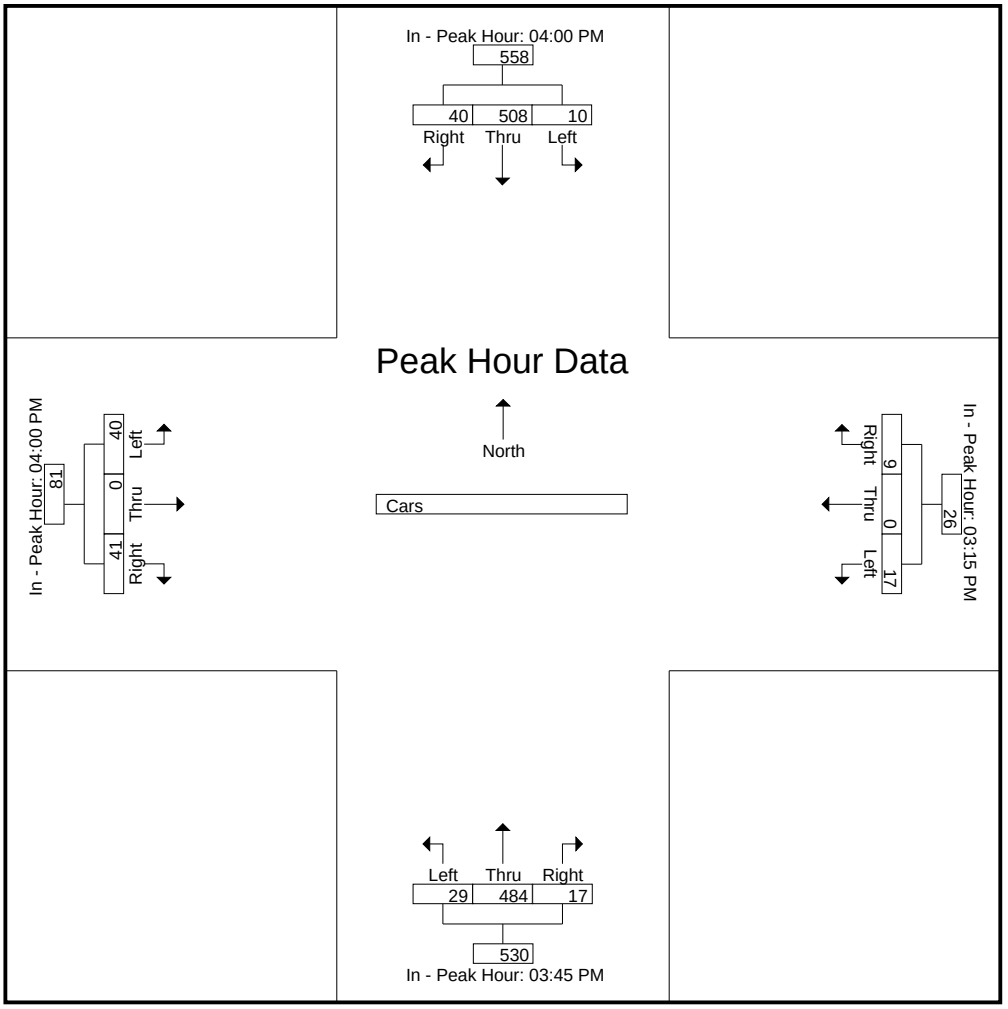
	04:00 PM				03:15 PM				03:45 PM				04:00 PM			
+0 mins.	0	127	6	133	5	0	1	6	3	106	5	114	7	0	11	18
+15 mins.	**4**	**136**	**14**	**154**	1	0	**4**	5	5	**131**	3	139	10	0	7	17
+30 mins.	3	122	12	137	5	0	4	**9**	10	126	**6**	**142**	**13**	0	11	**24**
+45 mins.	3	123	8	134	**6**	0	0	6	**11**	121	3	135	10	0	**12**	22
Total Volume	10	508	40	558	17	0	9	26	29	484	17	530	40	0	41	81
% App. Total	1.8	91	7.2		65.4	0	34.6		5.5	91.3	3.2		49.4	0	50.6	
PHF	.625	.934	.714	.906	.708	.000	.563	.722	.659	.924	.708	.933	.769	.000	.854	.844

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 15



Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023

Groups Printed- Trucks

	From North			From East			From South			From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	0	3	0	0	0	0	0	4	0	0	0	0	7
07:15 AM	0	6	0	0	0	0	0	3	0	0	0	0	9
07:30 AM	0	4	0	0	0	0	0	4	0	0	0	0	8
07:45 AM	1	3	0	1	0	0	0	4	0	0	0	0	9
Total	1	16	0	1	0	0	0	15	0	0	0	0	33
08:00 AM	0	3	0	0	0	0	0	3	0	0	0	0	6
08:15 AM	1	5	0	0	0	1	0	12	1	0	0	0	20
08:30 AM	0	4	0	0	0	1	0	4	0	0	0	0	9
08:45 AM	0	2	0	0	0	0	0	7	0	0	0	0	9
Total	1	14	0	0	0	2	0	26	1	0	0	0	44
09:00 AM	0	3	0	0	0	0	0	4	0	0	0	0	7
09:15 AM	0	5	0	0	0	0	0	6	0	0	0	0	11
09:30 AM	0	6	0	1	0	0	0	5	1	0	0	0	13
09:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
Total	0	14	0	1	0	0	0	16	1	0	0	0	32
10:00 AM	0	2	0	0	0	0	0	4	0	0	0	0	6
10:15 AM	0	4	0	0	0	0	0	3	0	0	0	0	7
10:30 AM	0	8	0	1	0	0	0	3	1	0	0	0	13
10:45 AM	0	1	0	0	0	0	0	2	0	0	0	0	3
Total	0	15	0	1	0	0	0	12	1	0	0	0	29
11:00 AM	0	0	1	0	0	0	0	2	0	0	0	1	4
11:15 AM	0	2	0	0	0	0	0	5	0	0	0	0	7
11:30 AM	0	2	0	0	0	0	0	2	0	0	0	0	4
11:45 AM	0	4	0	0	0	0	0	1	0	0	0	0	5
Total	0	8	1	0	0	0	0	10	0	0	0	1	20
12:00 PM	0	7	0	0	0	0	0	3	0	0	0	0	10
12:15 PM	0	0	0	0	0	0	0	4	0	0	0	0	4
12:30 PM	0	3	0	0	0	0	0	3	0	0	0	0	6
12:45 PM	0	1	0	0	0	0	0	4	0	0	0	0	5
Total	0	11	0	0	0	0	0	14	0	0	0	0	25
01:00 PM	0	1	0	0	0	0	0	1	0	0	0	0	2
01:15 PM	0	3	0	0	0	0	0	1	0	0	0	0	4
01:30 PM	0	6	0	0	0	0	0	2	0	0	0	0	8
01:45 PM	0	3	0	0	0	0	0	4	0	0	0	0	7
Total	0	13	0	0	0	0	0	8	0	0	0	0	21
02:00 PM	0	3	0	0	0	0	0	6	0	0	0	0	9
02:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
02:30 PM	0	1	0	0	0	0	0	2	0	0	0	0	3
02:45 PM	0	9	0	0	0	0	0	1	0	0	0	0	10
Total	0	13	0	0	0	0	0	10	0	0	0	0	23
03:00 PM	0	5	0	0	0	0	0	1	0	0	0	0	6
03:15 PM	0	1	0	0	0	1	0	5	1	0	0	0	8
03:30 PM	0	0	0	0	0	0	0	6	0	0	0	0	6
03:45 PM	0	1	0	0	0	0	0	7	0	0	0	0	8
Total	0	7	0	0	0	1	0	19	1	0	0	0	28
04:00 PM	0	0	0	0	0	0	0	7	0	0	0	0	7
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	1	0	0	0	0	0	2	0	0	0	0	3
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	9	0	0	0	0	10
05:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	2	0	0	0	0	2

Accurate Counts

978-664-2565

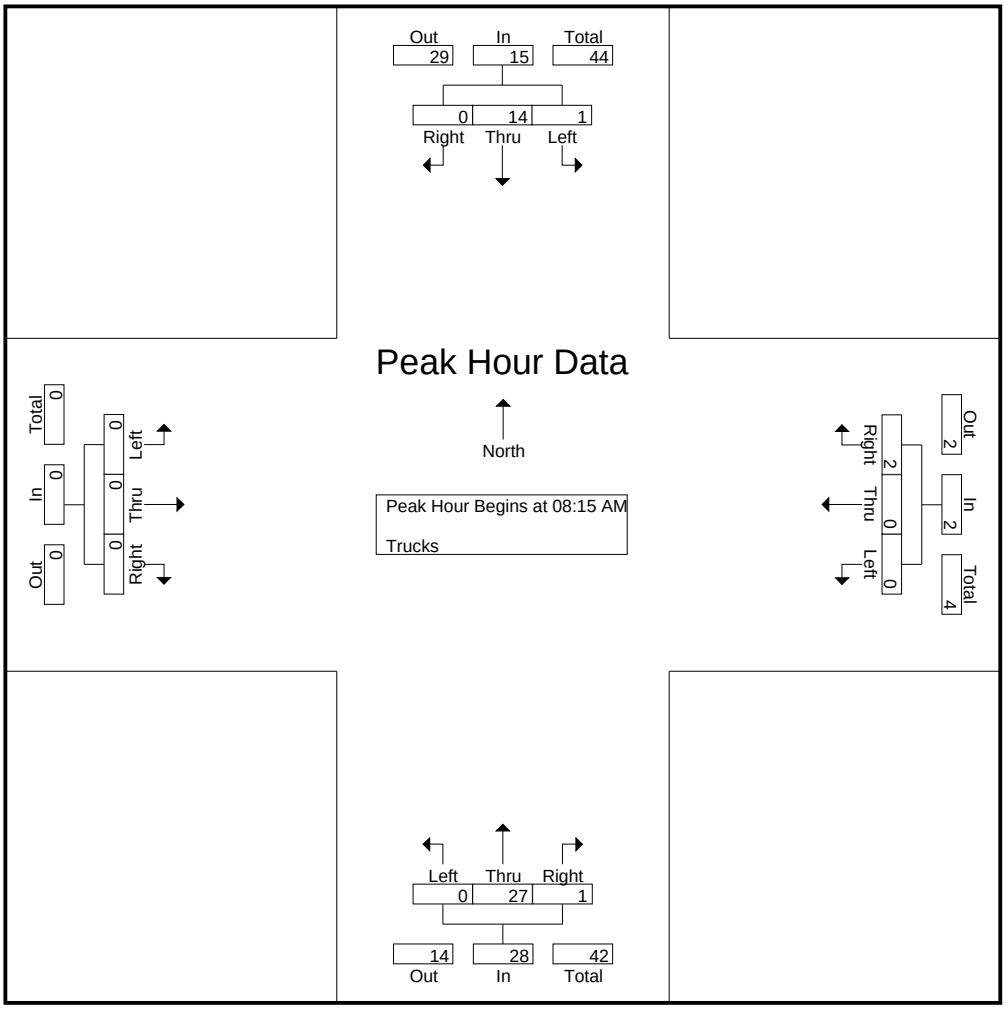
N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 17

Groups Printed- Trucks

	From North			From East			From South			From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	1	0	0	0	0	0	1	0	0	0	0	2
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	1	0	0	0	0	2
Grand Total	2	113	1	3	0	3	0	142	4	0	0	1	269
Apprch %	1.7	97.4	0.9	50	0	50	0	97.3	2.7	0	0	100	
Total %	0.7	42	0.4	1.1	0	1.1	0	52.8	1.5	0	0	0.4	

	From North				From East				From South				From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:15 AM																	
08:15 AM	**1**	**5**	0	**6**	0	0	**1**	**1**	0	**12**	**1**	**13**	0	0	0	0	**20**
08:30 AM	0	4	0	4	0	0	1	1	0	4	0	4	0	0	0	0	9
08:45 AM	0	2	0	2	0	0	0	0	0	7	0	7	0	0	0	0	9
09:00 AM	0	3	0	3	0	0	0	0	0	4	0	4	0	0	0	0	7
Total Volume	1	14	0	15	0	0	2	2	0	27	1	28	0	0	0	0	45
% App. Total	6.7	93.3	0		0	0	100		0	96.4	3.6		0	0	0		
PHF	.250	.700	.000	.625	.000	.000	.500	.500	.000	.563	.250	.538	.000	.000	.000	.000	.563



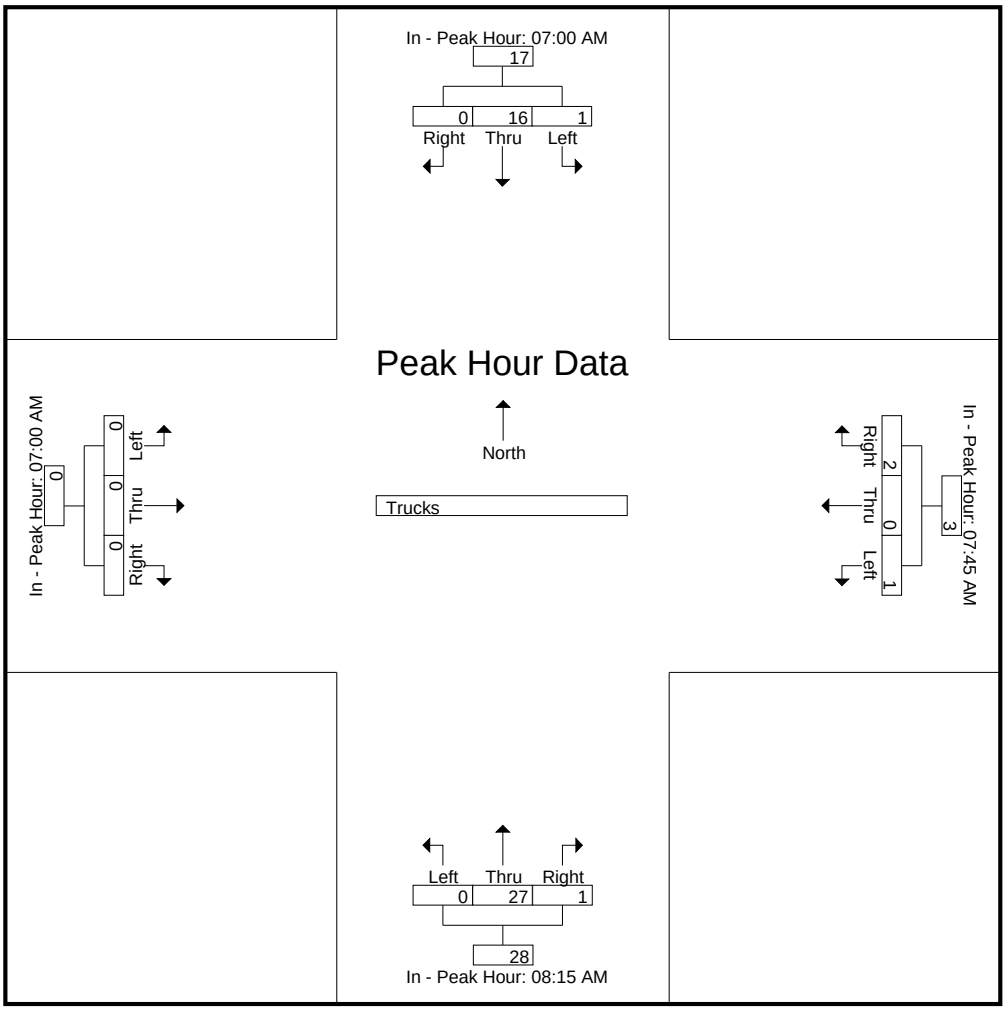
Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023

	From North				From East				From South				From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:45 AM				08:15 AM				07:00 AM				
+0 mins.	0	3	0	3	**1**	0	0	**1**	0	**12**	**1**	**13**	0	0	0	0	
+15 mins.	0	**6**	0	**6**	0	0	0	0	0	4	0	4	0	0	0	0	
+30 mins.	0	4	0	4	0	0	**1**	1	0	7	0	7	0	0	0	0	
+45 mins.	**1**	3	0	4	0	0	1	1	0	4	0	4	0	0	0	0	
Total Volume	1	16	0	17	1	0	2	3	0	27	1	28	0	0	0	0	
% App. Total	5.9	94.1	0		33.3	0	66.7		0	96.4	3.6		0	0	0		
PHF	.250	.667	.000	.708	.250	.000	.500	.750	.000	.563	.250	.538	.000	.000	.000	.000	



Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 10:00 AM

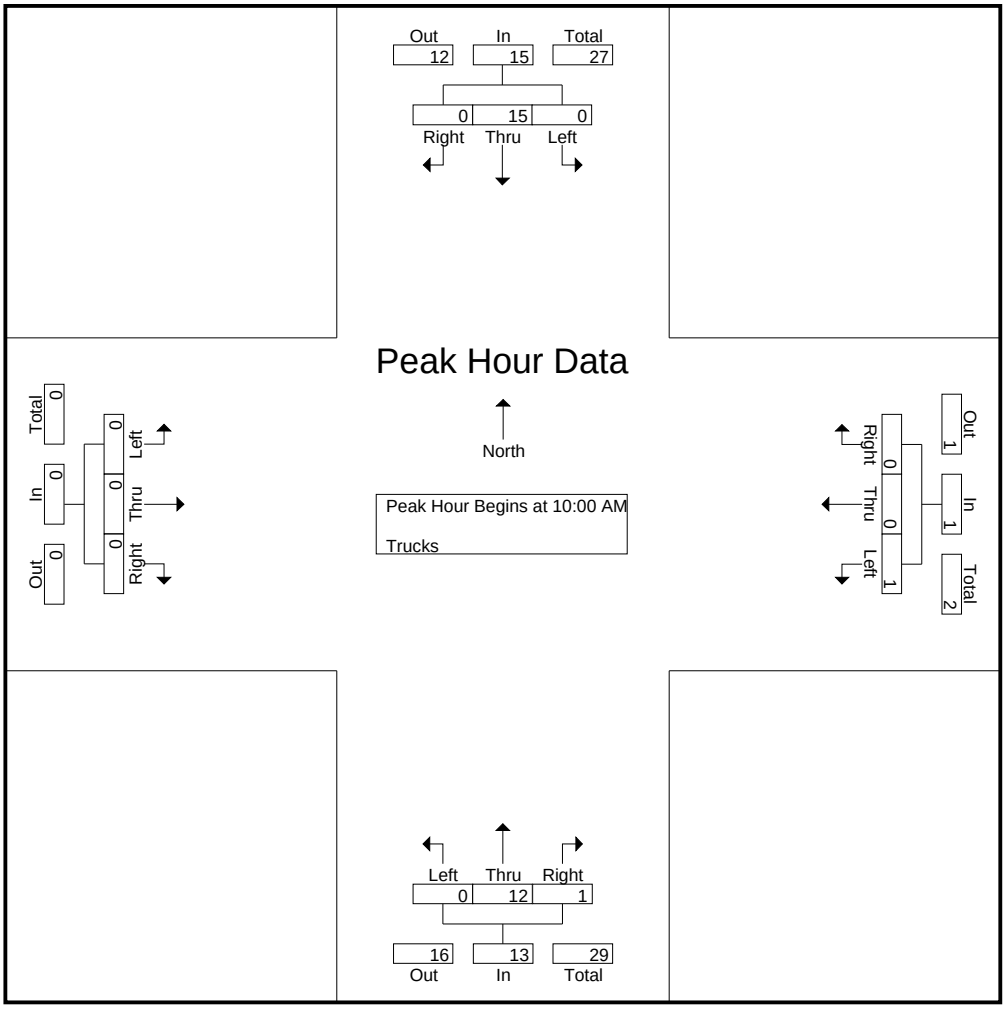
10:00 AM	0	2	0	2	0	0	0	0	0	**4**	0	**4**	0	0	0	0	6
10:15 AM	0	4	0	4	0	0	0	0	0	3	0	3	0	0	0	0	7
10:30 AM	0	**8**	0	**8**	**1**	0	0	**1**	0	3	**1**	4	0	0	0	0	**13**
10:45 AM	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	3
Total Volume	0	15	0	15	1	0	0	1	0	12	1	13	0	0	0	0	29
% App. Total	0	100	0		100	0	0		0	92.3	7.7		0	0	0		
PHF	.000	.469	.000	.469	.250	.000	.000	.250	.000	.750	.250	.813	.000	.000	.000	.000	.558

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 19



Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

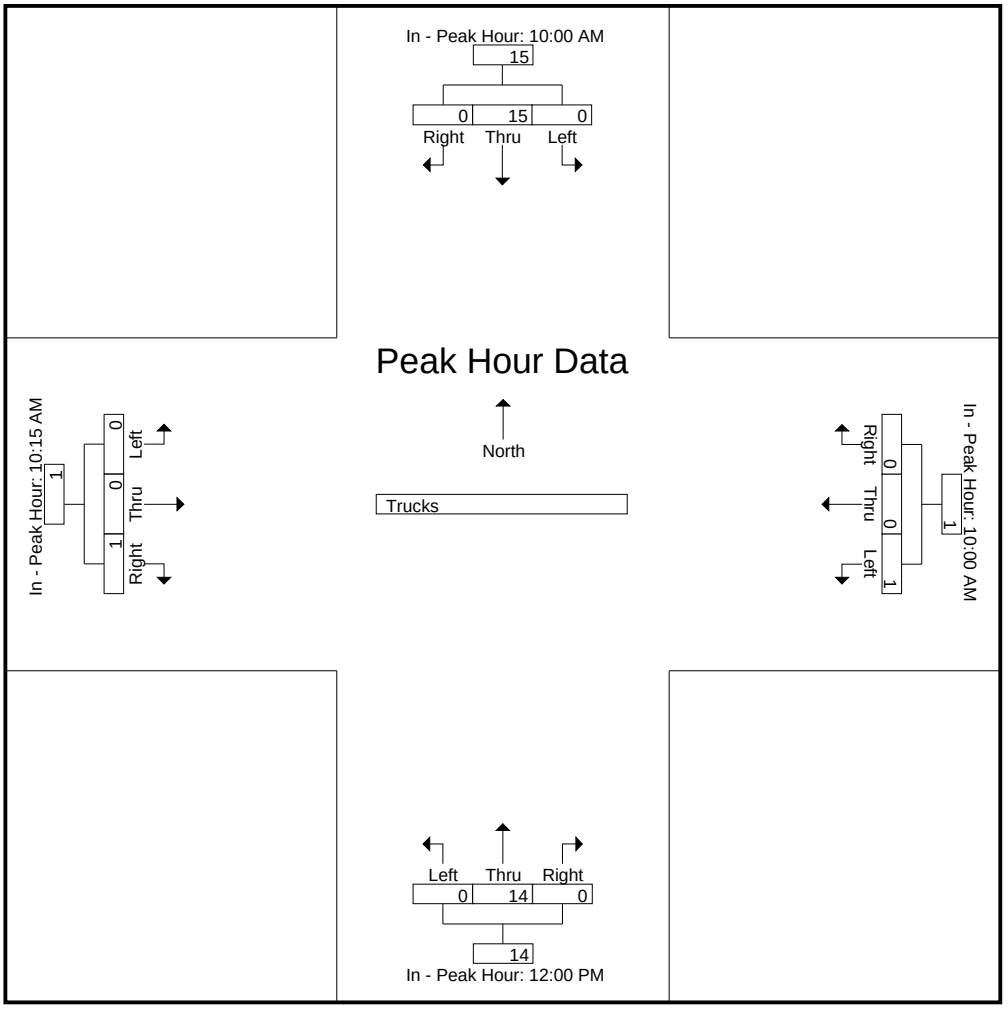
	10:00 AM				10:00 AM				12:00 PM				10:15 AM			
+0 mins.	0	2	0	2	0	0	0	0	0	3	0	3	0	0	0	0
+15 mins.	0	4	0	4	0	0	0	0	0	**4**	0	**4**	0	0	0	0
+30 mins.	0	**8**	0	**8**	**1**	0	0	**1**	0	3	0	3	0	0	0	0
+45 mins.	0	1	0	1	0	0	0	0	0	4	0	4	0	0	**1**	**1**
Total Volume	0	15	0	15	1	0	0	1	0	14	0	14	0	0	1	1
% App. Total	0	100	0		100	0	0		0	100	0		0	0	100	
PHF	.000	.469	.000	.469	.250	.000	.000	.250	.000	.875	.000	.875	.000	.000	.250	.250

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 20



Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 02:45 PM

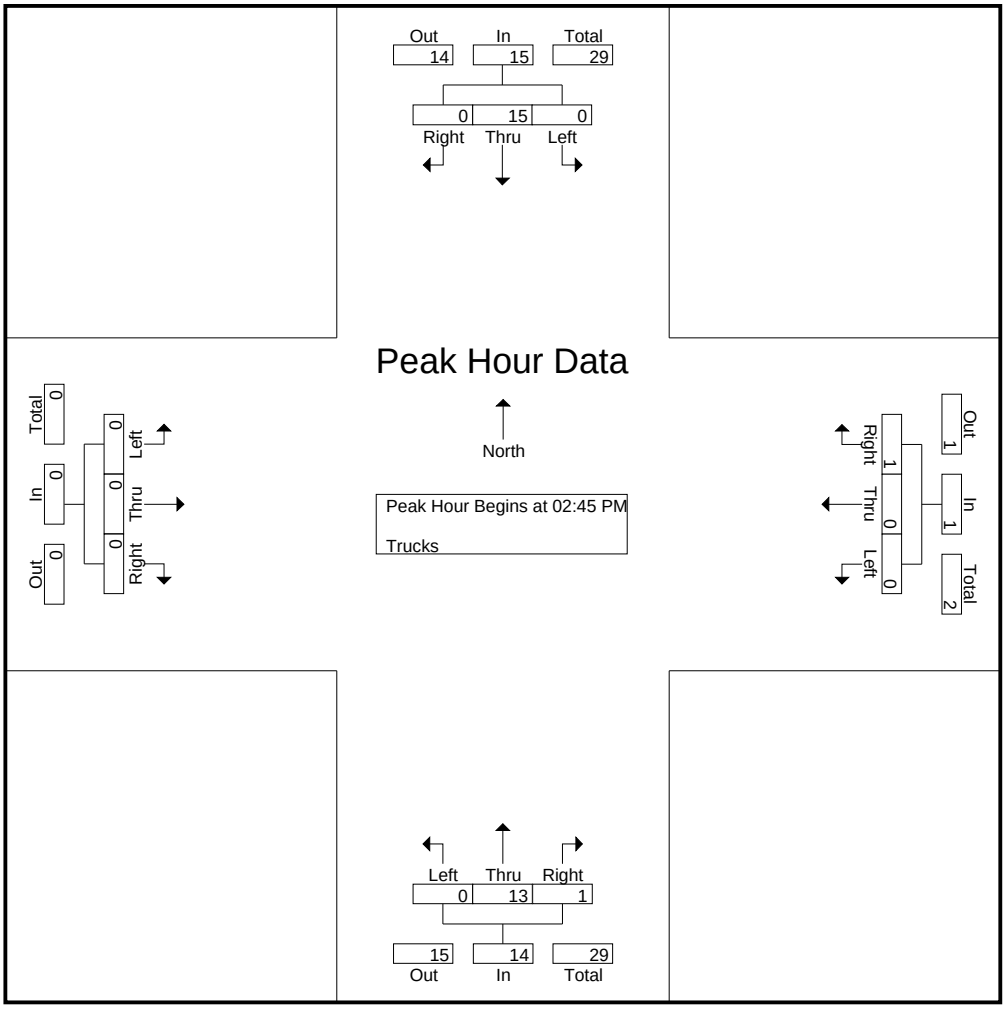
02:45 PM	0	**9**	0	**9**	0	0	0	0	0	1	0	1	0	0	0	0	**10**
03:00 PM	0	5	0	5	0	0	0	0	0	1	0	1	0	0	0	0	6
03:15 PM	0	1	0	1	0	0	**1**	**1**	0	5	**1**	**6**	0	0	0	0	8
03:30 PM	0	0	0	0	0	0	0	0	0	**6**	0	6	0	0	0	0	6
Total Volume	0	15	0	15	0	0	1	1	0	13	1	14	0	0	0	0	30
% App. Total	0	100	0		0	0	100		0	92.9	7.1		0	0	0		
PHF	.000	.417	.000	.417	.000	.000	.250	.250	.000	.542	.250	.583	.000	.000	.000	.000	.750

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 21



Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

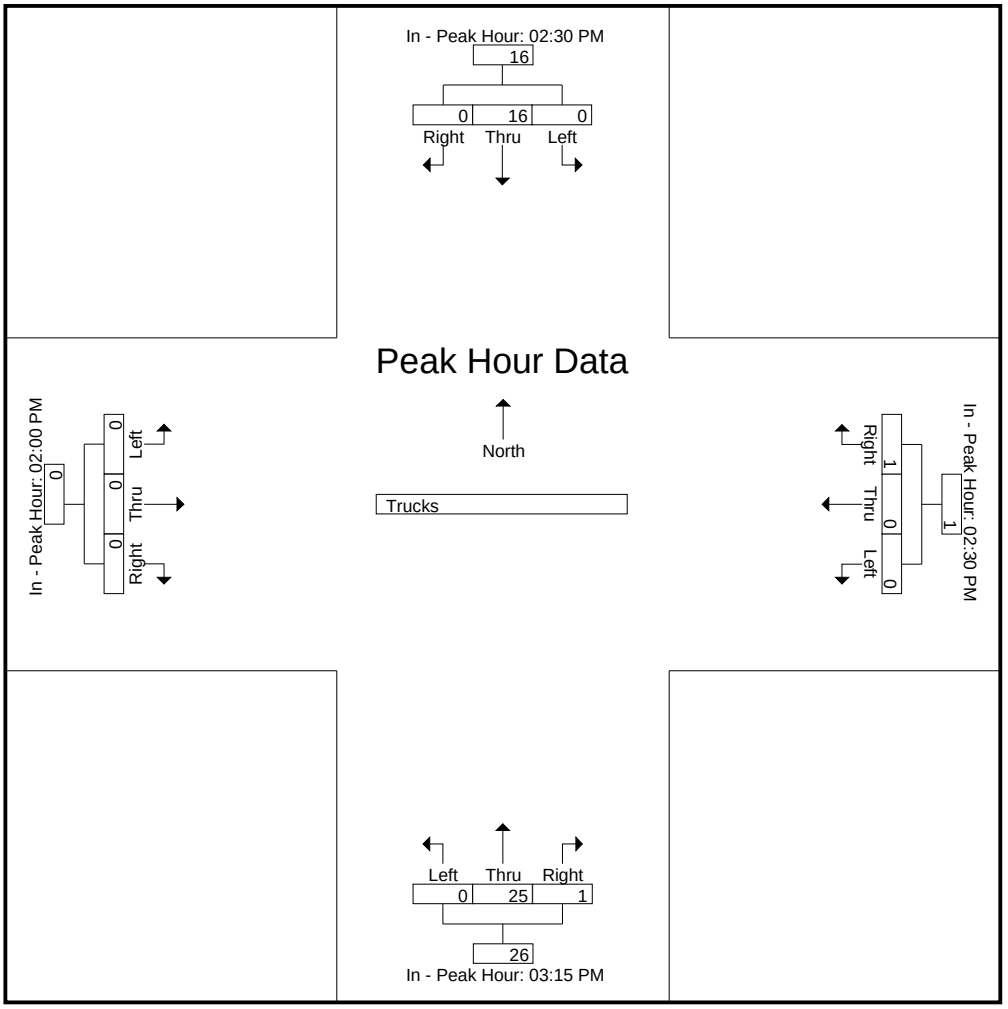
	02:30 PM				02:30 PM				03:15 PM				02:00 PM			
+0 mins.	0	1	0	1	0	0	0	0	0	5	**1**	6	0	0	0	0
+15 mins.	0	**9**	0	**9**	0	0	0	0	0	6	0	6	0	0	0	0
+30 mins.	0	5	0	5	0	0	0	0	0	**7**	0	**7**	0	0	0	0
+45 mins.	0	1	0	1	0	0	**1**	**1**	0	7	0	7	0	0	0	0
Total Volume	0	16	0	16	0	0	1	1	0	25	1	26	0	0	0	0
% App. Total	0	100	0		0	0	100		0	96.2	3.8		0	0	0	
PHF	.000	.444	.000	.444	.000	.000	.250	.250	.000	.893	.250	.929	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 22



Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023

Groups Printed- Bikes Peds

	From North				From East				From South				From West						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	2
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	2
10:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
10:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	3	0	3
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
11:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	2
Total	0	2	0	1	0	0	0	1	0	0	0	0	0	0	0	1	3	2	5
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
01:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
01:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
01:30 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	2
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	0	1	3	4
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	3	0	3
Total	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	3	0	3
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	2
Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	3
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	2
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1

Accurate Counts

978-664-2565

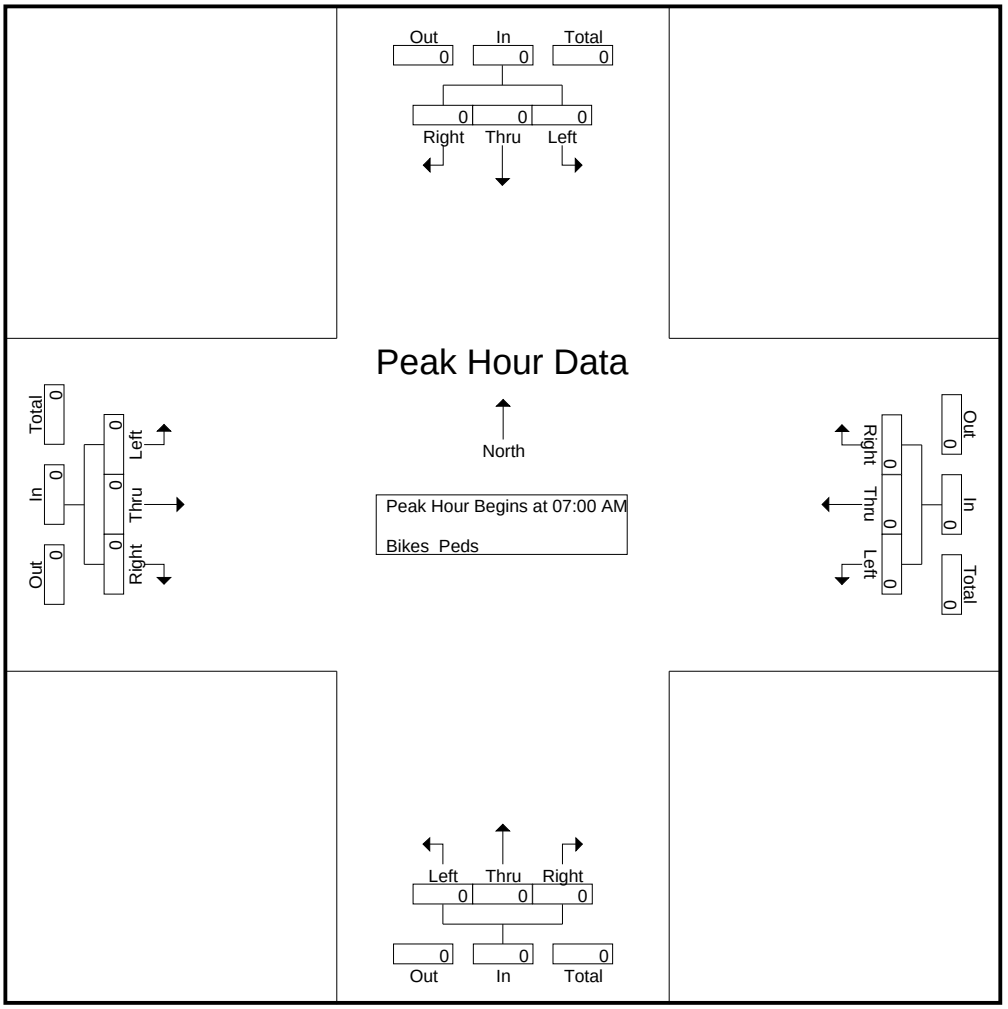
N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 24

Groups Printed- Bikes Peds

	From North				From East				From South				From West						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	5	0	2	0	0	0	7	0	3	0	2	0	0	0	7	18	8	26
Apprch %	0	100	0		0	0	0		0	100	0		0	0	0				
Total %	0	62.5	0		0	0	0		0	37.5	0		0	0	0		69.2	30.8	

	From North				From East				From South				From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



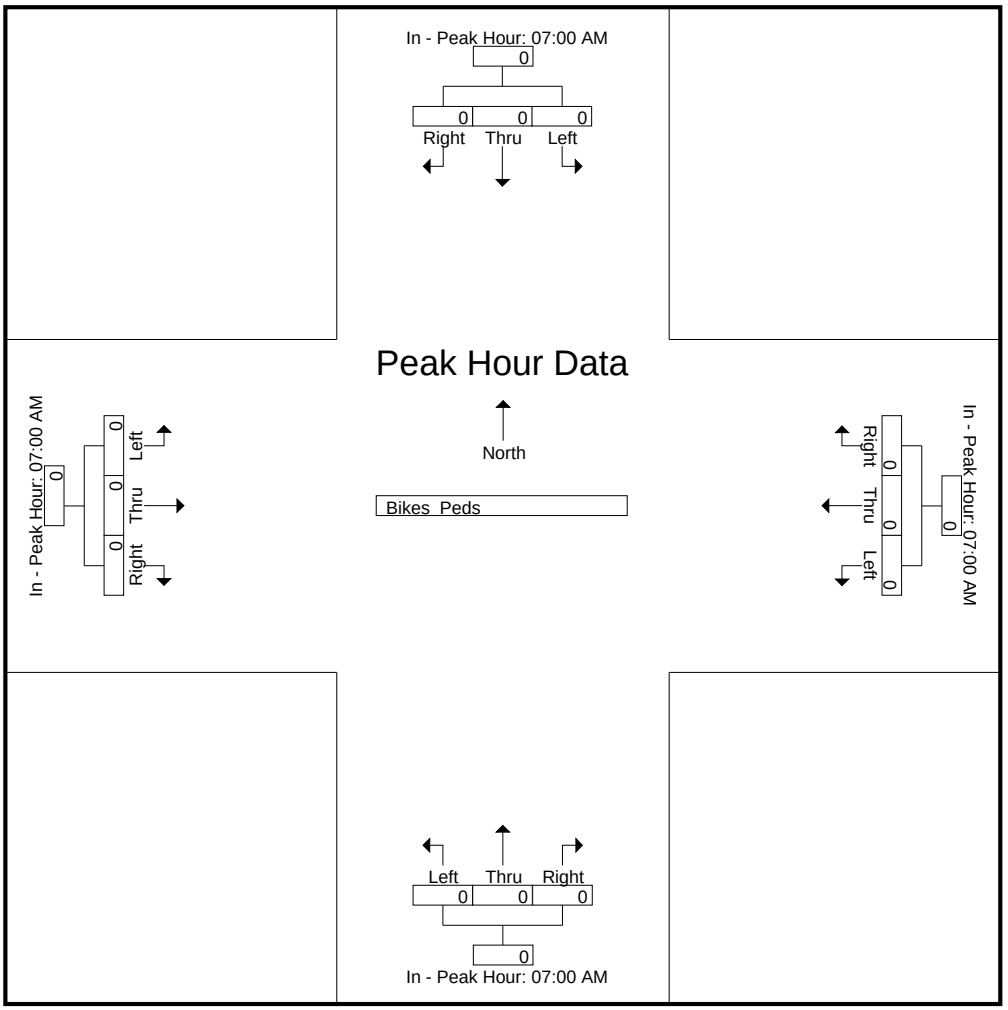
Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023

	From North				From East				From South				From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	



Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 12:45 PM

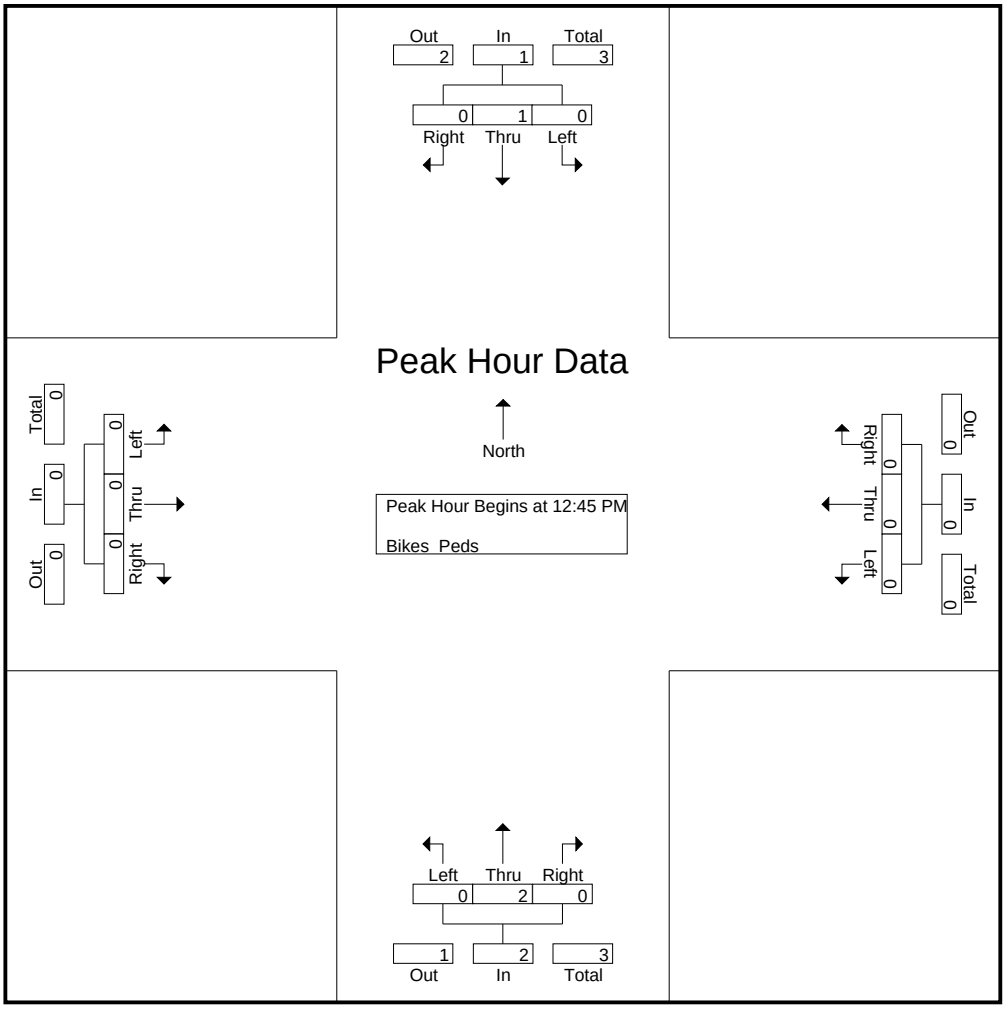
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	1
01:30 PM	0	**1**	0	**1**	0	0	0	0	0	1	0	1	0	0	0	0	**2**
Total Volume	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	3
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.375

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 26



Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

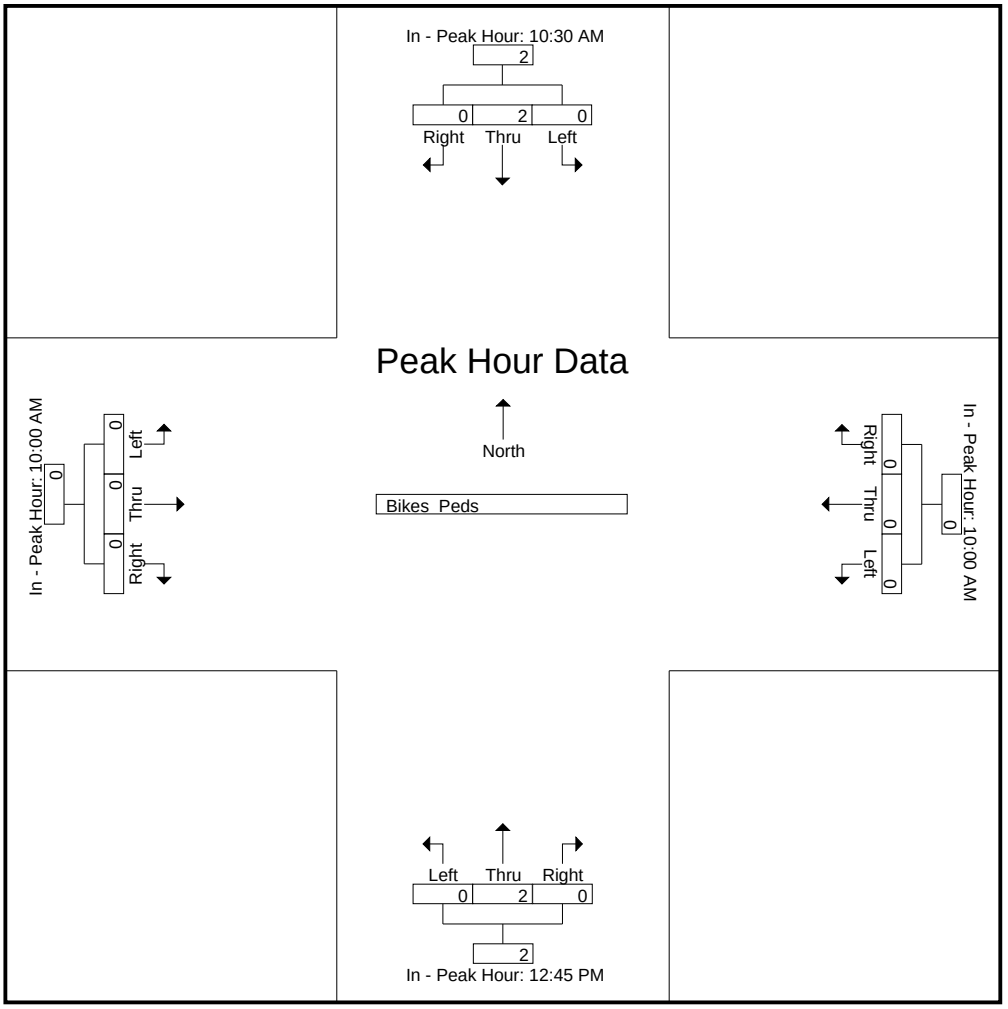
	10:30 AM				10:00 AM				12:45 PM				10:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+45 mins.	0	**2**	0	**2**	0	0	0	0	0	1	0	1	0	0	0	0
Total Volume	0	2	0	2	0	0	0	0	0	2	0	2	0	0	0	0
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 27



Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM

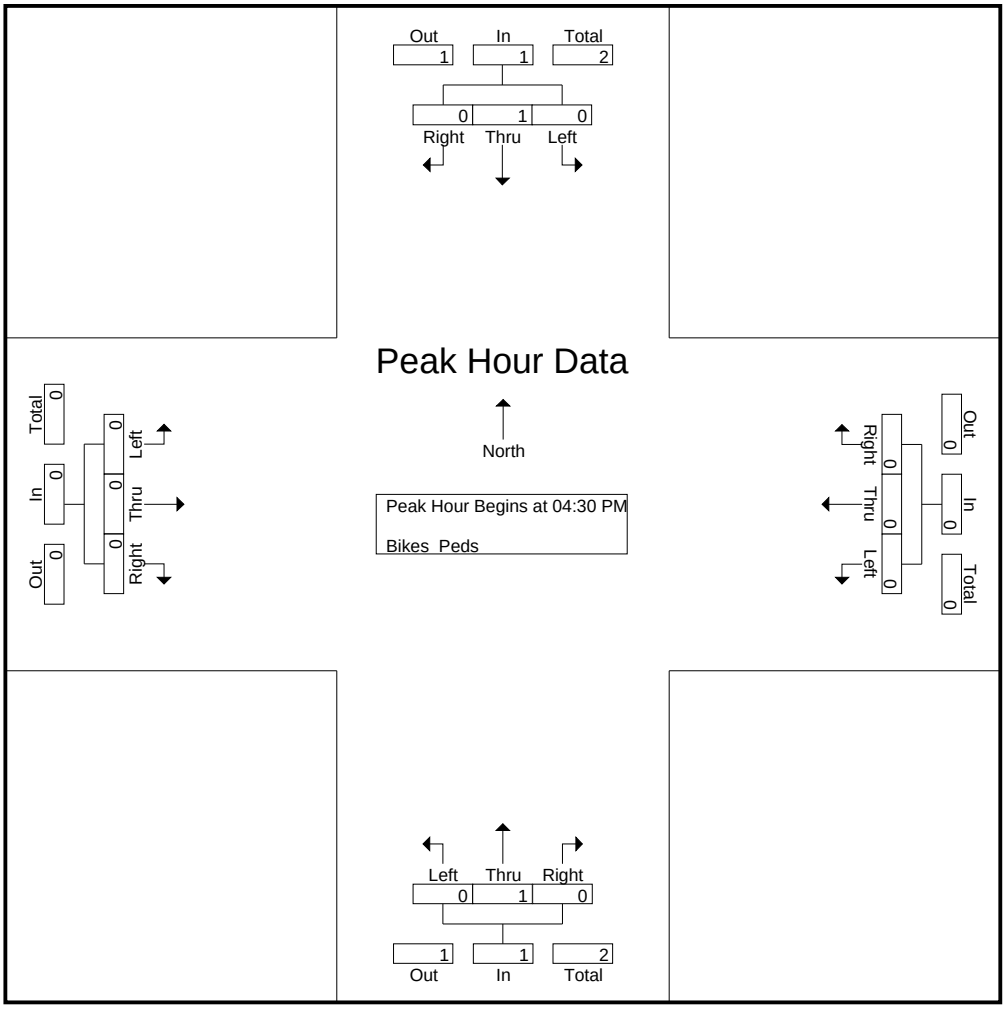
04:30 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	1
Total Volume	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.500

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 28



Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

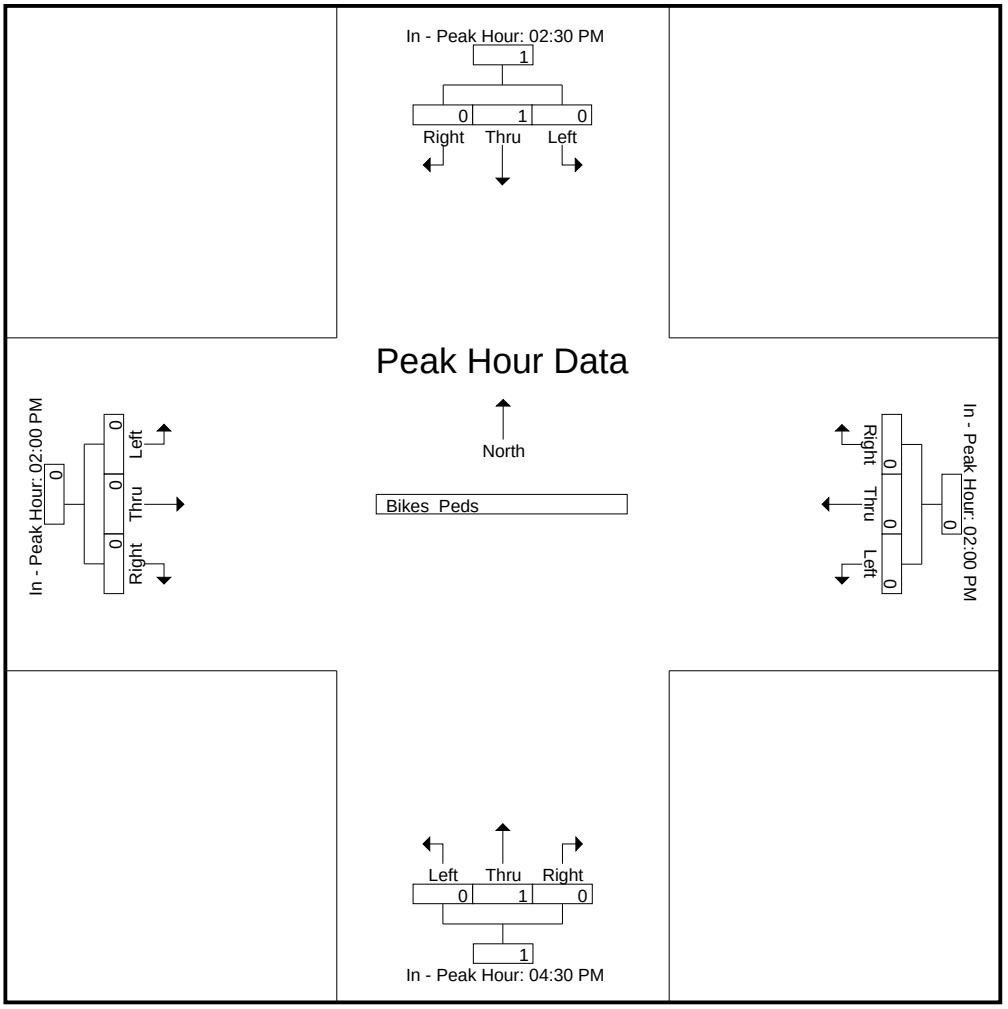
	02:30 PM				02:00 PM				04:30 PM				02:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	**1**	0	**1**	0	0	0	0	0	**1**	0	**1**	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Epping Road
E/W Street : Meeting Place Dr / McKay Dr
City/State : Exeter, NH
Weather : Cloudy

File Name : 13460001
Site Code : 13460001
Start Date : 4/5/2023
Page No : 29



Attachment B

Automatic Traffic Recorder (ATR) Counts

Accurate Counts
978-664-2565

Location : Epping Road (Route 27) 134600A1
Location : South of Meeting Place Drive
City/State: Exeter, NH
Direction: NB

4/11/2023 Time	0 - 72 in.	> 72 - 120 in.	> 120 - 180 in.	> 180 - 240 in.	> 240 - 300 in.	> 300 - 360 in.	> 360 - 480 in.	> 480 - 600 in.	> 600 - 720 in.	> 720 - 840 in.	> 840 - 960 in.	> 960 - 1000 in.	> 1000 in.	Total
12:00 AM	0	0	0	6	2	0	0	0	0	0	0	0	0	8
1:00	0	0	0	9	0	0	1	0	0	0	0	0	0	10
2:00	0	0	0	9	0	0	1	0	0	0	0	0	0	10
3:00	0	0	3	8	0	0	1	0	0	0	0	0	0	12
4:00	0	0	4	21	8	0	0	0	0	0	0	0	0	33
5:00	0	1	6	112	24	2	2	0	1	0	0	0	0	148
6:00	0	2	10	254	49	10	2	3	0	1	0	0	0	331
7:00	0	1	34	438	99	6	4	9	0	0	0	0	0	591
8:00	1	3	17	340	95	9	8	10	1	0	0	0	0	484
9:00	1	1	18	239	72	7	7	5	1	1	1	0	0	353
10:00	0	0	11	273	43	6	6	1	0	0	0	0	0	340
11:00	0	6	13	243	60	14	9	4	1	1	0	0	0	351
12:00 PM	0	4	9	285	58	12	2	3	2	2	1	0	0	378
1:00	0	3	12	286	56	13	5	5	0	1	1	0	0	382
2:00	0	2	7	287	59	4	6	3	1	0	0	0	0	369
3:00	0	5	16	371	93	17	3	14	3	1	0	0	0	523
4:00	0	7	23	374	93	5	4	4	1	0	0	0	0	511
5:00	0	5	12	324	65	1	2	1	0	0	0	0	0	410
6:00	0	4	13	244	56	1	3	0	0	1	0	0	0	322
7:00	0	1	6	154	26	2	0	0	0	0	0	0	0	189
8:00	0	0	3	102	17	0	0	0	0	0	0	0	0	122
9:00	0	1	1	70	8	3	0	0	0	0	0	0	0	83
10:00	0	0	1	34	8	0	0	0	0	0	0	0	0	43
11:00	0	0	5	24	0	0	0	0	0	0	0	0	0	29
Total	2	46	224	4507	991	112	66	62	11	8	3	0	0	6032

Accurate Counts
978-664-2565

Location : Epping Road (Route 27) 134600A1
Location : South of Meeting Place Drive
City/State: Exeter, NH
Direction: NB

4/12/2023 Time	0 - 72 in.	> 72 - 120 in.	> 120 - 180 in.	> 180 - 240 in.	> 240 - 300 in.	> 300 - 360 in.	> 360 - 480 in.	> 480 - 600 in.	> 600 - 720 in.	> 720 - 840 in.	> 840 - 960 in.	> 960 - 1000 in.	> 1000 in.	Total
12:00 AM	0	0	1	8	0	0	0	0	0	0	0	0	0	9
1:00	0	0	1	4	0	0	0	0	0	0	0	0	0	5
2:00	0	0	0	6	0	0	1	0	0	0	0	0	0	7
3:00	0	0	1	12	1	0	0	0	0	0	0	0	0	14
4:00	0	1	3	22	4	0	0	1	0	0	0	0	0	31
5:00	0	0	6	111	27	3	1	1	0	0	0	0	0	149
6:00	0	6	18	256	49	6	6	2	0	0	0	0	1	344
7:00	1	0	37	432	69	12	12	5	1	0	0	0	0	569
8:00	0	1	13	323	85	15	7	9	2	0	0	0	0	455
9:00	0	1	13	258	60	14	7	4	1	0	0	0	0	358
10:00	0	1	10	245	62	9	12	1	1	0	0	0	0	341
11:00	0	2	13	280	66	11	5	4	0	0	1	0	0	382
12:00 PM	0	3	11	275	57	12	10	2	1	0	0	0	0	371
1:00	0	3	15	274	72	12	11	3	0	0	0	0	0	390
2:00	1	0	20	265	56	12	9	1	0	1	0	0	0	365
3:00	0	3	17	399	76	14	7	12	0	0	1	0	0	529
4:00	0	6	29	386	83	5	2	8	0	0	0	0	0	519
5:00	0	4	15	289	50	9	5	3	2	0	0	0	0	377
6:00	0	4	7	239	45	4	2	0	0	0	0	0	0	301
7:00	0	5	6	185	38	2	0	0	0	0	0	0	0	236
8:00	0	0	5	122	16	2	0	0	0	1	0	0	0	146
9:00	0	0	2	65	9	0	0	0	0	0	0	0	0	76
10:00	0	0	1	32	4	0	0	0	0	0	0	0	0	37
11:00	0	0	0	6	0	0	0	0	0	0	0	0	0	6
Total	2	40	244	4494	929	142	97	56	8	2	2	0	1	6017
Grand Total	4	86	468	9001	1920	254	163	118	19	10	5	0	1	12049

Accurate Counts
978-664-2565

Location : Epping Road (Route 27) 134600A1
Location : South of Meeting Place Drive
City/State: Exeter, NH
Direction: SB

4/11/2023 Time	0 - 72 in.	> 72 - 120 in.	> 120 - 180 in.	> 180 - 240 in.	> 240 - 300 in.	> 300 - 360 in.	> 360 - 480 in.	> 480 - 600 in.	> 600 - 720 in.	> 720 - 840 in.	> 840 - 960 in.	> 960 - 1000 in.	> 1000 in.	Total
12:00 AM	0	0	0	9	9	0	0	0	0	0	0	0	0	18
1:00	0	0	1	7	7	0	0	0	0	0	0	0	0	15
2:00	0	0	0	6	2	1	0	0	0	0	0	0	0	9
3:00	0	0	0	3	3	1	1	0	0	0	0	0	0	8
4:00	0	0	0	8	5	2	0	0	0	0	0	0	0	15
5:00	0	0	0	22	30	2	1	0	0	0	0	0	0	55
6:00	0	1	5	81	73	10	3	15	1	1	0	0	0	190
7:00	1	3	15	201	150	10	5	17	0	0	0	0	0	402
8:00	1	5	12	185	157	15	8	5	1	0	1	0	0	390
9:00	0	3	5	159	124	8	7	3	0	0	0	0	0	309
10:00	0	1	0	157	87	9	14	5	1	0	1	0	0	275
11:00	0	3	5	232	80	8	9	2	0	0	0	0	0	339
12:00 PM	0	5	5	255	83	6	12	9	0	1	1	0	0	377
1:00	0	6	7	214	75	9	4	6	0	0	0	0	0	321
2:00	0	8	7	277	101	10	5	11	1	0	0	0	0	420
3:00	0	7	17	341	134	11	2	0	0	1	0	0	0	513
4:00	0	11	14	376	127	12	6	3	0	0	0	1	0	550
5:00	0	2	9	374	149	10	2	1	0	0	0	0	0	547
6:00	1	3	4	295	119	5	0	0	1	0	0	0	0	428
7:00	0	5	6	124	66	3	0	0	0	0	0	0	0	204
8:00	0	1	2	103	59	6	0	0	0	0	0	0	0	171
9:00	0	0	1	64	51	1	0	0	0	0	0	0	0	117
10:00	0	0	0	28	15	1	0	0	0	0	0	0	0	44
11:00	0	0	0	14	11	0	0	0	0	0	0	0	0	25
Total	3	64	115	3535	1717	140	79	77	5	3	3	1	0	5742

Accurate Counts
978-664-2565

Location : Epping Road (Route 27) 134600A1
Location : South of Meeting Place Drive
City/State: Exeter, NH
Direction: SB

4/12/2023 Time	0 - 72 in.	> 72 - 120 in.	> 120 - 180 in.	> 180 - 240 in.	> 240 - 300 in.	> 300 - 360 in.	> 360 - 480 in.	> 480 - 600 in.	> 600 - 720 in.	> 720 - 840 in.	> 840 - 960 in.	> 960 - 1000 in.	> 1000 in.	Total
12:00 AM	0	0	1	7	13	1	0	0	0	0	0	0	0	22
1:00	0	0	0	5	2	0	0	0	0	0	0	0	0	7
2:00	0	0	0	5	4	0	0	0	0	0	0	0	0	9
3:00	0	0	0	5	1	0	1	0	0	0	0	0	0	7
4:00	0	0	0	10	9	0	1	0	0	0	0	0	0	20
5:00	0	0	0	27	34	0	1	0	0	0	0	0	0	62
6:00	0	1	3	94	56	9	6	15	1	1	0	0	0	186
7:00	1	2	14	233	124	12	8	11	1	1	0	0	0	407
8:00	0	6	6	196	124	22	11	4	1	1	0	0	0	371
9:00	0	1	6	151	116	19	7	4	0	0	0	0	0	304
10:00	0	2	2	155	90	12	11	3	1	2	0	0	0	278
11:00	0	4	4	238	122	6	9	1	1	0	0	0	0	385
12:00 PM	0	1	9	248	112	14	8	3	0	0	0	0	0	395
1:00	0	6	2	237	100	10	6	7	0	2	0	0	0	370
2:00	0	4	10	294	125	14	7	9	0	1	0	0	0	464
3:00	0	7	14	340	115	11	3	5	0	0	0	0	0	495
4:00	0	8	21	384	129	13	4	1	0	0	0	0	0	560
5:00	0	10	7	373	125	5	4	0	0	0	1	0	0	525
6:00	0	4	9	278	67	4	0	1	0	0	0	0	0	363
7:00	0	2	0	170	67	1	0	0	0	1	0	0	0	241
8:00	0	0	3	130	50	2	0	1	0	0	0	0	0	186
9:00	0	0	2	75	29	1	0	0	0	0	0	0	0	107
10:00	0	0	0	37	26	0	0	0	0	0	0	0	0	63
11:00	0	0	0	4	1	0	0	0	0	0	0	0	0	5
Total	1	58	113	3696	1641	156	87	65	5	9	1	0	0	5832
Grand Total	4	122	228	7231	3358	296	166	142	10	12	4	1	0	11574

Accurate Counts
978-664-2565

Location : Epping Road (Route 27) 134600A1
Location : South of Meeting Place Drive
City/State: Exeter, NH
Direction: Combined

4/11/2023 Time	0 - 72 in.	> 72 - 120 in.	> 120 - 180 in.	> 180 - 240 in.	> 240 - 300 in.	> 300 - 360 in.	> 360 - 480 in.	> 480 - 600 in.	> 600 - 720 in.	> 720 - 840 in.	> 840 - 960 in.	> 960 - 1000 in.	> 1000 in.	Total
12:00 AM	0	0	0	15	11	0	0	0	0	0	0	0	0	26
1:00	0	0	1	16	7	0	1	0	0	0	0	0	0	25
2:00	0	0	0	15	2	1	1	0	0	0	0	0	0	19
3:00	0	0	3	11	3	1	2	0	0	0	0	0	0	20
4:00	0	0	4	29	13	2	0	0	0	0	0	0	0	48
5:00	0	1	6	134	54	4	3	0	1	0	0	0	0	203
6:00	0	3	15	335	122	20	5	18	1	2	0	0	0	521
7:00	1	4	49	639	249	16	9	26	0	0	0	0	0	993
8:00	2	8	29	525	252	24	16	15	2	0	1	0	0	874
9:00	1	4	23	398	196	15	14	8	1	1	1	0	0	662
10:00	0	1	11	430	130	15	20	6	1	0	1	0	0	615
11:00	0	9	18	475	140	22	18	6	1	1	0	0	0	690
12:00 PM	0	9	14	540	141	18	14	12	2	3	2	0	0	755
1:00	0	9	19	500	131	22	9	11	0	1	1	0	0	703
2:00	0	10	14	564	160	14	11	14	2	0	0	0	0	789
3:00	0	12	33	712	227	28	5	14	3	2	0	0	0	1036
4:00	0	18	37	750	220	17	10	7	1	0	0	1	0	1061
5:00	0	7	21	698	214	11	4	2	0	0	0	0	0	957
6:00	1	7	17	539	175	6	3	0	1	1	0	0	0	750
7:00	0	6	12	278	92	5	0	0	0	0	0	0	0	393
8:00	0	1	5	205	76	6	0	0	0	0	0	0	0	293
9:00	0	1	2	134	59	4	0	0	0	0	0	0	0	200
10:00	0	0	1	62	23	1	0	0	0	0	0	0	0	87
11:00	0	0	5	38	11	0	0	0	0	0	0	0	0	54
Total	5	110	339	8042	2708	252	145	139	16	11	6	1	0	11774

Accurate Counts
978-664-2565

Location : Epping Road (Route 27) 134600A1
Location : South of Meeting Place Drive
City/State: Exeter, NH
Direction: Combined

4/12/2023 Time	0 - 72 in.	> 72 - 120 in.	> 120 - 180 in.	> 180 - 240 in.	> 240 - 300 in.	> 300 - 360 in.	> 360 - 480 in.	> 480 - 600 in.	> 600 - 720 in.	> 720 - 840 in.	> 840 - 960 in.	> 960 - 1000 in.	> 1000 in.	Total
12:00 AM	0	0	2	15	13	1	0	0	0	0	0	0	0	31
1:00	0	0	1	9	2	0	0	0	0	0	0	0	0	12
2:00	0	0	0	11	4	0	1	0	0	0	0	0	0	16
3:00	0	0	1	17	2	0	1	0	0	0	0	0	0	21
4:00	0	1	3	32	13	0	1	1	0	0	0	0	0	51
5:00	0	0	6	138	61	3	2	1	0	0	0	0	0	211
6:00	0	7	21	350	105	15	12	17	1	1	0	0	1	530
7:00	2	2	51	665	193	24	20	16	2	1	0	0	0	976
8:00	0	7	19	519	209	37	18	13	3	1	0	0	0	826
9:00	0	2	19	409	176	33	14	8	1	0	0	0	0	662
10:00	0	3	12	400	152	21	23	4	2	2	0	0	0	619
11:00	0	6	17	518	188	17	14	5	1	0	1	0	0	767
12:00 PM	0	4	20	523	169	26	18	5	1	0	0	0	0	766
1:00	0	9	17	511	172	22	17	10	0	2	0	0	0	760
2:00	1	4	30	559	181	26	16	10	0	2	0	0	0	829
3:00	0	10	31	739	191	25	10	17	0	0	1	0	0	1024
4:00	0	14	50	770	212	18	6	9	0	0	0	0	0	1079
5:00	0	14	22	662	175	14	9	3	2	0	1	0	0	902
6:00	0	8	16	517	112	8	2	1	0	0	0	0	0	664
7:00	0	7	6	355	105	3	0	0	0	1	0	0	0	477
8:00	0	0	8	252	66	4	0	1	0	1	0	0	0	332
9:00	0	0	4	140	38	1	0	0	0	0	0	0	0	183
10:00	0	0	1	69	30	0	0	0	0	0	0	0	0	100
11:00	0	0	0	10	1	0	0	0	0	0	0	0	0	11
Total	3	98	357	8190	2570	298	184	121	13	11	3	0	1	11849
Grand Total	8	208	696	16232	5278	550	329	260	29	22	9	1	1	23623

Accurate Counts
978-664-2565

Location : Epping Road (Route 27) 134600A1
Location : South of Meeting Place Drive
City/State: Exeter, NH
Direction: NB

4/11/2023 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	1	1	3	0	2	1	0	0	0	0	0	0	8
1:00	0	0	2	2	5	1	0	0	0	0	0	0	0	10
2:00	0	0	2	4	4	0	0	0	0	0	0	0	0	10
3:00	0	0	2	7	3	0	0	0	0	0	0	0	0	12
4:00	0	0	4	11	17	1	0	0	0	0	0	0	0	33
5:00	1	1	5	59	68	13	1	0	0	0	0	0	0	148
6:00	3	1	23	110	154	37	3	0	0	0	0	0	0	331
7:00	0	0	26	238	265	60	2	0	0	0	0	0	0	591
8:00	0	0	22	213	204	43	2	0	0	0	0	0	0	484
9:00	0	4	29	137	138	41	4	0	0	0	0	0	0	353
10:00	0	5	10	138	156	31	0	0	0	0	0	0	0	340
11:00	0	0	12	152	154	29	4	0	0	0	0	0	0	351
12:00 PM	0	1	9	161	181	24	2	0	0	0	0	0	0	378
1:00	0	4	16	142	175	42	3	0	0	0	0	0	0	382
2:00	0	6	13	148	161	39	2	0	0	0	0	0	0	369
3:00	5	8	27	217	222	39	4	1	0	0	0	0	0	523
4:00	0	0	25	161	268	51	6	0	0	0	0	0	0	511
5:00	0	0	5	138	222	40	5	0	0	0	0	0	0	410
6:00	1	0	16	113	154	36	2	0	0	0	0	0	0	322
7:00	0	0	6	71	96	16	0	0	0	0	0	0	0	189
8:00	0	0	12	48	50	10	2	0	0	0	0	0	0	122
9:00	0	0	9	37	32	5	0	0	0	0	0	0	0	83
10:00	0	0	1	26	14	2	0	0	0	0	0	0	0	43
11:00	0	0	7	11	6	5	0	0	0	0	0	0	0	29
Total	10	31	284	2347	2749	567	43	1	0	0	0	0	0	6032

Percentile	15th	50th	85th	95th
Speed	27	30	34	37

Mean Speed (Average)	30.6
10 MPH Pace Speed	25-34
Number in Pace	5047
Percent in Pace	83.7%
Number > 35 MPH	611
Percent > 35 MPH	10.1%

Accurate Counts
978-664-2565

Location : Epping Road (Route 27) 134600A1
Location : South of Meeting Place Drive
City/State: Exeter, NH
Direction: NB

4/12/2023 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	3	6	0	0	0	0	0	0	0	0	9
1:00	0	0	0	2	3	0	0	0	0	0	0	0	0	5
2:00	0	0	1	4	2	0	0	0	0	0	0	0	0	7
3:00	0	1	2	7	4	0	0	0	0	0	0	0	0	14
4:00	1	0	3	15	8	4	0	0	0	0	0	0	0	31
5:00	0	0	5	51	73	19	1	0	0	0	0	0	0	149
6:00	7	4	40	101	151	39	2	0	0	0	0	0	0	344
7:00	0	0	19	229	273	44	4	0	0	0	0	0	0	569
8:00	1	0	30	177	203	43	1	0	0	0	0	0	0	455
9:00	0	0	18	114	177	43	4	2	0	0	0	0	0	358
10:00	0	0	19	150	144	26	2	0	0	0	0	0	0	341
11:00	0	1	20	142	182	33	4	0	0	0	0	0	0	382
12:00 PM	0	0	22	137	179	32	1	0	0	0	0	0	0	371
1:00	0	0	19	163	174	33	1	0	0	0	0	0	0	390
2:00	0	3	19	149	166	23	4	1	0	0	0	0	0	365
3:00	0	0	46	235	212	34	2	0	0	0	0	0	0	529
4:00	0	0	33	178	252	55	1	0	0	0	0	0	0	519
5:00	1	2	20	100	183	66	5	0	0	0	0	0	0	377
6:00	0	0	1	85	165	47	1	2	0	0	0	0	0	301
7:00	0	0	4	93	117	20	2	0	0	0	0	0	0	236
8:00	0	0	17	73	51	4	1	0	0	0	0	0	0	146
9:00	0	0	8	32	28	7	1	0	0	0	0	0	0	76
10:00	0	0	1	18	16	2	0	0	0	0	0	0	0	37
11:00	0	0	2	3	0	1	0	0	0	0	0	0	0	6
Total	10	11	349	2261	2769	575	37	5	0	0	0	0	0	6017
			Percentile	15th	50th	85th	95th							
			Speed	27	30	34	37							
			Mean Speed (Average)	30.6										
			10 MPH Pace Speed	25-34										
			Number in Pace	4982										
			Percent in Pace	82.8%										
			Number > 35 MPH	617										
			Percent > 35 MPH	10.3%										
Grand Total	20	42	633	4608	5518	1142	80	6	0	0	0	0	0	12049
			Percentile	15th	50th	85th	95th							
			Speed	27	30	34	37							
			Mean Speed (Average)	30.6										
			10 MPH Pace Speed	25-34										
			Number in Pace	10028										
			Percent in Pace	83.2%										
			Number > 35 MPH	1228										
			Percent > 35 MPH	10.2%										

Accurate Counts
978-664-2565

Location : Epping Road (Route 27) 134600A1
Location : South of Meeting Place Drive
City/State: Exeter, NH
Direction: SB

4/11/2023 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	4	9	5	0	0	0	0	0	0	0	18
1:00	0	2	2	1	4	6	0	0	0	0	0	0	0	15
2:00	0	0	0	1	3	4	1	0	0	0	0	0	0	9
3:00	0	0	0	1	2	5	0	0	0	0	0	0	0	8
4:00	0	0	0	3	5	4	3	0	0	0	0	0	0	15
5:00	0	0	2	2	28	21	2	0	0	0	0	0	0	55
6:00	9	10	15	21	73	53	7	2	0	0	0	0	0	190
7:00	18	3	10	71	190	104	6	0	0	0	0	0	0	402
8:00	29	20	9	55	180	90	7	0	0	0	0	0	0	390
9:00	6	4	7	21	156	104	9	2	0	0	0	0	0	309
10:00	0	1	4	43	148	65	12	2	0	0	0	0	0	275
11:00	3	1	1	39	171	112	11	1	0	0	0	0	0	339
12:00 PM	5	7	7	59	190	96	11	1	0	1	0	0	0	377
1:00	2	3	6	50	165	91	4	0	0	0	0	0	0	321
2:00	5	10	5	57	214	118	8	3	0	0	0	0	0	420
3:00	18	12	10	70	268	118	17	0	0	0	0	0	0	513
4:00	34	9	14	61	289	125	18	0	0	0	0	0	0	550
5:00	7	0	6	59	284	173	15	3	0	0	0	0	0	547
6:00	1	0	1	50	237	127	12	0	0	0	0	0	0	428
7:00	1	0	1	20	107	67	7	1	0	0	0	0	0	204
8:00	0	0	1	19	89	50	11	1	0	0	0	0	0	171
9:00	0	0	0	8	53	46	10	0	0	0	0	0	0	117
10:00	0	0	0	7	15	20	2	0	0	0	0	0	0	44
11:00	0	0	0	1	9	10	5	0	0	0	0	0	0	25
Total	138	82	101	723	2889	1614	178	16	0	1	0	0	0	5742

Percentile	15th	50th	85th	95th
Speed	30	34	37	39

Mean Speed (Average)	32.7
10 MPH Pace Speed	30-39
Number in Pace	4485
Percent in Pace	78.1%
Number > 35 MPH	1809
Percent > 35 MPH	31.5%

Location : Epping Road (Route 27) 134600A1
Location : South of Meeting Place Drive
City/State: Exeter, NH
Direction: SB

4/12/2023 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	1	0	4	5	5	6	1	0	0	0	0	0	0	22
1:00	0	0	0	0	2	3	2	0	0	0	0	0	0	7
2:00	0	0	0	1	3	2	2	1	0	0	0	0	0	9
3:00	0	0	0	1	5	1	0	0	0	0	0	0	0	7
4:00	0	0	0	4	7	7	2	0	0	0	0	0	0	20
5:00	0	0	1	6	31	20	4	0	0	0	0	0	0	62
6:00	6	9	12	26	54	66	13	0	0	0	0	0	0	186
7:00	23	12	2	52	190	113	15	0	0	0	0	0	0	407
8:00	24	10	10	55	171	87	12	2	0	0	0	0	0	371
9:00	8	3	1	46	149	83	14	0	0	0	0	0	0	304
10:00	0	1	1	45	150	70	9	1	0	0	1	0	0	278
11:00	3	0	7	54	189	115	17	0	0	0	0	0	0	385
12:00 PM	8	1	2	49	210	109	15	1	0	0	0	0	0	395
1:00	6	1	1	50	195	102	14	1	0	0	0	0	0	370
2:00	14	20	8	69	217	121	14	0	1	0	0	0	0	464
3:00	12	8	7	73	228	144	22	1	0	0	0	0	0	495
4:00	28	21	15	107	254	121	14	0	0	0	0	0	0	560
5:00	4	2	9	54	257	183	16	0	0	0	0	0	0	525
6:00	0	0	1	26	178	142	16	0	0	0	0	0	0	363
7:00	0	0	0	46	111	74	9	1	0	0	0	0	0	241
8:00	1	0	1	37	93	51	3	0	0	0	0	0	0	186
9:00	0	0	0	10	64	30	3	0	0	0	0	0	0	107
10:00	0	0	0	6	41	12	3	1	0	0	0	0	0	63
11:00	0	0	0	0	4	0	1	0	0	0	0	0	0	5
Total	138	88	82	822	2808	1662	221	9	1	0	1	0	0	5832
			Percentile	15th	50th	85th	95th							
			Speed	29	34	37	39							
			Mean Speed (Average)	32.7										
			10 MPH Pace Speed	30-39										
			Number in Pace	4453										
			Percent in Pace	76.4%										
			Number > 35 MPH	1894										
			Percent > 35 MPH	32.5%										
Grand Total	276	170	183	1545	5697	3276	399	25	1	1	1	0	0	11574
			Percentile	15th	50th	85th	95th							
			Speed	29	34	37	39							
			Mean Speed (Average)	32.7										
			10 MPH Pace Speed	30-39										
			Number in Pace	8938										
			Percent in Pace	77.2%										
			Number > 35 MPH	3703										
			Percent > 35 MPH	32.0%										

Accurate Counts
978-664-2565

Location : Epping Road (Route 27) 134600A1
Location : South of Meeting Place Drive
City/State: Exeter, NH
Direction: Combined

4/11/2023 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	1	1	7	9	7	1	0	0	0	0	0	0	26
1:00	0	2	4	3	9	7	0	0	0	0	0	0	0	25
2:00	0	0	2	5	7	4	1	0	0	0	0	0	0	19
3:00	0	0	2	8	5	5	0	0	0	0	0	0	0	20
4:00	0	0	4	14	22	5	3	0	0	0	0	0	0	48
5:00	1	1	7	61	96	34	3	0	0	0	0	0	0	203
6:00	12	11	38	131	227	90	10	2	0	0	0	0	0	521
7:00	18	3	36	309	455	164	8	0	0	0	0	0	0	993
8:00	29	20	31	268	384	133	9	0	0	0	0	0	0	874
9:00	6	8	36	158	294	145	13	2	0	0	0	0	0	662
10:00	0	6	14	181	304	96	12	2	0	0	0	0	0	615
11:00	3	1	13	191	325	141	15	1	0	0	0	0	0	690
12:00 PM	5	8	16	220	371	120	13	1	0	1	0	0	0	755
1:00	2	7	22	192	340	133	7	0	0	0	0	0	0	703
2:00	5	16	18	205	375	157	10	3	0	0	0	0	0	789
3:00	23	20	37	287	490	157	21	1	0	0	0	0	0	1036
4:00	34	9	39	222	557	176	24	0	0	0	0	0	0	1061
5:00	7	0	11	197	506	213	20	3	0	0	0	0	0	957
6:00	2	0	17	163	391	163	14	0	0	0	0	0	0	750
7:00	1	0	7	91	203	83	7	1	0	0	0	0	0	393
8:00	0	0	13	67	139	60	13	1	0	0	0	0	0	293
9:00	0	0	9	45	85	51	10	0	0	0	0	0	0	200
10:00	0	0	1	33	29	22	2	0	0	0	0	0	0	87
11:00	0	0	7	12	15	15	5	0	0	0	0	0	0	54
Total	148	113	385	3070	5638	2181	221	17	0	1	0	0	0	11774

Percentile	15th	50th	85th	95th
Speed	28	32	36	38

Mean Speed (Average)	31.6
10 MPH Pace Speed	25-34
Number in Pace	8603
Percent in Pace	73.1%
Number > 35 MPH	2420
Percent > 35 MPH	20.6%

Accurate Counts
978-664-2565

Location : Epping Road (Route 27) 134600A1
Location : South of Meeting Place Drive
City/State: Exeter, NH
Direction: Combined

4/12/2023 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	1	0	4	8	11	6	1	0	0	0	0	0	0	31
1:00	0	0	0	2	5	3	2	0	0	0	0	0	0	12
2:00	0	0	1	5	5	2	2	1	0	0	0	0	0	16
3:00	0	1	2	8	9	1	0	0	0	0	0	0	0	21
4:00	1	0	3	19	15	11	2	0	0	0	0	0	0	51
5:00	0	0	6	57	104	39	5	0	0	0	0	0	0	211
6:00	13	13	52	127	205	105	15	0	0	0	0	0	0	530
7:00	23	12	21	281	463	157	19	0	0	0	0	0	0	976
8:00	25	10	40	232	374	130	13	2	0	0	0	0	0	826
9:00	8	3	19	160	326	126	18	2	0	0	0	0	0	662
10:00	0	1	20	195	294	96	11	1	0	0	1	0	0	619
11:00	3	1	27	196	371	148	21	0	0	0	0	0	0	767
12:00 PM	8	1	24	186	389	141	16	1	0	0	0	0	0	766
1:00	6	1	20	213	369	135	15	1	0	0	0	0	0	760
2:00	14	23	27	218	383	144	18	1	1	0	0	0	0	829
3:00	12	8	53	308	440	178	24	1	0	0	0	0	0	1024
4:00	28	21	48	285	506	176	15	0	0	0	0	0	0	1079
5:00	5	4	29	154	440	249	21	0	0	0	0	0	0	902
6:00	0	0	2	111	343	189	17	2	0	0	0	0	0	664
7:00	0	0	4	139	228	94	11	1	0	0	0	0	0	477
8:00	1	0	18	110	144	55	4	0	0	0	0	0	0	332
9:00	0	0	8	42	92	37	4	0	0	0	0	0	0	183
10:00	0	0	1	24	57	14	3	1	0	0	0	0	0	100
11:00	0	0	2	3	4	1	1	0	0	0	0	0	0	11
Total	148	99	431	3083	5577	2237	258	14	1	0	1	0	0	11849
			Percentile	15th	50th	85th	95th							
			Speed	28	32	36	38							
			Mean Speed (Average)	31.6										
			10 MPH Pace Speed	25-34										
			Number in Pace	8557										
			Percent in Pace	72.2%										
			Number > 35 MPH	2511										
			Percent > 35 MPH	21.2%										
Grand Total	296	212	816	6153	11215	4418	479	31	1	1	1	0	0	23623
			Percentile	15th	50th	85th	95th							
			Speed	28	32	36	38							
			Mean Speed (Average)	31.6										
			10 MPH Pace Speed	25-34										
			Number in Pace	17160										
			Percent in Pace	72.6%										
			Number > 35 MPH	4931										
			Percent > 35 MPH	20.9%										

Accurate Counts
978-664-2565

Location : Epping Road (Route 27) 134600A1
Location : South of Meeting Place Drive
City/State: Exeter, NH

4/11/2023	NB		Hour Totals		SB		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	1	102			6	95				
12:15	3	91			4	92				
12:30	1	103			5	101				
12:45	3	82	8	378	3	89	18	377	26	755
1:00	3	84			4	72				
1:15	3	105			0	63				
1:30	1	80			11	79				
1:45	3	113	10	382	0	107	15	321	25	703
2:00	3	107			1	96				
2:15	1	90			3	86				
2:30	4	103			1	119				
2:45	2	69	10	369	4	119	9	420	19	789
3:00	0	130			1	118				
3:15	5	114			2	96				
3:30	5	139			2	160				
3:45	2	140	12	523	3	139	8	513	20	1036
4:00	2	154			0	103				
4:15	3	103			3	150				
4:30	8	130			2	146				
4:45	20	124	33	511	10	151	15	550	48	1061
5:00	24	119			8	136				
5:15	31	87			7	147				
5:30	39	111			15	132				
5:45	54	93	148	410	25	132	55	547	203	957
6:00	55	83			34	132				
6:15	64	101			48	117				
6:30	93	67			42	90				
6:45	119	71	331	322	66	89	190	428	521	750
7:00	195	68			64	54				
7:15	146	46			104	56				
7:30	131	33			114	42				
7:45	119	42	591	189	120	52	402	204	993	393
8:00	124	38			121	59				
8:15	162	31			96	45				
8:30	103	30			95	39				
8:45	95	23	484	122	78	28	390	171	874	293
9:00	104	26			85	33				
9:15	132	24			89	32				
9:30	60	20			70	20				
9:45	57	13	353	83	65	32	309	117	662	200
10:00	78	13			61	16				
10:15	90	13			76	12				
10:30	87	13			81	11				
10:45	85	4	340	43	57	5	275	44	615	87
11:00	91	6			71	9				
11:15	83	14			98	7				
11:30	75	6			89	4				
11:45	102	3	351	29	81	5	339	25	690	54
Total	2671	3361			2025	3717			4696	7078
Percent	44.3%	55.7%			35.3%	64.7%			39.9%	60.1%

Accurate Counts
978-664-2565

Location : Epping Road (Route 27) 134600A1
Location : South of Meeting Place Drive
City/State: Exeter, NH

4/12/2023	NB		Hour Totals		SB		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	5	100			6	106				
12:15	1	78			7	89				
12:30	2	98			7	111				
12:45	1	95	9	371	2	89	22	395	31	766
1:00	4	89			4	86				
1:15	0	104			1	92				
1:30	0	85			0	90				
1:45	1	112	5	390	2	102	7	370	12	760
2:00	1	102			1	88				
2:15	1	93			1	92				
2:30	3	69			4	130				
2:45	2	101	7	365	3	154	9	464	16	829
3:00	3	114			6	110				
3:15	2	136			1	103				
3:30	3	150			0	141				
3:45	6	129	14	529	0	141	7	495	21	1024
4:00	4	142			1	133				
4:15	4	132			4	118				
4:30	9	132			4	155				
4:45	14	113	31	519	11	154	20	560	51	1079
5:00	27	110			11	143				
5:15	33	91			9	157				
5:30	33	87			14	107				
5:45	56	89	149	377	28	118	62	525	211	902
6:00	51	81			28	109				
6:15	65	79			47	81				
6:30	76	71			58	103				
6:45	152	70	344	301	53	70	186	363	530	664
7:00	181	62			64	66				
7:15	126	61			117	60				
7:30	126	56			120	64				
7:45	136	57	569	236	106	51	407	241	976	477
8:00	91	55			111	68				
8:15	133	46			88	41				
8:30	108	28			85	43				
8:45	123	17	455	146	87	34	371	186	826	332
9:00	101	21			80	21				
9:15	126	26			92	29				
9:30	74	13			70	27				
9:45	57	16	358	76	62	30	304	107	662	183
10:00	79	9			49	18				
10:15	98	11			74	21				
10:30	84	11			77	17				
10:45	80	6	341	37	78	7	278	63	619	100
11:00	100	6			89	5				
11:15	106	13			88	4				
11:30	82	3			113	7				
11:45	94	3	382	25	95	5	385	21	767	46
Total	2664	3372			2058	3790			4722	7162
Percent	44.1%	55.9%			35.2%	64.8%			39.7%	60.3%
Grand Total	5335	6733			4083	7507			9418	14240
Percent	44.2%	55.8%			35.2%	64.8%			39.8%	60.2%
ADT		ADT: 11,829		AADT: 11,829						

Accurate Counts
978-664-2565

Location : Epping Road (Route 27) 134600A1
Location : South of Meeting Place Drive
City/State: Exeter, NH

4/10/2023	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday		Week Average	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	8	18	9	22	*	*	*	*	*	*	*	*	8	20
1:00	*	*	10	15	5	7	*	*	*	*	*	*	*	*	8	11
2:00	*	*	10	9	7	9	*	*	*	*	*	*	*	*	8	9
3:00	*	*	12	8	14	7	*	*	*	*	*	*	*	*	13	8
4:00	*	*	33	15	31	20	*	*	*	*	*	*	*	*	32	18
5:00	*	*	148	55	149	62	*	*	*	*	*	*	*	*	148	58
6:00	*	*	331	190	344	186	*	*	*	*	*	*	*	*	338	188
7:00	*	*	591	402	569	407	*	*	*	*	*	*	*	*	580	404
8:00	*	*	484	390	455	371	*	*	*	*	*	*	*	*	470	380
9:00	*	*	353	309	358	304	*	*	*	*	*	*	*	*	356	306
10:00	*	*	340	275	341	278	*	*	*	*	*	*	*	*	340	276
11:00	*	*	351	339	382	385	*	*	*	*	*	*	*	*	366	362
12:00 PM	*	*	378	377	371	395	*	*	*	*	*	*	*	*	374	386
1:00	*	*	382	321	390	370	*	*	*	*	*	*	*	*	386	346
2:00	*	*	369	420	365	464	*	*	*	*	*	*	*	*	367	442
3:00	*	*	523	513	529	495	*	*	*	*	*	*	*	*	526	504
4:00	*	*	511	550	519	560	*	*	*	*	*	*	*	*	515	555
5:00	*	*	410	547	377	525	*	*	*	*	*	*	*	*	394	536
6:00	*	*	322	428	301	363	*	*	*	*	*	*	*	*	312	396
7:00	*	*	189	204	236	241	*	*	*	*	*	*	*	*	212	222
8:00	*	*	122	171	146	186	*	*	*	*	*	*	*	*	134	178
9:00	*	*	83	117	76	107	*	*	*	*	*	*	*	*	80	112
10:00	*	*	43	44	37	63	*	*	*	*	*	*	*	*	40	54
11:00	*	*	29	25	6	5	*	*	*	*	*	*	*	*	18	15
Total	0	0	6032	5742	6017	5832	0	0	0	0	0	0	0	0	6025	5786
Day	0		11774		11849		0		0		0		0		11811	
AM Peak			7:00	7:00	7:00	7:00									7:00	7:00
Volume			591	402	569	407									580	404
PM Peak			3:00	4:00	3:00	4:00									3:00	4:00
Volume			523	550	529	560									526	555
Comb Total	0		11774		11849		0		0		0		0		11811	
ADT	ADT: 11,829		AADT: 11,829													

Attachment C

NHDOT Seasonal Adjustment Data

Year 2019 Monthly Data

Group 4 Averages: Urban Highways

Month	ADT	Adjustment to Average	Adjustment to Peak
January	11,431	1.12	1.23
February	11,848	1.08	1.18
March	12,141	1.06	1.15
April	12,860	1.00	1.09
May	13,551	0.95	1.03
June	13,785	0.93	1.02
July	13,942	0.92	1.01
August	14,016	0.92	1.00
September	13,379	0.96	1.05
October	13,339	0.96	1.05
November	12,265	1.05	1.14
December	11,496	1.12	1.22
Average ADT:	12,838		
Peak ADT:	14,016		

GROUP	COUNTER	TOWN	LOCATION
04	02051003	BOW	NH 3A south of Robinson Rd
04	02089001	CHICHESTER	NH 28 (Suncook Valley Rd) north of Bear Hill Rd
04	02091001	CLAREMONT	NH 12/103 east of Vermont SL
04	62099056	CONCORD	NH 106 (Sheep Davis Rd) at Loudon TL (north of Ashby Rd)
04	72099278	CONCORD	US 3 (Fisherville Rd) north of Sewalls Falls Rd
04	02125001	DOVER	Dover Point Rd south of Thornwood Ln
04	02133021	DURHAM	US 4 east of NH 108
04	82197076	HAMPTON	US 1 (Lafayette Rd) south of Ramp to NH 101
04	*02229022*	*HUDSON**	*Circumferential Hwy east of Nashua TL*
04	02253025	LEBANON	NH 120 1 mile south of Hanover TL (south of Lahaye Dr)
04	02255001	LEE	NH 125 (Calef Hwy) north of Pinkham Rd
04	02287001	MARLBOROUGH	NH 12 at Swanzey TL
04	02297001	MERRIMACK	US 3 (Daniel Webster Hwy) north of Hilton Dr
04	*02303001*	*MILFORD**	*NH 101A at Amherst TL (west of Overlook Dr)*
04	*02315051*	*NASHUA**	*NH 111 (Bridge / Ferry St) at Hudson TL*
04	02339001	NEWPORT	NH 10 1 mile south of Croydon TL (north of Corbin Rd)
04	02345001	NORTH HAMPTON	US 1 (Lafayette Rd) north of North Rd
04	*62387052*	*RINDGE**	*US 202 at Jaffrey TL (north of County Rd)*
04	02445001	TEMPLE	NH 101 at Wilton TL (west of Old County Farm Rd)
04	02489001	WINDHAM	NH 28 at Derry TL (north of Northland Rd)

** denotes counter that is not included in calculation*

Attachment D

Crash Data

Crash Data Summary Tables

Epping Road @ McKay Drive / Meeting Place Drive - Exeter, NH

01/01/2017 - 12/31/2022

Collision Diagram	Crash Number	Crash Date	Crash Time	Ambient Light	Weather Condition	Road Surface	Number of Vehicles	Vehicle Travel Directions				Crash Severity	Number of NonFatal Injuries	Manner of Collision	Driver Contributing Codes	Detailed Narrative (from Crash Report)
								V1	V2	V3	V4					
1	17-138-AC	7/2/2017	11:15 AM	Daylight	Clear	Other	1	W				Non-fatal Injury	2	Single Vehicle	No Improper Driving	Motorcycle dropped off of a lip in the road where construction was taking place.
2	17-229-AC	10/20/2017	7:29 PM	Dark - Lighted	Clear	Dry	2	W				Property Damage Only	0	Head-on	Other	Driving Under the Influence of Drugs, V2 was parked
3	19-92-AC	5/16/2019	2:54 PM	Daylight	Clear	Dry	2	E	E			Property Damage Only	0	Rear-end	Followed Too Closely	V1 noticed V2 had stopped but was unable to stop in time.
4	20-171-AC	10/31/2020	9:35 AM	Daylight	Clear	Dry	2	N	W			Property Damage Only	0	Angled	Failure to Yield Right-of-Way	V1 turned left from McKay Dr to Epping Rd and hit the rear bumper of V2.
5	21-89-AC	5/28/2021	3:06 PM	Daylight	Clear	Dry	2	E	E			Non-fatal Injury	1	Angled	Failure to Yield Right-of-Way	V1 turned right onto McKay Dr from Aroma Joe's and struck V2.
6	22-22-AC	1/27/2022	3:37 PM	Daylight	Clear	Dry	2	E	N			Property Damage Only	0	Angled	Failure to Yield Right-of-Way	V1 was attempting to turn right from the turning lane and struck V2 as V2 drove past.

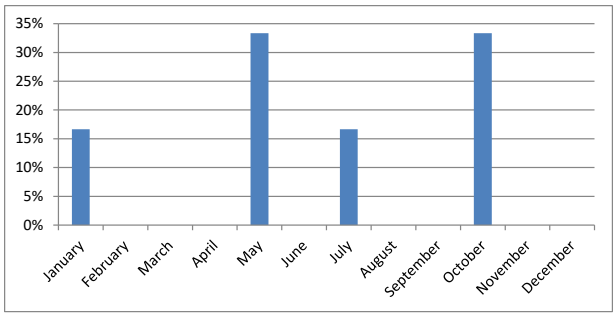
Crash Data Summary Charts

Epping Road @ McKay Drive / Meeting Place Drive - Exeter, NH

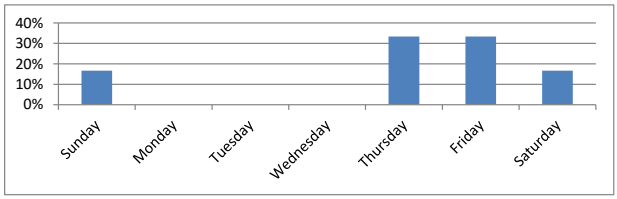
01/01/2017 - 12/31/2022

Epping Rd / McKay Dr / Meeting Place Dr *6*

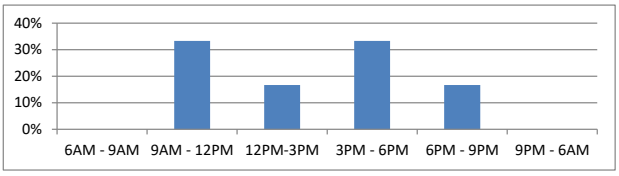
Month	#	%
January	1	17%
February	0	0%
March	0	0%
April	0	0%
May	2	33%
June	0	0%
July	1	17%
August	0	0%
September	0	0%
October	2	33%
November	0	0%
December	0	0%



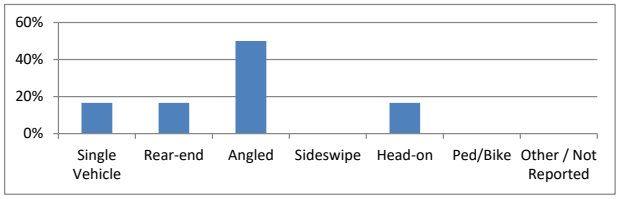
Day of Week	#	%
Sunday	1	17%
Monday	0	0%
Tuesday	0	0%
Wednesday	0	0%
Thursday	2	33%
Friday	2	33%
Saturday	1	17%



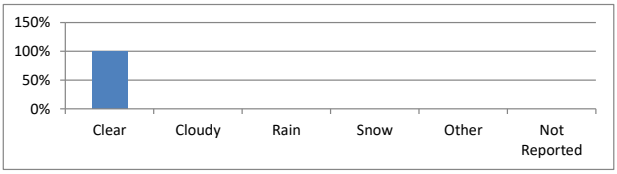
Time of Day	#	%
6AM - 9AM	0	0%
9AM - 12PM	2	33%
12PM-3PM	1	17%
3PM - 6PM	2	33%
6PM - 9PM	1	17%
9PM - 6AM	0	0%



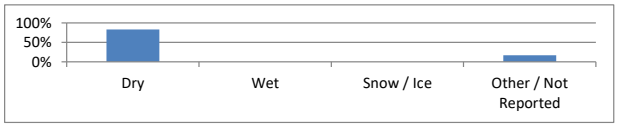
Manner of Collision	#	%
Single Vehicle	1	17%
Rear-end	1	17%
Angled	3	50%
Sideswipe	0	0%
Head-on	1	17%
Ped/Bike	0	0%
Other / Not Reported	0	0%



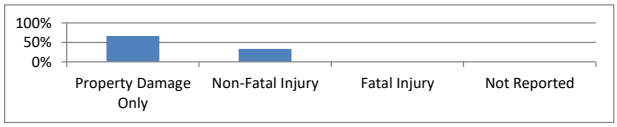
Weather Conditions	#	%
Clear	6	100%
Cloudy	0	0%
Rain	0	0%
Snow	0	0%
Other	0	0%
Not Reported	0	0%



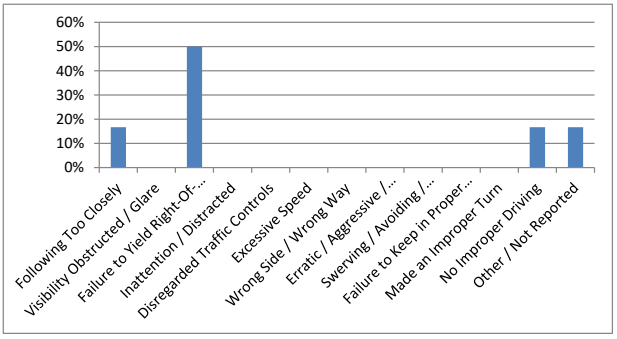
Road Surface	#	%
Dry	5	83%
Wet	0	0%
Snow / Ice	0	0%
Other / Not Reported	1	17%



Crash Severity	#	%
Property Damage Only	4	67%
Non-Fatal Injury	2	33%
Fatal Injury	0	0%
Not Reported	0	0%



Main Contributing Factor from Narrative	#	%
Following Too Closely	1	17%
Visibility Obstructed / Glare	0	0%
Failure to Yield Right-Of-Way	3	50%
Inattention / Distracted	0	0%
Disregarded Traffic Controls	0	0%
Excessive Speed	0	0%
Wrong Side / Wrong Way	0	0%
Erratic / Aggressive / Reckless Driving	0	0%
Swerving / Avoiding / Over-Steering / Over-Correcting	0	0%
Failure to Keep in Proper Lane	0	0%
Made an Improper Turn	0	0%
No Improper Driving	1	17%
Other / Not Reported	1	17%

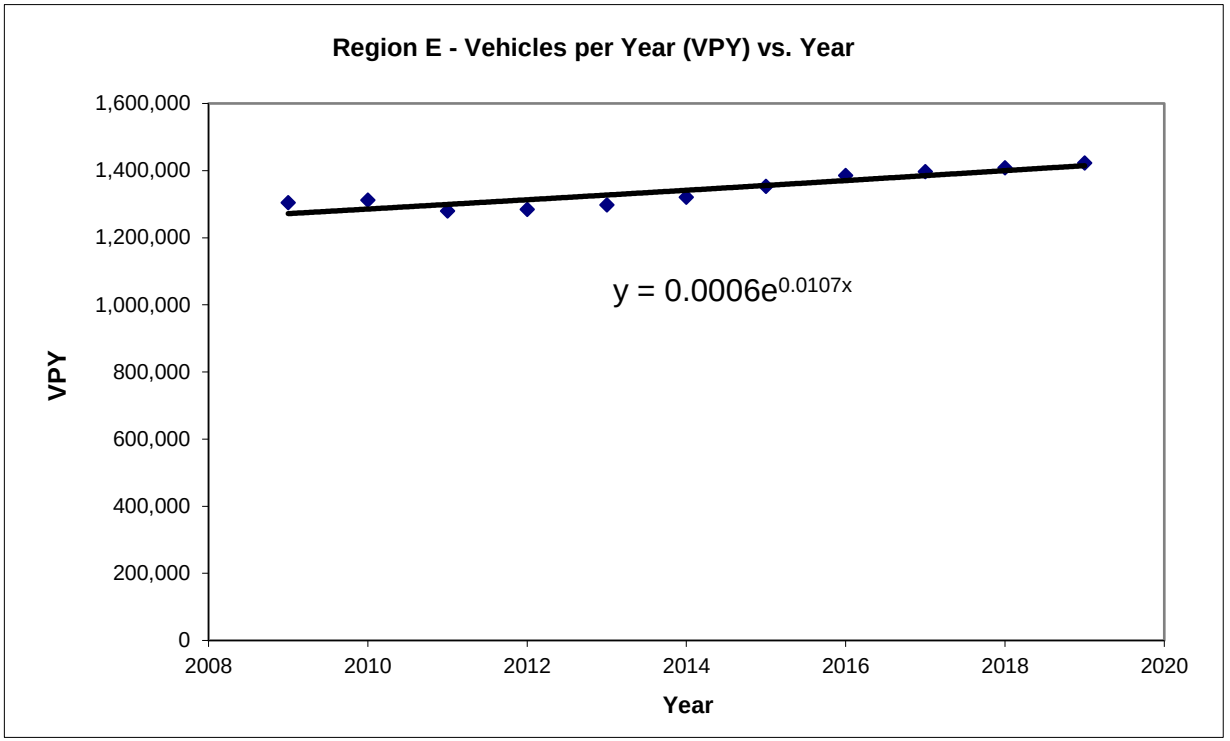


4/19/2023

Attachment E

NHDOT Annual Growth Data

Year	Total
2009	1303948
2010	1312251
2011	1279824
2012	1284314
2013	1298171
2014	1320862
2015	1353486
2016	1385361
2017	1396932
2018	1408237
2019	1422176
CAGR	0.87%
Exp	1.07%
Avg	0.97%



Attachment F

Trip Generation Calculations

Trip Generation Assessment

Project: Proposed Bank - Exeter, NH
Date: 4/17/23
Analyst: TEC, Inc.
Source: Institute of Transportation Engineers - *Trip Generation - 11th Ed.*

Proposed Development

Drive-In Bank (912)

Units: 2.617 kSF

	Total Trips		Total	% Distribution		# New Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	263		**262**	50%	50%	131	131	68	**194**	34	34	97	97
Weekday AM PH	26		**26**	58%	42%	15	11	8	**18**	4	4	11	7
Weekday PM PH	55		**55**	50%	50%	28	27	20	**35**	10	10	18	17
Saturday Daily	226		**226**	50%	50%	113	113	58	**168**	29	29	84	84
Sat Midday PH	69		**69**	51%	49%	35	34	18	**51**	9	9	26	25

TOTAL NEW DEVELOPMENT	***Total Trips***			***Total New Trips***		***Total New Pass-by Trips***	***Total New Primary Trips***	***Total Pass-by Trips***		***Total Primary Trips***	
				In	***Out***			***In***	***Out***	***In***	***Out***
Weekday Daily	**262**			**131**	**131**	**68**	**194**	**34**	**34**	**97**	**97**
Weekday AM Peak Hour	**26**			**15**	**11**	**8**	**18**	**4**	**4**	**11**	**7**
Weekday PM Peak Hour	**55**			**28**	**27**	**20**	**35**	**10**	**10**	**18**	**17**
Saturday Daily	**226**			**113**	**113**	**58**	**168**	**29**	**29**	**84**	**84**
Sat Midday Peak Hour	**69**			**35**	**34**	**18**	**51**	**9**	**9**	**26**	**25**

TEC The Engineering Corp

Attachment G

Capacity and Queue Analysis

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	401	44	41	588	6	44	1	43	12	2	6
Future Volume (vph)	5	401	44	41	588	6	44	1	43	12	2	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	100		0	100		0	0		60	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.82	0.82	0.82	0.81	0.81	0.81	0.73	0.73	0.73	0.56	0.56	0.56
Heavy Vehicles (%)	20%	4%	0%	0%	3%	0%	0%	0%	0%	8%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

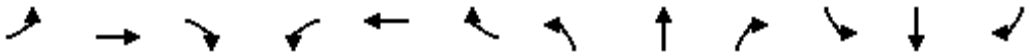
Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	401	44	41	588	6	44	1	43	12	2	6
Future Vol, veh/h	5	401	44	41	588	6	44	1	43	12	2	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	60	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	81	81	81	73	73	73	56	56	56
Heavy Vehicles, %	20	4	0	0	3	0	0	0	0	8	0	0
Mvmt Flow	6	489	54	51	726	7	60	1	59	21	4	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	733	0	0	543	0	0	1367	1363	516	1390	1387	730
Stage 1	-	-	-	-	-	-	528	528	-	832	832	-
Stage 2	-	-	-	-	-	-	839	835	-	558	555	-
Critical Hdwy	4.3	-	-	4.1	-	-	7.1	6.5	6.2	7.18	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.18	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.18	5.5	-
Follow-up Hdwy	2.38	-	-	2.2	-	-	3.5	4	3.3	3.572	4	3.3
Pot Cap-1 Maneuver	795	-	-	1036	-	-	125	149	563	116	144	426
Stage 1	-	-	-	-	-	-	538	531	-	355	387	-
Stage 2	-	-	-	-	-	-	363	386	-	504	516	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	795	-	-	1036	-	-	114	141	563	99	136	426
Mov Cap-2 Maneuver	-	-	-	-	-	-	114	141	-	99	136	-
Stage 1	-	-	-	-	-	-	534	527	-	352	368	-
Stage 2	-	-	-	-	-	-	333	367	-	447	512	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.6	41.1	41.7
HCM LOS			E	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	114	563	795	-	-	1036	-	-	133
HCM Lane V/C Ratio	0.541	0.105	0.008	-	-	0.049	-	-	0.269
HCM Control Delay (s)	68.8	12.1	9.6	-	-	8.7	-	-	41.7
HCM Lane LOS	F	B	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	2.5	0.3	0	-	-	0.2	-	-	1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	550	41	29	545	17	36	0	36	16	0	7
Future Volume (vph)	9	550	41	29	545	17	36	0	36	16	0	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	100		0	100		0	0		60	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Confl. Peds. (#/hr)			4	4			4		4			
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.75	0.75	0.75	0.64	0.64	0.64
Heavy Vehicles (%)	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	550	41	29	545	17	36	0	36	16	0	7
Future Vol, veh/h	9	550	41	29	545	17	36	0	36	16	0	7
Conflicting Peds, #/hr	0	0	4	4	0	0	4	0	4	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	60	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	94	94	94	75	75	75	64	64	64
Heavy Vehicles, %	0	0	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	10	611	46	31	580	18	48	0	48	25	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	598	0	0	661	0	0	1319	1318	642	1333	1332	593
Stage 1	-	-	-	-	-	-	658	658	-	651	651	-
Stage 2	-	-	-	-	-	-	661	660	-	682	681	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	989	-	-	937	-	-	135	159	478	132	156	509
Stage 1	-	-	-	-	-	-	457	464	-	461	468	-
Stage 2	-	-	-	-	-	-	455	463	-	443	453	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	989	-	-	933	-	-	127	152	474	114	149	507
Mov Cap-2 Maneuver	-	-	-	-	-	-	127	152	-	114	149	-
Stage 1	-	-	-	-	-	-	451	458	-	456	453	-
Stage 2	-	-	-	-	-	-	429	448	-	393	447	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.4	31.5	36.7
HCM LOS			D	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	127	474	989	-	-	933	-	-	149
HCM Lane V/C Ratio	0.378	0.101	0.01	-	-	0.033	-	-	0.241
HCM Control Delay (s)	49.6	13.4	8.7	-	-	9	-	-	36.7
HCM Lane LOS	E	B	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	1.6	0.3	0	-	-	0.1	-	-	0.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	405	44	41	594	6	44	1	43	12	2	6
Future Volume (vph)	5	405	44	41	594	6	44	1	43	12	2	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	100		0	100		0	0		60	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.82	0.82	0.82	0.81	0.81	0.81	0.73	0.73	0.73	0.56	0.56	0.56
Heavy Vehicles (%)	20%	4%	0%	0%	3%	0%	0%	0%	0%	8%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	405	44	41	594	6	44	1	43	12	2	6
Future Vol, veh/h	5	405	44	41	594	6	44	1	43	12	2	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	60	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	81	81	81	73	73	73	56	56	56
Heavy Vehicles, %	20	4	0	0	3	0	0	0	0	8	0	0
Mvmt Flow	6	494	54	51	733	7	60	1	59	21	4	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	740	0	0	548	0	0	1379	1375	521	1402	1399	737
Stage 1	-	-	-	-	-	-	533	533	-	839	839	-
Stage 2	-	-	-	-	-	-	846	842	-	563	560	-
Critical Hdwy	4.3	-	-	4.1	-	-	7.1	6.5	6.2	7.18	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.18	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.18	5.5	-
Follow-up Hdwy	2.38	-	-	2.2	-	-	3.5	4	3.3	3.572	4	3.3
Pot Cap-1 Maneuver	790	-	-	1032	-	-	123	147	559	114	142	422
Stage 1	-	-	-	-	-	-	534	528	-	352	384	-
Stage 2	-	-	-	-	-	-	360	383	-	500	514	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	790	-	-	1032	-	-	112	139	559	97	134	422
Mov Cap-2 Maneuver	-	-	-	-	-	-	112	139	-	97	134	-
Stage 1	-	-	-	-	-	-	530	524	-	349	365	-
Stage 2	-	-	-	-	-	-	330	364	-	443	510	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.6	42.2	42.5
HCM LOS			E	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	112	559	790	-	-	1032	-	-	131
HCM Lane V/C Ratio	0.55	0.105	0.008	-	-	0.049	-	-	0.273
HCM Control Delay (s)	70.9	12.2	9.6	-	-	8.7	-	-	42.5
HCM Lane LOS	F	B	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	2.6	0.4	0	-	-	0.2	-	-	1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	556	41	29	550	17	36	0	36	16	0	7
Future Volume (vph)	9	556	41	29	550	17	36	0	36	16	0	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	100		0	100		0	0		60	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Confl. Peds. (#/hr)			4	4			4		4			
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.75	0.75	0.75	0.64	0.64	0.64
Heavy Vehicles (%)	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	556	41	29	550	17	36	0	36	16	0	7
Future Vol, veh/h	9	556	41	29	550	17	36	0	36	16	0	7
Conflicting Peds, #/hr	0	0	4	4	0	0	4	0	4	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	60	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	94	94	94	75	75	75	64	64	64
Heavy Vehicles, %	0	0	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	10	618	46	31	585	18	48	0	48	25	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	603	0	0	668	0	0	1331	1330	649	1345	1344	598
Stage 1	-	-	-	-	-	-	665	665	-	656	656	-
Stage 2	-	-	-	-	-	-	666	665	-	689	688	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	984	-	-	931	-	-	133	156	473	130	153	506
Stage 1	-	-	-	-	-	-	453	461	-	458	465	-
Stage 2	-	-	-	-	-	-	452	461	-	439	450	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	984	-	-	927	-	-	125	149	469	112	146	504
Mov Cap-2 Maneuver	-	-	-	-	-	-	125	149	-	112	146	-
Stage 1	-	-	-	-	-	-	447	455	-	453	450	-
Stage 2	-	-	-	-	-	-	426	446	-	389	444	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.4	32.1	37.2
HCM LOS			D	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	125	469	984	-	-	927	-	-	147
HCM Lane V/C Ratio	0.384	0.102	0.01	-	-	0.033	-	-	0.244
HCM Control Delay (s)	50.7	13.5	8.7	-	-	9	-	-	37.2
HCM Lane LOS	F	B	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	1.6	0.3	0	-	-	0.1	-	-	0.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	447	44	41	656	6	44	1	43	12	2	6
Future Volume (vph)	5	447	44	41	656	6	44	1	43	12	2	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	100		0	100		0	0		60	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.82	0.82	0.82	0.81	0.81	0.81	0.73	0.73	0.73	0.56	0.56	0.56
Heavy Vehicles (%)	20%	4%	0%	0%	3%	0%	0%	0%	0%	8%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

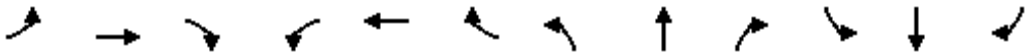
Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	447	44	41	656	6	44	1	43	12	2	6
Future Vol, veh/h	5	447	44	41	656	6	44	1	43	12	2	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	60	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	81	81	81	73	73	73	56	56	56
Heavy Vehicles, %	20	4	0	0	3	0	0	0	0	8	0	0
Mvmt Flow	6	545	54	51	810	7	60	1	59	21	4	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	817	0	0	599	0	0	1507	1503	572	1530	1527	814
Stage 1	-	-	-	-	-	-	584	584	-	916	916	-
Stage 2	-	-	-	-	-	-	923	919	-	614	611	-
Critical Hdwy	4.3	-	-	4.1	-	-	7.1	6.5	6.2	7.18	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.18	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.18	5.5	-
Follow-up Hdwy	2.38	-	-	2.2	-	-	3.5	4	3.3	3.572	4	3.3
Pot Cap-1 Maneuver	738	-	-	988	-	-	100	123	523	93	119	381
Stage 1	-	-	-	-	-	-	501	501	-	318	354	-
Stage 2	-	-	-	-	-	-	326	353	-	469	487	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	738	-	-	988	-	-	91	116	523	78	112	381
Mov Cap-2 Maneuver	-	-	-	-	-	-	91	116	-	78	112	-
Stage 1	-	-	-	-	-	-	497	497	-	315	336	-
Stage 2	-	-	-	-	-	-	297	335	-	412	483	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.5	59.2	54.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	91	523	738	-	-	988	-	-	107
HCM Lane V/C Ratio	0.677	0.113	0.008	-	-	0.051	-	-	0.334
HCM Control Delay (s)	103.6	12.8	9.9	-	-	8.8	-	-	54.6
HCM Lane LOS	F	B	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	3.3	0.4	0	-	-	0.2	-	-	1.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	614	41	29	608	17	36	0	36	16	0	7
Future Volume (vph)	9	614	41	29	608	17	36	0	36	16	0	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	100		0	100		0	0		60	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Confl. Peds. (#/hr)			4	4			4		4			
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.75	0.75	0.75	0.64	0.64	0.64
Heavy Vehicles (%)	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	614	41	29	608	17	36	0	36	16	0	7
Future Vol, veh/h	9	614	41	29	608	17	36	0	36	16	0	7
Conflicting Peds, #/hr	0	0	4	4	0	0	4	0	4	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	60	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	94	94	94	75	75	75	64	64	64
Heavy Vehicles, %	0	0	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	10	682	46	31	647	18	48	0	48	25	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	665	0	0	732	0	0	1457	1456	713	1471	1470	660
Stage 1	-	-	-	-	-	-	729	729	-	718	718	-
Stage 2	-	-	-	-	-	-	728	727	-	753	752	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	934	-	-	882	-	-	109	131	435	106	129	467
Stage 1	-	-	-	-	-	-	417	431	-	423	436	-
Stage 2	-	-	-	-	-	-	418	432	-	405	421	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	934	-	-	879	-	-	102	125	432	91	123	465
Mov Cap-2 Maneuver	-	-	-	-	-	-	102	125	-	91	123	-
Stage 1	-	-	-	-	-	-	411	425	-	418	421	-
Stage 2	-	-	-	-	-	-	392	417	-	355	415	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.4	41.4	47.3
HCM LOS			E	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	102	432	934	-	-	879	-	-	120
HCM Lane V/C Ratio	0.471	0.111	0.011	-	-	0.035	-	-	0.299
HCM Control Delay (s)	68.4	14.4	8.9	-	-	9.2	-	-	47.3
HCM Lane LOS	F	B	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	2	0.4	0	-	-	0.1	-	-	1.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	403	44	41	592	6	44	1	43	18	2	11
Future Volume (vph)	11	403	44	41	592	6	44	1	43	18	2	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	100		0	100		0	0		60	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.82	0.82	0.82	0.81	0.81	0.81	0.73	0.73	0.73	0.56	0.56	0.56
Heavy Vehicles (%)	20%	4%	0%	0%	3%	0%	0%	0%	0%	8%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

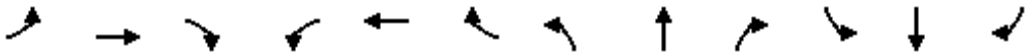
Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	5.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	403	44	41	592	6	44	1	43	18	2	11
Future Vol, veh/h	11	403	44	41	592	6	44	1	43	18	2	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	60	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	81	81	81	73	73	73	56	56	56
Heavy Vehicles, %	20	4	0	0	3	0	0	0	0	8	0	0
Mvmt Flow	13	491	54	51	731	7	60	1	59	32	4	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	738	0	0	545	0	0	1393	1384	518	1411	1408	735
Stage 1	-	-	-	-	-	-	544	544	-	837	837	-
Stage 2	-	-	-	-	-	-	849	840	-	574	571	-
Critical Hdwy	4.3	-	-	4.1	-	-	7.1	6.5	6.2	7.18	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.18	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.18	5.5	-
Follow-up Hdwy	2.38	-	-	2.2	-	-	3.5	4	3.3	3.572	4	3.3
Pot Cap-1 Maneuver	792	-	-	1034	-	-	120	145	562	112	140	423
Stage 1	-	-	-	-	-	-	527	522	-	353	385	-
Stage 2	-	-	-	-	-	-	358	384	-	493	508	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	792	-	-	1034	-	-	107	136	562	95	131	423
Mov Cap-2 Maneuver	-	-	-	-	-	-	107	136	-	95	131	-
Stage 1	-	-	-	-	-	-	519	514	-	347	366	-
Stage 2	-	-	-	-	-	-	321	365	-	433	500	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.6	44.6	49.6
HCM LOS			E	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	108	562	792	-	-	1034	-	-	134
HCM Lane V/C Ratio	0.571	0.105	0.017	-	-	0.049	-	-	0.413
HCM Control Delay (s)	75.5	12.2	9.6	-	-	8.7	-	-	49.6
HCM Lane LOS	F	B	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	2.7	0.3	0.1	-	-	0.2	-	-	1.8



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	552	41	29	544	17	36	0	36	30	0	20
Future Volume (vph)	20	552	41	29	544	17	36	0	36	30	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	100		0	100		0	0		60	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Confl. Peds. (#/hr)			4	4			4		4			
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.75	0.75	0.75	0.64	0.64	0.64
Heavy Vehicles (%)	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	552	41	29	544	17	36	0	36	30	0	20
Future Vol, veh/h	20	552	41	29	544	17	36	0	36	30	0	20
Conflicting Peds, #/hr	0	0	4	4	0	0	4	0	4	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	60	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	94	94	94	75	75	75	64	64	64
Heavy Vehicles, %	0	0	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	22	613	46	31	579	18	48	0	48	47	0	31

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	597	0	0	663	0	0	1354	1343	644	1358	1357	592
Stage 1	-	-	-	-	-	-	684	684	-	650	650	-
Stage 2	-	-	-	-	-	-	670	659	-	708	707	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	989	-	-	935	-	-	128	153	476	127	150	510
Stage 1	-	-	-	-	-	-	442	452	-	461	468	-
Stage 2	-	-	-	-	-	-	450	464	-	429	441	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	989	-	-	931	-	-	114	144	472	109	141	508
Mov Cap-2 Maneuver	-	-	-	-	-	-	114	144	-	109	141	-
Stage 1	-	-	-	-	-	-	431	440	-	451	453	-
Stage 2	-	-	-	-	-	-	407	449	-	375	430	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.4	35.7	47.7
HCM LOS			E	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	114	472	989	-	-	931	-	-	159
HCM Lane V/C Ratio	0.421	0.102	0.022	-	-	0.033	-	-	0.491
HCM Control Delay (s)	57.8	13.5	8.7	-	-	9	-	-	47.7
HCM Lane LOS	F	B	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	1.8	0.3	0.1	-	-	0.1	-	-	2.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	445	44	41	654	6	44	1	43	18	2	11
Future Volume (vph)	11	445	44	41	654	6	44	1	43	18	2	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	100		0	100		0	0		60	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.82	0.82	0.82	0.81	0.81	0.81	0.73	0.73	0.73	0.56	0.56	0.56
Heavy Vehicles (%)	20%	4%	0%	0%	3%	0%	0%	0%	0%	8%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	7.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	445	44	41	654	6	44	1	43	18	2	11
Future Vol, veh/h	11	445	44	41	654	6	44	1	43	18	2	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	60	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	81	81	81	73	73	73	56	56	56
Heavy Vehicles, %	20	4	0	0	3	0	0	0	0	8	0	0
Mvmt Flow	13	543	54	51	807	7	60	1	59	32	4	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	814	0	0	597	0	0	1521	1512	570	1539	1536	811
Stage 1	-	-	-	-	-	-	596	596	-	913	913	-
Stage 2	-	-	-	-	-	-	925	916	-	626	623	-
Critical Hdwy	4.3	-	-	4.1	-	-	7.1	6.5	6.2	7.18	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.18	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.18	5.5	-
Follow-up Hdwy	2.38	-	-	2.2	-	-	3.5	4	3.3	3.572	4	3.3
Pot Cap-1 Maneuver	740	-	-	989	-	-	98	121	525	91	117	383
Stage 1	-	-	-	-	-	-	494	495	-	320	355	-
Stage 2	-	-	-	-	-	-	325	354	-	462	481	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	740	-	-	989	-	-	86	113	525	76	109	383
Mov Cap-2 Maneuver	-	-	-	-	-	-	86	113	-	76	109	-
Stage 1	-	-	-	-	-	-	485	486	-	314	337	-
Stage 2	-	-	-	-	-	-	289	336	-	402	472	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.5	65.4	68
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	86	525	740	-	-	989	-	-	109
HCM Lane V/C Ratio	0.717	0.112	0.018	-	-	0.051	-	-	0.508
HCM Control Delay (s)	115.7	12.7	10	-	-	8.8	-	-	68
HCM Lane LOS	F	B	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	3.5	0.4	0.1	-	-	0.2	-	-	2.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	610	41	29	602	17	36	0	36	30	0	20
Future Volume (vph)	20	610	41	29	602	17	36	0	36	30	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	100		0	100		0	0		60	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Confl. Peds. (#/hr)			4	4			4		4			
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.75	0.75	0.75	0.64	0.64	0.64
Heavy Vehicles (%)	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	6.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	610	41	29	602	17	36	0	36	30	0	20
Future Vol, veh/h	20	610	41	29	602	17	36	0	36	30	0	20
Conflicting Peds, #/hr	0	0	4	4	0	0	4	0	4	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	60	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	94	94	94	75	75	75	64	64	64
Heavy Vehicles, %	0	0	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	22	678	46	31	640	18	48	0	48	47	0	31

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	658	0	0	728	0	0	1480	1469	709	1484	1483	653
Stage 1	-	-	-	-	-	-	749	749	-	711	711	-
Stage 2	-	-	-	-	-	-	731	720	-	773	772	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	939	-	-	885	-	-	105	129	438	104	126	471
Stage 1	-	-	-	-	-	-	407	422	-	427	439	-
Stage 2	-	-	-	-	-	-	416	435	-	395	412	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	939	-	-	882	-	-	93	121	435	88	118	469
Mov Cap-2 Maneuver	-	-	-	-	-	-	93	121	-	88	118	-
Stage 1	-	-	-	-	-	-	396	411	-	417	424	-
Stage 2	-	-	-	-	-	-	373	420	-	342	401	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.4	46.8	67.6
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	93	435	939	-	-	882	-	-	130
HCM Lane V/C Ratio	0.516	0.11	0.024	-	-	0.035	-	-	0.601
HCM Control Delay (s)	79.2	14.3	8.9	-	-	9.2	-	-	67.6
HCM Lane LOS	F	B	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	2.3	0.4	0.1	-	-	0.1	-	-	3.1

Attachment H

Parking Demand Generation Calculations

Parking Demand Assessment

Project: Proposed Bank - Exeter, NH
Date: April 24, 2023
Analyst: TEC, Inc.
Source: Institute of Transportation Engineers - Parking Generation - 5th Ed.

ITE Land Use Code (LUC) 912 - Drive-In Bank

Land Use: Drive-In Bank
LUC: 912
Size 2,617 SF

85th Percentile Maximum Parking Demand:

Weekday:	6 vehicles per 1,000 SF	X	2,617 SF =	**16**	**vehicles**
Saturday:	4.8 vehicles per 1,000 SF	X	2,617 SF =	**13**	**vehicles**

Parking Demand - Time of Day Distribution

Time	Weekday		Saturday	
	Percent of Peak	Demand	Percent of Peak	Demand
12:00-4:00 AM	0%	0	0%	0
5:00 AM	0%	0	0%	0
6:00 AM	0%	0	0%	0
7:00 AM	7%	1	7%	1
8:00 AM	24%	4	24%	3
9:00 AM	62%	10	62%	8
10:00 AM	82%	13	82%	11
11:00 AM	90%	14	90%	12
12:00 PM	85%	14	85%	11
1:00 PM	88%	14	88%	11
2:00 PM	92%	15	92%	12
3:00 PM	100%	16	100%	13
4:00 PM	92%	15	92%	12
5:00 PM	72%	12	72%	9
6:00 PM	36%	6	36%	5
7:00 PM	9%	1	9%	1
8:00 PM	0%	0	0%	0
9:00 PM	0%	0	0%	0
10:00 PM	0%	0	0%	0
11:00 PM	0%	0	0%	0

Peak Weekday Parking Demand:	**16**
Peak Saturday Parking Demand:	**13**

DRAINAGE REPORT

PROPOSED COMMERCIAL DEVELOPMENT

ASSESSORS MAP 55, LOT 75
2 MEETING PLACE DRIVE
EXETER, NEW HAMPSHIRE 03833

Prepared for:

Tropic Star Development, LLC
321 D Lafayette Road
Hampton, NH 03842

Prepared by:

TEC, Inc.
169 Ocean Boulevard
PO Box 249
Hampton, NH 03842

TEC
The Engineering Corp

June 23, 2023

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Narrative

Introduction

Tropic Star Development, LLC, "the Applicant", is proposing to construct a bank at 2 Meeting Place Drive in the C-2 Zoning District. The project is identified on the Town of Exeter's Assessors Map as Map 55, Lot 75. The project proposes to subdivide the lot and to develop the northern created lot. The northern lot will be approximately 1.4 acres in size, and the area within the limit of work, herein referred to as "the Site", occupies 41,435 SF, equaling approximately 0.95 acre of land. The project is situated between Route 27 (westerly bound), Meeting Place Drive (northerly bound), proposed southerly created lot, and the Meeting Place in Exeter Condominiums (easterly bound). The project is defined on the *Project Location Map* (Figure 1).

The Applicant is proposing to redevelop the Site by constructing a 1-story bank with an approximate total footprint of 2,617+/- square feet. The Site will also contain associated off-street parking, landscaping, utility and stormwater management infrastructure. The project will require review and approval from the Town of Exeter Planning Board.

This drainage study was performed in order to assess the potential impacts of the proposed improvements and to provide measures to mitigate any impacts of the project. Currently, the Site consists of existing pavement and concrete, grassed areas, a restricted consolidation area containing lead contaminated soil and covered by vegetation, a dense wooded area, a small wetland, and piles of debris. Runoff from the Site either infiltrates into the ground, sheet flows to the southern boundary of the Site, or enters the drainage swale along the west edge of the Site which conveys stormwater to the drainage system along Route 27. The Project will provide a stormwater management system incorporating traditional and Low Impact Design (LID) Best Management Practices (BMP) elements. This analysis has been prepared to verify that the project will not have an adverse effect on the stormwater conditions both on-site and off-site.

The Stormwater Management Plan has been prepared to meet the design criteria identified in the New Hampshire Stormwater Manual and addresses

water quality, groundwater recharge, site coverage, channel protection, and peak runoff control.

Existing Conditions

The existing Site is 0.95 acre and is comprised of wooded areas, grassed areas, concrete and asphalt areas, debris piles, and a poorly drained wetland of no significance, as determined by a wetland scientist in a letter dated May 11, 2023. Stormwater runoff primarily infiltrates into the ground, or enters the wetlands to the south of the Site. The drainage swale along the west edge of the Site also collects stormwater and conveys it to the drainage system along Route 27. The topography of the Site is gently sloping with grades generally ranging from 1-2%. The Site slopes down from an elevation of 74 in the northern portion of the lot to elevation 68 in the southern portion of the lot. There are no major hills or depressed areas on the Site.

The Site is comprised of Boxford silt loam complex, hydrologic soil group D, and Scitico silt loam, hydrologic soil group C/D, which are considered to be moderately well drained to poorly drained soils. Additionally, the Site contains an area of lead contaminated soil which is proposed to be removed and replaced. Refer to Appendix B to review the Geotechnical Data, depicting the various soils present at and around the Site.

According to the FEMA Flood Insurance Rate Maps (FIRM), map number 33015C0402E, dated May 17, 2005, the site lies entirely outside of the 100-year floodplain in an area of minimal flood hazard (Zone X). Refer to the attached FIRM Figure at the end of this section (Figure 2). The Site is not located within a projected sea-level rise or a storm surge high risk flood area as determined by the 2017 C-RiSe: Exeter Report and Maps.

Proposed Conditions

The development will consist of a 1-story bank with an approximate total footprint of 2,617 +/- square feet with associated parking, landscaping, and utility and stormwater management infrastructure. The proposed stormwater management system has been designed in accordance with the New Hampshire Stormwater Manual and includes traditional and LID BMPs.

The proposed conditions features two treatment trains for peak rate attenuation, water quality treatment, and groundwater recharge. The first treatment train consists of a bioretention pond with a Rain Guardian Turret pre-treatment device. The bioretention pond has an outlet control structure which outlets to Design-Point 1.

The second treatment train collects parking lot and roadway runoff in deep-sump and hooded catch basins. The runoff is pre-treated by Barracuda Max® hydrodynamic separators for TSS removal before being routed to an ADS

StormTech SC-740® subsurface infiltration basin. Roof runoff collected in a roof drain is also routed to this subsurface infiltration basin. The subsurface infiltration basin has an overflow that is routed to the existing drainage swale along Route 27. The design parameters set forth in the New Hampshire Stormwater Manual have been met as described in the Regulatory Compliance section below.

Methodology

The Stormwater Management Plan, which will be implemented as part of this project, will provide adequate collection, management, and treatment of the stormwater runoff. Existing and proposed hydrologic conditions were analyzed using HydroCAD, an SCS TR-20 based program, to calculate existing and proposed peak discharge rates. This method takes into account existing and proposed pervious and impervious areas including soil types and hydrologic classifications. The rainfall data utilized was the extreme precipitation values from the Northeast Regional Climate Center. The 2-, 10-, 25-, and 50-year, 24-hour storm frequencies were used in the analysis in accordance with the NHDES and Town of Exeter requirements.

The "Regulatory Compliance" portion of this report addresses the Town of Exeter and New Hampshire Department of Environmental Services (NHDES) requirements concerning peak runoff control, groundwater recharge, water quality, and channel protection, as well as provides BMP selection and sizing.

Pre-Development Runoff

In the Site's current condition, there are two existing subcatchment areas which are conveyed to two design points. The *Pre-Development Drainage Areas* are depicted in Figure D-1 of this report. This figure presents the delineation of the existing subcatchment areas and the design points.

Existing Subcatchment Area 1 (EX-1) is comprised of 22,427 SF of pervious area consisting of grassed areas, wooded areas, and grassed consolidation areas, and 1,750 SF of impervious area consisting of paved roadway, concrete surfaces, debris piles, and a stone foundation. Runoff from EX-1 sheet flows to the southern side of the Site, Design Point 1 (DP-1). The time of concentration for EX-1 has been calculated to be approximately 11.7 minutes.

Existing Subcatchment Area 2 (EX-2) is comprised of 16,991 SF of pervious surfaces consisting of grassed areas, wooded areas, and grassed consolidation areas, and 267 SF of impervious surfaces consisting of concrete sidewalk and paved roadway. Runoff from EX-2 sheet flows into the drainage swale at the southwest corner of the Site, Design Point 2 (DP-2). The time of concentration for EX-2 has been calculated to be approximately 16.6 minutes.

Post-Development Runoff

The proposed stormwater management system is designed to mitigate the effects of the proposed development by reducing the peak rates of runoff as compared to the existing conditions. In the proposed conditions analysis, the same design points identified and analyzed under the existing conditions were analyzed. The post-development subcatchment areas are identified in Figure D-2, *Post Development Drainage Areas.*

Proposed Subcatchment Area 1 (PR-1) is comprised of 7,498 SF of pervious landscaped areas and 8,032 SF of impervious pavement and concrete. Stormwater from PR-1 sheet flows south to the proposed bioretention pond. An outlet control structure (OCS-15) directs stormwater from the bioretention pond to DP-1. The minimum time of concentration of 6 minutes has been utilized for PR-1.

Proposed Subcatchment Area 2 (PR-2) is comprised of 1,500 SF of pervious landscaped areas and 5,943 SF of impervious pavement and concrete. Stormwater from PR-2 is collected by a deep-sump and hooded catch basin (CB-1), then is directed to the proposed subsurface infiltration system (SSIB #1). An outlet control structure (OCS-12) directs stormwater to DP-2. The minimum time of concentration of 6 minutes has been utilized for PR-2.

Proposed Subcatchment Area 3 (PR-3) consists of 2,617 SF of impervious building roof. Stormwater from PR-3 is collected by roof drains that directs runoff to the proposed subsurface infiltration system (SSIB #1). An outlet control structure (OCS-12) directs stormwater to DP-2. The minimum time of concentration of 6 minutes has been utilized for PR-3.

Proposed Subcatchment Area 4 (PR-4) is comprised of 2,095 SF of pervious landscaped areas and 3,999 SF of impervious pavement and concrete. Stormwater from PR-4 is collected by a deep-sump and hooded catch basin (CB-2), then is directed to the proposed subsurface infiltration system (SSIB #1). An outlet control structure (OCS-12) directs stormwater to DP-2. The minimum time of concentration of 6 minutes has been utilized for PR-5.

Proposed Subcatchment Area 5 (PR-5) is comprised of 504 SF of pervious landscaped areas and 3,427 SF of impervious pavement and concrete. Stormwater from PR-5 is collected by a deep-sump and hooded catch basin (CB-7), then is directed to the proposed subsurface infiltration system (SSIB #1). An outlet control structure (OCS-12) directs stormwater to DP-2. The minimum time of concentration of 6 minutes has been utilized for PR-6.

Proposed Subcatchment Area 6 (PR-6) is comprised of 3,009 SF of pervious landscaped areas and 2,190 SF of impervious pavement. Stormwater from PR-6 is collected by a deep-sump and hooded catch basin (CB-6), then is directed to the proposed subsurface infiltration system (SSIB #1). An outlet control structure (OCS-12) directs stormwater to DP-2. The time of

concentration for PR-7 has been calculated to be approximately 16.7 minutes.

Proposed Subcatchment Area 7 (PR-7) is comprised of 620 SF of pervious landscaped area. Stormwater from PR-7 sheet flows to DP-2. The minimum time of concentration of 6 minutes has been utilized for PR-7.

Regulatory Compliance

The proposed project does not require the filing of any permits identified in Chapter 4 of the New Hampshire Stormwater Manual and is therefore exempt from an NHDES Antidegradation Review. The following calculations have been provided to show conformance with New Hampshire BMP design criteria (DC) and industry best practices for drainage design. BMP Maintenance shall be completed as described in the Operation & Maintenance Plan (Appendix F).

DC-1 Water Quality Volume (WQV)

Two proposed BMPs, a bioretention pond and a subsurface infiltration basin, will capture and treat the WQV associated with all proposed impervious surfaces. The respective WQVs of each BMP have been calculated to determine the appropriate size of each BMP. Both proposed BMPs exceed the WQV standard.

WQV = (P)(Rv)(A)
P = 1 inch
Rv = the unitless runoff coefficient, Rv = 0.05 + 0.9(I)
I = percent impervious cover draining to the structure, in decimal form
A = total site area draining to the structure

Bioretention Pond:
Rv = 0.05 + 0.9(0.5172) = 0.51548
WQV = (1")(0.51548)(15,530 SF)[1 FT / 12"] = 667 CF

The volume of runoff filtered through the bioretention pond, including filter media voids and storage above the filter, is 4,351 CF exceeding the required WQV.

Subsurface Infiltration Basin #1:
Rv = 0.05 + 0.9(.7189 SF) = 0.69701
WQV = (1")(0.69701)(25,284 SF)[1 FT / 12"] = 1,469 CF

The volume of the proposed subsurface infiltration basin below the lowest invert out at an elevation of 67.00 FT is 1,810 CF, exceeding the required WQV.

DC-2 Water Quality Flow (WQF)

The pre-treatment for the bioretention pond and the proposed hydrodynamic separators are sized based on the WQF, as opposed to the WQV. Both the bioretention pond pre-treatment and hydrodynamic separators are sized to accommodate the WQF.

Rain Guardian Turret® for Bioretention Pond Pre-Treatment:
CN = 89
Tc = 0.1 hours
S = (1000/CN) – 10 = (1000/89) – 10 = 1.24
Ia = 0.2S = (0.2)(1.24) = 0.25

Exeter is within a Type III NRCS Rainfall Distribution, and the unit peak discharge as determined by Exhibit 4-III is 610 CFS/mile^2/in.

WQF = (q_u)(WQV)
=(610 CFS/mile^2/in)(667 CF)[(1 mile^2/640 AC)(1 AC/43,560 SF)(12"/1 FT)]
= 0.18 CFS

The Rain Guardian Turret accommodates up to a 3.45 CFS inlet velocity, exceeding the calculated WQF.

ADS-Barracuda Max Hydrodynamic Separators:
The two proposed water quality units have been sized utilizing the water quality flow as the design flow rate. The WQV and WQF have been calculated using the same method(s) as seen above and are summarized in Table 1 below. Hydrodynamic separator sizing for 80% TSS removal is provided as Appendix B. The units do not provide nitrogen or phosphorous removal.

Table 1 (Barracuda Max® Hydrodynamic Separator Summary)

WQU	Drainage Area	CN	Tc (hr)	S	Ia	q_u	WQV (cf)	Design Flow (WQF in cfs)	Model	TSS Removal (%)
WQU-4	PR-2, PR-4	92	0.10	0.87	0.17	650	802	0.22	S3	80%
WQU-10	PR-3, PR-5, PR-6	91	0.28	0.99	0.20	480	666	0.14	S3	80%

DC-3 Groundwater Recharge Volume (GRV)
The soils present on the Site provide minimal recharge. Hydrologic Soil Group (HSG) type C and D soils exist on the site with R_d values of 0.10 and 0.00 inches, respectively. The GRV requirement will be met through the use of an ADS StormTech SC-740® subsurface infiltration basin.

GRV = $(A_I)(R_d)$
A_I = the total effective area of impervious surfaces that will exist on the site after development
R_d = the groundwater recharge depth based on the USDA/NRCS hydrologic soil group

Weighted R_d = [(9,775 SF)(0.10 in) + (16,433 SF)(0.00 in)][1 FT/12"] / 26,208 SF = 0.0031 FT

GRV = (26,208 SF)(0.0031 FT) = 81 CF

The volume of the proposed subsurface infiltration basin below the lowest invert out at an elevation of 67.75 FT is 3,962 CF, exceeding the required GRV.

DC-4 Design Infiltration Rate

The proposed subsurface infiltration system is located in the place of the existing restricted consolidation area. The contaminated soil within the consolidation area will be removed prior to construction and replaced with clean fill with HSG A. The actual infiltration rate of the fill soils shall be determined, recorded, and verified to meet design standards prior to infiltration system installation in accordance with the New Hampshire Stormwater Manual: Volume 2 Section 2-4.

The design infiltration rate has been selected as 0.20 inches per hour. Boring GZ-3, located within the proposed infiltration system, reveals silt beneath the proposed consolidation area excavation (Appendix A). This silt layer will be the hydraulically limiting layer for exfiltration. The use of this design infiltration rate produces conservative results for HydroCAD modeling peak flows and volumes.

DC-5 Effective Impervious Cover (EIC) & Undisturbed Cover (UDC)

The existing and proposed amount of effective impervious cover (EIC) and the proposed undisturbed cover (UDC) within the limit of work are as seen below:

Table 2 (EIC & UDC)

	Exist (%)	Prop (%)
EIC	0%	44%
UDC	58%	0%

There is no existing EIC on the Site, as none of the impervious cover directly drains to a storm drain network. The proposed EIC consists of the building roof, the concrete sidewalks, and the asphalt parking areas that are directed through a storm drain to the subsurface infiltration basin, and then directed to a swale connected to the Town of Exeter's closed drainage system along Route 27.

The existing site has 58% UDC. The Site appears to have been developed at one point in time, indicated by the existing building foundation and multiple debris piles. It appears that the Site has been allowed to return to natural conditions after this development was abandoned. The land that has returned to natural conditions, not including the grassed restricted consolidation area, is considered UDC. The site will be cleared and graded within the limit of work as seen in Figure D-2, resulting in 0% proposed UDC.

Because the project does not meet the "1065 Rule", the simple method was utilized to calculate pre- and post-development total suspended solids (TSS), total phosphorous (TP), and total nitrogen (TN) pollutant loads. BMP pollutant removal efficiencies were determined from Appendix B of the NHDES Stormwater Manual Volume 2. As seen in Table 3, the volume of TSS, TP, and TN in runoff will decrease in post-development conditions. See Appendix C for the Simple Method Pollutant Loading Spreadsheet provided by NHDES. Please note, the Site does not discharge runoff directly to a waterbody and the project is exempt from NHDES Antidegradation Review.

Two separate BMP treatment trains treat runoff from impervious surface in accordance with the Town of Exeter Site and Subdivision Regulations. Treatment Train #1, treating 31% of proposed impervious surfaces, consists of the Rain Guardian Turret® TSS removal pre-treatment and a bioretention pond. Treatment Train #2, treating 69% of proposed impervious surfaces, consists of deep-sump and hooded catch basins, ADS Barracuda Max® hydrodynamic separators, and a subsurface infiltration basin. TSS removal is 97.5% and 98%, TN removal is 65% and 62%, and TP removal is 65% and 67% for Treatment Trains #1 and #2, respectively. These removal efficiencies exceed the pollutant removal standards per Section 9.3.1.6 of the Town of Exeter Site and Subdivision Regulations. See Appendix D for tables showing individual BMP pollutant removal capacities.

Table 3 (Pollutant Loading)

Pollutant	Existing (lbs/yr)	Proposed (lbs/yr)
TSS	43.5	8.4
TP	0.1	0.4
TN	1.5	4.2

DC-6 Channel Protection

The post-development runoff volume for the 2-yr 24-hour storm does not exceed the pre-development runoff volume at both design points as seen in Table 4. Therefore, the reduction peak flow from pre-development conditions for the 2-yr 24-hour storm meets NHDES channel protection requirements. See section DC-7 below for further existing and propose peak flow information. The peak flows provided in Table 5 show evidence of compliance with the Town of Exeter channel protection requirements per the Site Plan Review and Subdivision Regulations Section 9.3.4.4.b.

Table 4 (24-Hour Storm Runoff Volume)

	2-Year Storm		10-Year Storm		25-Year Storm		50-Year Storm	
Design Point	Exist (ac-ft)	Prop (ac-ft)	Exist (ac-ft)	Prop (ac-ft)	Exist (ac-ft)	Prop (ac-ft)	Exist (ac-ft)	Prop (ac-ft)
DP-1	0.089	0.000	0.160	0.023	0.219	0.061	0.274	0.097
DP-2	0.061	0.002	0.111	0.067	0.152	0.129	0.192	0.187

Overflow runoff from the proposed subsurface infiltration basin runoff will discharge to a swale at DP-2. Rip rap aprons are proposed at each outlet location to prevent scour and erosion. Please see Appendix D for the rip rap apron sizing calculations.

DC-7 Peak Runoff Control

The project proposes to decrease peak runoff rates for the 2-, 10-, 25-, and 50-Year 24-hour storm events, in accordance with state and local regulations. The peak runoff rates were calculated using HydroCAD, a TR-20 program. The HydroCAD Reports are attached as Appendix E and are summarized below in Table 5.

Table 5 (Peak Flow Summary)

Design Point	2-Year Storm		10-Year Storm		25-Year Storm		50-Year Storm	
	Exist (cfs)	Prop (cfs)	Exist (cfs)	Prop (cfs)	Exist (cfs)	Prop (cfs)	Exist (cfs)	Prop (cfs)
	2-Year		10-Year		25-Year		50-Year	
DP-1	0.94	0.00	1.66	0.03	2.23	0.14	2.76	0.49
DP-2	0.56	0.02	1.01	0.27	1.37	0.91	1.70	1.64

Conclusion

The proposed site development is designed in accordance with all rules and regulations of the town of Exeter, remediates the existing environmental hazard on site, and revitalizes an underdeveloped site along Route 27, encouraging economic development. The proposed development ameliorates stormwater conditions by reducing peak runoff rates, providing water quality treatment, and increasing groundwater recharge, and will provide erosion and sediment control during construction activities.

Figure 1 – Project Location Map
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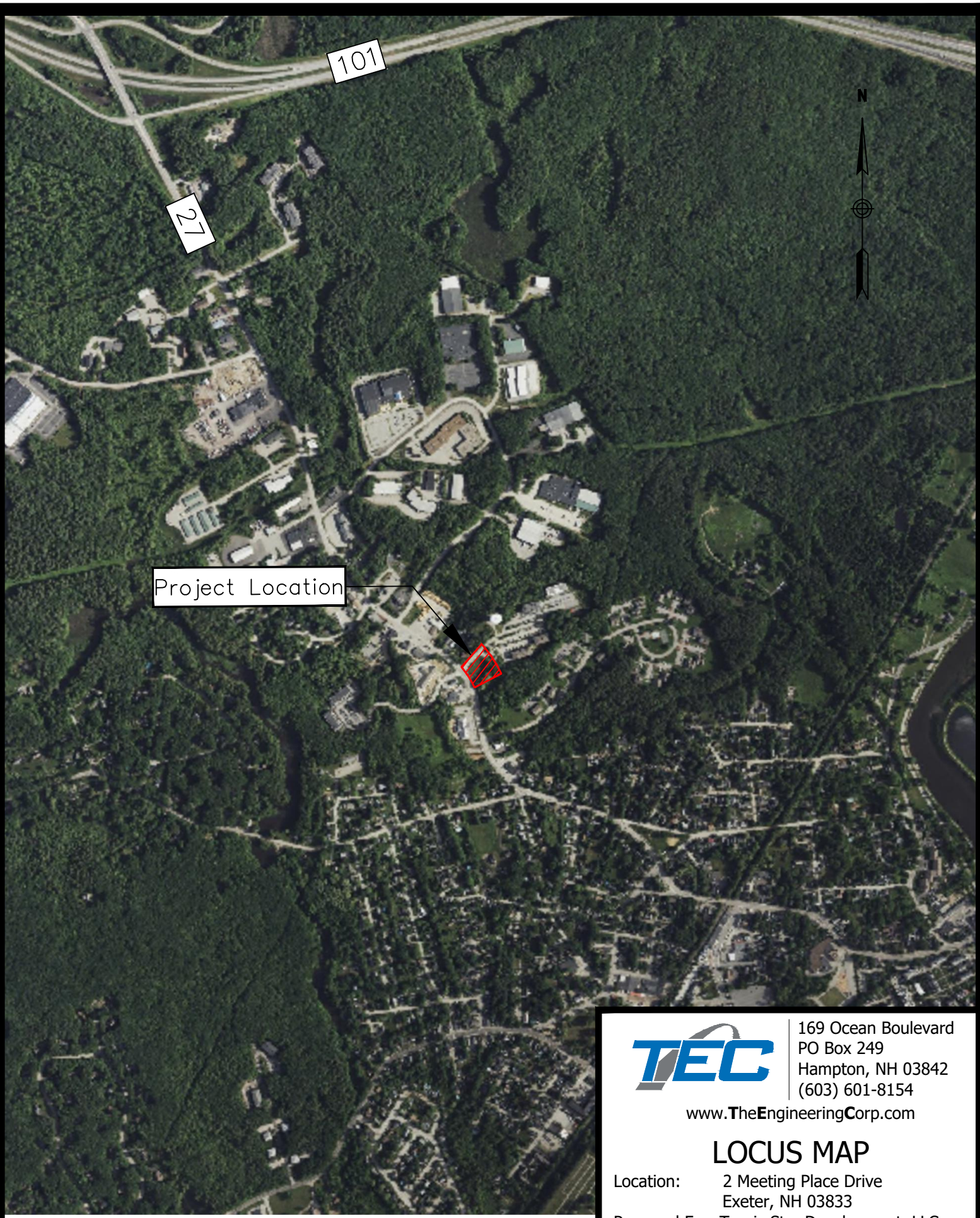

1000 0 1000 2000

SCALE IN FEET

April 25, 2023

169 Ocean Boulevard
PO Box 249
Hampton, NH 03842
(603) 601-8154
www.TheEngineeringCorp.com

LOCUS MAP

Location: 2 Meeting Place Drive
Exeter, NH 03833

Prepared For: Tropic Star Development, LLC
321 Lafayette Road, Ste D
Hampton, NH 03842

Figure 2 – FEMA FIRM
(Intentionally LEFT BLANK)

National Flood Hazard Layer FIRMette

FEMA

70°58'6"W 42°59'34"N

70°57'28"W 42°59'8"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/23/2023 at 9:14 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Figure 3 – NRCS Soil Map
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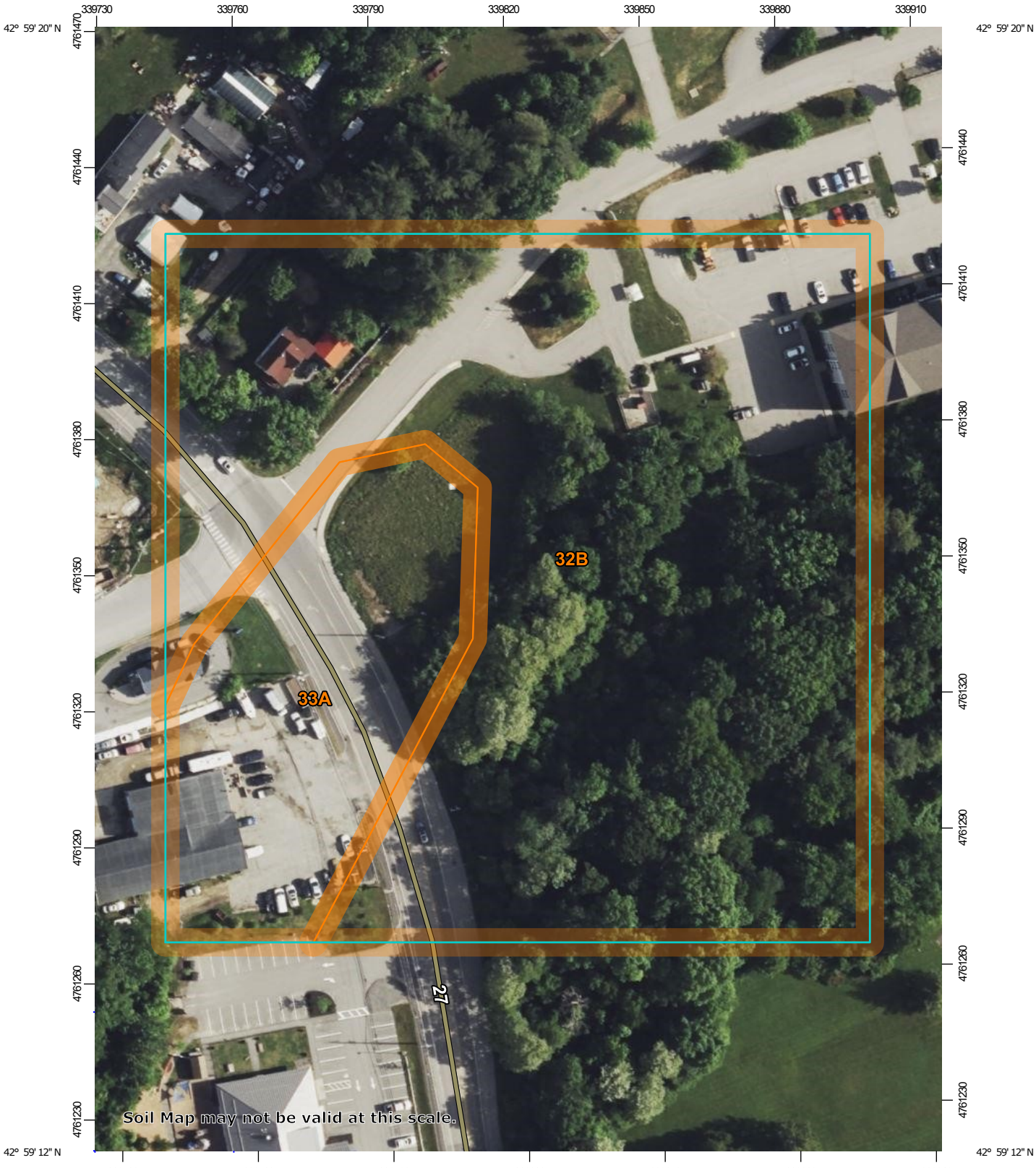
Soil Map—Rockingham County, New Hampshire
(2 Meeting Place Drive Exeter, NH)



Map Scale: 1:1,210 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

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 25, Sep 12, 2022

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
32B	Boxford silt loam, 3 to 8 percent slopes	4.8	78.9%
33A	Scitico silt loam, 0 to 5 percent slopes	1.3	21.1%
Totals for Area of Interest		**6.0**	**100.0%**

Figure D-1 Pre-Development Drainage Areas
(Intentionally LEFT BLANK)

EXISTING LOT COVERAGE TABLE	
LANDSCAPED AREAS	12,160 SF (29.3%)
WOODED AREAS	11,690 SF (28.2%)
PAVEMENT	245 SF (0.6%)
CONCRETE & STONE	974 SF (2.4%)
DEBRIS PILES	798 SF (1.9%)
DIRT (RESTRICTED AREA)	15,568 SF (37.6%)
TOTAL	41,435 SF

LEGEND

- SUBCATCHMENT
- DESIGN POINT
- SUBCATCHMENT BOUNDARY
- TC PATH
- SOIL TYPE BOUNDARY

N

EP

C2

SGC

STOP

DP-1

EX-1

BOXFORD SILT LOAM, 3–8% SLOPES,
HYDROLOGIC SOIL GROUP D

EX-2

SCITICO SILT LOAM, 3–8% SLOPES,
HYDROLOGIC SOIL GROUP C/D

DP-2

MEETING PLACE
INFO SIGN

TAX MAP 55, LOT 75
140,264 Sq. Ft.
3.22 Acres

TAX MAP 55 LOT 74
PETTERSON FAMILY TRUST
150 PICKPOCKET ROAD
BRENTWOOD, NH 03833
R.C.R.D. BOOK 5955 PAGE 2484

EPPING ROAD

C1

SWL

L=306.52'
R=749.30'
Δ=023°26'18"
CB=N04°52'55"W
CL=304.39'

Pre-Development

2 Meeting Place Drive
Exeter, New Hampshire

TEC
282 Merrimack Street
2nd Floor
Lawrence, MA 01843
t: (978) 794-1792
TheEngineeringCorp.com

169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842

Scale: 1" = 20'

June 23, 2023

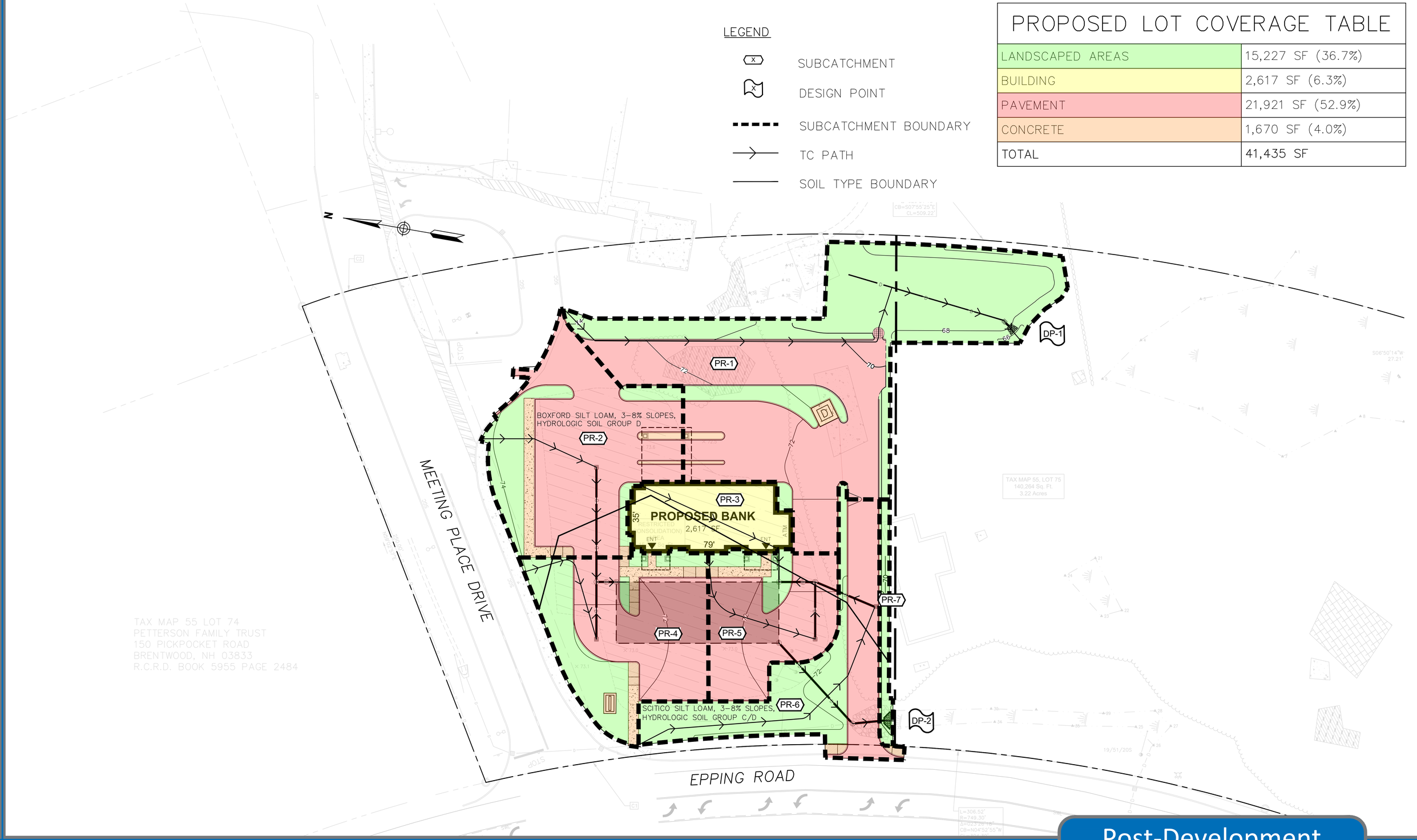
20 0 20 40
SCALE IN FEET

Figure D-2 – Post Development Drainage Areas
(Intentionally LEFT BLANK)

LEGEND

- SUBCATCHMENT
- DESIGN POINT
- SUBCATCHMENT BOUNDARY
- TC PATH
- SOIL TYPE BOUNDARY

PROPOSED LOT COVERAGE TABLE	
LANDSCAPED AREAS	15,227 SF (36.7%)
BUILDING	2,617 SF (6.3%)
PAVEMENT	21,921 SF (52.9%)
CONCRETE	1,670 SF (4.0%)
TOTAL	41,435 SF



20 0 20 40
SCALE IN FEET

Post-Development

2 Meeting Place Drive
Exeter, New Hampshire

Scale: 1" = 20'

June 23, 2023

TEC
282 Merrimack Street
2nd Floor
Lawrence, MA 01843
t: (978) 794-1792
TheEngineeringCorp.com

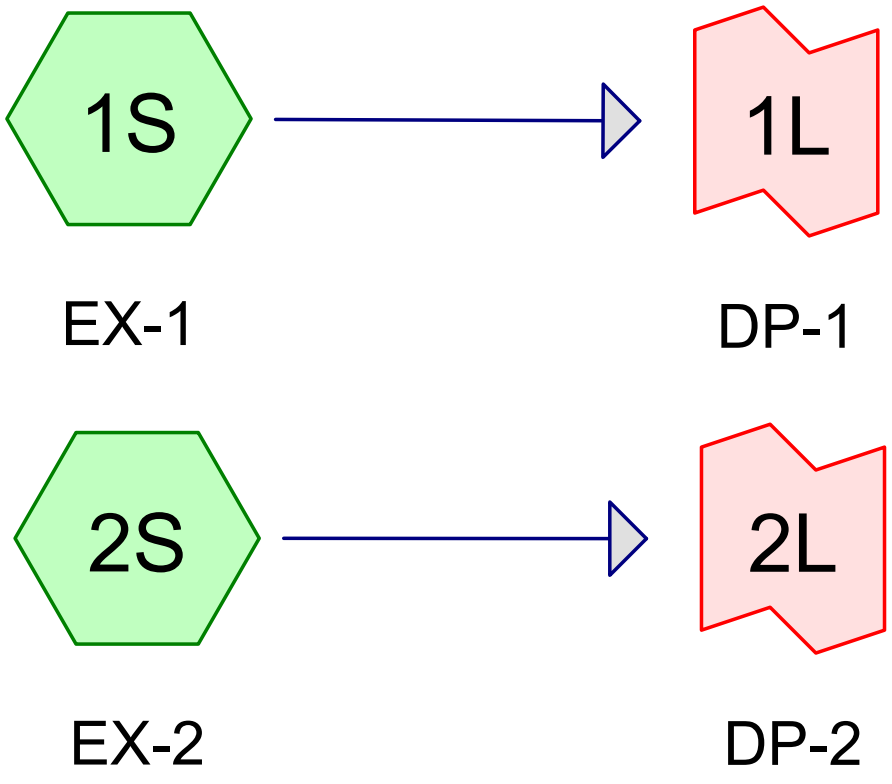
169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842

2

Appendix

A

Hydrologic Calculations



Subcat Reach Pond Link

Routing Diagram for N1264 _Pre
Prepared by IO, Printed 6/20/2023

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 6518 NH Rockingham East

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.108	86	<50% Grass cover, Poor, HSG C (2S)
0.172	89	<50% Grass cover, Poor, HSG D (1S, 2S)
0.004	98	Concrete sidewalk, HSG C (2S)
0.018	98	Concrete surfaces, HSG D (1S)
0.211	86	Consilidated Area (Dirt), HSG C (2S)
0.010	86	Consolidated Area (Dirt), HSG C (1S)
0.137	89	Consolidated Area (Dirt), HSG D (1S, 2S)
0.018	98	Debris piles, HSG D (1S)
0.002	98	Paved parking, HSG C (2S)
0.004	98	Paved parking, HSG D (1S)
0.001	98	Stone foundation, HSG D (1S)
0.014	77	Woods, Poor, HSG C (2S)
0.254	83	Woods, Poor, HSG D (1S, 2S)
0.951	**87**	**TOTAL AREA**

Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EX-1 Runoff Area=24,177 sf 7.24% Impervious Runoff Depth=1.91"
Flow Length=287' Slope=0.0300 '/' Tc=11.7 min CN=87 Runoff=0.94 cfs 0.089 af

Subcatchment 2S: EX-2 Runoff Area=17,258 sf 1.55% Impervious Runoff Depth=1.84"
Flow Length=232' Slope=0.0200 '/' Tc=16.6 min CN=86 Runoff=0.56 cfs 0.061 af

Link 1L: DP-1 Inflow=0.94 cfs 0.089 af
Primary=0.94 cfs 0.089 af

Link 2L: DP-2 Inflow=0.56 cfs 0.061 af
Primary=0.56 cfs 0.061 af

Total Runoff Area = 0.951 ac Runoff Volume = 0.149 af Average Runoff Depth = 1.88"
95.13% Pervious = 0.905 ac 4.87% Impervious = 0.046 ac

Summary for Subcatchment 1S: EX-1

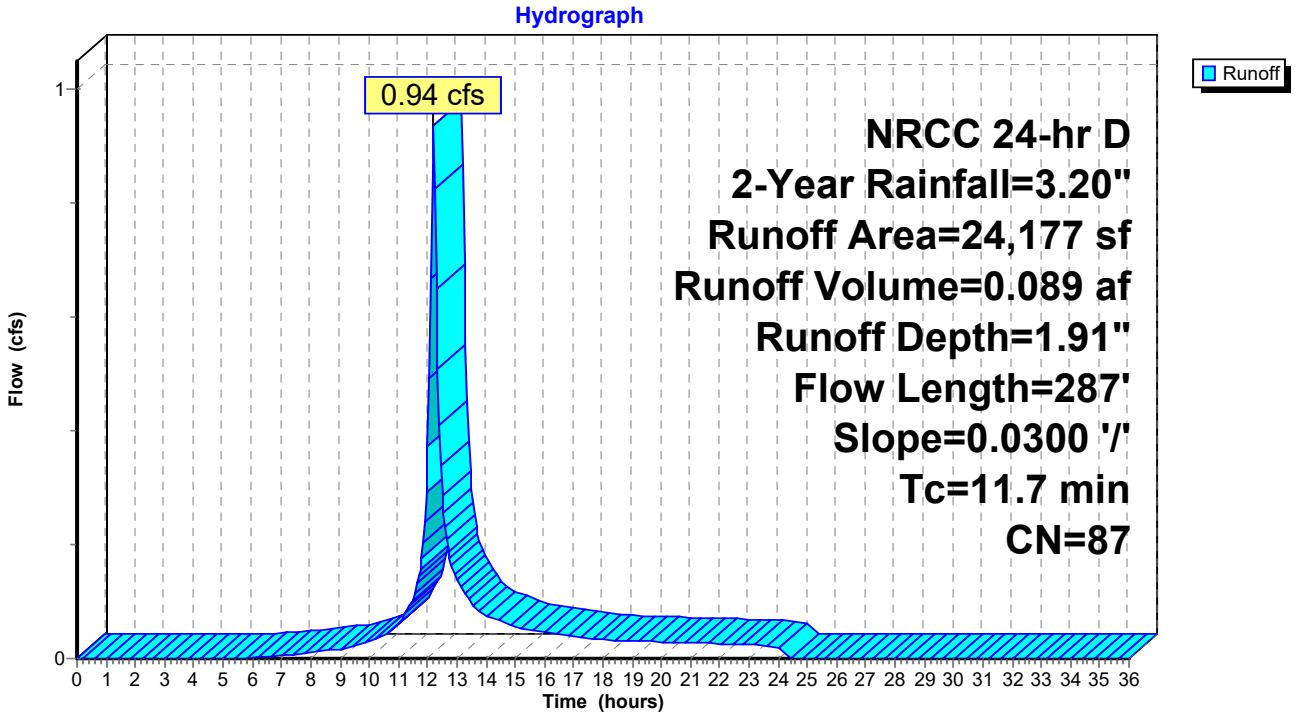
Runoff = 0.94 cfs @ 12.19 hrs, Volume= 0.089 af, Depth= 1.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.20"

	Area (sf)	CN	Description
	6,464	89	<50% Grass cover, Poor, HSG D
	10,129	83	Woods, Poor, HSG D
*	763	98	Concrete surfaces, HSG D
*	798	98	Debris piles, HSG D
*	5,412	89	Consolidated Area (Dirt), HSG D
*	422	86	Consolidated Area (Dirt), HSG C
	162	98	Paved parking, HSG D
*	27	98	Stone foundation, HSG D
	24,177	87	Weighted Average
	22,427		92.76% Pervious Area
	1,750		7.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	100	0.0300	0.20		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.13"
0.7	50	0.0300	1.21		**Shallow Concentrated Flow, SCF Grass** Short Grass Pasture Kv= 7.0 fps
2.6	137	0.0300	0.87		**Shallow Concentrated Flow, SCF Woods** Woodland Kv= 5.0 fps
11.7	287	Total			

Subcatchment 1S: EX-1



Summary for Subcatchment 2S: EX-2

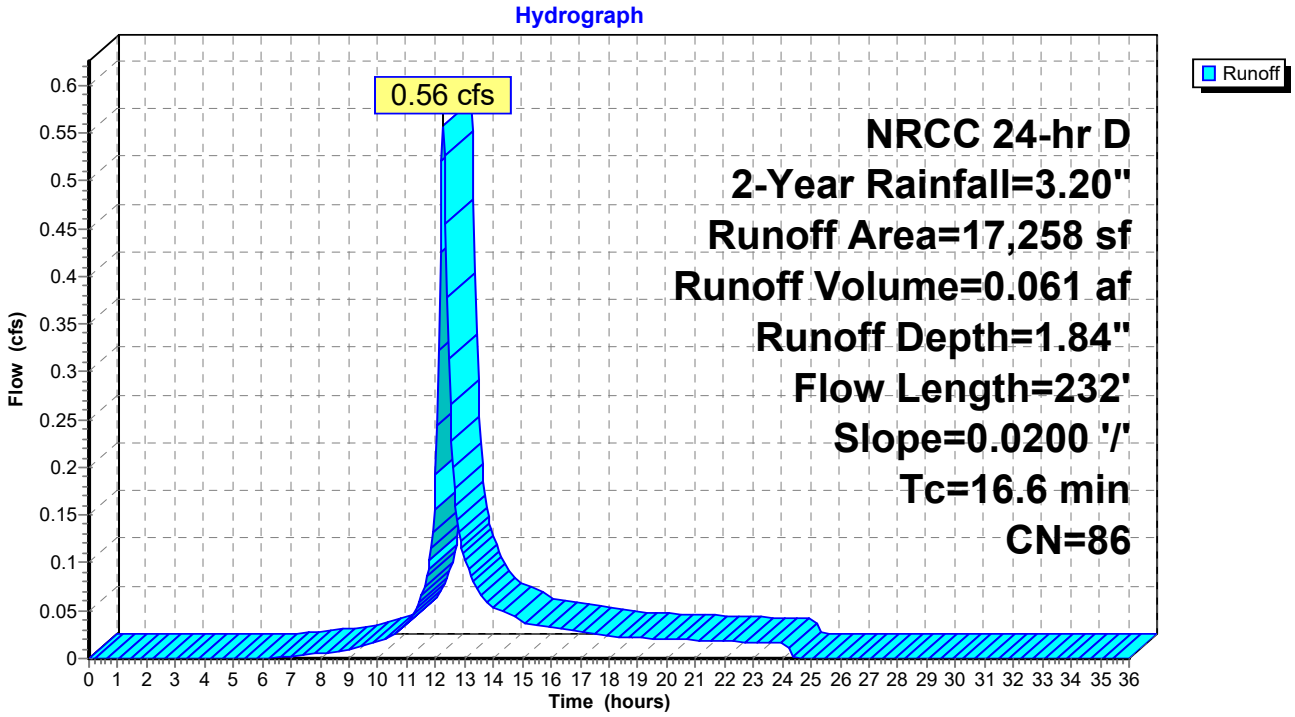
Runoff = 0.56 cfs @ 12.25 hrs, Volume= 0.061 af, Depth= 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.20"

	Area (sf)	CN	Description
	1,008	89	<50% Grass cover, Poor, HSG D
	4,688	86	<50% Grass cover, Poor, HSG C
	934	83	Woods, Poor, HSG D
	627	77	Woods, Poor, HSG C
*	543	89	Consolidated Area (Dirt), HSG D
*	9,191	86	Consilidated Area (Dirt), HSG C
*	184	98	Concrete sidewalk, HSG C
	83	98	Paved parking, HSG C
	17,258	86	Weighted Average
	16,991		98.45% Pervious Area
	267		1.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	100	0.0200	0.12		**Sheet Flow, Tall Grass** Grass: Dense n= 0.240 P2= 3.13"
2.2	132	0.0200	0.99		**Shallow Concentrated Flow, SCF-grass** Short Grass Pasture Kv= 7.0 fps
16.6	232	Total			

Subcatchment 2S: EX-2

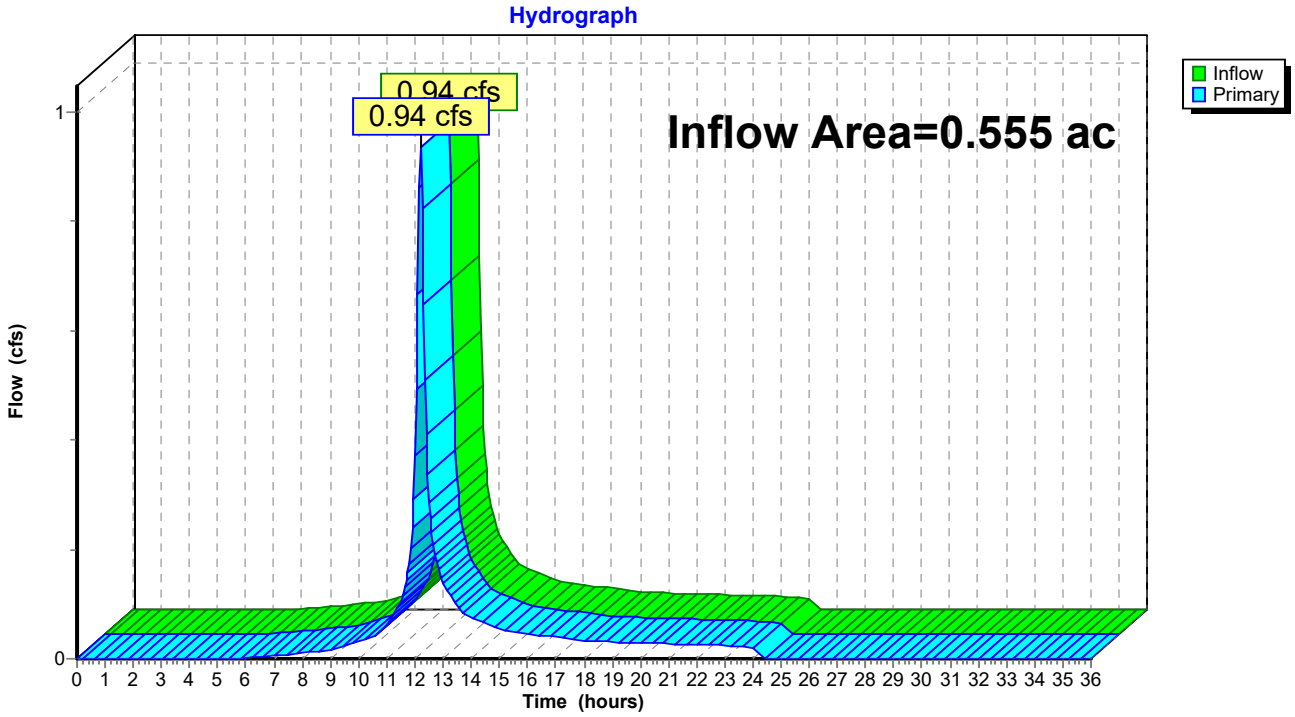


Summary for Link 1L: DP-1

Inflow Area = 0.555 ac, 7.24% Impervious, Inflow Depth = 1.91" for 2-Year event
Inflow = 0.94 cfs @ 12.19 hrs, Volume= 0.089 af
Primary = 0.94 cfs @ 12.19 hrs, Volume= 0.089 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link 1L: DP-1

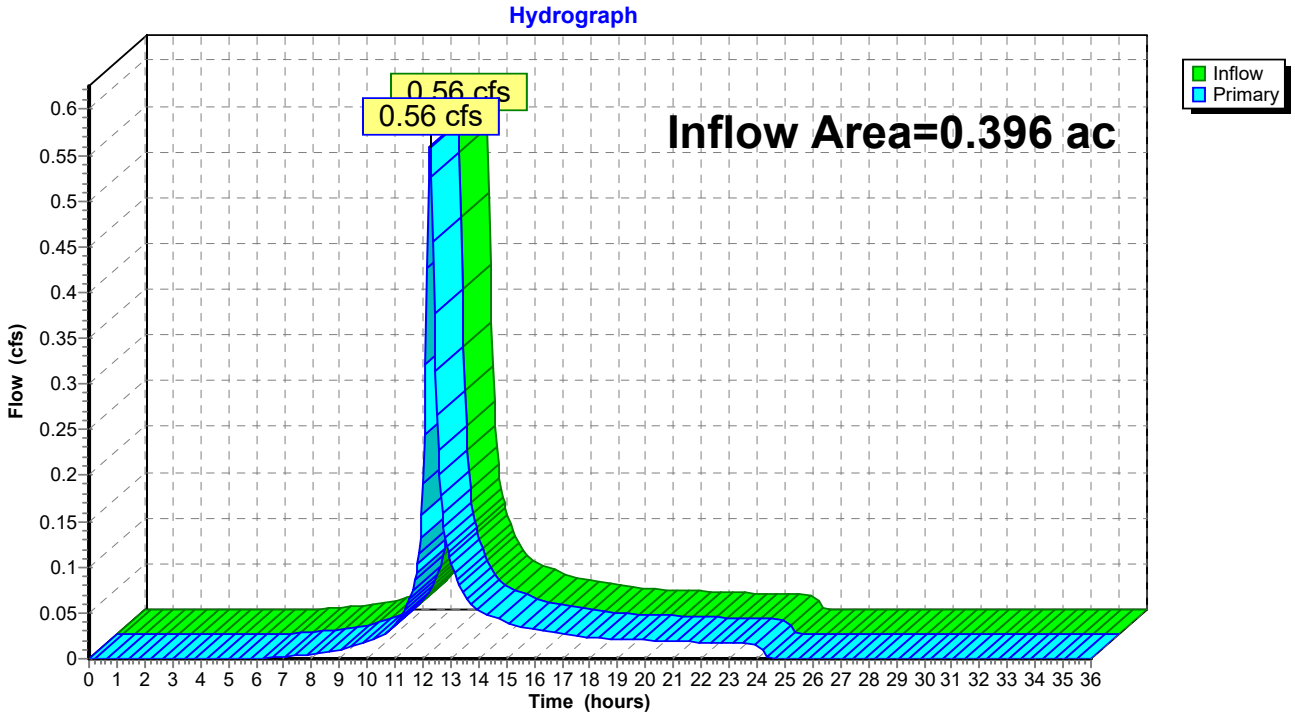


Summary for Link 2L: DP-2

Inflow Area = 0.396 ac, 1.55% Impervious, Inflow Depth = 1.84" for 2-Year event
Inflow = 0.56 cfs @ 12.25 hrs, Volume= 0.061 af
Primary = 0.56 cfs @ 12.25 hrs, Volume= 0.061 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link 2L: DP-2



Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EX-1 Runoff Area=24,177 sf 7.24% Impervious Runoff Depth=3.46"
Flow Length=287' Slope=0.0300 '/' Tc=11.7 min CN=87 Runoff=1.66 cfs 0.160 af

Subcatchment 2S: EX-2 Runoff Area=17,258 sf 1.55% Impervious Runoff Depth=3.36"
Flow Length=232' Slope=0.0200 '/' Tc=16.6 min CN=86 Runoff=1.01 cfs 0.111 af

Link 1L: DP-1 Inflow=1.66 cfs 0.160 af
Primary=1.66 cfs 0.160 af

Link 2L: DP-2 Inflow=1.01 cfs 0.111 af
Primary=1.01 cfs 0.111 af

Total Runoff Area = 0.951 ac Runoff Volume = 0.271 af Average Runoff Depth = 3.42"
95.13% Pervious = 0.905 ac 4.87% Impervious = 0.046 ac

Summary for Subcatchment 1S: EX-1

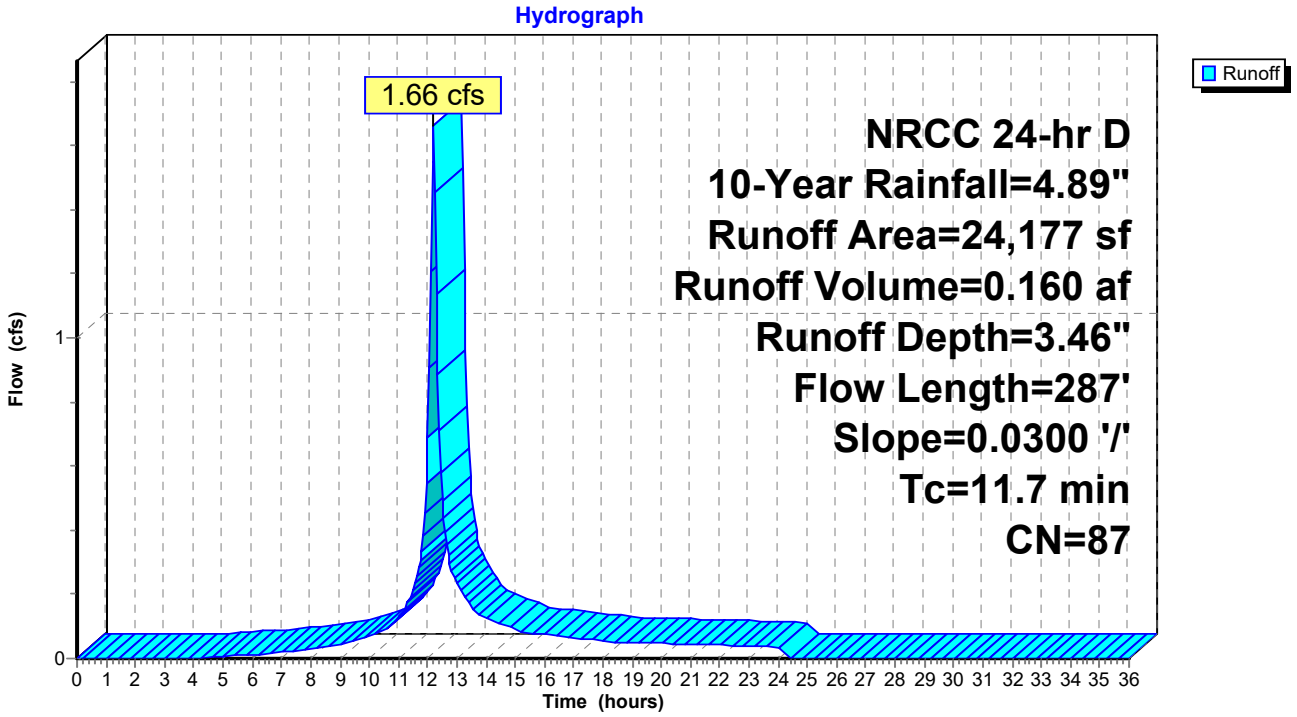
Runoff = 1.66 cfs @ 12.19 hrs, Volume= 0.160 af, Depth= 3.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.89"

	Area (sf)	CN	Description
	6,464	89	<50% Grass cover, Poor, HSG D
	10,129	83	Woods, Poor, HSG D
*	763	98	Concrete surfaces, HSG D
*	798	98	Debris piles, HSG D
*	5,412	89	Consolidated Area (Dirt), HSG D
*	422	86	Consolidated Area (Dirt), HSG C
	162	98	Paved parking, HSG D
*	27	98	Stone foundation, HSG D
	24,177	87	Weighted Average
	22,427		92.76% Pervious Area
	1,750		7.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	100	0.0300	0.20		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.13"
0.7	50	0.0300	1.21		**Shallow Concentrated Flow, SCF Grass** Short Grass Pasture Kv= 7.0 fps
2.6	137	0.0300	0.87		**Shallow Concentrated Flow, SCF Woods** Woodland Kv= 5.0 fps
11.7	287	Total			

Subcatchment 1S: EX-1



Summary for Subcatchment 2S: EX-2

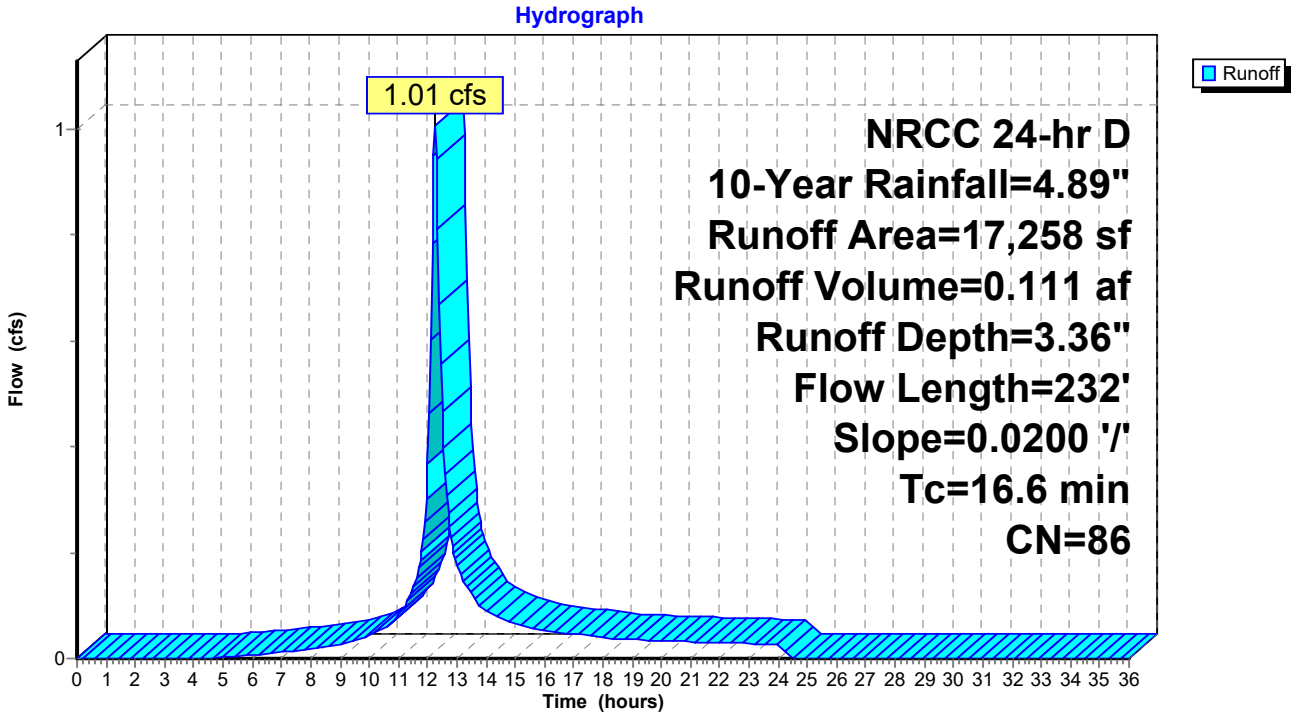
Runoff = 1.01 cfs @ 12.25 hrs, Volume= 0.111 af, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.89"

	Area (sf)	CN	Description
	1,008	89	<50% Grass cover, Poor, HSG D
	4,688	86	<50% Grass cover, Poor, HSG C
	934	83	Woods, Poor, HSG D
	627	77	Woods, Poor, HSG C
*	543	89	Consolidated Area (Dirt), HSG D
*	9,191	86	Consilidated Area (Dirt), HSG C
*	184	98	Concrete sidewalk, HSG C
	83	98	Paved parking, HSG C
	17,258	86	Weighted Average
	16,991		98.45% Pervious Area
	267		1.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	100	0.0200	0.12		**Sheet Flow, Tall Grass** Grass: Dense n= 0.240 P2= 3.13"
2.2	132	0.0200	0.99		**Shallow Concentrated Flow, SCF-grass** Short Grass Pasture Kv= 7.0 fps
16.6	232	Total			

Subcatchment 2S: EX-2

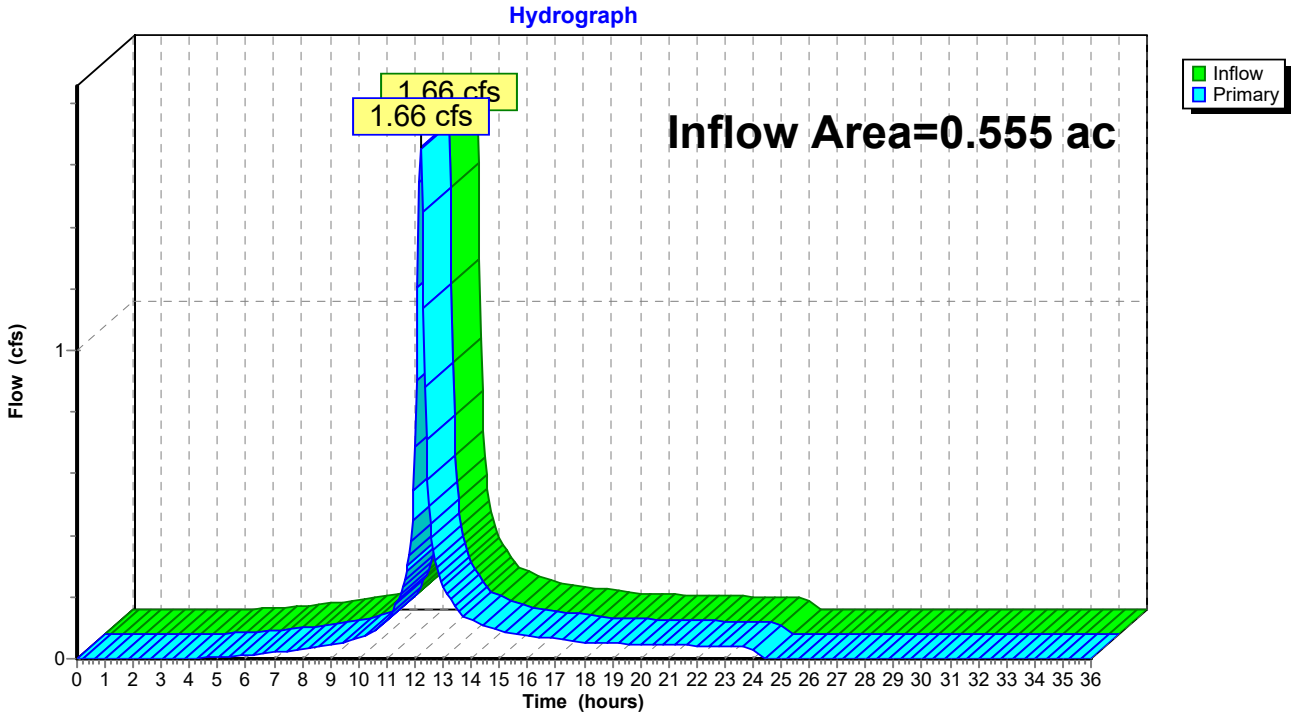


Summary for Link 1L: DP-1

Inflow Area = 0.555 ac, 7.24% Impervious, Inflow Depth = 3.46" for 10-Year event
Inflow = 1.66 cfs @ 12.19 hrs, Volume= 0.160 af
Primary = 1.66 cfs @ 12.19 hrs, Volume= 0.160 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link 1L: DP-1

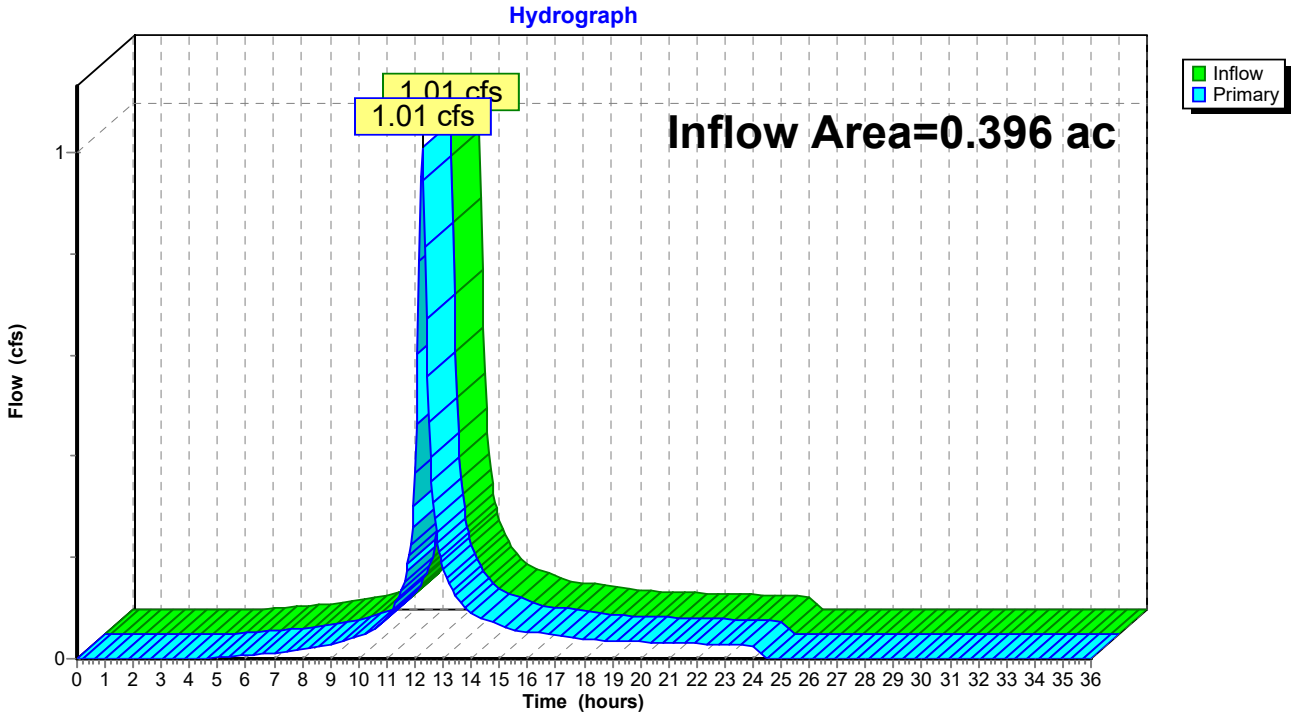


Summary for Link 2L: DP-2

Inflow Area = 0.396 ac, 1.55% Impervious, Inflow Depth = 3.36" for 10-Year event
Inflow = 1.01 cfs @ 12.25 hrs, Volume= 0.111 af
Primary = 1.01 cfs @ 12.25 hrs, Volume= 0.111 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link 2L: DP-2



Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EX-1 Runoff Area=24,177 sf 7.24% Impervious Runoff Depth=4.73"
Flow Length=287' Slope=0.0300 '/' Tc=11.7 min CN=87 Runoff=2.23 cfs 0.219 af

Subcatchment 2S: EX-2 Runoff Area=17,258 sf 1.55% Impervious Runoff Depth=4.62"
Flow Length=232' Slope=0.0200 '/' Tc=16.6 min CN=86 Runoff=1.37 cfs 0.152 af

Link 1L: DP-1 Inflow=2.23 cfs 0.219 af
Primary=2.23 cfs 0.219 af

Link 2L: DP-2 Inflow=1.37 cfs 0.152 af
Primary=1.37 cfs 0.152 af

Total Runoff Area = 0.951 ac Runoff Volume = 0.371 af Average Runoff Depth = 4.68"
95.13% Pervious = 0.905 ac 4.87% Impervious = 0.046 ac

Summary for Subcatchment 1S: EX-1

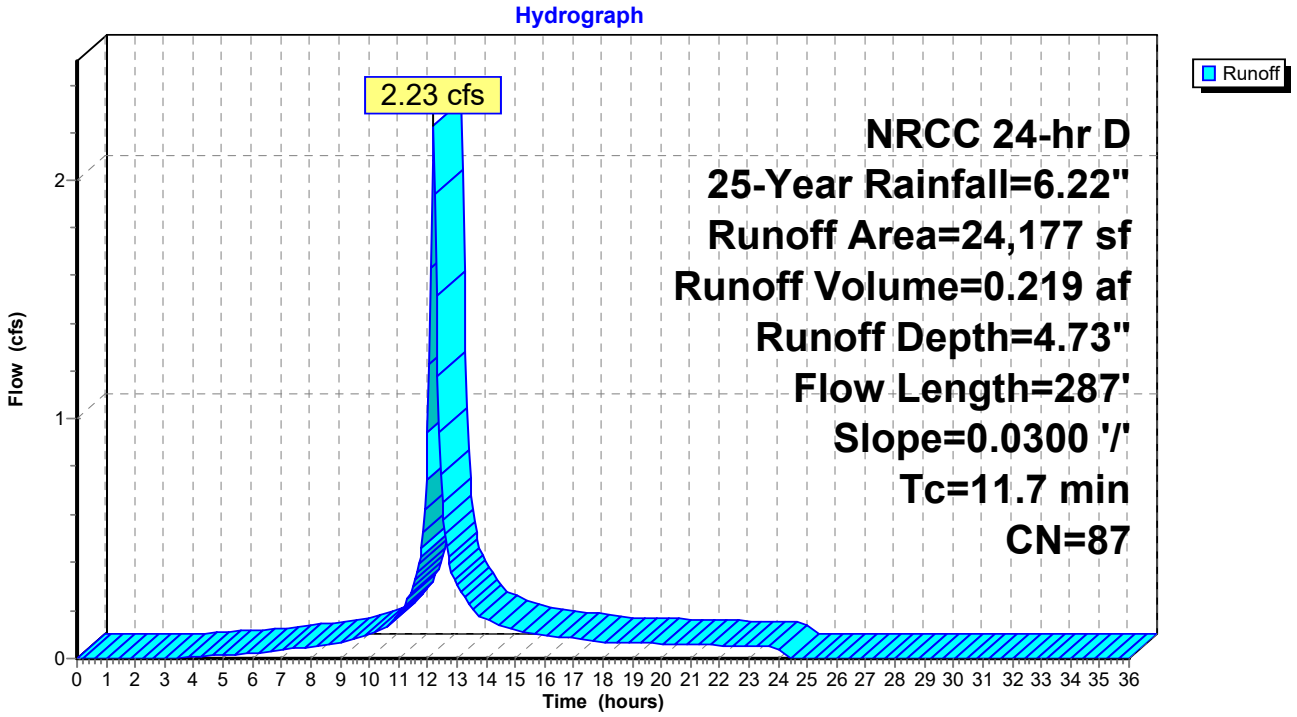
Runoff = 2.23 cfs @ 12.19 hrs, Volume= 0.219 af, Depth= 4.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.22"

	Area (sf)	CN	Description
	6,464	89	<50% Grass cover, Poor, HSG D
	10,129	83	Woods, Poor, HSG D
*	763	98	Concrete surfaces, HSG D
*	798	98	Debris piles, HSG D
*	5,412	89	Consolidated Area (Dirt), HSG D
*	422	86	Consolidated Area (Dirt), HSG C
	162	98	Paved parking, HSG D
*	27	98	Stone foundation, HSG D
	24,177	87	Weighted Average
	22,427		92.76% Pervious Area
	1,750		7.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	100	0.0300	0.20		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.13"
0.7	50	0.0300	1.21		**Shallow Concentrated Flow, SCF Grass** Short Grass Pasture Kv= 7.0 fps
2.6	137	0.0300	0.87		**Shallow Concentrated Flow, SCF Woods** Woodland Kv= 5.0 fps
11.7	287	Total			

Subcatchment 1S: EX-1



Summary for Subcatchment 2S: EX-2

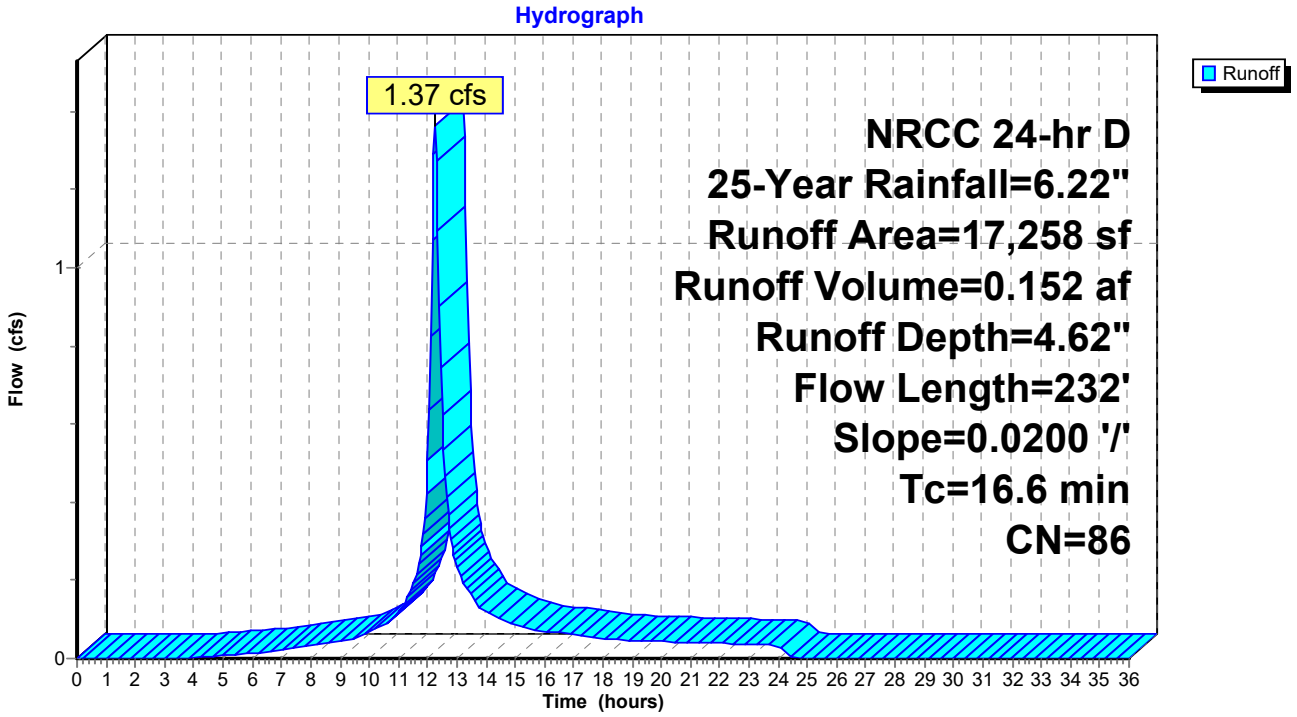
Runoff = 1.37 cfs @ 12.25 hrs, Volume= 0.152 af, Depth= 4.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.22"

	Area (sf)	CN	Description
	1,008	89	<50% Grass cover, Poor, HSG D
	4,688	86	<50% Grass cover, Poor, HSG C
	934	83	Woods, Poor, HSG D
	627	77	Woods, Poor, HSG C
*	543	89	Consolidated Area (Dirt), HSG D
*	9,191	86	Consilidated Area (Dirt), HSG C
*	184	98	Concrete sidewalk, HSG C
	83	98	Paved parking, HSG C
	17,258	86	Weighted Average
	16,991		98.45% Pervious Area
	267		1.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	100	0.0200	0.12		**Sheet Flow, Tall Grass** Grass: Dense n= 0.240 P2= 3.13"
2.2	132	0.0200	0.99		**Shallow Concentrated Flow, SCF-grass** Short Grass Pasture Kv= 7.0 fps
16.6	232	Total			

Subcatchment 2S: EX-2

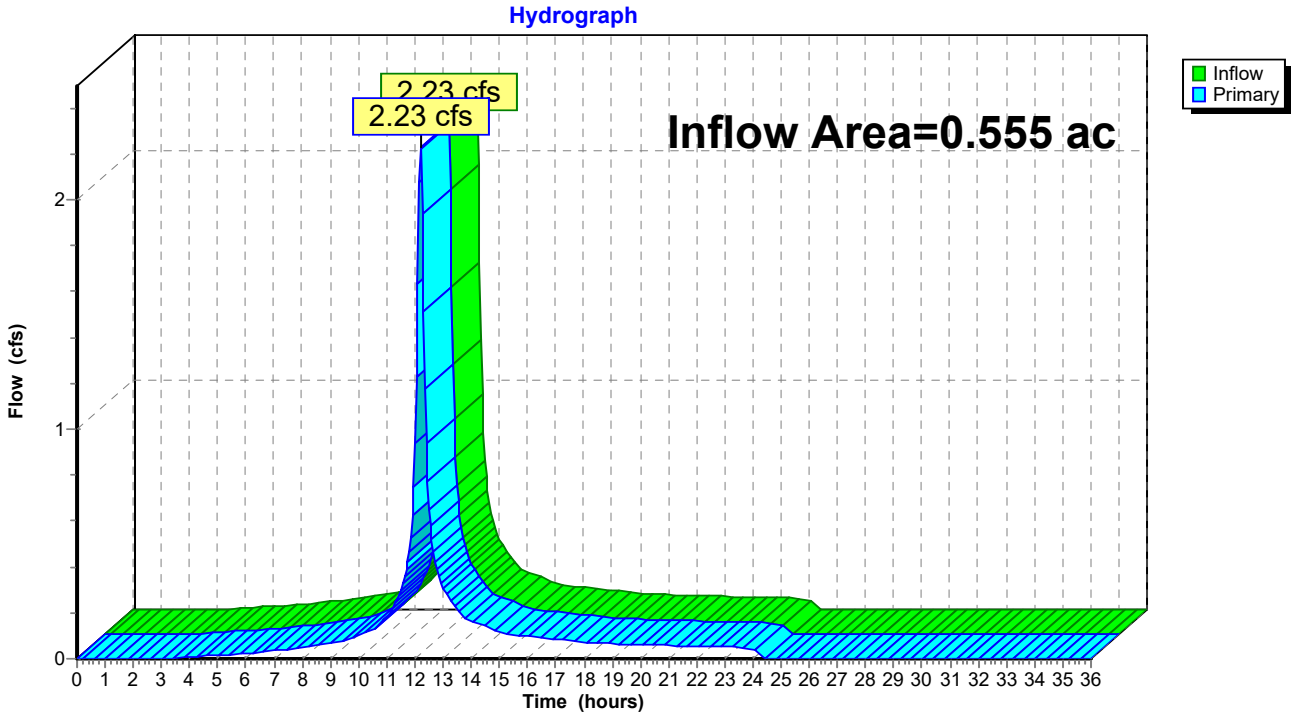


Summary for Link 1L: DP-1

Inflow Area = 0.555 ac, 7.24% Impervious, Inflow Depth = 4.73" for 25-Year event
Inflow = 2.23 cfs @ 12.19 hrs, Volume= 0.219 af
Primary = 2.23 cfs @ 12.19 hrs, Volume= 0.219 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link 1L: DP-1

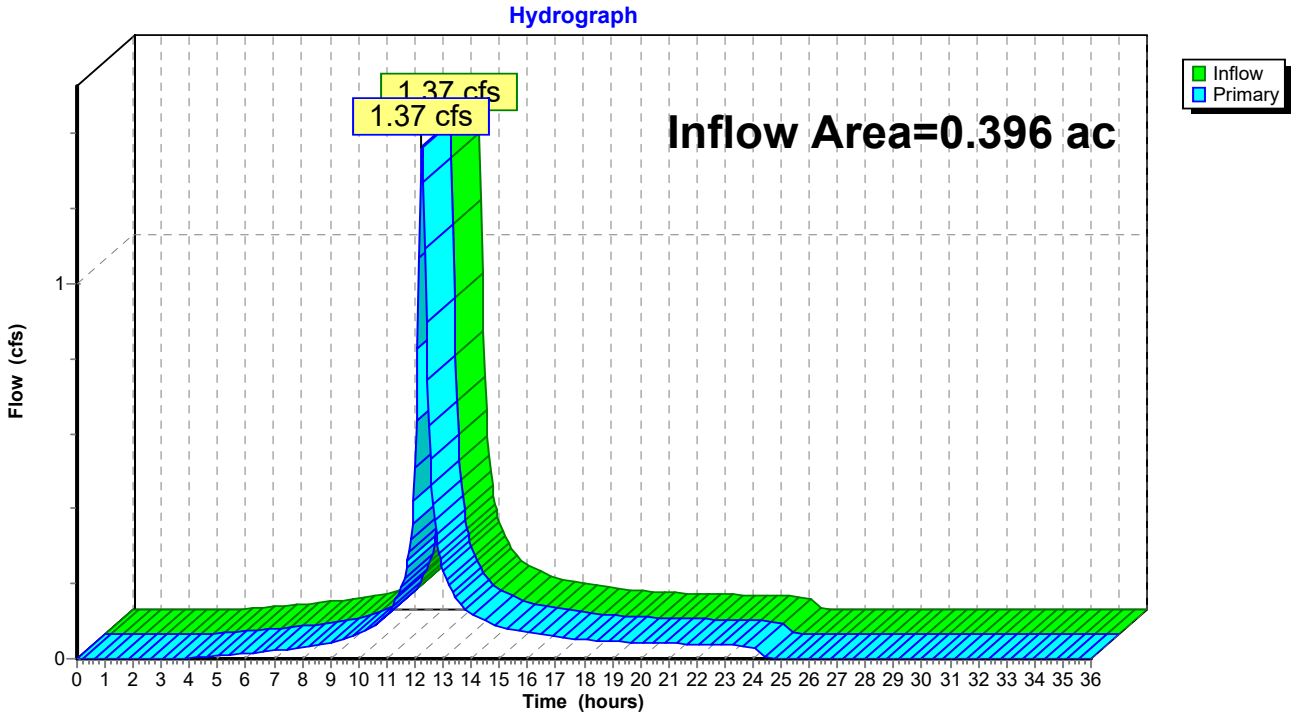


Summary for Link 2L: DP-2

Inflow Area = 0.396 ac, 1.55% Impervious, Inflow Depth = 4.62" for 25-Year event
Inflow = 1.37 cfs @ 12.25 hrs, Volume= 0.152 af
Primary = 1.37 cfs @ 12.25 hrs, Volume= 0.152 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link 2L: DP-2



Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EX-1 Runoff Area=24,177 sf 7.24% Impervious Runoff Depth=5.92"
Flow Length=287' Slope=0.0300 '/' Tc=11.7 min CN=87 Runoff=2.76 cfs 0.274 af

Subcatchment 2S: EX-2 Runoff Area=17,258 sf 1.55% Impervious Runoff Depth=5.81"
Flow Length=232' Slope=0.0200 '/' Tc=16.6 min CN=86 Runoff=1.70 cfs 0.192 af

Link 1L: DP-1 Inflow=2.76 cfs 0.274 af
Primary=2.76 cfs 0.274 af

Link 2L: DP-2 Inflow=1.70 cfs 0.192 af
Primary=1.70 cfs 0.192 af

Total Runoff Area = 0.951 ac Runoff Volume = 0.466 af Average Runoff Depth = 5.88"
95.13% Pervious = 0.905 ac 4.87% Impervious = 0.046 ac

Summary for Subcatchment 1S: EX-1

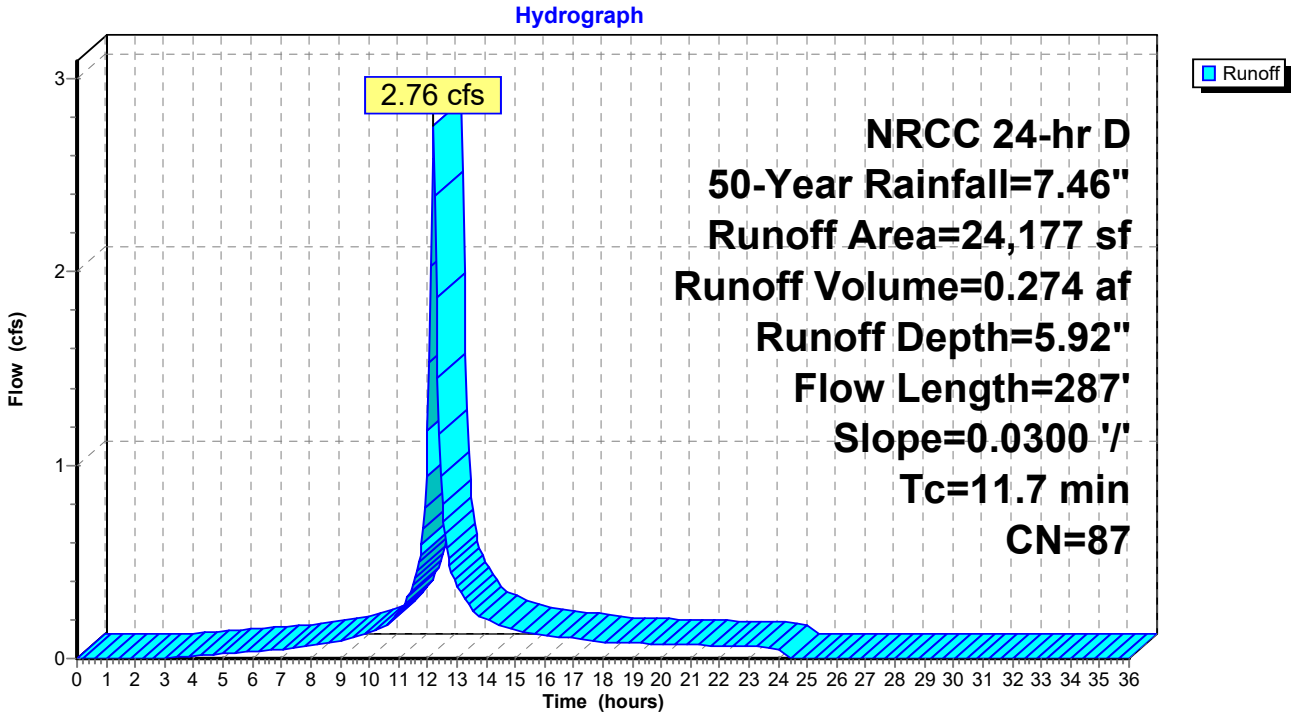
Runoff = 2.76 cfs @ 12.19 hrs, Volume= 0.274 af, Depth= 5.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 50-Year Rainfall=7.46"

	Area (sf)	CN	Description
	6,464	89	<50% Grass cover, Poor, HSG D
	10,129	83	Woods, Poor, HSG D
*	763	98	Concrete surfaces, HSG D
*	798	98	Debris piles, HSG D
*	5,412	89	Consolidated Area (Dirt), HSG D
*	422	86	Consolidated Area (Dirt), HSG C
	162	98	Paved parking, HSG D
*	27	98	Stone foundation, HSG D
	24,177	87	Weighted Average
	22,427		92.76% Pervious Area
	1,750		7.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	100	0.0300	0.20		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.13"
0.7	50	0.0300	1.21		**Shallow Concentrated Flow, SCF Grass** Short Grass Pasture Kv= 7.0 fps
2.6	137	0.0300	0.87		**Shallow Concentrated Flow, SCF Woods** Woodland Kv= 5.0 fps
11.7	287	Total			

Subcatchment 1S: EX-1



Summary for Subcatchment 2S: EX-2

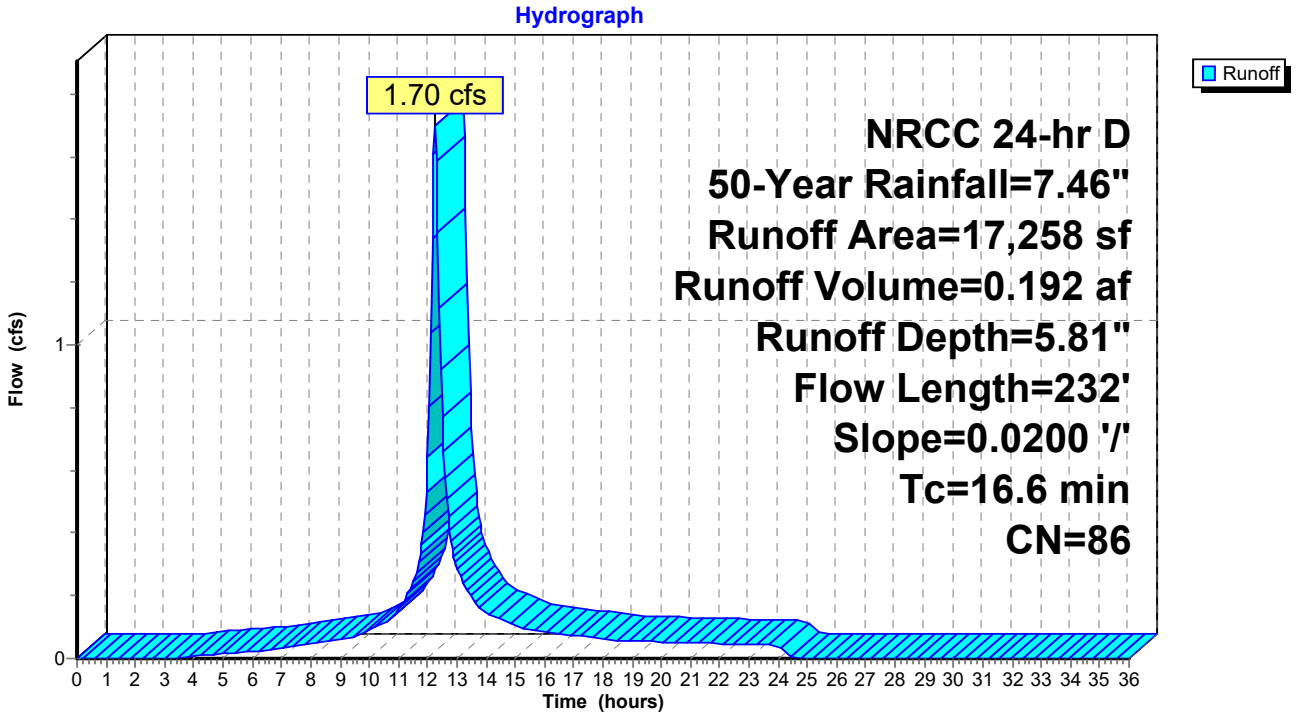
Runoff = 1.70 cfs @ 12.25 hrs, Volume= 0.192 af, Depth= 5.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 50-Year Rainfall=7.46"

	Area (sf)	CN	Description
	1,008	89	<50% Grass cover, Poor, HSG D
	4,688	86	<50% Grass cover, Poor, HSG C
	934	83	Woods, Poor, HSG D
	627	77	Woods, Poor, HSG C
*	543	89	Consolidated Area (Dirt), HSG D
*	9,191	86	Consilidated Area (Dirt), HSG C
*	184	98	Concrete sidewalk, HSG C
	83	98	Paved parking, HSG C
	17,258	86	Weighted Average
	16,991		98.45% Pervious Area
	267		1.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	100	0.0200	0.12		**Sheet Flow, Tall Grass** Grass: Dense n= 0.240 P2= 3.13"
2.2	132	0.0200	0.99		**Shallow Concentrated Flow, SCF-grass** Short Grass Pasture Kv= 7.0 fps
16.6	232	Total			

Subcatchment 2S: EX-2

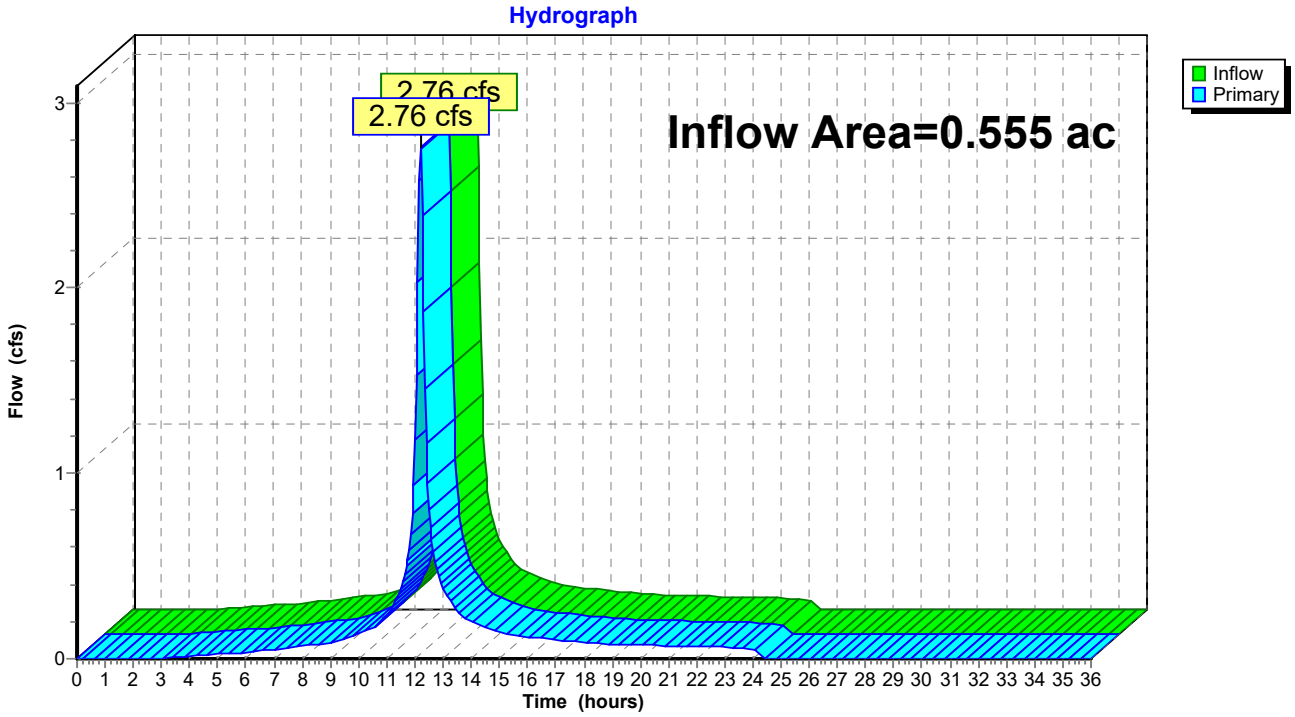


Summary for Link 1L: DP-1

Inflow Area = 0.555 ac, 7.24% Impervious, Inflow Depth = 5.92" for 50-Year event
Inflow = 2.76 cfs @ 12.19 hrs, Volume= 0.274 af
Primary = 2.76 cfs @ 12.19 hrs, Volume= 0.274 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link 1L: DP-1

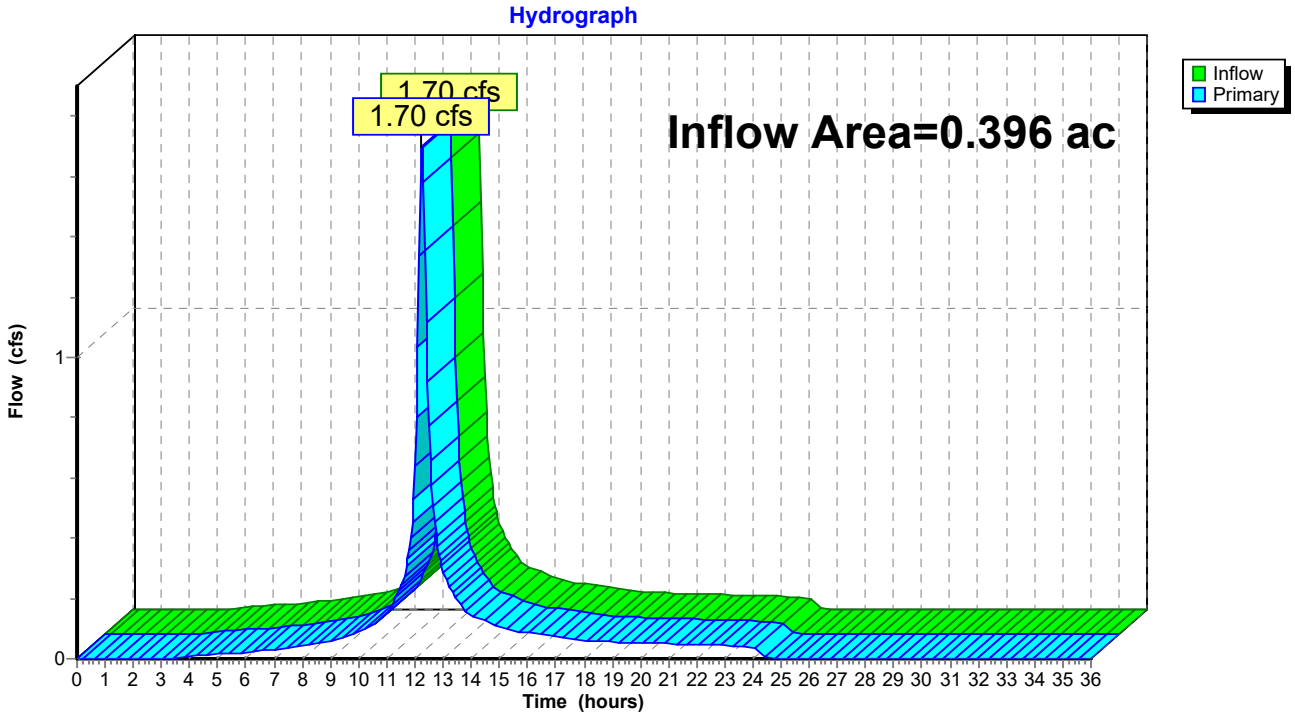


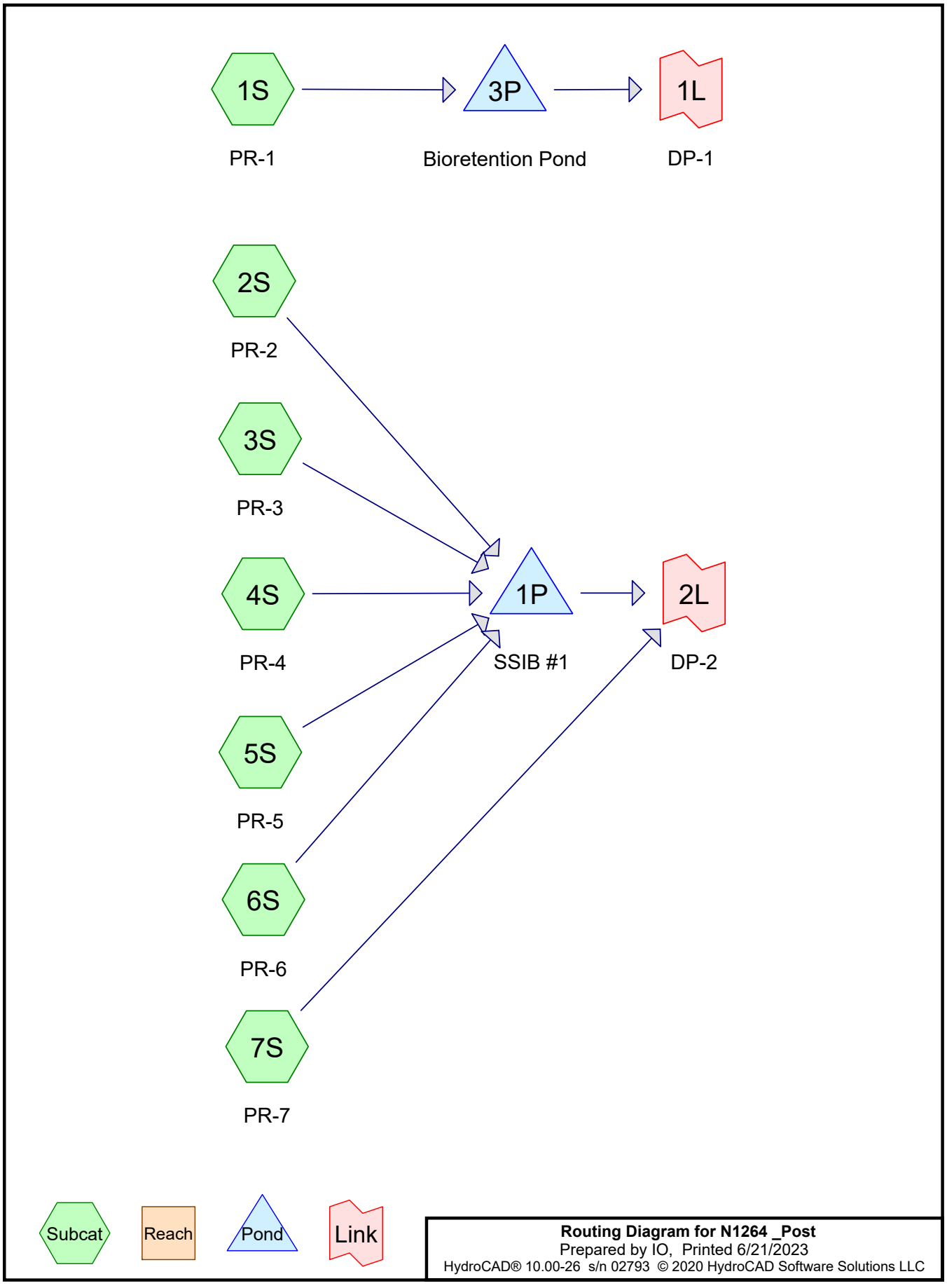
Summary for Link 2L: DP-2

Inflow Area = 0.396 ac, 1.55% Impervious, Inflow Depth = 5.81" for 50-Year event
Inflow = 1.70 cfs @ 12.25 hrs, Volume= 0.192 af
Primary = 1.70 cfs @ 12.25 hrs, Volume= 0.192 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link 2L: DP-2





Routing Diagram for N1264 _Post
Prepared by IO, Printed 6/21/2023

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 6518 NH Rockingham East

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.124	74	>75% Grass cover, Good, HSG C (2S, 4S, 5S, 6S, 7S)
0.225	80	>75% Grass cover, Good, HSG D (1S, 2S, 4S, 5S, 6S, 7S)
0.020	98	Concrete Surfaces, HSG C (2S, 4S, 5S)
0.012	98	Concrete Surfaces, HSG D (2S, 5S)
0.002	98	Concrete sidewalk, HSG C (6S)
0.004	98	Concrete, HSG D (1S)
0.181	98	Paved parking, HSG C (2S, 4S, 5S, 6S)
0.323	98	Paved parking, HSG D (1S, 2S, 5S, 6S)
0.022	98	Roofs, HSG C (3S)
0.038	98	Roofs, HSG D (3S)
0.951	**91**	**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PR-1 Runoff Area=15,530 sf 51.72% Impervious Runoff Depth=0.80"
Tc=6.0 min CN=89 Runoff=0.31 cfs 0.024 af

Subcatchment 2S: PR-2 Runoff Area=7,443 sf 79.85% Impervious Runoff Depth=1.14"
Tc=6.0 min CN=94 Runoff=0.21 cfs 0.016 af

Subcatchment 3S: PR-3 Runoff Area=2,617 sf 100.00% Impervious Runoff Depth=1.50"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.007 af

Subcatchment 4S: PR-4 Runoff Area=6,094 sf 65.62% Impervious Runoff Depth=0.86"
Tc=6.0 min CN=90 Runoff=0.13 cfs 0.010 af

Subcatchment 5S: PR-5 Runoff Area=3,931 sf 87.18% Impervious Runoff Depth=1.22"
Tc=6.0 min CN=95 Runoff=0.11 cfs 0.009 af

Subcatchment 6S: PR-6 Runoff Area=5,199 sf 42.12% Impervious Runoff Depth=0.55"
Flow Length=194' Tc=16.7 min CN=84 Runoff=0.05 cfs 0.005 af

Subcatchment 7S: PR-7 Runoff Area=620 sf 0.00% Impervious Runoff Depth=0.34"
Tc=6.0 min CN=78 Runoff=0.00 cfs 0.000 af

Pond 1P: SSIB #1 Peak Elev=66.07' Storage=1,184 cf Inflow=0.57 cfs 0.048 af
Discarded=0.02 cfs 0.048 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.048 af

Pond 3P: Bioretention Pond Peak Elev=66.54' Storage=1,036 cf Inflow=0.31 cfs 0.024 af
Outflow=0.00 cfs 0.000 af

Link 1L: DP-1 Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link 2L: DP-2 Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Total Runoff Area = 0.951 ac Runoff Volume = 0.073 af Average Runoff Depth = 0.92"
36.75% Pervious = 0.350 ac 63.25% Impervious = 0.602 ac

Summary for Subcatchment 1S: PR-1

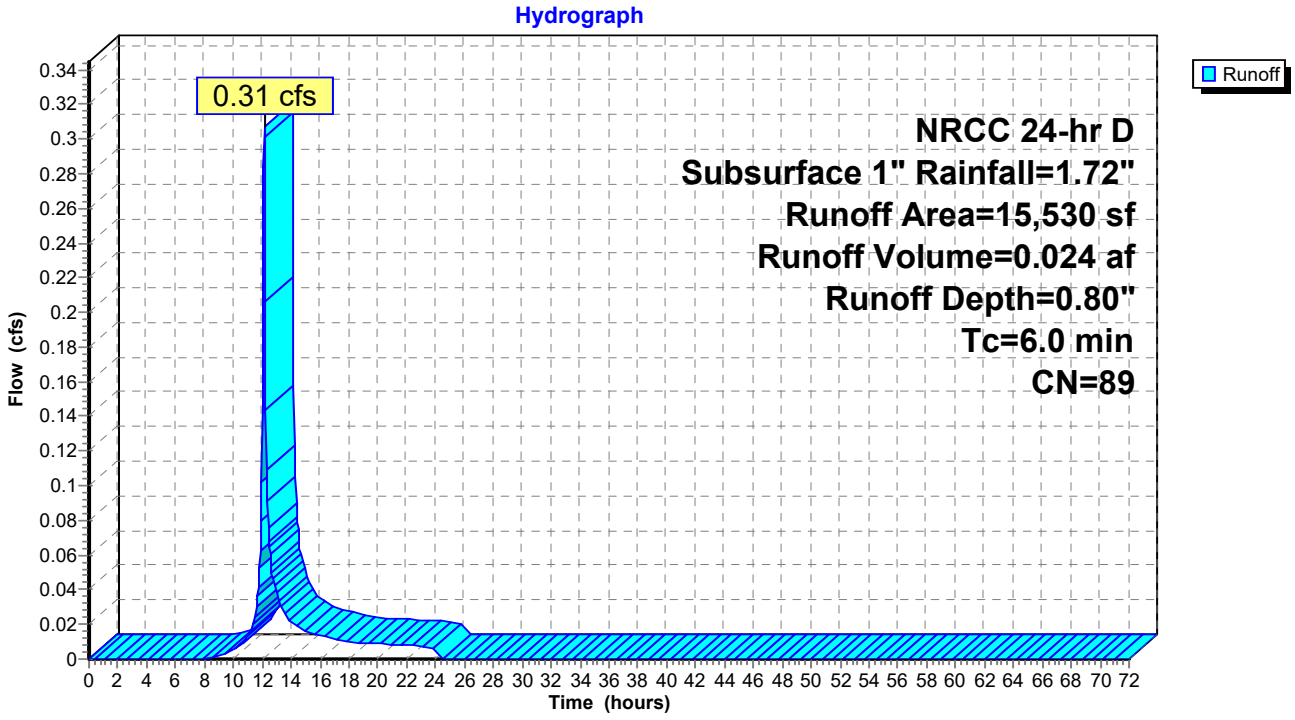
Runoff = 0.31 cfs @ 12.13 hrs, Volume= 0.024 af, Depth= 0.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D Subsurface 1" Rainfall=1.72"

	Area (sf)	CN	Description
	7,498	80	>75% Grass cover, Good, HSG D
	7,838	98	Paved parking, HSG D
*	194	98	Concrete, HSG D
	15,530	89	Weighted Average
	7,498		48.28% Pervious Area
	8,032		51.72% Impervious Area

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

Subcatchment 1S: PR-1



Summary for Subcatchment 2S: PR-2

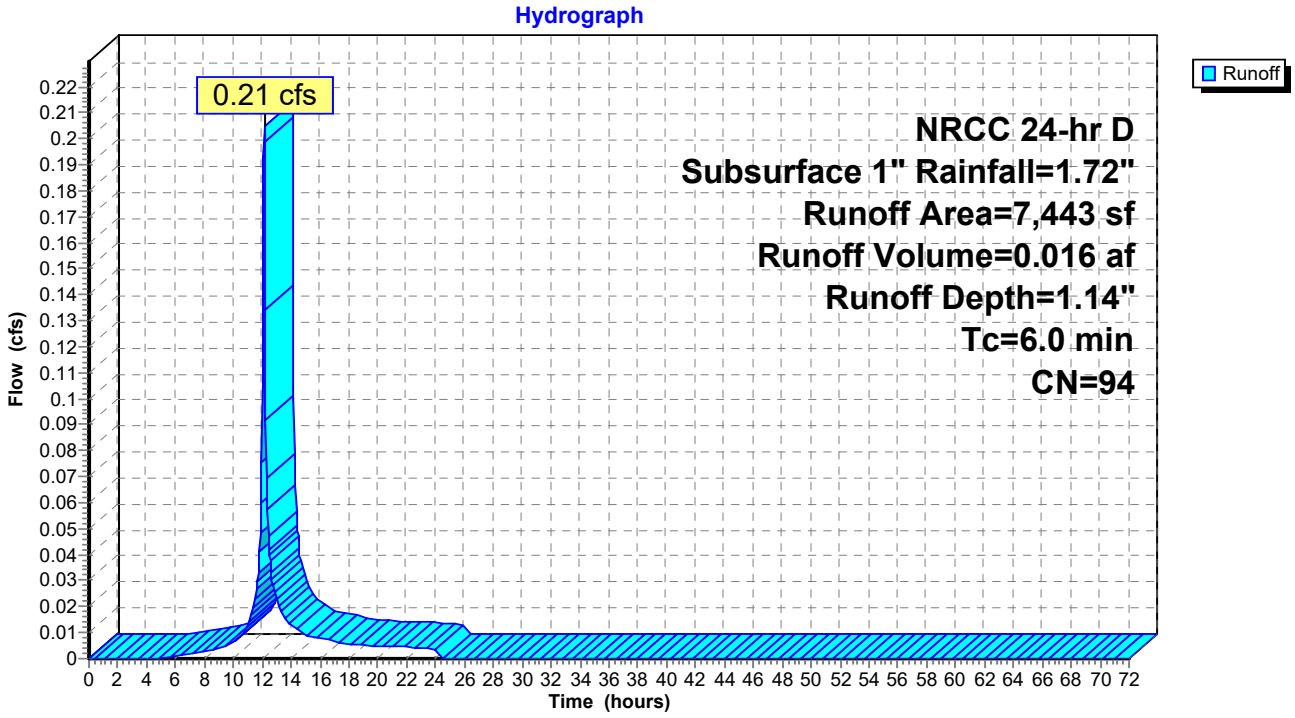
Runoff = 0.21 cfs @ 12.13 hrs, Volume= 0.016 af, Depth= 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D Subsurface 1" Rainfall=1.72"

	Area (sf)	CN	Description
	484	98	Paved parking, HSG C
	4,863	98	Paved parking, HSG D
	89	74	>75% Grass cover, Good, HSG C
	1,411	80	>75% Grass cover, Good, HSG D
*	526	98	Concrete Surfaces, HSG D
*	70	98	Concrete Surfaces, HSG C
	7,443	94	Weighted Average
	1,500		20.15% Pervious Area
	5,943		79.85% Impervious Area

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

Subcatchment 2S: PR-2



Summary for Subcatchment 3S: PR-3

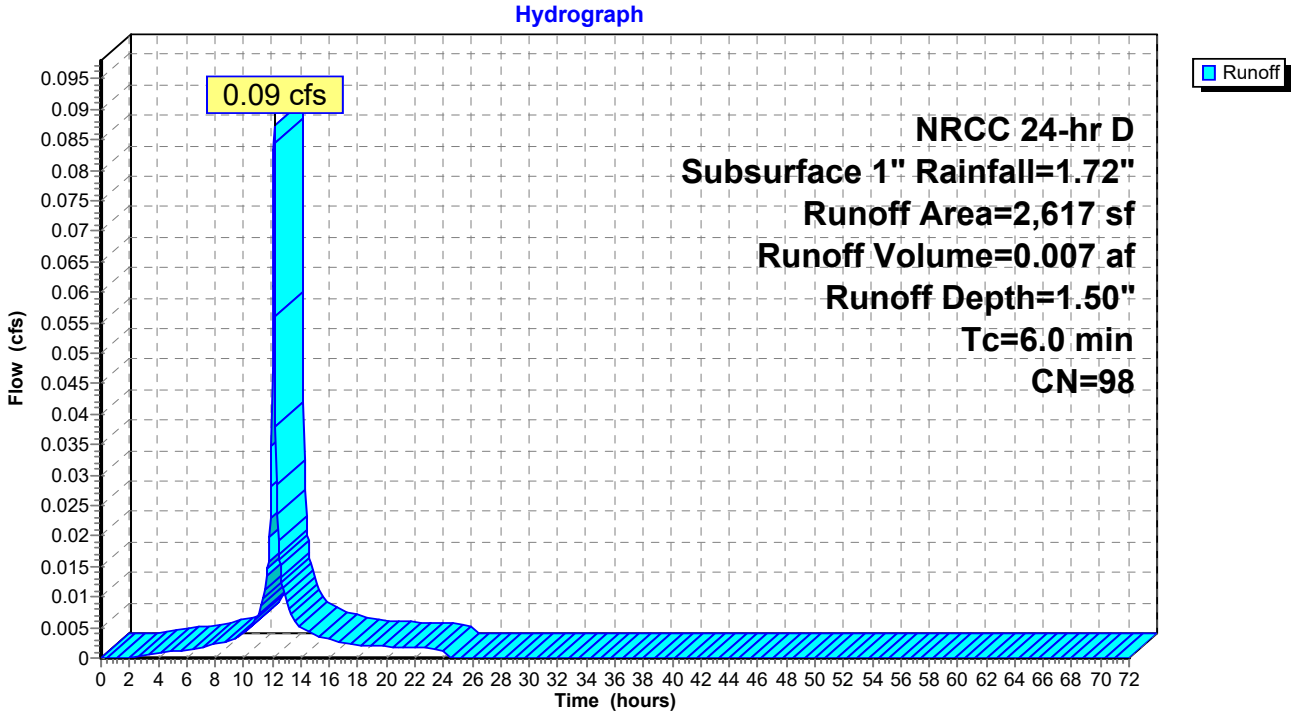
Runoff = 0.09 cfs @ 12.13 hrs, Volume= 0.007 af, Depth= 1.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D Subsurface 1" Rainfall=1.72"

Area (sf)	CN	Description
1,648	98	Roofs, HSG D
969	98	Roofs, HSG C
2,617	98	Weighted Average
2,617		100.00% Impervious Area

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

Subcatchment 3S: PR-3



Summary for Subcatchment 4S: PR-4

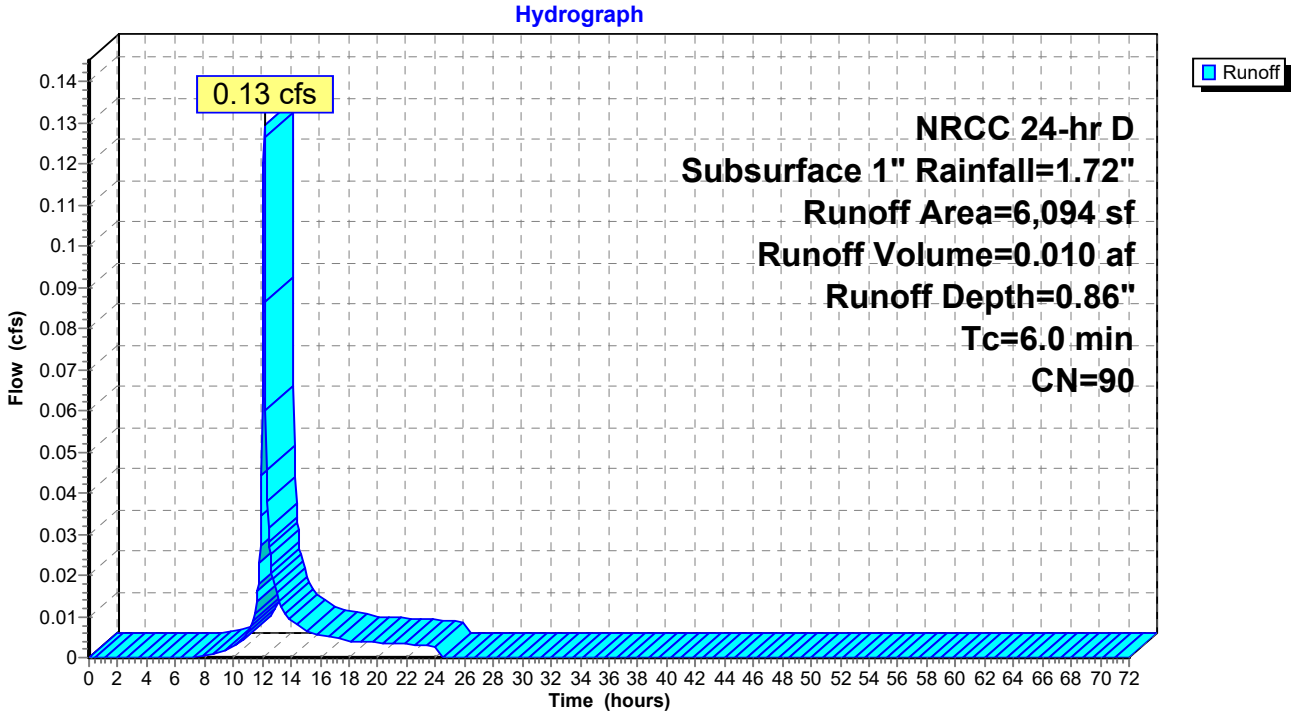
Runoff = 0.13 cfs @ 12.13 hrs, Volume= 0.010 af, Depth= 0.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D Subsurface 1" Rainfall=1.72"

	Area (sf)	CN	Description
	1,877	74	>75% Grass cover, Good, HSG C
	218	80	>75% Grass cover, Good, HSG D
	3,392	98	Paved parking, HSG C
*	607	98	Concrete Surfaces, HSG C
	6,094	90	Weighted Average
	2,095		34.38% Pervious Area
	3,999		65.62% Impervious Area

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

Subcatchment 4S: PR-4



Summary for Subcatchment 5S: PR-5

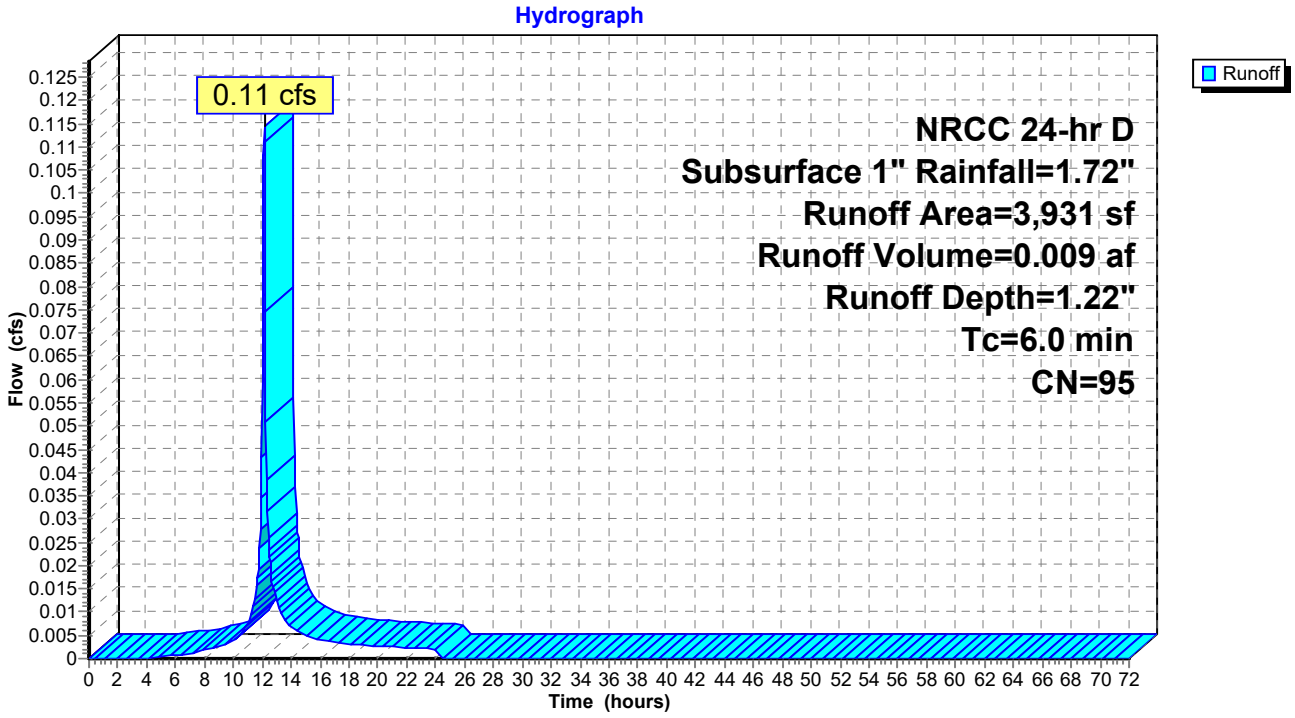
Runoff = 0.11 cfs @ 12.13 hrs, Volume= 0.009 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D Subsurface 1" Rainfall=1.72"

	Area (sf)	CN	Description
	359	98	Paved parking, HSG D
	2,878	98	Paved parking, HSG C
	82	80	>75% Grass cover, Good, HSG D
	422	74	>75% Grass cover, Good, HSG C
*	13	98	Concrete Surfaces, HSG D
*	177	98	Concrete Surfaces, HSG C
	3,931	95	Weighted Average
	504		12.82% Pervious Area
	3,427		87.18% Impervious Area

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

Subcatchment 5S: PR-5



Summary for Subcatchment 6S: PR-6

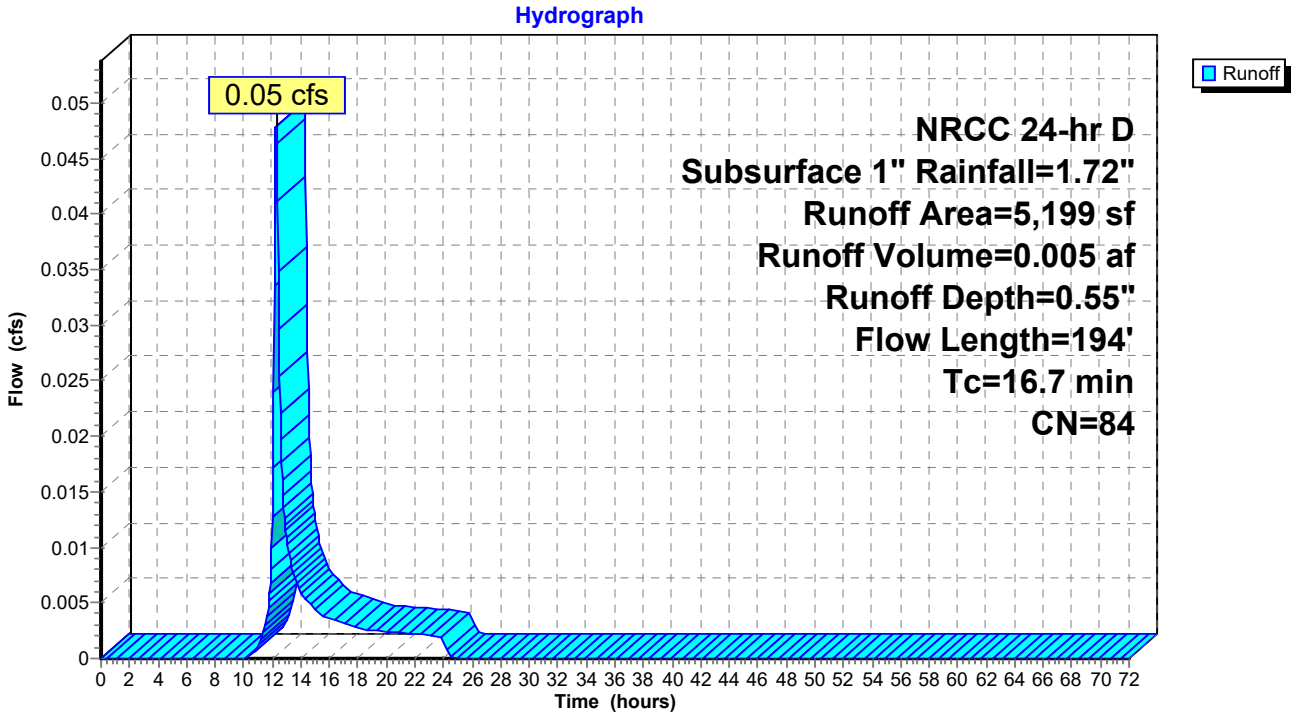
Runoff = 0.05 cfs @ 12.26 hrs, Volume= 0.005 af, Depth= 0.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D Subsurface 1" Rainfall=1.72"

	Area (sf)	CN	Description
	228	80	>75% Grass cover, Good, HSG D
	2,781	74	>75% Grass cover, Good, HSG C
	992	98	Paved parking, HSG D
	1,115	98	Paved parking, HSG C
*	83	98	Concrete sidewalk, HSG C
	5,199	84	Weighted Average
	3,009		57.88% Pervious Area
	2,190		42.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	100	0.0060	0.10		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.13"
0.3	10	0.0060	0.54		**Shallow Concentrated Flow, SCF grass** Short Grass Pasture Kv= 7.0 fps
0.3	44	0.0200	2.87		**Shallow Concentrated Flow, SCF paved** Paved Kv= 20.3 fps
0.1	40	0.0100	4.54	3.56	**Pipe Channel, Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
16.7	194	Total			

Subcatchment 6S: PR-6



Summary for Subcatchment 7S: PR-7

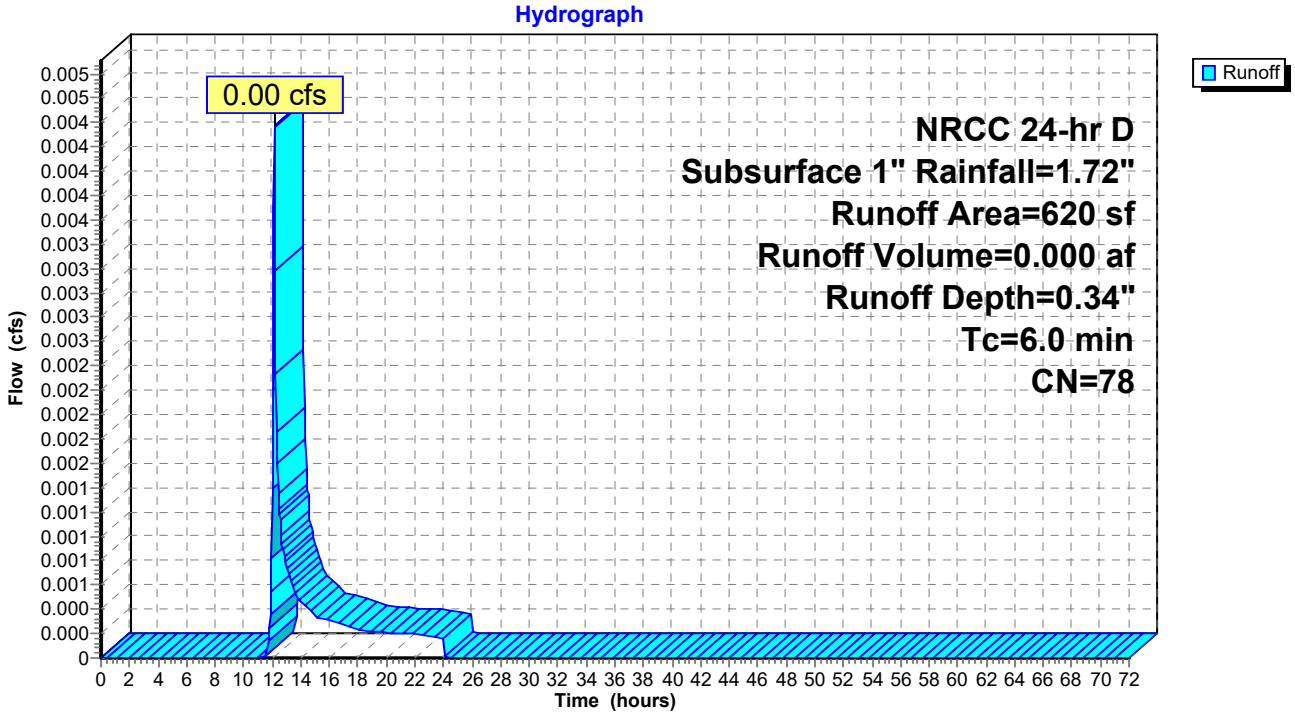
Runoff = 0.00 cfs @ 12.14 hrs, Volume= 0.000 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D Subsurface 1" Rainfall=1.72"

Area (sf)	CN	Description
372	80	>75% Grass cover, Good, HSG D
248	74	>75% Grass cover, Good, HSG C
620	78	Weighted Average
620		100.00% Pervious Area

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

Subcatchment 7S: PR-7



Summary for Pond 1P: SSIB #1

Inflow Area = 0.580 ac, 71.89% Impervious, Inflow Depth = 1.00" for Subsurface 1" event
Inflow = 0.57 cfs @ 12.13 hrs, Volume= 0.048 af
Outflow = 0.02 cfs @ 16.70 hrs, Volume= 0.048 af, Atten= 96%, Lag= 273.9 min
Discarded = 0.02 cfs @ 16.70 hrs, Volume= 0.048 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 66.07' @ 16.70 hrs Surf.Area= 4,490 sf Storage= 1,184 cf

Plug-Flow detention time= 723.6 min calculated for 0.048 af (100% of inflow)
Center-of-Mass det. time= 723.2 min (1,556.7 - 833.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	65.75'	2,040 cf	**30.00'W x 74.82'L x 3.50'H Field A** 7,856 cf Overall - 2,756 cf Embedded = 5,099 cf x 40.0% Voids
#2A	66.25'	2,756 cf	**ADS_StormTech SC-740 +Cap** x 60 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 60 Chambers in 6 Rows
#3	64.75'	898 cf	**12" Stone (Prismatic)**Listed below (Recalc) 2,245 cf Overall x 40.0% Voids
		5,694 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
64.75	2,245	0	0
65.75	2,245	2,245	2,245

Device	Routing	Invert	Outlet Devices
#1	Discarded	64.75'	**0.200 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 50.00'
#2	Device 4	67.75'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 4	68.30'	**5.0" Vert. Orifice/Grate** C= 0.600
#4	Primary	66.40'	**12.0" Round Culvert** L= 69.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.40' / 65.60' S= 0.0116 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.02 cfs @ 16.70 hrs HW=66.07' (Free Discharge)
└**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=64.75' (Free Discharge)
└**4=Culvert** (Controls 0.00 cfs)
  └**2=Orifice/Grate** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: SSIB #1 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

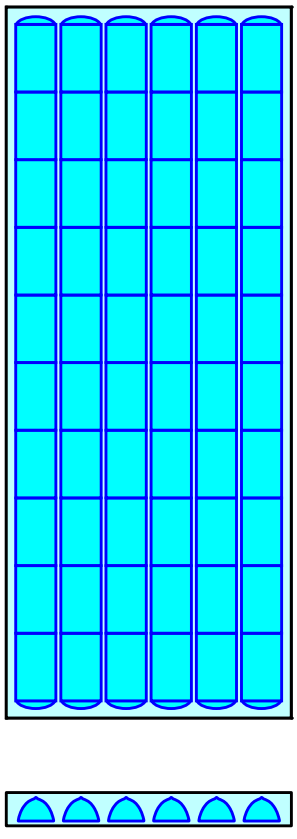
10 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 72.82' Row Length +12.0" End Stone x 2 = 74.82' Base Length
6 Rows x 51.0" Wide + 6.0" Spacing x 5 + 12.0" Side Stone x 2 = 30.00' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

60 Chambers x 45.9 cf = 2,756.4 cf Chamber Storage

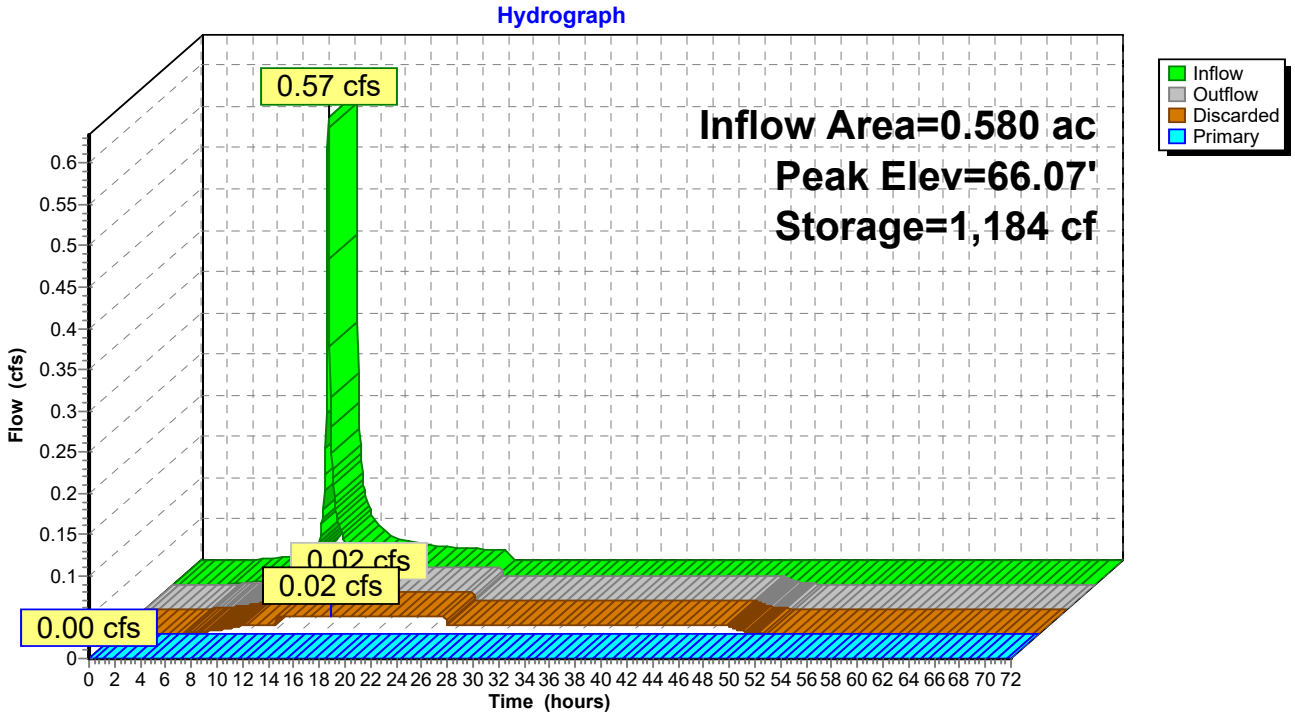
7,855.8 cf Field - 2,756.4 cf Chambers = 5,099.3 cf Stone x 40.0% Voids = 2,039.7 cf Stone Storage

Chamber Storage + Stone Storage = 4,796.1 cf = 0.110 af
Overall Storage Efficiency = 61.1%
Overall System Size = 74.82' x 30.00' x 3.50'

60 Chambers
291.0 cy Field
188.9 cy Stone



Pond 1P: SSIB #1



Stage-Area-Storage for Pond 1P: SSIB #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
64.75	2,245	0
64.80	2,245	45
64.85	2,245	90
64.90	2,245	135
64.95	2,245	180
65.00	2,245	225
65.05	2,245	269
65.10	2,245	314
65.15	2,245	359
65.20	2,245	404
65.25	2,245	449
65.30	2,245	494
65.35	2,245	539
65.40	2,245	584
65.45	2,245	629
65.50	2,245	674
65.55	2,245	718
65.60	2,245	763
65.65	2,245	808
65.70	2,245	853
65.75	**4,490**	898
65.80	4,490	943
65.85	4,490	988
65.90	4,490	1,033
65.95	4,490	1,078
66.00	4,490	1,122
66.05	4,490	1,167
66.10	4,490	1,212
66.15	4,490	1,257
66.20	4,490	1,302
66.25	4,490	1,347
66.30	4,490	1,439
66.35	4,490	1,532
66.40	4,490	1,624
66.45	4,490	1,716
66.50	4,490	1,808
66.55	4,490	1,900
66.60	4,490	1,991
66.65	4,490	2,082
66.70	4,490	2,173
66.75	4,490	2,263
66.80	4,490	2,353
66.85	4,490	2,442
66.90	4,490	2,531
66.95	4,490	2,620
67.00	4,490	2,708
67.05	4,490	2,795
67.10	4,490	2,882
67.15	4,490	2,969
67.20	4,490	3,055
67.25	4,490	3,141
67.30	4,490	3,226
67.35	4,490	3,311
67.40	4,490	3,394
67.45	4,490	3,478
67.50	4,490	3,560
67.55	4,490	3,642
67.60	4,490	3,723
67.65	4,490	3,803
67.70	4,490	3,883
67.75	4,490	3,962
67.80	4,490	4,040
67.85	4,490	4,117
67.90	4,490	4,193
67.95	4,490	4,268
68.00	4,490	4,342
68.05	4,490	4,415
68.10	4,490	4,486
68.15	4,490	4,556
68.20	4,490	4,625
68.25	4,490	4,693
68.30	4,490	4,759
68.35	4,490	4,823
68.40	4,490	4,885
68.45	4,490	4,944
68.50	4,490	5,001
68.55	4,490	5,054
68.60	4,490	5,104
68.65	4,490	5,153
68.70	4,490	5,200
68.75	4,490	5,245
68.80	4,490	5,290
68.85	4,490	5,335
68.90	4,490	5,380
68.95	4,490	5,425
69.00	4,490	5,470
69.05	4,490	5,515
69.10	4,490	5,559
69.15	4,490	5,604
69.20	4,490	5,649
69.25	4,490	**5,694**

Summary for Pond 3P: Bioretention Pond

Inflow Area = 0.357 ac, 51.72% Impervious, Inflow Depth = 0.80" for Subsurface 1" event
Inflow = 0.31 cfs @ 12.13 hrs, Volume= 0.024 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 66.54' @ 24.40 hrs Surf.Area= 2,694 sf Storage= 1,036 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

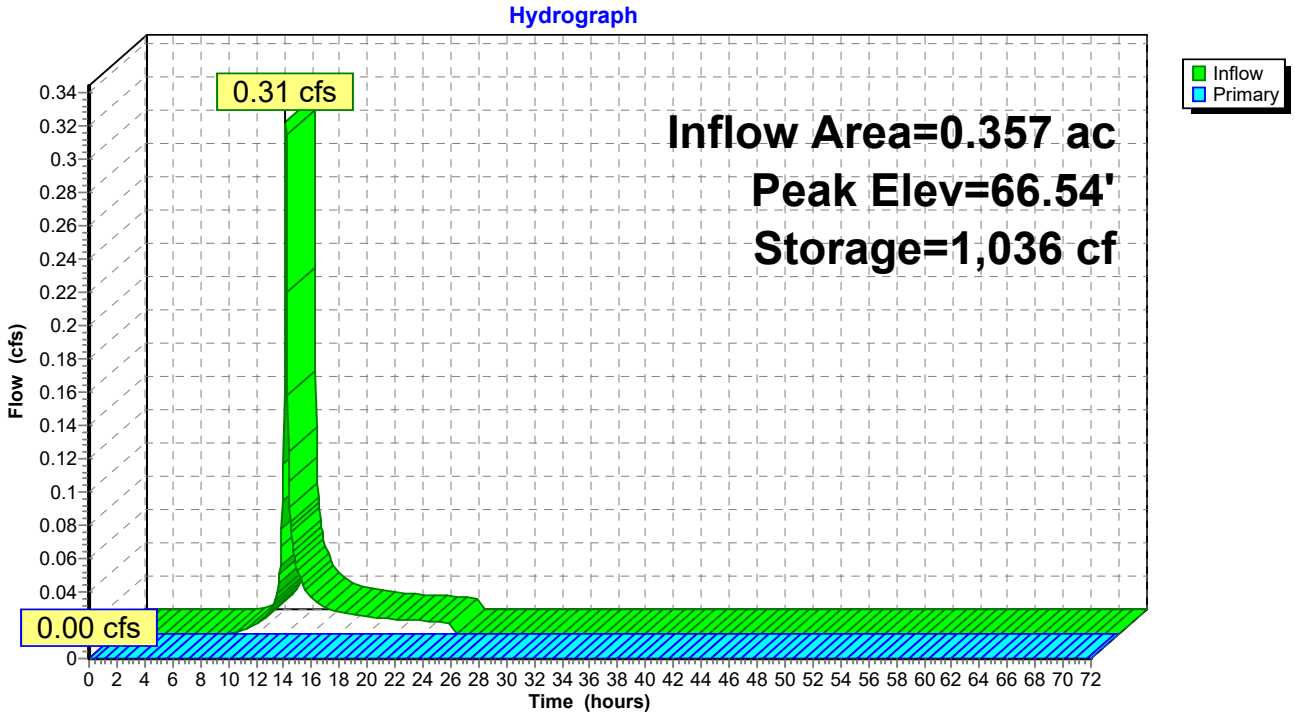
Volume	Invert	Avail.Storage	Storage Description
#1	65.58'	4,372 cf	**Storage Area (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
65.58	2,694	247.0	0.0	0	0	2,694
65.83	2,694	247.0	40.0	269	269	2,756
66.83	2,694	247.0	40.0	1,078	1,347	3,003
68.33	2,694	247.0	40.0	1,616	2,963	3,373
68.83	2,944	254.0	100.0	1,409	4,372	3,679

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	**12.0" Round Culvert** L= 7.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.00' / 66.00' S= 0.0000 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	66.00'	**2.400 in/hr Exfiltration over Surface area above 66.00'** Excluded Surface area = 2,694 sf
#3	Device 1	68.75'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 in 23.0" x 21.0" Grate (30% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.58' (Free Discharge)
- **1=Culvert** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Controls 0.00 cfs)

Pond 3P: Bioretention Pond



Stage-Area-Storage for Pond 3P: Bioretention Pond

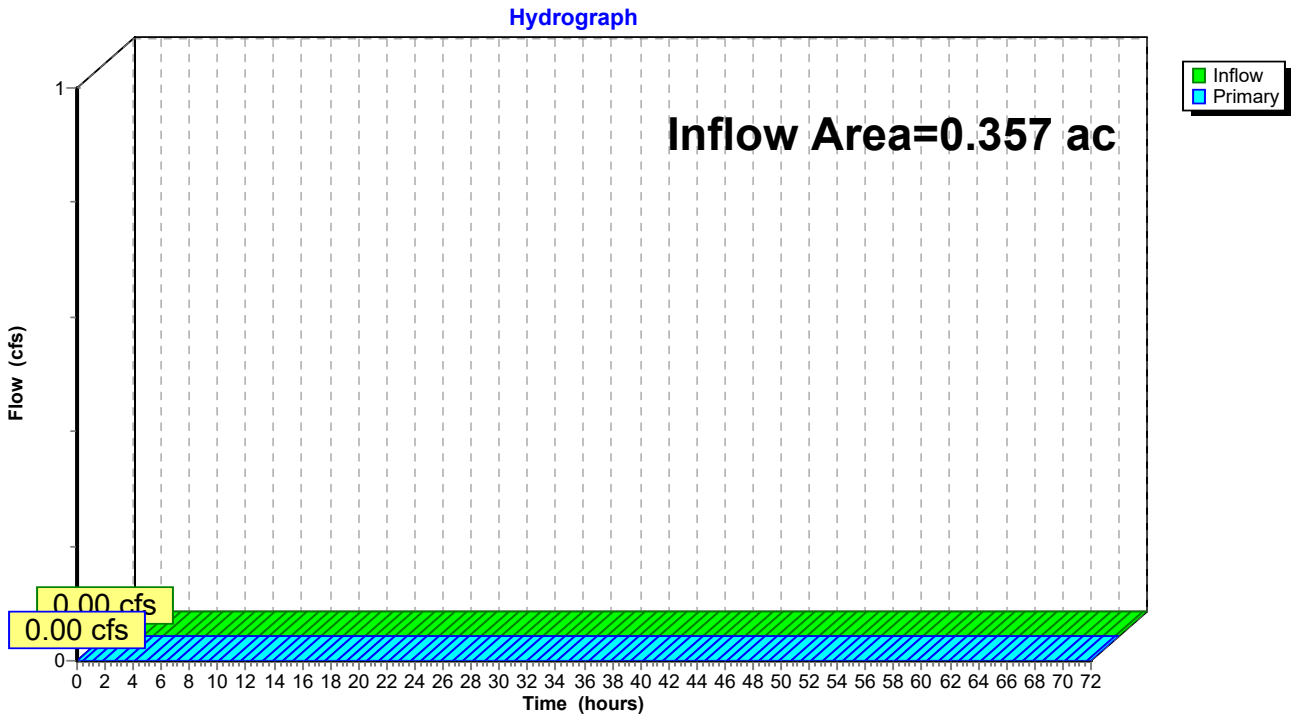
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
65.58	2,694	0
65.63	2,694	54
65.68	2,694	108
65.73	2,694	162
65.78	2,694	216
65.83	2,694	269
65.88	2,694	323
65.93	2,694	377
65.98	2,694	431
66.03	2,694	485
66.08	2,694	539
66.13	2,694	593
66.18	2,694	647
66.23	2,694	700
66.28	2,694	754
66.33	2,694	808
66.38	2,694	862
66.43	2,694	916
66.48	2,694	970
66.53	2,694	1,024
66.58	2,694	1,078
66.63	2,694	1,131
66.68	2,694	1,185
66.73	2,694	1,239
66.78	2,694	1,293
66.83	2,694	1,347
66.88	2,694	1,401
66.93	2,694	1,455
66.98	2,694	1,509
67.03	2,694	1,563
67.08	2,694	1,616
67.13	2,694	1,670
67.18	2,694	1,724
67.23	2,694	1,778
67.28	2,694	1,832
67.33	2,694	1,886
67.38	2,694	1,940
67.43	2,694	1,994
67.48	2,694	2,047
67.53	2,694	2,101
67.58	2,694	2,155
67.63	2,694	2,209
67.68	2,694	2,263
67.73	2,694	2,317
67.78	2,694	2,371
67.83	2,694	2,425
67.88	2,694	2,478
67.93	2,694	2,532
67.98	2,694	2,586
68.03	2,694	2,640
68.08	2,694	2,694
68.13	2,694	2,748
68.18	2,694	2,802
68.23	2,694	2,856
68.28	2,694	2,910
68.33	2,694	2,963
68.38	2,719	3,099
68.43	2,743	3,235
68.48	2,768	3,373
68.53	2,793	3,512
68.58	2,818	3,652
68.63	2,843	3,794
68.68	2,868	3,937
68.73	2,893	4,081
68.78	2,919	4,226
68.83	**2,944**	**4,372**

Summary for Link 1L: DP-1

Inflow Area = 0.357 ac, 51.72% Impervious, Inflow Depth = 0.00" for Subsurface 1" event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 1L: DP-1

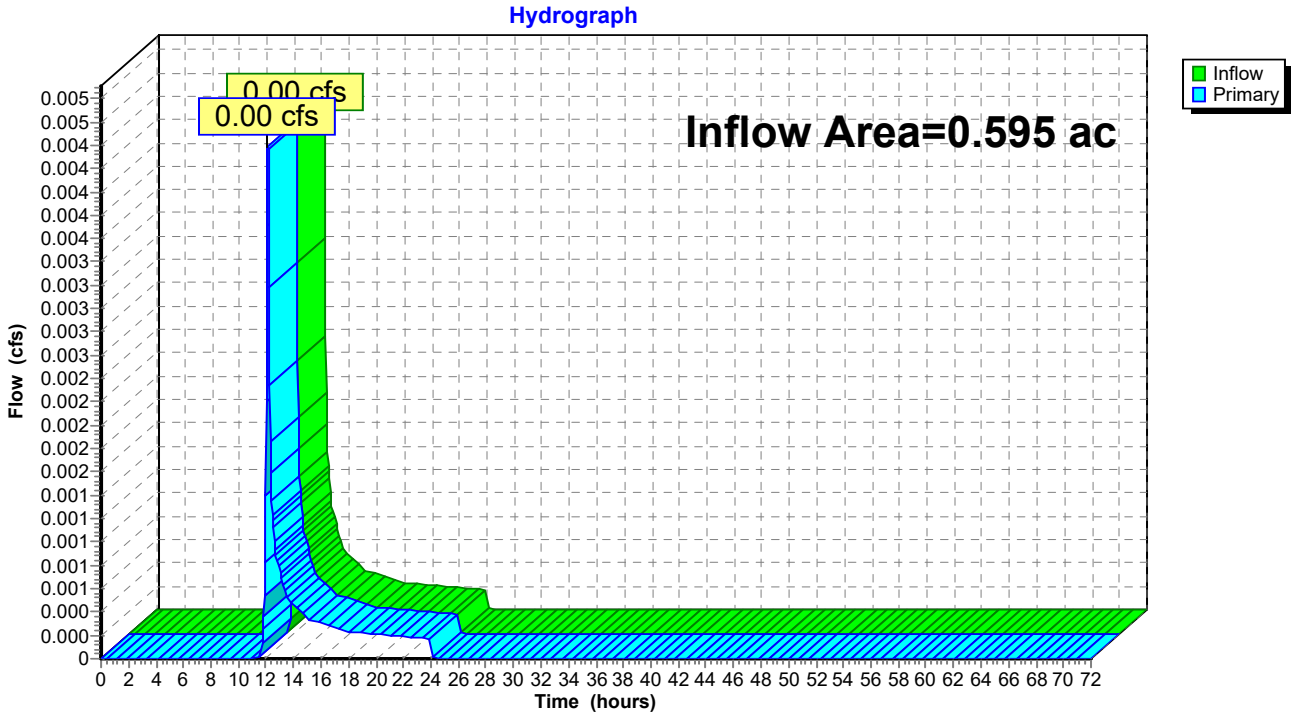


Summary for Link 2L: DP-2

Inflow Area = 0.595 ac, 70.17% Impervious, Inflow Depth = 0.01" for Subsurface 1" event
Inflow = 0.00 cfs @ 12.14 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 12.14 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 2L: DP-2



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PR-1 Runoff Area=15,530 sf 51.72% Impervious Runoff Depth=1.00"
Tc=6.0 min CN=89 Runoff=0.39 cfs 0.030 af

Subcatchment 2S: PR-2 Runoff Area=7,443 sf 79.85% Impervious Runoff Depth=1.37"
Tc=6.0 min CN=94 Runoff=0.24 cfs 0.019 af

Subcatchment 3S: PR-3 Runoff Area=2,617 sf 100.00% Impervious Runoff Depth=1.74"
Tc=6.0 min CN=98 Runoff=0.10 cfs 0.009 af

Subcatchment 4S: PR-4 Runoff Area=6,094 sf 65.62% Impervious Runoff Depth=1.07"
Tc=6.0 min CN=90 Runoff=0.16 cfs 0.012 af

Subcatchment 5S: PR-5 Runoff Area=3,931 sf 87.18% Impervious Runoff Depth=1.45"
Tc=6.0 min CN=95 Runoff=0.14 cfs 0.011 af

Subcatchment 6S: PR-6 Runoff Area=5,199 sf 42.12% Impervious Runoff Depth=0.72"
Flow Length=194' Tc=16.7 min CN=84 Runoff=0.06 cfs 0.007 af

Subcatchment 7S: PR-7 Runoff Area=620 sf 0.00% Impervious Runoff Depth=0.47"
Tc=6.0 min CN=78 Runoff=0.01 cfs 0.001 af

Pond 1P: SSIB #1 Peak Elev=66.35' Storage=1,526 cf Inflow=0.68 cfs 0.059 af
Discarded=0.02 cfs 0.059 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.059 af

Pond 3P: Bioretention Pond Peak Elev=66.78' Storage=1,298 cf Inflow=0.39 cfs 0.030 af
Outflow=0.00 cfs 0.000 af

Link 1L: DP-1 Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link 2L: DP-2 Inflow=0.01 cfs 0.001 af
Primary=0.01 cfs 0.001 af

Total Runoff Area = 0.951 ac Runoff Volume = 0.089 af Average Runoff Depth = 1.12"
36.75% Pervious = 0.350 ac 63.25% Impervious = 0.602 ac

Summary for Subcatchment 1S: PR-1

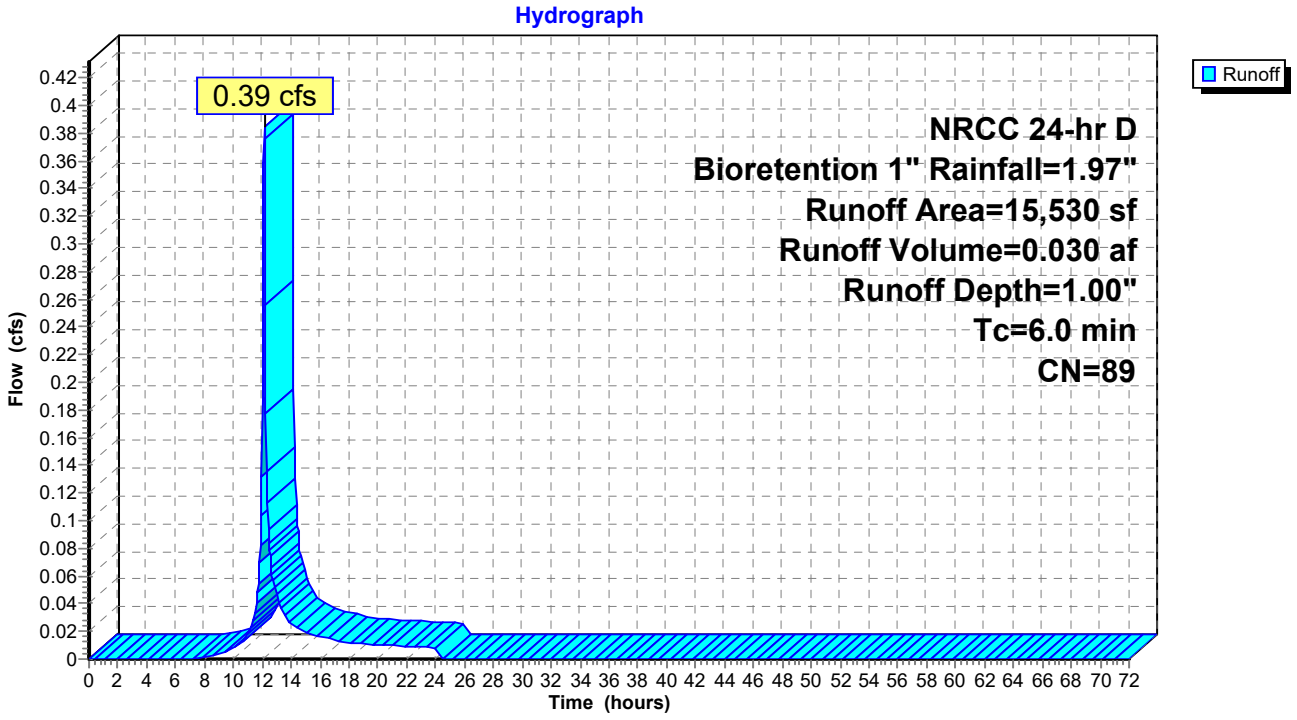
Runoff = 0.39 cfs @ 12.13 hrs, Volume= 0.030 af, Depth= 1.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D Bioretention 1" Rainfall=1.97"

	Area (sf)	CN	Description
	7,498	80	>75% Grass cover, Good, HSG D
	7,838	98	Paved parking, HSG D
*	194	98	Concrete, HSG D
	15,530	89	Weighted Average
	7,498		48.28% Pervious Area
	8,032		51.72% Impervious Area

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

Subcatchment 1S: PR-1



Summary for Subcatchment 2S: PR-2

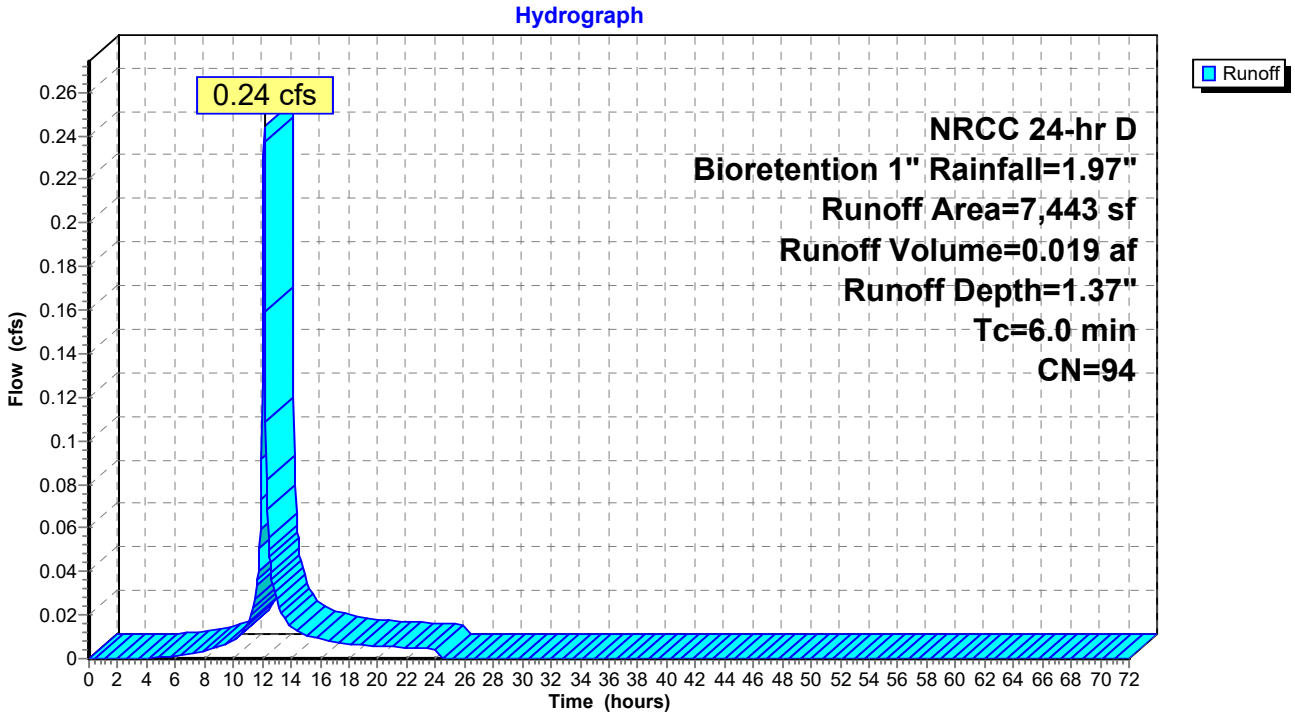
Runoff = 0.24 cfs @ 12.13 hrs, Volume= 0.019 af, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D Bioretention 1" Rainfall=1.97"

	Area (sf)	CN	Description
	484	98	Paved parking, HSG C
	4,863	98	Paved parking, HSG D
	89	74	>75% Grass cover, Good, HSG C
	1,411	80	>75% Grass cover, Good, HSG D
*	526	98	Concrete Surfaces, HSG D
*	70	98	Concrete Surfaces, HSG C
	7,443	94	Weighted Average
	1,500		20.15% Pervious Area
	5,943		79.85% Impervious Area

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

Subcatchment 2S: PR-2



Summary for Subcatchment 3S: PR-3

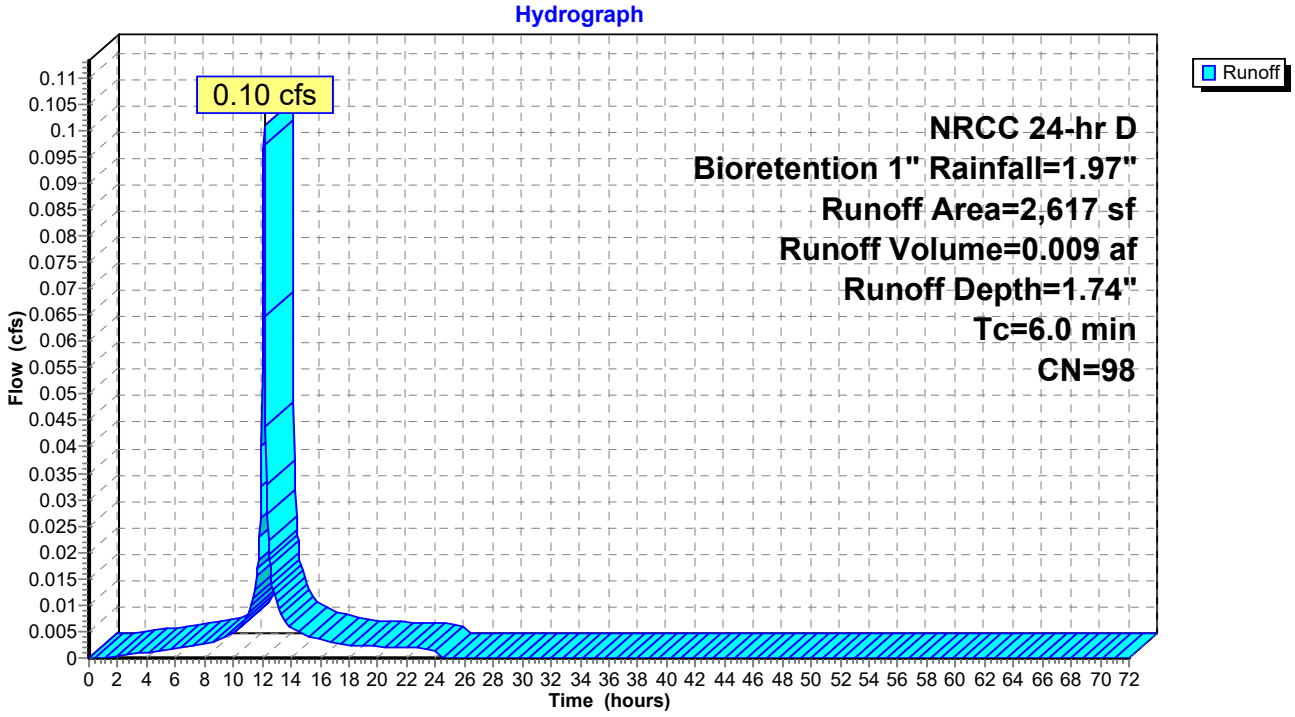
Runoff = 0.10 cfs @ 12.13 hrs, Volume= 0.009 af, Depth= 1.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D Bioretention 1" Rainfall=1.97"

Area (sf)	CN	Description
1,648	98	Roofs, HSG D
969	98	Roofs, HSG C
2,617	98	Weighted Average
2,617		100.00% Impervious Area

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

Subcatchment 3S: PR-3



Summary for Subcatchment 4S: PR-4

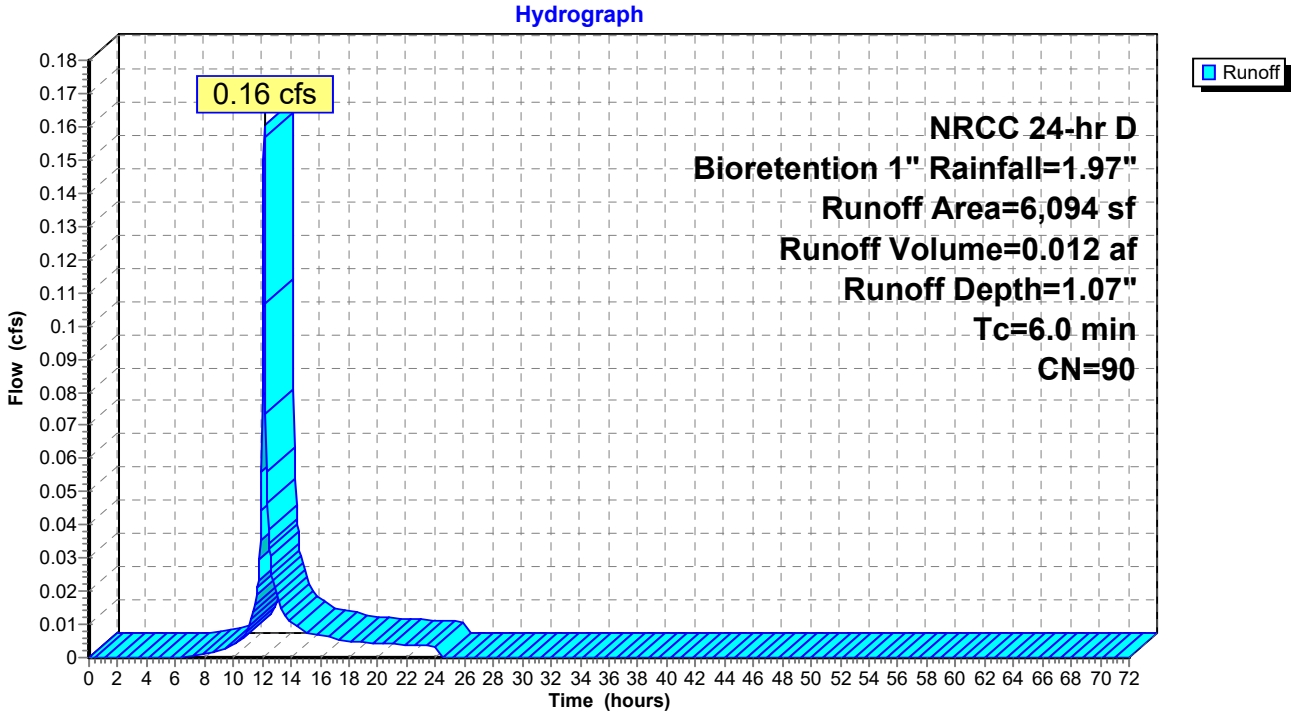
Runoff = 0.16 cfs @ 12.13 hrs, Volume= 0.012 af, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D Bioretention 1" Rainfall=1.97"

	Area (sf)	CN	Description
	1,877	74	>75% Grass cover, Good, HSG C
	218	80	>75% Grass cover, Good, HSG D
	3,392	98	Paved parking, HSG C
*	607	98	Concrete Surfaces, HSG C
	6,094	90	Weighted Average
	2,095		34.38% Pervious Area
	3,999		65.62% Impervious Area

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

Subcatchment 4S: PR-4



Summary for Subcatchment 5S: PR-5

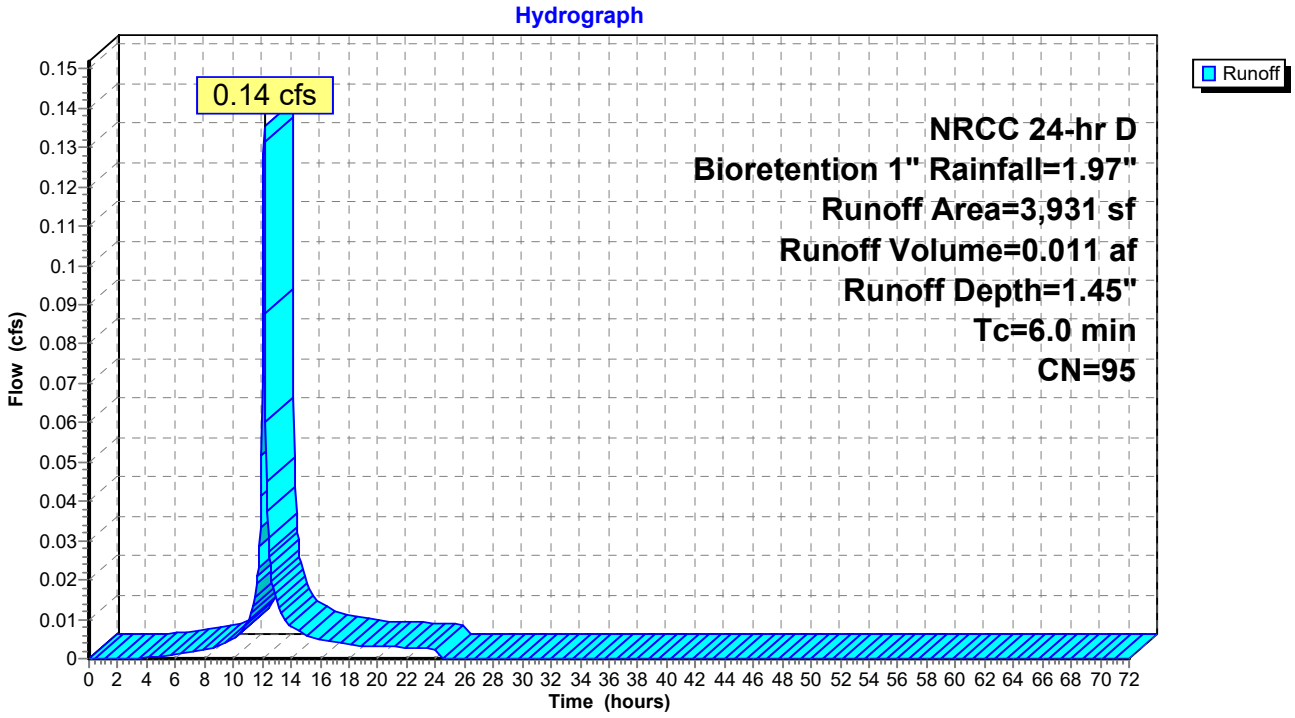
Runoff = 0.14 cfs @ 12.13 hrs, Volume= 0.011 af, Depth= 1.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D Bioretention 1" Rainfall=1.97"

	Area (sf)	CN	Description
	359	98	Paved parking, HSG D
	2,878	98	Paved parking, HSG C
	82	80	>75% Grass cover, Good, HSG D
	422	74	>75% Grass cover, Good, HSG C
*	13	98	Concrete Surfaces, HSG D
*	177	98	Concrete Surfaces, HSG C
	3,931	95	Weighted Average
	504		12.82% Pervious Area
	3,427		87.18% Impervious Area

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

Subcatchment 5S: PR-5



Summary for Subcatchment 6S: PR-6

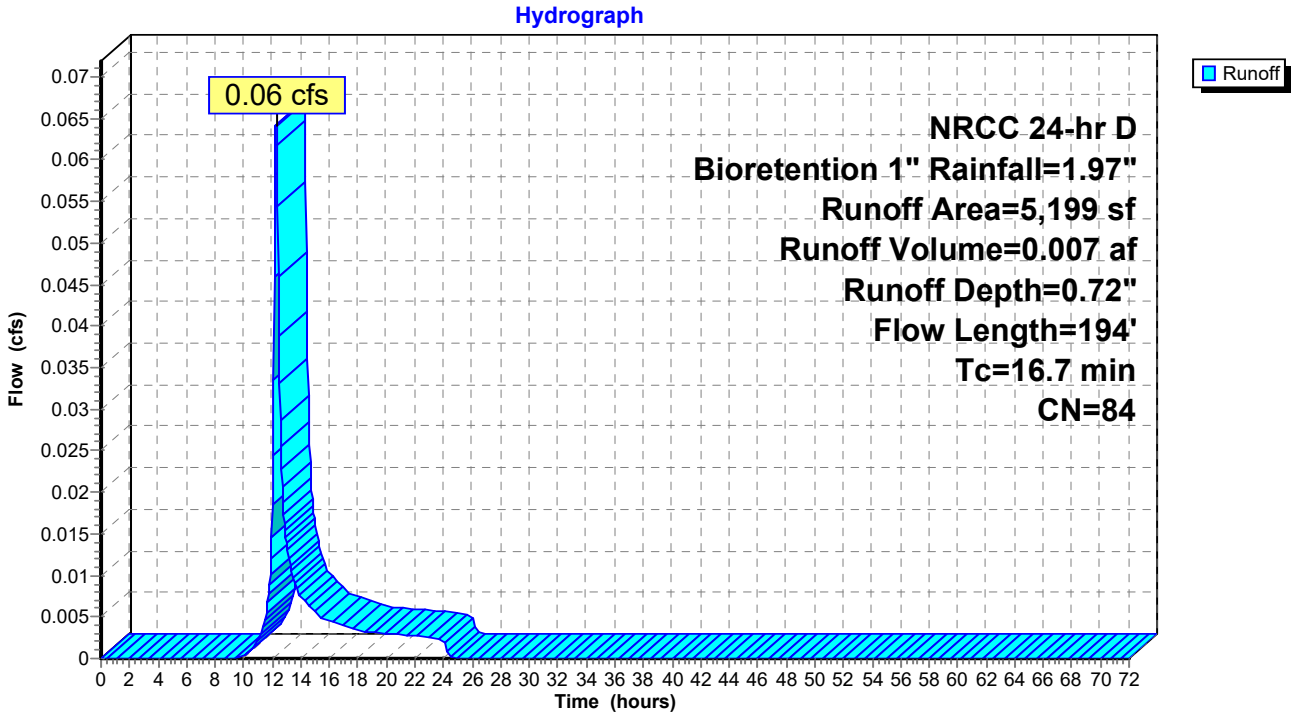
Runoff = 0.06 cfs @ 12.26 hrs, Volume= 0.007 af, Depth= 0.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D Bioretention 1" Rainfall=1.97"

	Area (sf)	CN	Description
	228	80	>75% Grass cover, Good, HSG D
	2,781	74	>75% Grass cover, Good, HSG C
	992	98	Paved parking, HSG D
	1,115	98	Paved parking, HSG C
*	83	98	Concrete sidewalk, HSG C
	5,199	84	Weighted Average
	3,009		57.88% Pervious Area
	2,190		42.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	100	0.0060	0.10		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.13"
0.3	10	0.0060	0.54		**Shallow Concentrated Flow, SCF grass** Short Grass Pasture Kv= 7.0 fps
0.3	44	0.0200	2.87		**Shallow Concentrated Flow, SCF paved** Paved Kv= 20.3 fps
0.1	40	0.0100	4.54	3.56	**Pipe Channel, Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
16.7	194	Total			

Subcatchment 6S: PR-6



Summary for Subcatchment 7S: PR-7

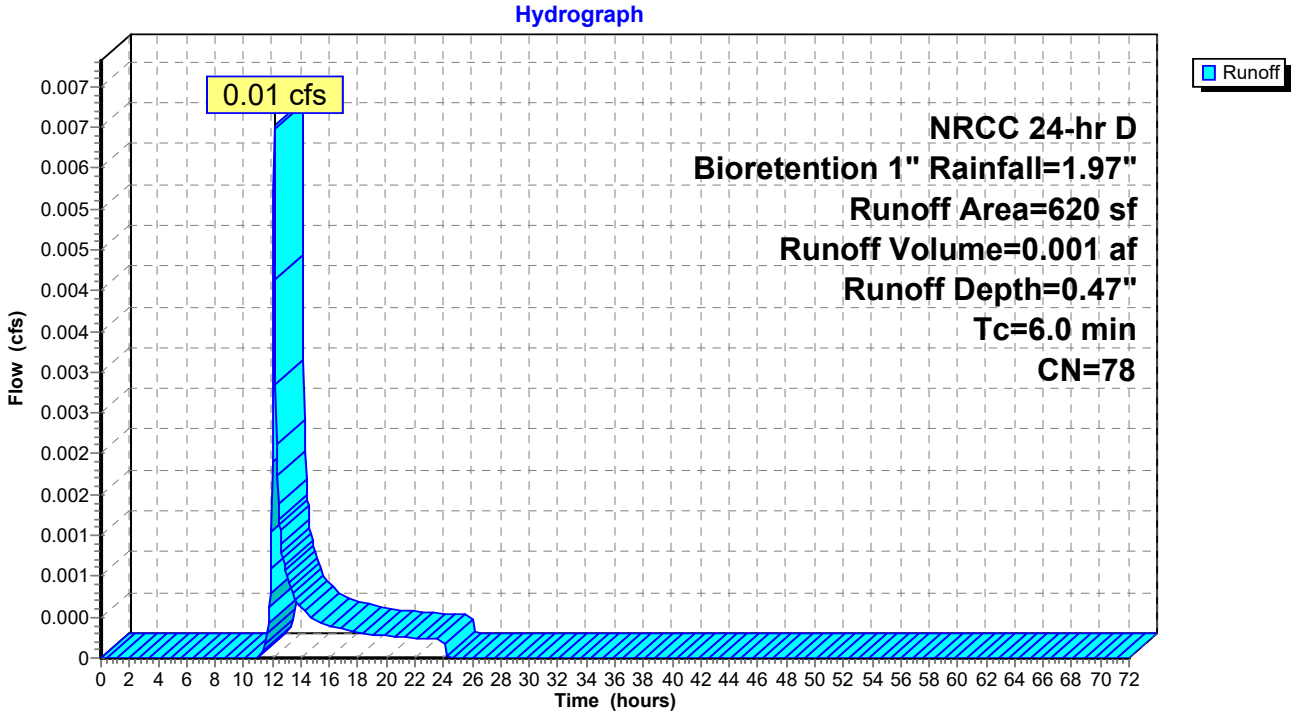
Runoff = 0.01 cfs @ 12.14 hrs, Volume= 0.001 af, Depth= 0.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D Bioretention 1" Rainfall=1.97"

Area (sf)	CN	Description
372	80	>75% Grass cover, Good, HSG D
248	74	>75% Grass cover, Good, HSG C
620	78	Weighted Average
620		100.00% Pervious Area

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

Subcatchment 7S: PR-7



Summary for Pond 1P: SSIB #1

Inflow Area = 0.580 ac, 71.89% Impervious, Inflow Depth = 1.22" for Bioretention 1" event
Inflow = 0.68 cfs @ 12.13 hrs, Volume= 0.059 af
Outflow = 0.02 cfs @ 17.61 hrs, Volume= 0.059 af, Atten= 97%, Lag= 329.0 min
Discarded = 0.02 cfs @ 17.61 hrs, Volume= 0.059 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 66.35' @ 17.61 hrs Surf.Area= 4,490 sf Storage= 1,526 cf

Plug-Flow detention time= 836.2 min calculated for 0.059 af (100% of inflow)
Center-of-Mass det. time= 837.0 min (1,664.6 - 827.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	65.75'	2,040 cf	**30.00'W x 74.82'L x 3.50'H Field A** 7,856 cf Overall - 2,756 cf Embedded = 5,099 cf x 40.0% Voids
#2A	66.25'	2,756 cf	**ADS_StormTech SC-740 +Cap** x 60 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 60 Chambers in 6 Rows
#3	64.75'	898 cf	**12" Stone (Prismatic)**Listed below (Recalc) 2,245 cf Overall x 40.0% Voids
		5,694 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
64.75	2,245	0	0
65.75	2,245	2,245	2,245

Device	Routing	Invert	Outlet Devices
#1	Discarded	64.75'	**0.200 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 50.00'
#2	Device 4	67.75'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 4	68.30'	**5.0" Vert. Orifice/Grate** C= 0.600
#4	Primary	66.40'	**12.0" Round Culvert** L= 69.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.40' / 65.60' S= 0.0116 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.02 cfs @ 17.61 hrs HW=66.35' (Free Discharge)
└**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=64.75' (Free Discharge)
└**4=Culvert** (Controls 0.00 cfs)
  └**2=Orifice/Grate** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: SSIB #1 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

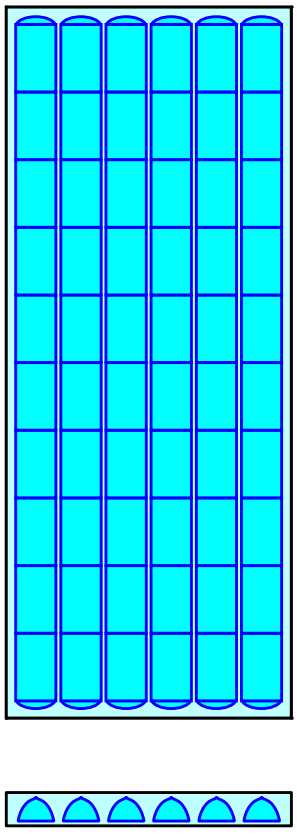
10 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 72.82' Row Length +12.0" End Stone x 2 = 74.82' Base Length
6 Rows x 51.0" Wide + 6.0" Spacing x 5 + 12.0" Side Stone x 2 = 30.00' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

60 Chambers x 45.9 cf = 2,756.4 cf Chamber Storage

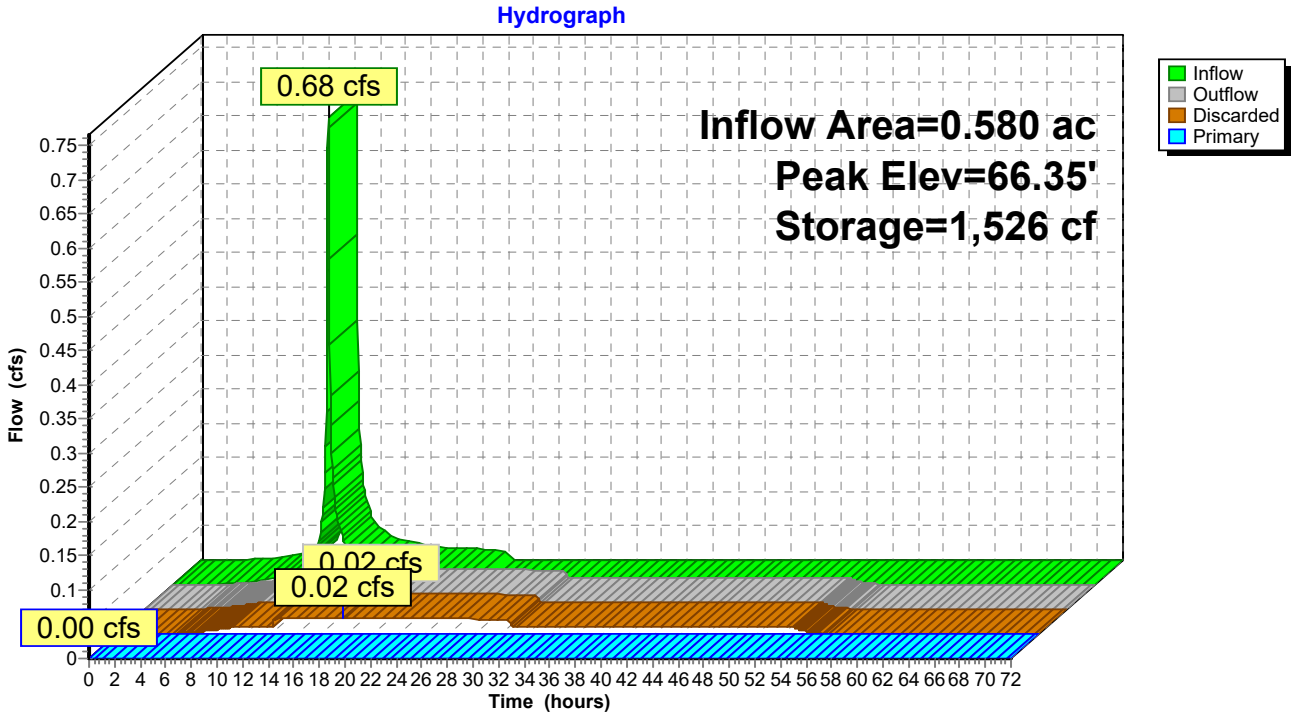
7,855.8 cf Field - 2,756.4 cf Chambers = 5,099.3 cf Stone x 40.0% Voids = 2,039.7 cf Stone Storage

Chamber Storage + Stone Storage = 4,796.1 cf = 0.110 af
Overall Storage Efficiency = 61.1%
Overall System Size = 74.82' x 30.00' x 3.50'

60 Chambers
291.0 cy Field
188.9 cy Stone



Pond 1P: SSIB #1



Stage-Area-Storage for Pond 1P: SSIB #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
64.75	2,245	0
64.80	2,245	45
64.85	2,245	90
64.90	2,245	135
64.95	2,245	180
65.00	2,245	225
65.05	2,245	269
65.10	2,245	314
65.15	2,245	359
65.20	2,245	404
65.25	2,245	449
65.30	2,245	494
65.35	2,245	539
65.40	2,245	584
65.45	2,245	629
65.50	2,245	674
65.55	2,245	718
65.60	2,245	763
65.65	2,245	808
65.70	2,245	853
65.75	**4,490**	898
65.80	4,490	943
65.85	4,490	988
65.90	4,490	1,033
65.95	4,490	1,078
66.00	4,490	1,122
66.05	4,490	1,167
66.10	4,490	1,212
66.15	4,490	1,257
66.20	4,490	1,302
66.25	4,490	1,347
66.30	4,490	1,439
66.35	4,490	1,532
66.40	4,490	1,624
66.45	4,490	1,716
66.50	4,490	1,808
66.55	4,490	1,900
66.60	4,490	1,991
66.65	4,490	2,082
66.70	4,490	2,173
66.75	4,490	2,263
66.80	4,490	2,353
66.85	4,490	2,442
66.90	4,490	2,531
66.95	4,490	2,620
67.00	4,490	2,708
67.05	4,490	2,795
67.10	4,490	2,882
67.15	4,490	2,969
67.20	4,490	3,055
67.25	4,490	3,141
67.30	4,490	3,226
67.35	4,490	3,311
67.40	4,490	3,394
67.45	4,490	3,478
67.50	4,490	3,560
67.55	4,490	3,642
67.60	4,490	3,723
67.65	4,490	3,803
67.70	4,490	3,883
67.75	4,490	3,962
67.80	4,490	4,040
67.85	4,490	4,117
67.90	4,490	4,193
67.95	4,490	4,268
68.00	4,490	4,342
68.05	4,490	4,415
68.10	4,490	4,486
68.15	4,490	4,556
68.20	4,490	4,625
68.25	4,490	4,693
68.30	4,490	4,759
68.35	4,490	4,823
68.40	4,490	4,885
68.45	4,490	4,944
68.50	4,490	5,001
68.55	4,490	5,054
68.60	4,490	5,104
68.65	4,490	5,153
68.70	4,490	5,200
68.75	4,490	5,245
68.80	4,490	5,290
68.85	4,490	5,335
68.90	4,490	5,380
68.95	4,490	5,425
69.00	4,490	5,470
69.05	4,490	5,515
69.10	4,490	5,559
69.15	4,490	5,604
69.20	4,490	5,649
69.25	4,490	**5,694**

Summary for Pond 3P: Bioretention Pond

Inflow Area = 0.357 ac, 51.72% Impervious, Inflow Depth = 1.00" for Bioretention 1" event
Inflow = 0.39 cfs @ 12.13 hrs, Volume= 0.030 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 66.78' @ 24.40 hrs Surf.Area= 2,694 sf Storage= 1,298 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

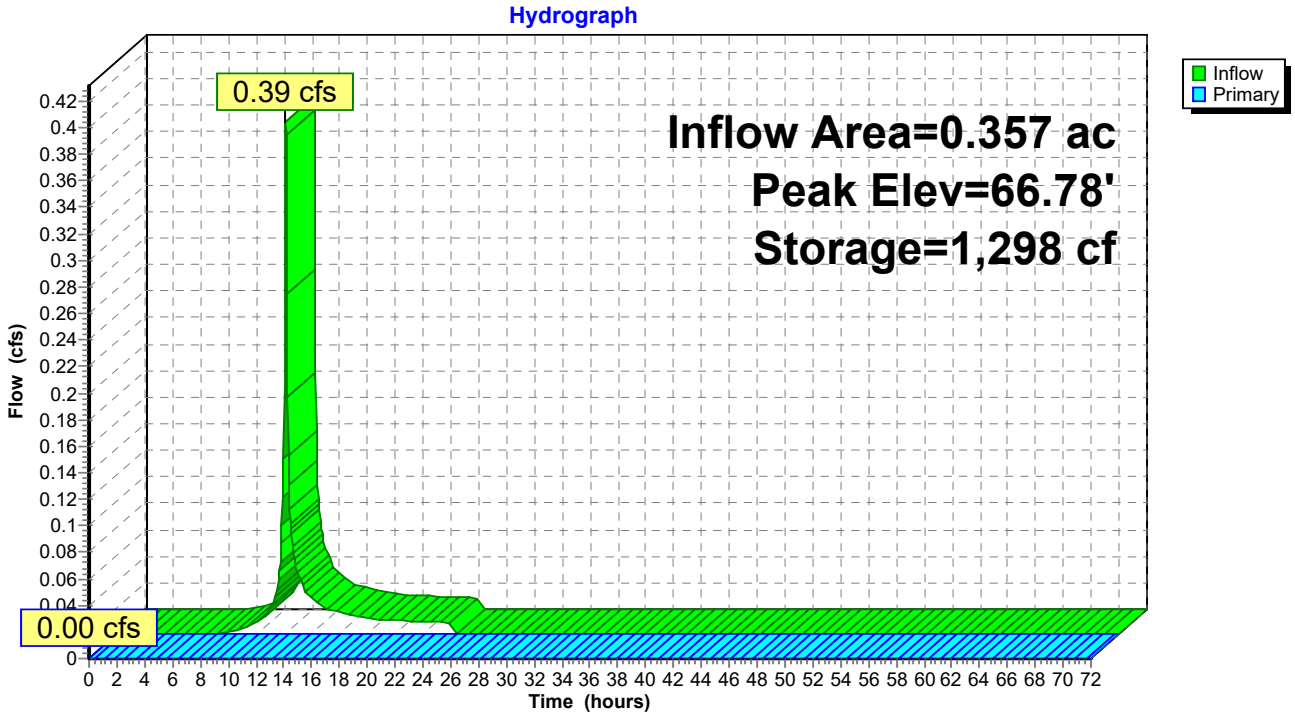
Volume	Invert	Avail.Storage	Storage Description
#1	65.58'	4,372 cf	**Storage Area (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
65.58	2,694	247.0	0.0	0	0	2,694
65.83	2,694	247.0	40.0	269	269	2,756
66.83	2,694	247.0	40.0	1,078	1,347	3,003
68.33	2,694	247.0	40.0	1,616	2,963	3,373
68.83	2,944	254.0	100.0	1,409	4,372	3,679

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	**12.0" Round Culvert** L= 7.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.00' / 66.00' S= 0.0000 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	66.00'	**2.400 in/hr Exfiltration over Surface area above 66.00'** Excluded Surface area = 2,694 sf
#3	Device 1	68.75'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 in 23.0" x 21.0" Grate (30% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.58' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)
└**2=Exfiltration** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 3P: Bioretention Pond



Stage-Area-Storage for Pond 3P: Bioretention Pond

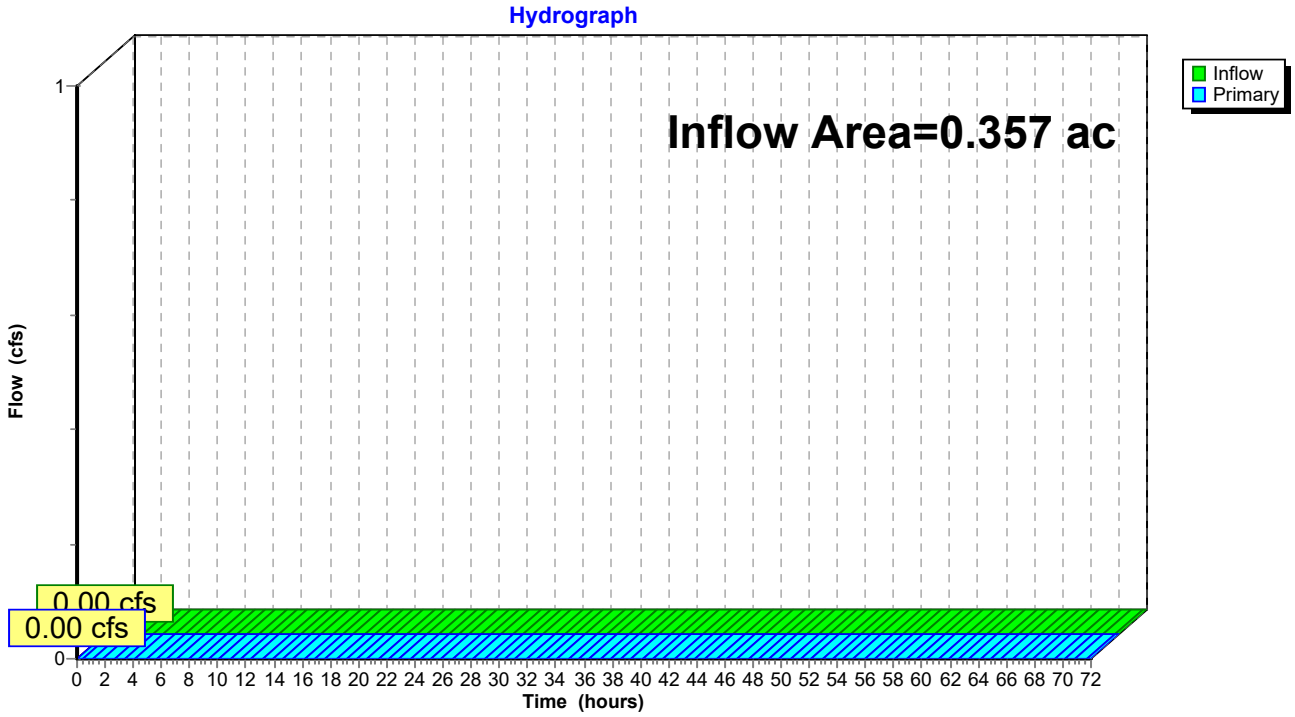
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
65.58	2,694	0
65.63	2,694	54
65.68	2,694	108
65.73	2,694	162
65.78	2,694	216
65.83	2,694	269
65.88	2,694	323
65.93	2,694	377
65.98	2,694	431
66.03	2,694	485
66.08	2,694	539
66.13	2,694	593
66.18	2,694	647
66.23	2,694	700
66.28	2,694	754
66.33	2,694	808
66.38	2,694	862
66.43	2,694	916
66.48	2,694	970
66.53	2,694	1,024
66.58	2,694	1,078
66.63	2,694	1,131
66.68	2,694	1,185
66.73	2,694	1,239
66.78	2,694	1,293
66.83	2,694	1,347
66.88	2,694	1,401
66.93	2,694	1,455
66.98	2,694	1,509
67.03	2,694	1,563
67.08	2,694	1,616
67.13	2,694	1,670
67.18	2,694	1,724
67.23	2,694	1,778
67.28	2,694	1,832
67.33	2,694	1,886
67.38	2,694	1,940
67.43	2,694	1,994
67.48	2,694	2,047
67.53	2,694	2,101
67.58	2,694	2,155
67.63	2,694	2,209
67.68	2,694	2,263
67.73	2,694	2,317
67.78	2,694	2,371
67.83	2,694	2,425
67.88	2,694	2,478
67.93	2,694	2,532
67.98	2,694	2,586
68.03	2,694	2,640
68.08	2,694	2,694
68.13	2,694	2,748
68.18	2,694	2,802
68.23	2,694	2,856
68.28	2,694	2,910
68.33	2,694	2,963
68.38	2,719	3,099
68.43	2,743	3,235
68.48	2,768	3,373
68.53	2,793	3,512
68.58	2,818	3,652
68.63	2,843	3,794
68.68	2,868	3,937
68.73	2,893	4,081
68.78	2,919	4,226
68.83	**2,944**	**4,372**

Summary for Link 1L: DP-1

Inflow Area = 0.357 ac, 51.72% Impervious, Inflow Depth = 0.00" for Bioretention 1" event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 1L: DP-1

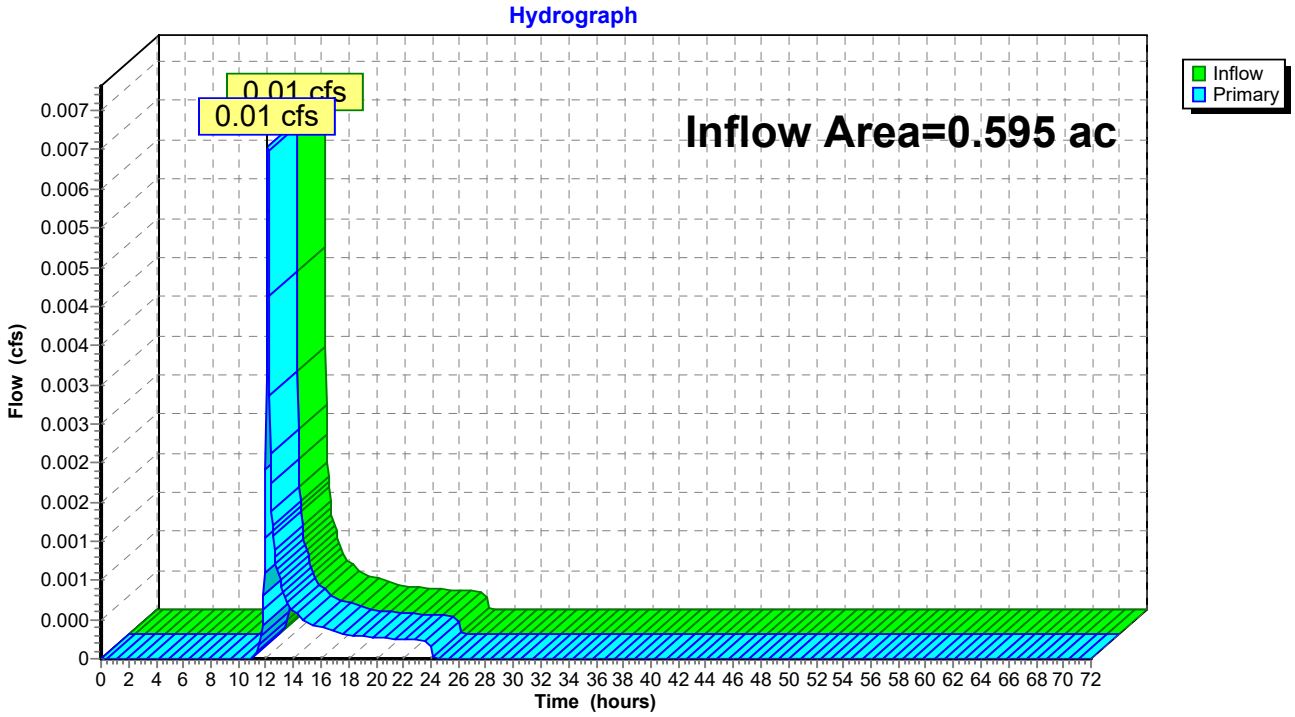


Summary for Link 2L: DP-2

Inflow Area = 0.595 ac, 70.17% Impervious, Inflow Depth = 0.01" for Bioretention 1" event
Inflow = 0.01 cfs @ 12.14 hrs, Volume= 0.001 af
Primary = 0.01 cfs @ 12.14 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 2L: DP-2



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PR-1 Runoff Area=15,530 sf 51.72% Impervious Runoff Depth=2.08"
Tc=6.0 min CN=89 Runoff=0.79 cfs 0.062 af

Subcatchment 2S: PR-2 Runoff Area=7,443 sf 79.85% Impervious Runoff Depth=2.54"
Tc=6.0 min CN=94 Runoff=0.44 cfs 0.036 af

Subcatchment 3S: PR-3 Runoff Area=2,617 sf 100.00% Impervious Runoff Depth=2.97"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.015 af

Subcatchment 4S: PR-4 Runoff Area=6,094 sf 65.62% Impervious Runoff Depth=2.17"
Tc=6.0 min CN=90 Runoff=0.32 cfs 0.025 af

Subcatchment 5S: PR-5 Runoff Area=3,931 sf 87.18% Impervious Runoff Depth=2.64"
Tc=6.0 min CN=95 Runoff=0.24 cfs 0.020 af

Subcatchment 6S: PR-6 Runoff Area=5,199 sf 42.12% Impervious Runoff Depth=1.68"
Flow Length=194' Tc=16.7 min CN=84 Runoff=0.15 cfs 0.017 af

Subcatchment 7S: PR-7 Runoff Area=620 sf 0.00% Impervious Runoff Depth=1.27"
Tc=6.0 min CN=78 Runoff=0.02 cfs 0.002 af

Pond 1P: SSIB #1 Peak Elev=67.52' Storage=3,599 cf Inflow=1.27 cfs 0.113 af
Discarded=0.02 cfs 0.106 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.106 af

Pond 3P: Bioretention Pond Peak Elev=68.08' Storage=2,694 cf Inflow=0.79 cfs 0.062 af
Outflow=0.00 cfs 0.000 af

Link 1L: DP-1 Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link 2L: DP-2 Inflow=0.02 cfs 0.002 af
Primary=0.02 cfs 0.002 af

Total Runoff Area = 0.951 ac Runoff Volume = 0.176 af Average Runoff Depth = 2.22"
36.75% Pervious = 0.350 ac 63.25% Impervious = 0.602 ac

Summary for Subcatchment 1S: PR-1

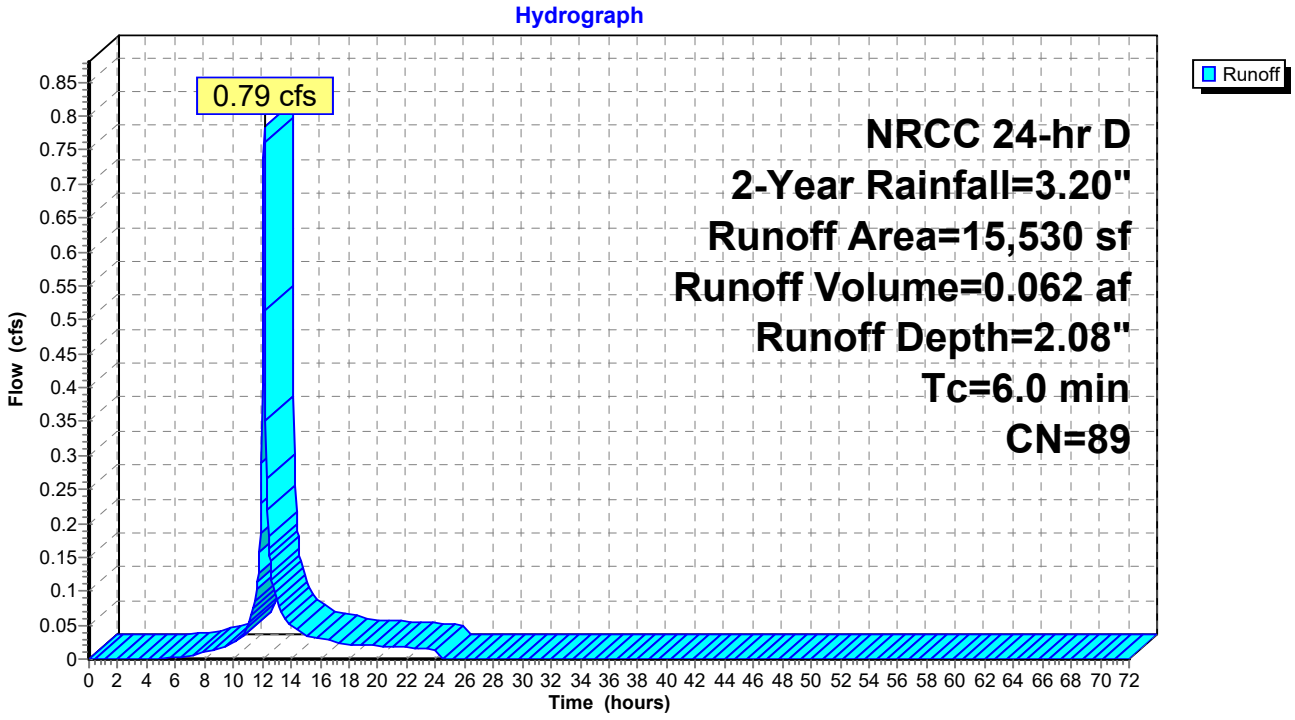
Runoff = 0.79 cfs @ 12.13 hrs, Volume= 0.062 af, Depth= 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.20"

	Area (sf)	CN	Description
	7,498	80	>75% Grass cover, Good, HSG D
	7,838	98	Paved parking, HSG D
*	194	98	Concrete, HSG D
	15,530	89	Weighted Average
	7,498		48.28% Pervious Area
	8,032		51.72% Impervious Area

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

Subcatchment 1S: PR-1



Summary for Subcatchment 2S: PR-2

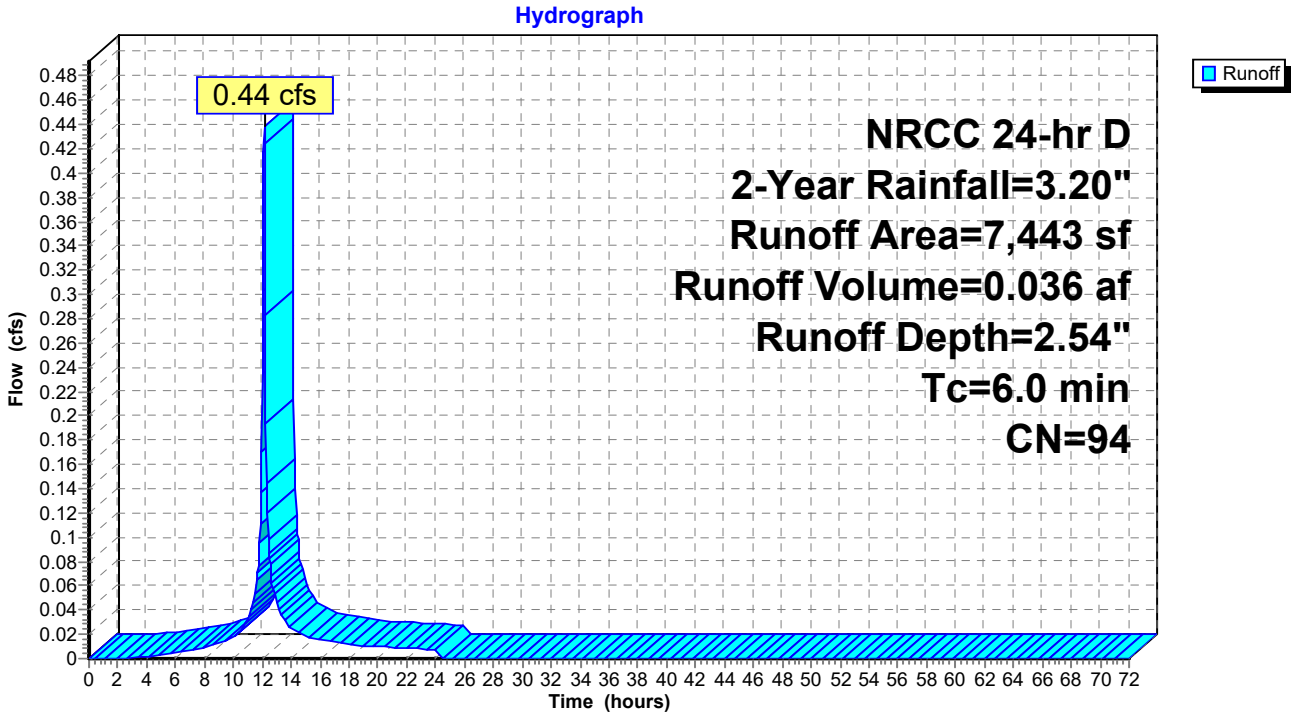
Runoff = 0.44 cfs @ 12.13 hrs, Volume= 0.036 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.20"

	Area (sf)	CN	Description
	484	98	Paved parking, HSG C
	4,863	98	Paved parking, HSG D
	89	74	>75% Grass cover, Good, HSG C
	1,411	80	>75% Grass cover, Good, HSG D
*	526	98	Concrete Surfaces, HSG D
*	70	98	Concrete Surfaces, HSG C
	7,443	94	Weighted Average
	1,500		20.15% Pervious Area
	5,943		79.85% Impervious Area

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

Subcatchment 2S: PR-2



Summary for Subcatchment 3S: PR-3

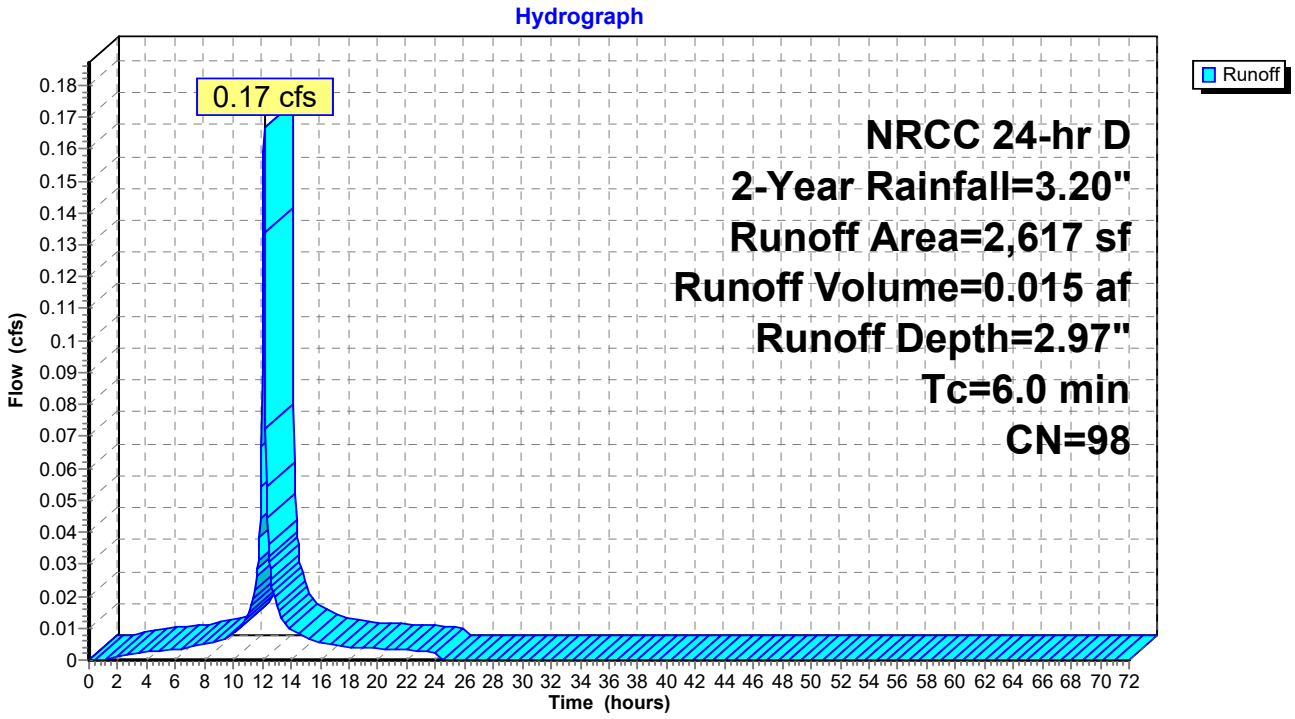
Runoff = 0.17 cfs @ 12.13 hrs, Volume= 0.015 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.20"

Area (sf)	CN	Description
1,648	98	Roofs, HSG D
969	98	Roofs, HSG C
2,617	98	Weighted Average
2,617		100.00% Impervious Area

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

Subcatchment 3S: PR-3



Summary for Subcatchment 4S: PR-4

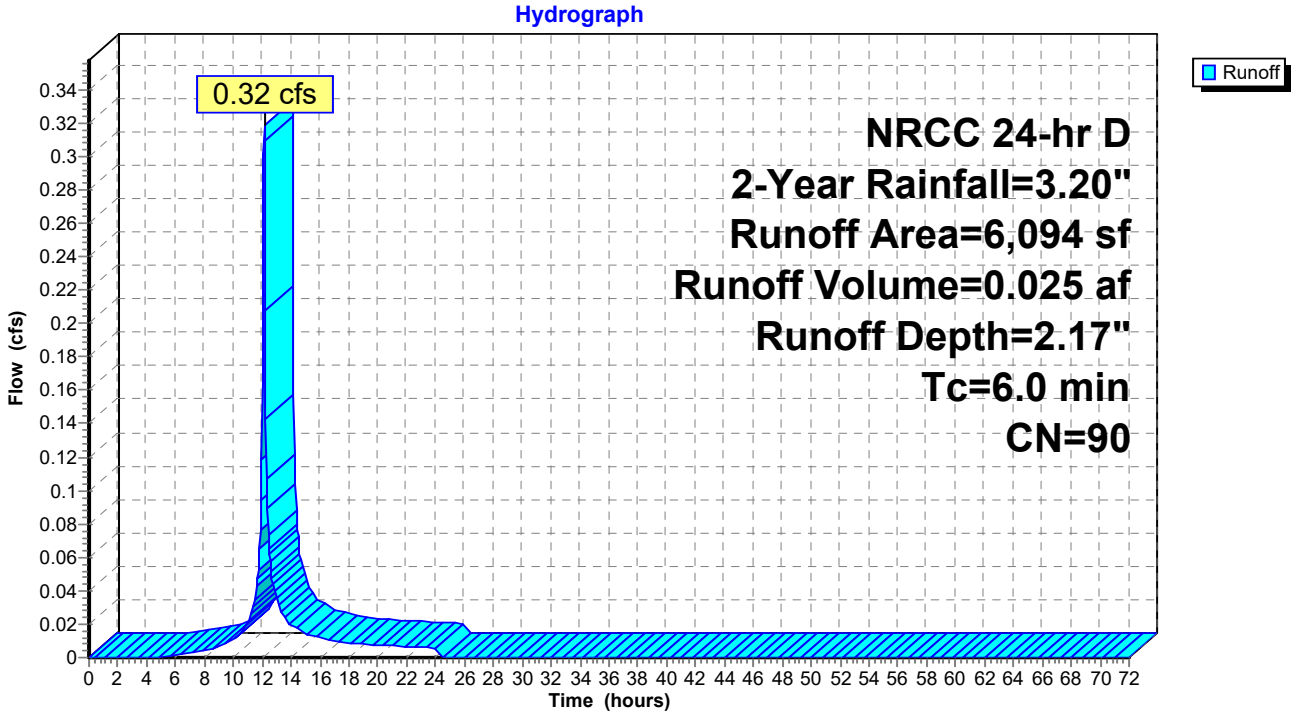
Runoff = 0.32 cfs @ 12.13 hrs, Volume= 0.025 af, Depth= 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.20"

	Area (sf)	CN	Description
	1,877	74	>75% Grass cover, Good, HSG C
	218	80	>75% Grass cover, Good, HSG D
	3,392	98	Paved parking, HSG C
*	607	98	Concrete Surfaces, HSG C
	6,094	90	Weighted Average
	2,095		34.38% Pervious Area
	3,999		65.62% Impervious Area

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

Subcatchment 4S: PR-4



Summary for Subcatchment 5S: PR-5

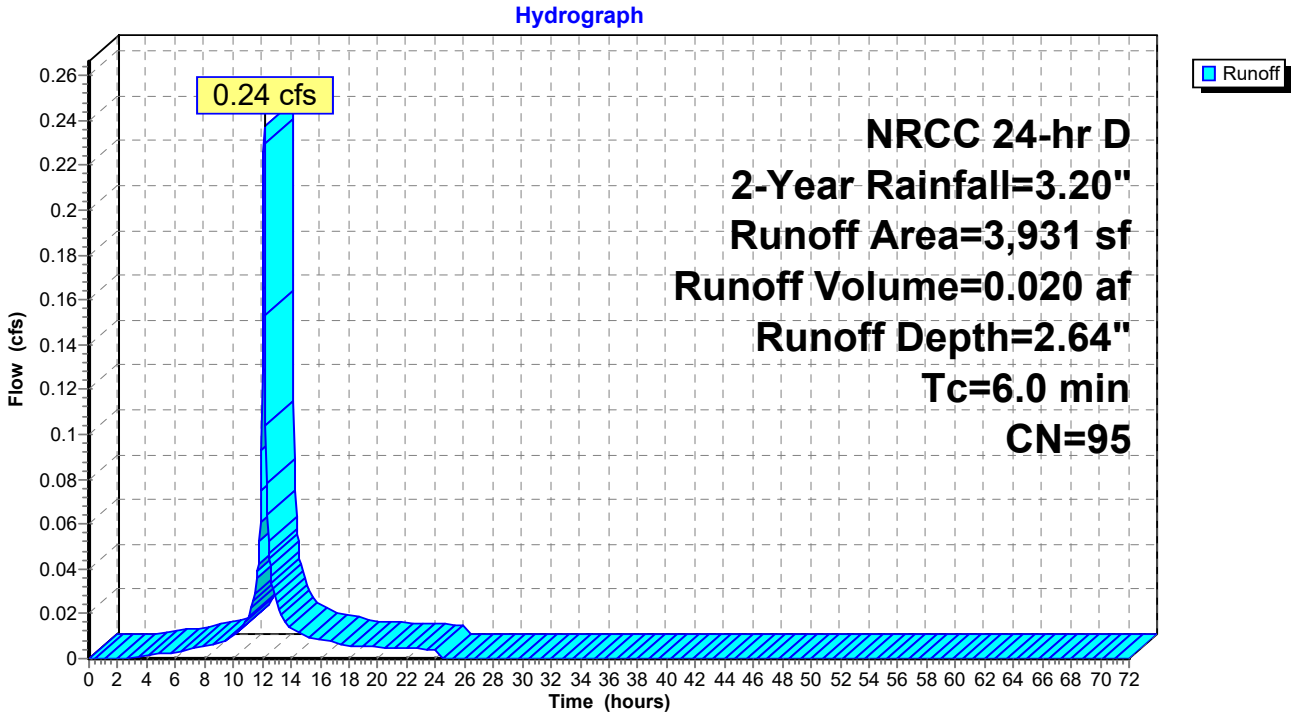
Runoff = 0.24 cfs @ 12.13 hrs, Volume= 0.020 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.20"

	Area (sf)	CN	Description
	359	98	Paved parking, HSG D
	2,878	98	Paved parking, HSG C
	82	80	>75% Grass cover, Good, HSG D
	422	74	>75% Grass cover, Good, HSG C
*	13	98	Concrete Surfaces, HSG D
*	177	98	Concrete Surfaces, HSG C
	3,931	95	Weighted Average
	504		12.82% Pervious Area
	3,427		87.18% Impervious Area

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

Subcatchment 5S: PR-5



Summary for Subcatchment 6S: PR-6

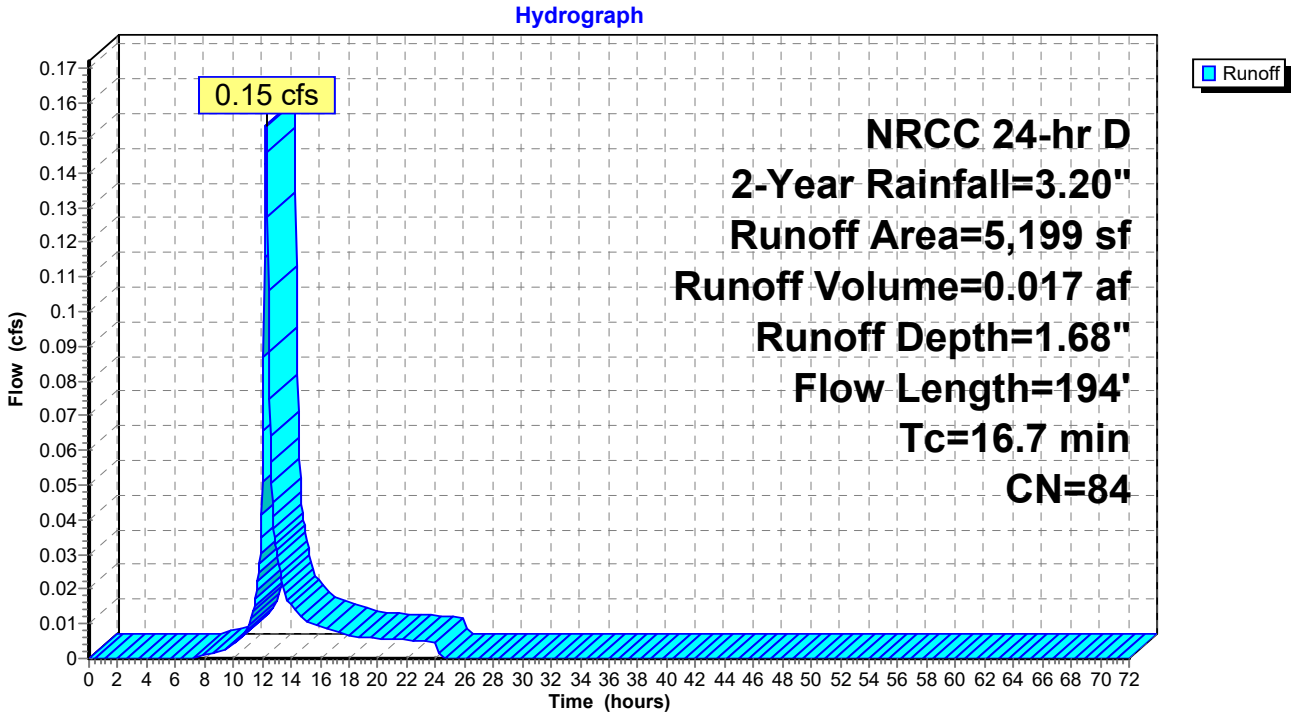
Runoff = 0.15 cfs @ 12.25 hrs, Volume= 0.017 af, Depth= 1.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.20"

	Area (sf)	CN	Description
	228	80	>75% Grass cover, Good, HSG D
	2,781	74	>75% Grass cover, Good, HSG C
	992	98	Paved parking, HSG D
	1,115	98	Paved parking, HSG C
*	83	98	Concrete sidewalk, HSG C
	5,199	84	Weighted Average
	3,009		57.88% Pervious Area
	2,190		42.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	100	0.0060	0.10		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.13"
0.3	10	0.0060	0.54		**Shallow Concentrated Flow, SCF grass** Short Grass Pasture Kv= 7.0 fps
0.3	44	0.0200	2.87		**Shallow Concentrated Flow, SCF paved** Paved Kv= 20.3 fps
0.1	40	0.0100	4.54	3.56	**Pipe Channel, Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
16.7	194	Total			

Subcatchment 6S: PR-6



Summary for Subcatchment 7S: PR-7

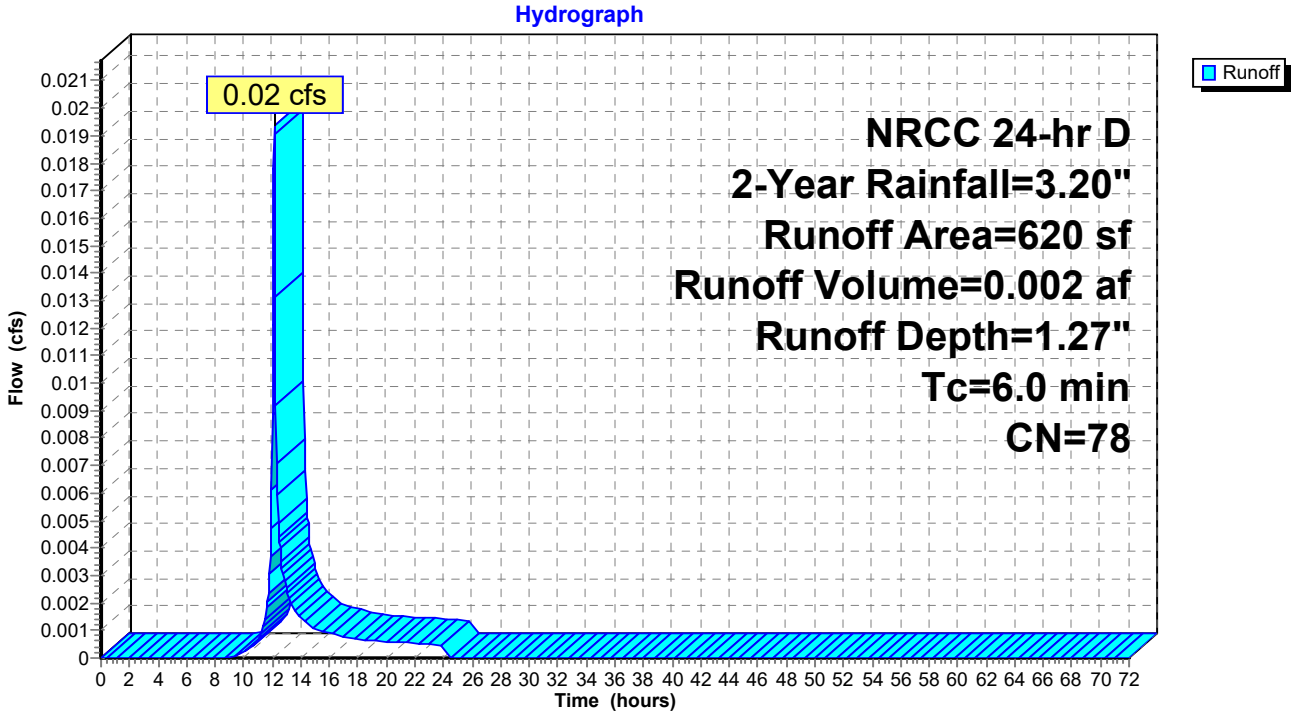
Runoff = 0.02 cfs @ 12.13 hrs, Volume= 0.002 af, Depth= 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.20"

Area (sf)	CN	Description
372	80	>75% Grass cover, Good, HSG D
248	74	>75% Grass cover, Good, HSG C
620	78	Weighted Average
620		100.00% Pervious Area

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

Subcatchment 7S: PR-7



Summary for Pond 1P: SSIB #1

Inflow Area = 0.580 ac, 71.89% Impervious, Inflow Depth = 2.34" for 2-Year event
Inflow = 1.27 cfs @ 12.13 hrs, Volume= 0.113 af
Outflow = 0.02 cfs @ 24.02 hrs, Volume= 0.106 af, Atten= 98%, Lag= 713.2 min
Discarded = 0.02 cfs @ 24.02 hrs, Volume= 0.106 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 67.52' @ 24.02 hrs Surf.Area= 4,490 sf Storage= 3,599 cf

Plug-Flow detention time= 1,413.8 min calculated for 0.106 af (94% of inflow)
Center-of-Mass det. time= 1,377.3 min (2,184.9 - 807.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	65.75'	2,040 cf	**30.00'W x 74.82'L x 3.50'H Field A** 7,856 cf Overall - 2,756 cf Embedded = 5,099 cf x 40.0% Voids
#2A	66.25'	2,756 cf	**ADS_StormTech SC-740 +Cap** x 60 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 60 Chambers in 6 Rows
#3	64.75'	898 cf	**12" Stone (Prismatic)**Listed below (Recalc) 2,245 cf Overall x 40.0% Voids
		5,694 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
64.75	2,245	0	0
65.75	2,245	2,245	2,245

Device	Routing	Invert	Outlet Devices
#1	Discarded	64.75'	**0.200 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 50.00'
#2	Device 4	67.75'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 4	68.30'	**5.0" Vert. Orifice/Grate** C= 0.600
#4	Primary	66.40'	**12.0" Round Culvert** L= 69.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.40' / 65.60' S= 0.0116 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.02 cfs @ 24.02 hrs HW=67.52' (Free Discharge)
└**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=64.75' (Free Discharge)
└**4=Culvert** (Controls 0.00 cfs)
  └**2=Orifice/Grate** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: SSIB #1 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

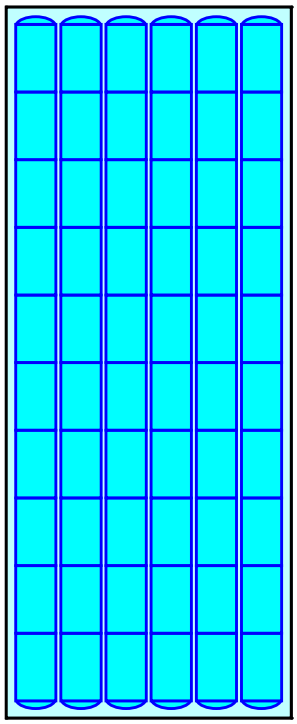
10 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 72.82' Row Length +12.0" End Stone x 2 = 74.82' Base Length
6 Rows x 51.0" Wide + 6.0" Spacing x 5 + 12.0" Side Stone x 2 = 30.00' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

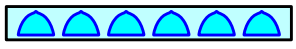
60 Chambers x 45.9 cf = 2,756.4 cf Chamber Storage

7,855.8 cf Field - 2,756.4 cf Chambers = 5,099.3 cf Stone x 40.0% Voids = 2,039.7 cf Stone Storage

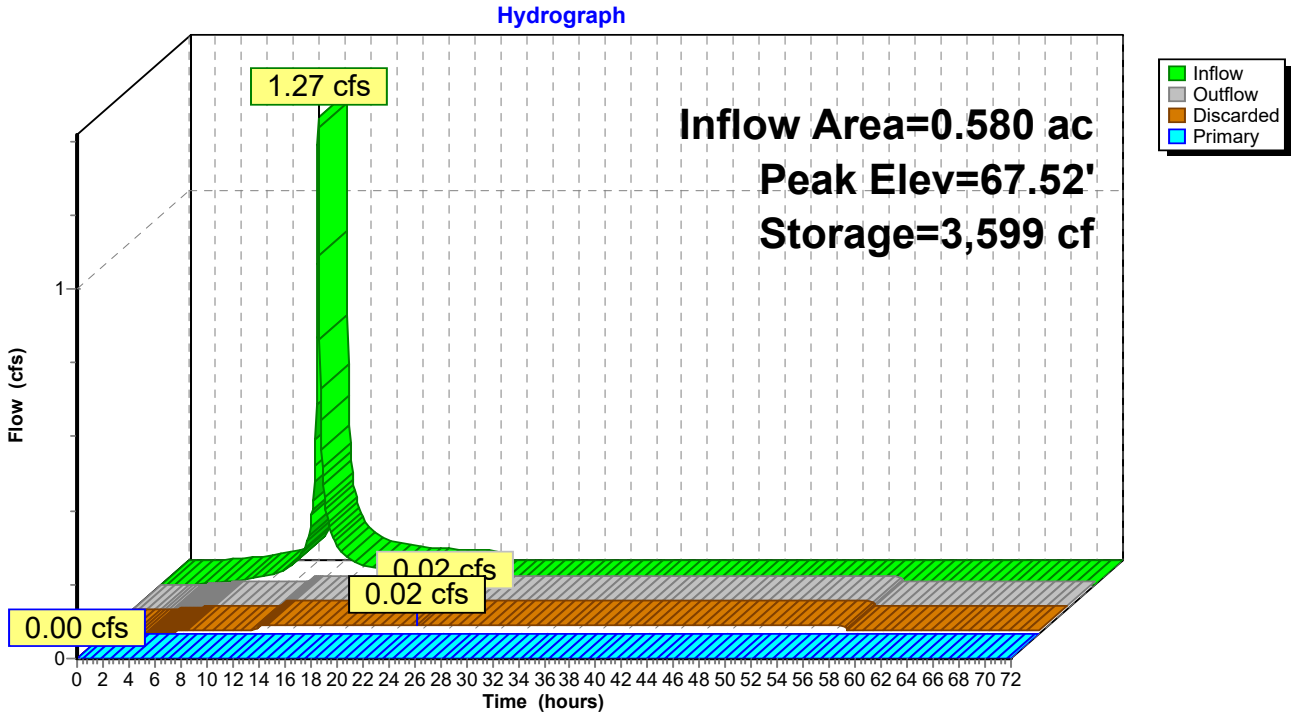
Chamber Storage + Stone Storage = 4,796.1 cf = 0.110 af
Overall Storage Efficiency = 61.1%
Overall System Size = 74.82' x 30.00' x 3.50'

60 Chambers
291.0 cy Field
188.9 cy Stone





Pond 1P: SSIB #1



Stage-Area-Storage for Pond 1P: SSIB #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
64.75	2,245	0
64.80	2,245	45
64.85	2,245	90
64.90	2,245	135
64.95	2,245	180
65.00	2,245	225
65.05	2,245	269
65.10	2,245	314
65.15	2,245	359
65.20	2,245	404
65.25	2,245	449
65.30	2,245	494
65.35	2,245	539
65.40	2,245	584
65.45	2,245	629
65.50	2,245	674
65.55	2,245	718
65.60	2,245	763
65.65	2,245	808
65.70	2,245	853
65.75	**4,490**	898
65.80	4,490	943
65.85	4,490	988
65.90	4,490	1,033
65.95	4,490	1,078
66.00	4,490	1,122
66.05	4,490	1,167
66.10	4,490	1,212
66.15	4,490	1,257
66.20	4,490	1,302
66.25	4,490	1,347
66.30	4,490	1,439
66.35	4,490	1,532
66.40	4,490	1,624
66.45	4,490	1,716
66.50	4,490	1,808
66.55	4,490	1,900
66.60	4,490	1,991
66.65	4,490	2,082
66.70	4,490	2,173
66.75	4,490	2,263
66.80	4,490	2,353
66.85	4,490	2,442
66.90	4,490	2,531
66.95	4,490	2,620
67.00	4,490	2,708
67.05	4,490	2,795
67.10	4,490	2,882
67.15	4,490	2,969
67.20	4,490	3,055
67.25	4,490	3,141
67.30	4,490	3,226
67.35	4,490	3,311
67.40	4,490	3,394
67.45	4,490	3,478
67.50	4,490	3,560
67.55	4,490	3,642
67.60	4,490	3,723
67.65	4,490	3,803
67.70	4,490	3,883
67.75	4,490	3,962
67.80	4,490	4,040
67.85	4,490	4,117
67.90	4,490	4,193
67.95	4,490	4,268
68.00	4,490	4,342
68.05	4,490	4,415
68.10	4,490	4,486
68.15	4,490	4,556
68.20	4,490	4,625
68.25	4,490	4,693
68.30	4,490	4,759
68.35	4,490	4,823
68.40	4,490	4,885
68.45	4,490	4,944
68.50	4,490	5,001
68.55	4,490	5,054
68.60	4,490	5,104
68.65	4,490	5,153
68.70	4,490	5,200
68.75	4,490	5,245
68.80	4,490	5,290
68.85	4,490	5,335
68.90	4,490	5,380
68.95	4,490	5,425
69.00	4,490	5,470
69.05	4,490	5,515
69.10	4,490	5,559
69.15	4,490	5,604
69.20	4,490	5,649
69.25	4,490	**5,694**

Summary for Pond 3P: Bioretention Pond

Inflow Area = 0.357 ac, 51.72% Impervious, Inflow Depth = 2.08" for 2-Year event
Inflow = 0.79 cfs @ 12.13 hrs, Volume= 0.062 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 68.08' @ 24.40 hrs Surf.Area= 2,694 sf Storage= 2,694 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

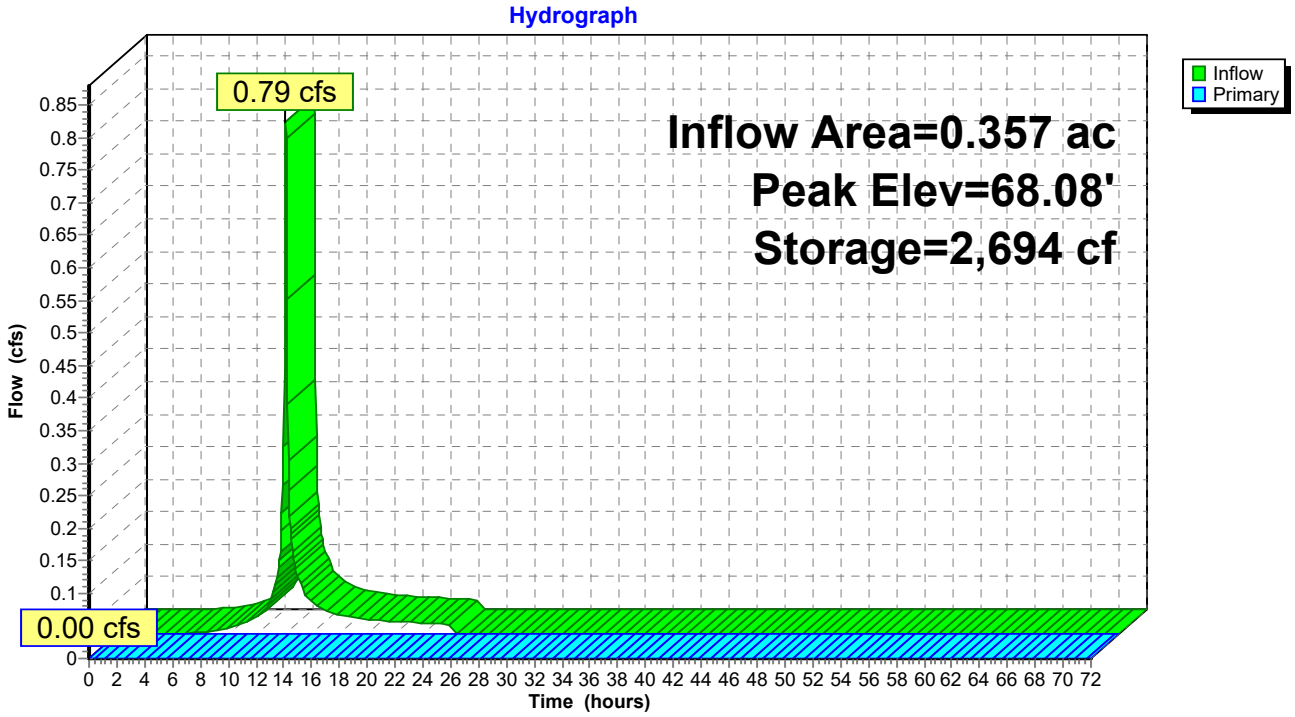
Volume	Invert	Avail.Storage	Storage Description
#1	65.58'	4,372 cf	**Storage Area (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
65.58	2,694	247.0	0.0	0	0	2,694
65.83	2,694	247.0	40.0	269	269	2,756
66.83	2,694	247.0	40.0	1,078	1,347	3,003
68.33	2,694	247.0	40.0	1,616	2,963	3,373
68.83	2,944	254.0	100.0	1,409	4,372	3,679

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	**12.0" Round Culvert** L= 7.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.00' / 66.00' S= 0.0000 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	66.00'	**2.400 in/hr Exfiltration over Surface area above 66.00'** Excluded Surface area = 2,694 sf
#3	Device 1	68.75'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 in 23.0" x 21.0" Grate (30% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.58' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)
└**2=Exfiltration** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 3P: Bioretention Pond



Stage-Area-Storage for Pond 3P: Bioretention Pond

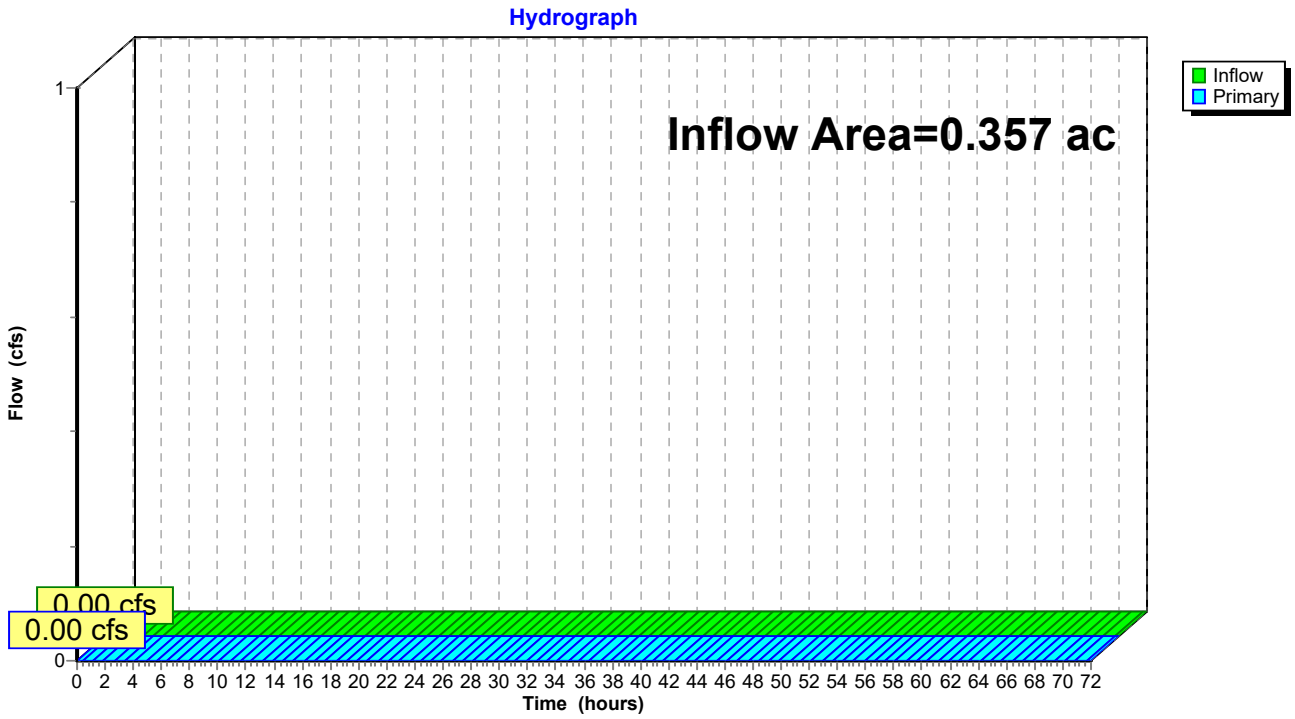
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
65.58	2,694	0
65.63	2,694	54
65.68	2,694	108
65.73	2,694	162
65.78	2,694	216
65.83	2,694	269
65.88	2,694	323
65.93	2,694	377
65.98	2,694	431
66.03	2,694	485
66.08	2,694	539
66.13	2,694	593
66.18	2,694	647
66.23	2,694	700
66.28	2,694	754
66.33	2,694	808
66.38	2,694	862
66.43	2,694	916
66.48	2,694	970
66.53	2,694	1,024
66.58	2,694	1,078
66.63	2,694	1,131
66.68	2,694	1,185
66.73	2,694	1,239
66.78	2,694	1,293
66.83	2,694	1,347
66.88	2,694	1,401
66.93	2,694	1,455
66.98	2,694	1,509
67.03	2,694	1,563
67.08	2,694	1,616
67.13	2,694	1,670
67.18	2,694	1,724
67.23	2,694	1,778
67.28	2,694	1,832
67.33	2,694	1,886
67.38	2,694	1,940
67.43	2,694	1,994
67.48	2,694	2,047
67.53	2,694	2,101
67.58	2,694	2,155
67.63	2,694	2,209
67.68	2,694	2,263
67.73	2,694	2,317
67.78	2,694	2,371
67.83	2,694	2,425
67.88	2,694	2,478
67.93	2,694	2,532
67.98	2,694	2,586
68.03	2,694	2,640
68.08	2,694	2,694
68.13	2,694	2,748
68.18	2,694	2,802
68.23	2,694	2,856
68.28	2,694	2,910
68.33	2,694	2,963
68.38	2,719	3,099
68.43	2,743	3,235
68.48	2,768	3,373
68.53	2,793	3,512
68.58	2,818	3,652
68.63	2,843	3,794
68.68	2,868	3,937
68.73	2,893	4,081
68.78	2,919	4,226
68.83	**2,944**	**4,372**

Summary for Link 1L: DP-1

Inflow Area = 0.357 ac, 51.72% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 1L: DP-1

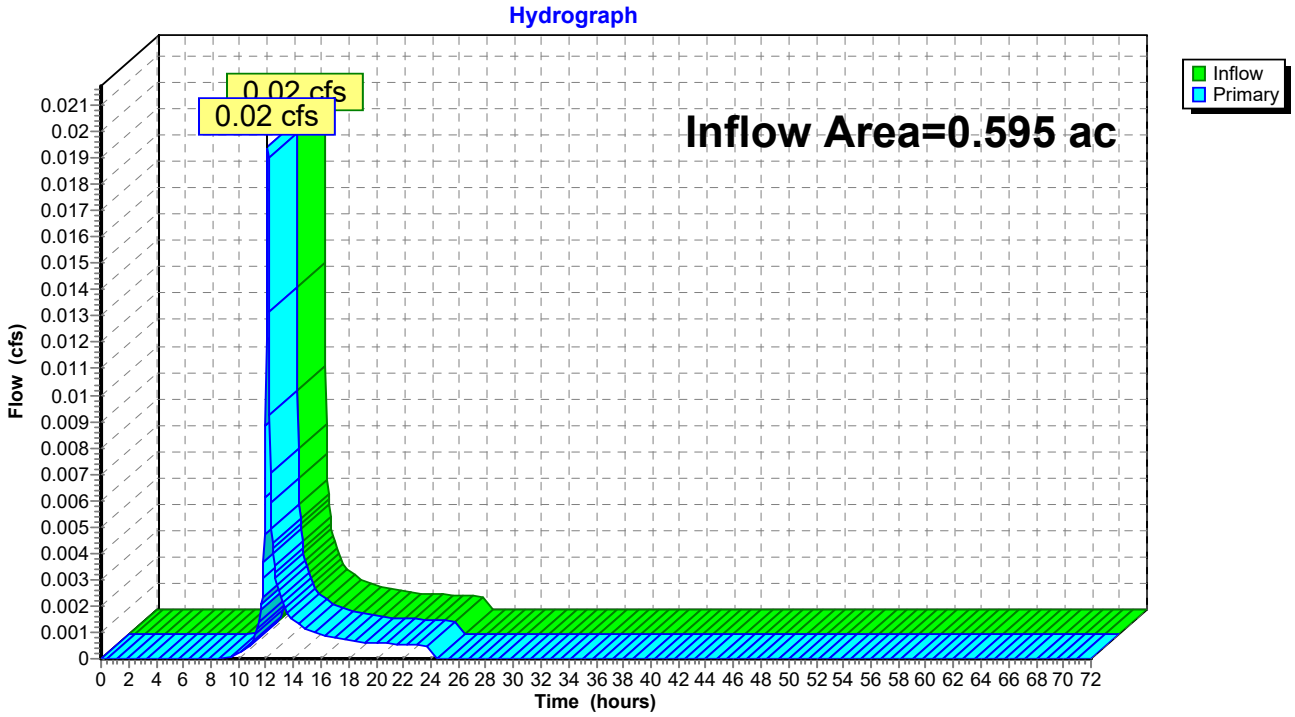


Summary for Link 2L: DP-2

Inflow Area = 0.595 ac, 70.17% Impervious, Inflow Depth = 0.03" for 2-Year event
Inflow = 0.02 cfs @ 12.13 hrs, Volume= 0.002 af
Primary = 0.02 cfs @ 12.13 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 2L: DP-2



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PR-1 Runoff Area=15,530 sf 51.72% Impervious Runoff Depth=3.67"
Tc=6.0 min CN=89 Runoff=1.35 cfs 0.109 af

Subcatchment 2S: PR-2 Runoff Area=7,443 sf 79.85% Impervious Runoff Depth=4.20"
Tc=6.0 min CN=94 Runoff=0.70 cfs 0.060 af

Subcatchment 3S: PR-3 Runoff Area=2,617 sf 100.00% Impervious Runoff Depth=4.65"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.023 af

Subcatchment 4S: PR-4 Runoff Area=6,094 sf 65.62% Impervious Runoff Depth=3.77"
Tc=6.0 min CN=90 Runoff=0.54 cfs 0.044 af

Subcatchment 5S: PR-5 Runoff Area=3,931 sf 87.18% Impervious Runoff Depth=4.31"
Tc=6.0 min CN=95 Runoff=0.38 cfs 0.032 af

Subcatchment 6S: PR-6 Runoff Area=5,199 sf 42.12% Impervious Runoff Depth=3.17"
Flow Length=194' Tc=16.7 min CN=84 Runoff=0.29 cfs 0.032 af

Subcatchment 7S: PR-7 Runoff Area=620 sf 0.00% Impervious Runoff Depth=2.62"
Tc=6.0 min CN=78 Runoff=0.04 cfs 0.003 af

Pond 1P: SSIB #1 Peak Elev=68.07' Storage=4,449 cf Inflow=2.07 cfs 0.191 af
Discarded=0.02 cfs 0.115 af Primary=0.26 cfs 0.064 af Outflow=0.29 cfs 0.179 af

Pond 3P: Bioretention Pond Peak Elev=68.76' Storage=4,156 cf Inflow=1.35 cfs 0.109 af
Outflow=0.03 cfs 0.036 af

Link 1L: DP-1 Inflow=0.03 cfs 0.036 af
Primary=0.03 cfs 0.036 af

Link 2L: DP-2 Inflow=0.27 cfs 0.067 af
Primary=0.27 cfs 0.067 af

Total Runoff Area = 0.951 ac Runoff Volume = 0.303 af Average Runoff Depth = 3.82"
36.75% Pervious = 0.350 ac 63.25% Impervious = 0.602 ac

Summary for Subcatchment 1S: PR-1

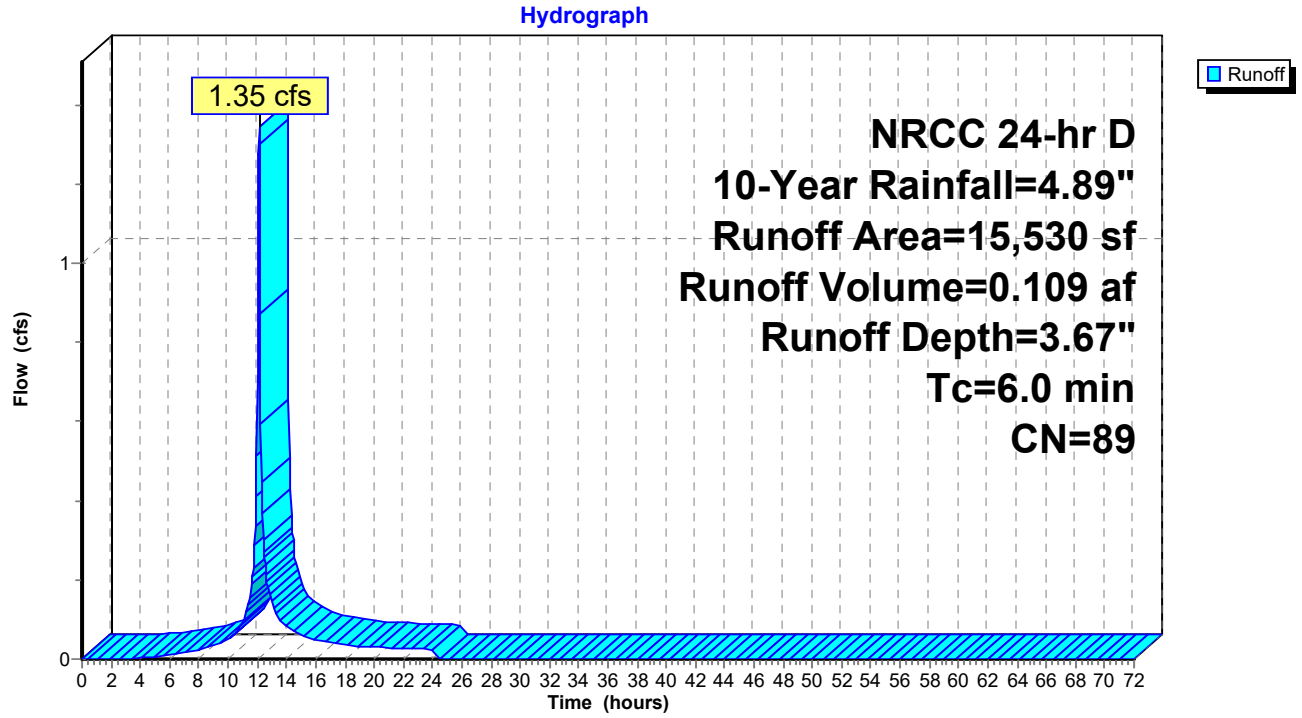
Runoff = 1.35 cfs @ 12.13 hrs, Volume= 0.109 af, Depth= 3.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.89"

	Area (sf)	CN	Description
	7,498	80	>75% Grass cover, Good, HSG D
	7,838	98	Paved parking, HSG D
*	194	98	Concrete, HSG D
	15,530	89	Weighted Average
	7,498		48.28% Pervious Area
	8,032		51.72% Impervious Area

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

Subcatchment 1S: PR-1



Summary for Subcatchment 2S: PR-2

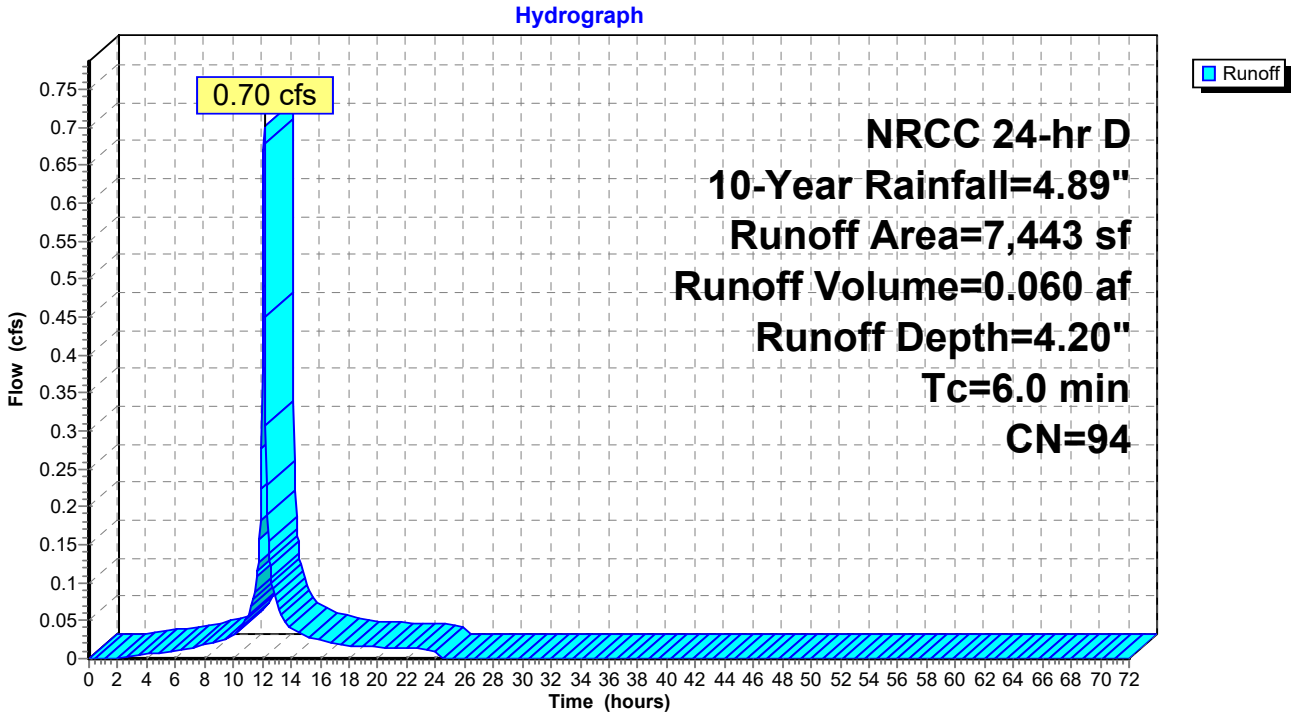
Runoff = 0.70 cfs @ 12.13 hrs, Volume= 0.060 af, Depth= 4.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.89"

	Area (sf)	CN	Description
	484	98	Paved parking, HSG C
	4,863	98	Paved parking, HSG D
	89	74	>75% Grass cover, Good, HSG C
	1,411	80	>75% Grass cover, Good, HSG D
*	526	98	Concrete Surfaces, HSG D
*	70	98	Concrete Surfaces, HSG C
	7,443	94	Weighted Average
	1,500		20.15% Pervious Area
	5,943		79.85% Impervious Area

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

Subcatchment 2S: PR-2



Summary for Subcatchment 3S: PR-3

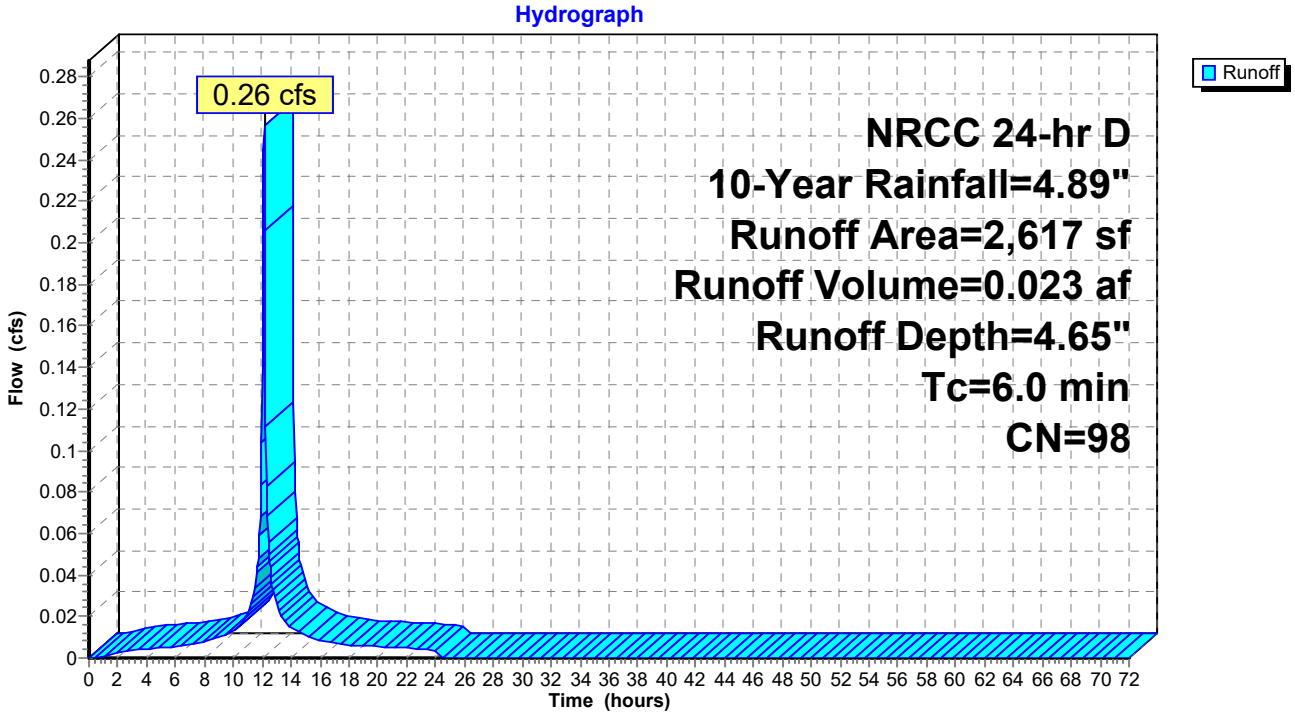
Runoff = 0.26 cfs @ 12.13 hrs, Volume= 0.023 af, Depth= 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.89"

Area (sf)	CN	Description
1,648	98	Roofs, HSG D
969	98	Roofs, HSG C
2,617	98	Weighted Average
2,617		100.00% Impervious Area

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

Subcatchment 3S: PR-3



Summary for Subcatchment 4S: PR-4

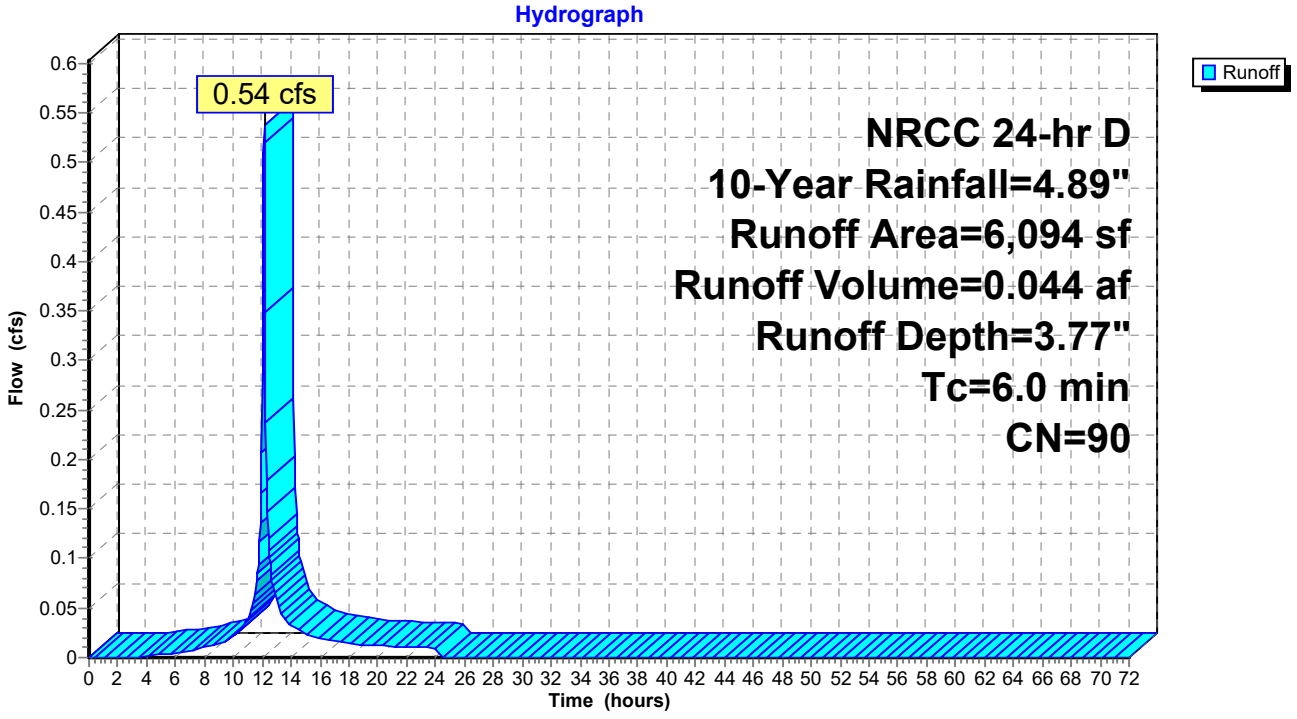
Runoff = 0.54 cfs @ 12.13 hrs, Volume= 0.044 af, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.89"

	Area (sf)	CN	Description
	1,877	74	>75% Grass cover, Good, HSG C
	218	80	>75% Grass cover, Good, HSG D
	3,392	98	Paved parking, HSG C
*	607	98	Concrete Surfaces, HSG C
	6,094	90	Weighted Average
	2,095		34.38% Pervious Area
	3,999		65.62% Impervious Area

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

Subcatchment 4S: PR-4



Summary for Subcatchment 5S: PR-5

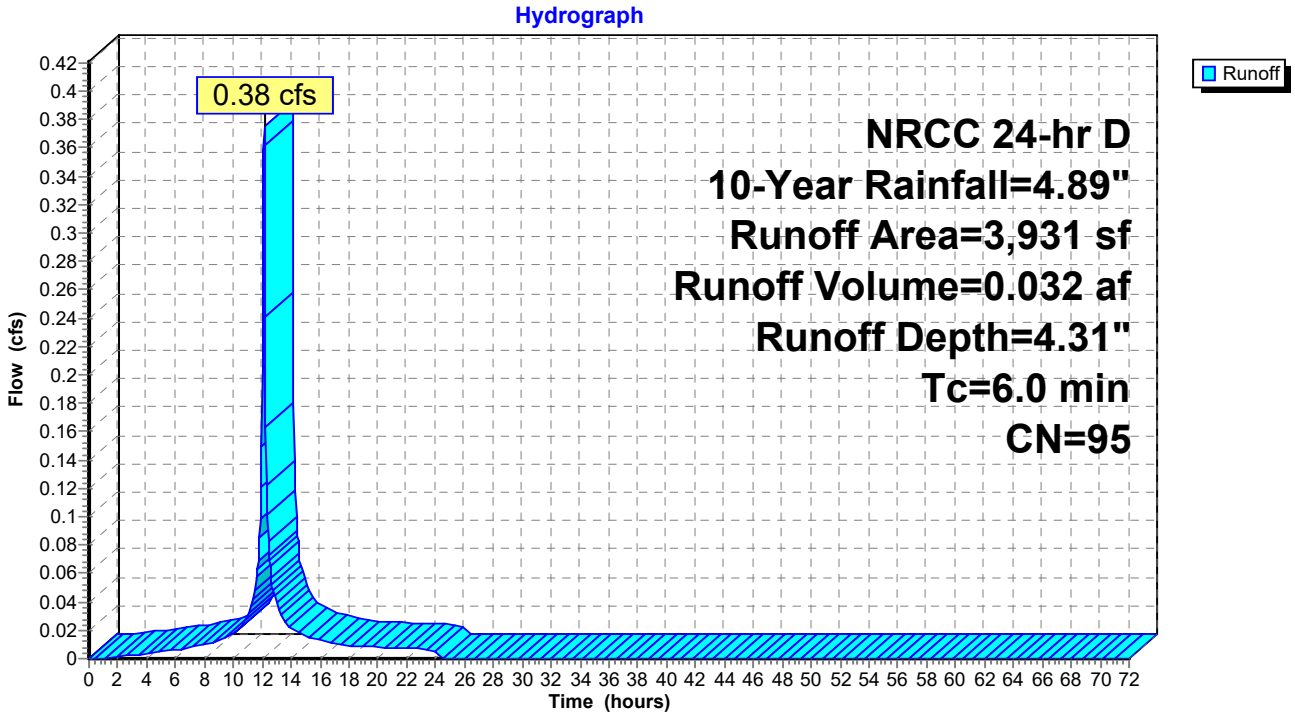
Runoff = 0.38 cfs @ 12.13 hrs, Volume= 0.032 af, Depth= 4.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.89"

	Area (sf)	CN	Description
	359	98	Paved parking, HSG D
	2,878	98	Paved parking, HSG C
	82	80	>75% Grass cover, Good, HSG D
	422	74	>75% Grass cover, Good, HSG C
*	13	98	Concrete Surfaces, HSG D
*	177	98	Concrete Surfaces, HSG C
	3,931	95	Weighted Average
	504		12.82% Pervious Area
	3,427		87.18% Impervious Area

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

Subcatchment 5S: PR-5



Summary for Subcatchment 6S: PR-6

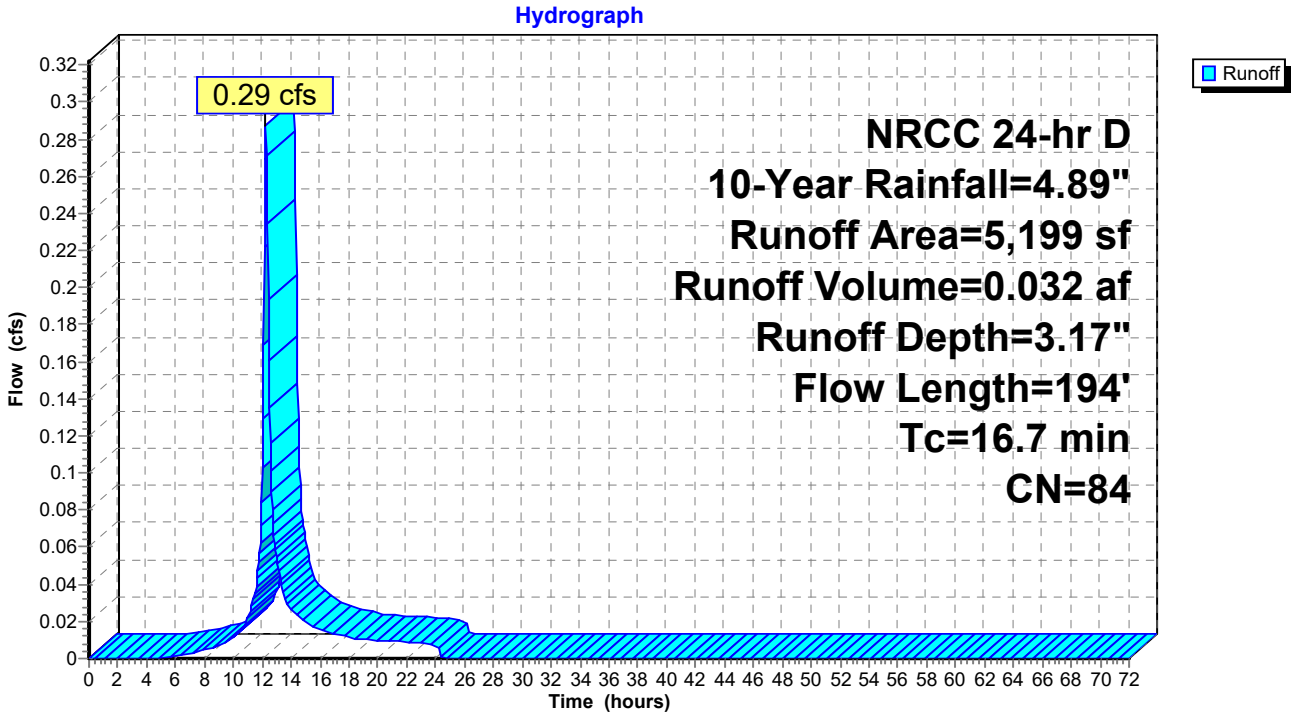
Runoff = 0.29 cfs @ 12.25 hrs, Volume= 0.032 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.89"

	Area (sf)	CN	Description
	228	80	>75% Grass cover, Good, HSG D
	2,781	74	>75% Grass cover, Good, HSG C
	992	98	Paved parking, HSG D
	1,115	98	Paved parking, HSG C
*	83	98	Concrete sidewalk, HSG C
	5,199	84	Weighted Average
	3,009		57.88% Pervious Area
	2,190		42.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	100	0.0060	0.10		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.13"
0.3	10	0.0060	0.54		**Shallow Concentrated Flow, SCF grass** Short Grass Pasture Kv= 7.0 fps
0.3	44	0.0200	2.87		**Shallow Concentrated Flow, SCF paved** Paved Kv= 20.3 fps
0.1	40	0.0100	4.54	3.56	**Pipe Channel, Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
16.7	194	Total			

Subcatchment 6S: PR-6



Summary for Subcatchment 7S: PR-7

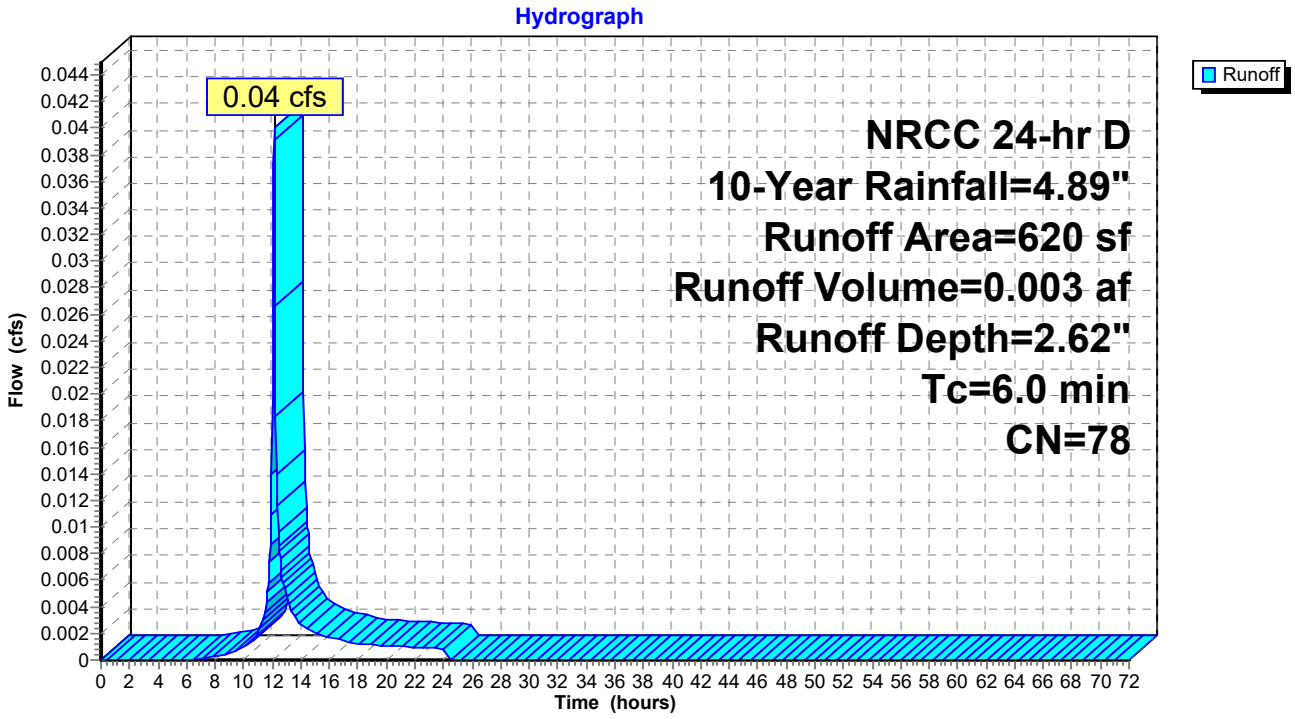
Runoff = 0.04 cfs @ 12.13 hrs, Volume= 0.003 af, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.89"

Area (sf)	CN	Description
372	80	>75% Grass cover, Good, HSG D
248	74	>75% Grass cover, Good, HSG C
620	78	Weighted Average
620		100.00% Pervious Area

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

Subcatchment 7S: PR-7



Summary for Pond 1P: SSIB #1

Inflow Area = 0.580 ac, 71.89% Impervious, Inflow Depth = 3.95" for 10-Year event
Inflow = 2.07 cfs @ 12.13 hrs, Volume= 0.191 af
Outflow = 0.29 cfs @ 12.85 hrs, Volume= 0.179 af, Atten= 86%, Lag= 43.1 min
Discarded = 0.02 cfs @ 12.85 hrs, Volume= 0.115 af
Primary = 0.26 cfs @ 12.85 hrs, Volume= 0.064 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 68.07' @ 12.85 hrs Surf.Area= 4,490 sf Storage= 4,449 cf

Plug-Flow detention time= 991.9 min calculated for 0.179 af (94% of inflow)
Center-of-Mass det. time= 957.0 min (1,748.9 - 791.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	65.75'	2,040 cf	**30.00'W x 74.82'L x 3.50'H Field A** 7,856 cf Overall - 2,756 cf Embedded = 5,099 cf x 40.0% Voids
#2A	66.25'	2,756 cf	**ADS_StormTech SC-740 +Cap** x 60 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 60 Chambers in 6 Rows
#3	64.75'	898 cf	**12" Stone (Prismatic)**Listed below (Recalc) 2,245 cf Overall x 40.0% Voids
		5,694 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
64.75	2,245	0	0
65.75	2,245	2,245	2,245

Device	Routing	Invert	Outlet Devices
#1	Discarded	64.75'	**0.200 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 50.00'
#2	Device 4	67.75'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 4	68.30'	**5.0" Vert. Orifice/Grate** C= 0.600
#4	Primary	66.40'	**12.0" Round Culvert** L= 69.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.40' / 65.60' S= 0.0116 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.02 cfs @ 12.85 hrs HW=68.07' (Free Discharge)
└**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=0.26 cfs @ 12.85 hrs HW=68.07' (Free Discharge)
└**4=Culvert** (Passes 0.26 cfs of 3.23 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 0.26 cfs @ 1.94 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: SSIB #1 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

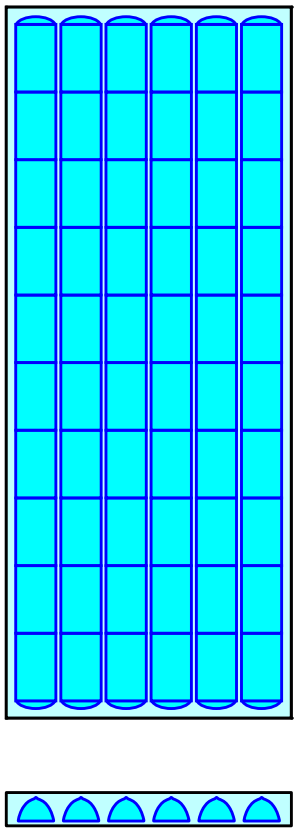
10 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 72.82' Row Length +12.0" End Stone x 2 = 74.82' Base Length
6 Rows x 51.0" Wide + 6.0" Spacing x 5 + 12.0" Side Stone x 2 = 30.00' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

60 Chambers x 45.9 cf = 2,756.4 cf Chamber Storage

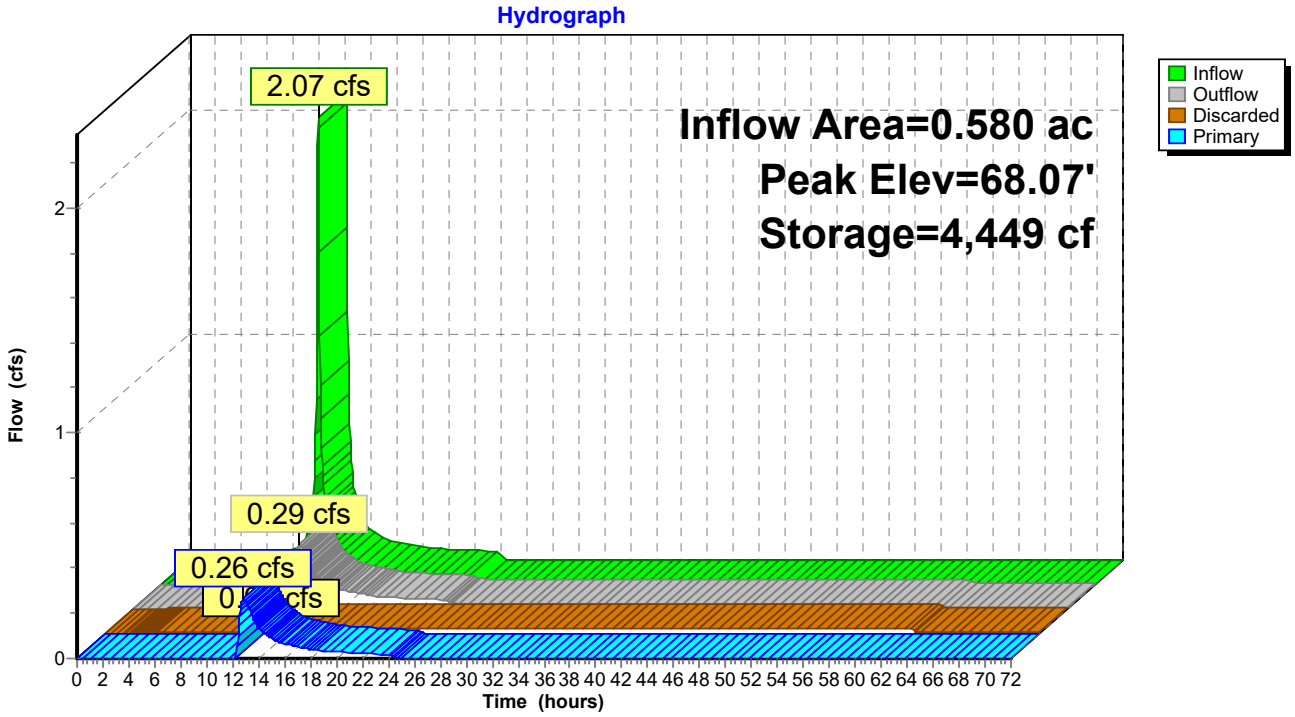
7,855.8 cf Field - 2,756.4 cf Chambers = 5,099.3 cf Stone x 40.0% Voids = 2,039.7 cf Stone Storage

Chamber Storage + Stone Storage = 4,796.1 cf = 0.110 af
Overall Storage Efficiency = 61.1%
Overall System Size = 74.82' x 30.00' x 3.50'

60 Chambers
291.0 cy Field
188.9 cy Stone



Pond 1P: SSIB #1



Stage-Area-Storage for Pond 1P: SSIB #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
64.75	2,245	0
64.80	2,245	45
64.85	2,245	90
64.90	2,245	135
64.95	2,245	180
65.00	2,245	225
65.05	2,245	269
65.10	2,245	314
65.15	2,245	359
65.20	2,245	404
65.25	2,245	449
65.30	2,245	494
65.35	2,245	539
65.40	2,245	584
65.45	2,245	629
65.50	2,245	674
65.55	2,245	718
65.60	2,245	763
65.65	2,245	808
65.70	2,245	853
65.75	**4,490**	898
65.80	4,490	943
65.85	4,490	988
65.90	4,490	1,033
65.95	4,490	1,078
66.00	4,490	1,122
66.05	4,490	1,167
66.10	4,490	1,212
66.15	4,490	1,257
66.20	4,490	1,302
66.25	4,490	1,347
66.30	4,490	1,439
66.35	4,490	1,532
66.40	4,490	1,624
66.45	4,490	1,716
66.50	4,490	1,808
66.55	4,490	1,900
66.60	4,490	1,991
66.65	4,490	2,082
66.70	4,490	2,173
66.75	4,490	2,263
66.80	4,490	2,353
66.85	4,490	2,442
66.90	4,490	2,531
66.95	4,490	2,620
67.00	4,490	2,708
67.05	4,490	2,795
67.10	4,490	2,882
67.15	4,490	2,969
67.20	4,490	3,055
67.25	4,490	3,141
67.30	4,490	3,226
67.35	4,490	3,311
67.40	4,490	3,394
67.45	4,490	3,478
67.50	4,490	3,560
67.55	4,490	3,642
67.60	4,490	3,723
67.65	4,490	3,803
67.70	4,490	3,883
67.75	4,490	3,962
67.80	4,490	4,040
67.85	4,490	4,117
67.90	4,490	4,193
67.95	4,490	4,268
68.00	4,490	4,342
68.05	4,490	4,415
68.10	4,490	4,486
68.15	4,490	4,556
68.20	4,490	4,625
68.25	4,490	4,693
68.30	4,490	4,759
68.35	4,490	4,823
68.40	4,490	4,885
68.45	4,490	4,944
68.50	4,490	5,001
68.55	4,490	5,054
68.60	4,490	5,104
68.65	4,490	5,153
68.70	4,490	5,200
68.75	4,490	5,245
68.80	4,490	5,290
68.85	4,490	5,335
68.90	4,490	5,380
68.95	4,490	5,425
69.00	4,490	5,470
69.05	4,490	5,515
69.10	4,490	5,559
69.15	4,490	5,604
69.20	4,490	5,649
69.25	4,490	**5,694**

Summary for Pond 3P: Bioretention Pond

Inflow Area = 0.357 ac, 51.72% Impervious, Inflow Depth = 3.67" for 10-Year event
Inflow = 1.35 cfs @ 12.13 hrs, Volume= 0.109 af
Outflow = 0.03 cfs @ 20.87 hrs, Volume= 0.036 af, Atten= 98%, Lag= 524.5 min
Primary = 0.03 cfs @ 20.87 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 68.76' @ 20.87 hrs Surf.Area= 2,906 sf Storage= 4,156 cf

Plug-Flow detention time= 1,377.3 min calculated for 0.036 af (33% of inflow)
Center-of-Mass det. time= 1,201.5 min (2,010.6 - 809.1)

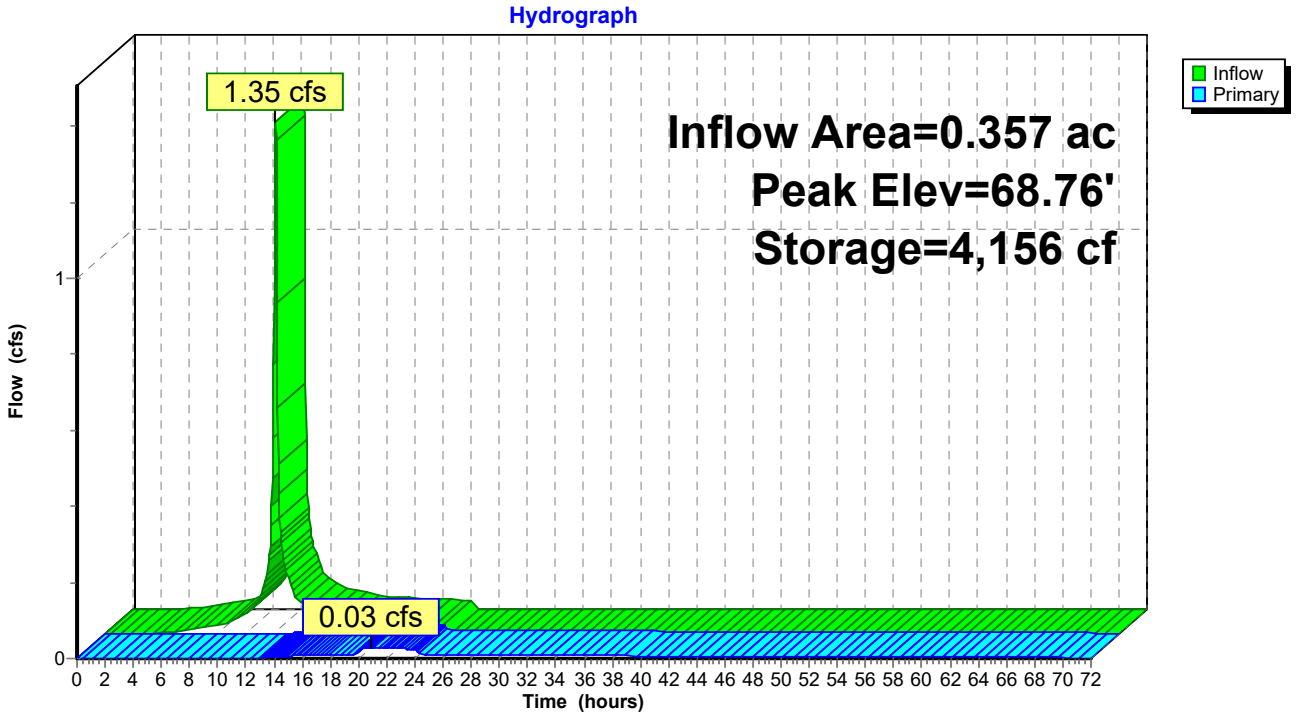
Volume	Invert	Avail.Storage	Storage Description
#1	65.58'	4,372 cf	**Storage Area (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
65.58	2,694	247.0	0.0	0	0	2,694
65.83	2,694	247.0	40.0	269	269	2,756
66.83	2,694	247.0	40.0	1,078	1,347	3,003
68.33	2,694	247.0	40.0	1,616	2,963	3,373
68.83	2,944	254.0	100.0	1,409	4,372	3,679

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	**12.0" Round Culvert** L= 7.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.00' / 66.00' S= 0.0000 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	66.00'	**2.400 in/hr Exfiltration over Surface area above 66.00'** Excluded Surface area = 2,694 sf
#3	Device 1	68.75'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 in 23.0" x 21.0" Grate (30% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 20.87 hrs HW=68.76' (Free Discharge)
└**1=Culvert** (Passes 0.02 cfs of 4.48 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)
└**3=Orifice/Grate** (Weir Controls 0.01 cfs @ 0.25 fps)

Pond 3P: Bioretention Pond



Stage-Area-Storage for Pond 3P: Bioretention Pond

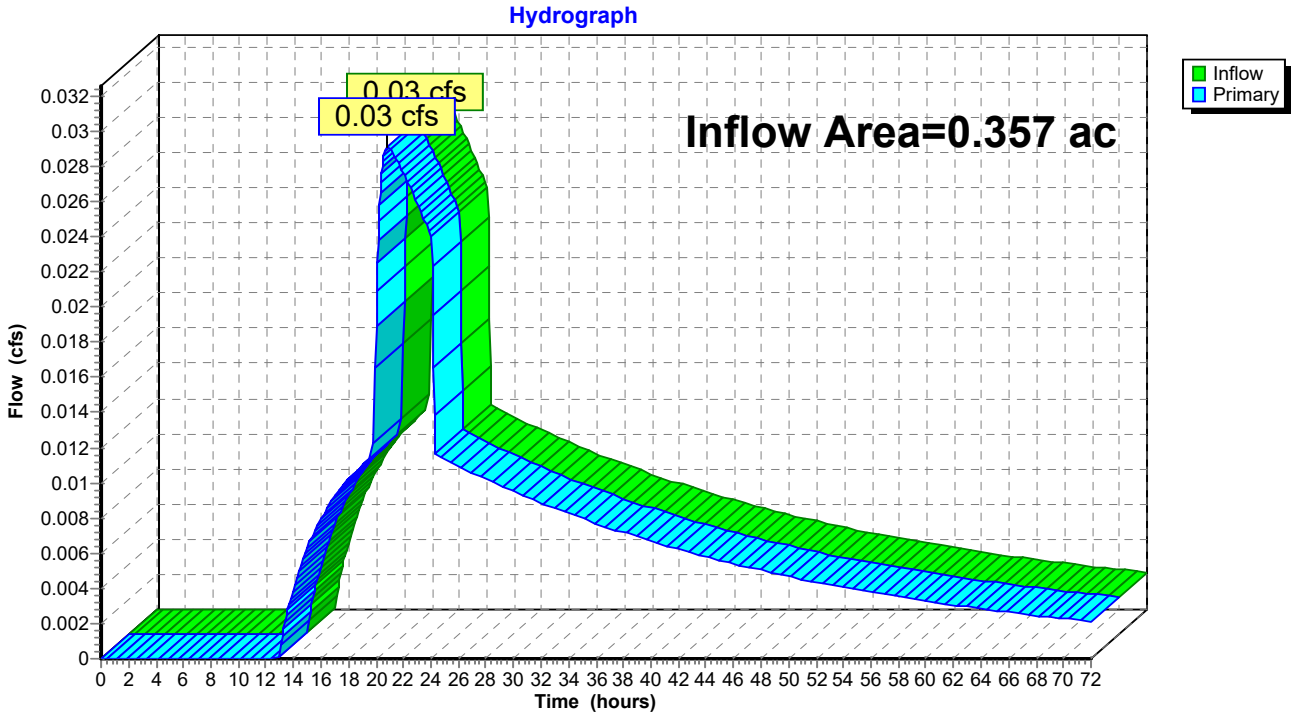
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
65.58	2,694	0
65.63	2,694	54
65.68	2,694	108
65.73	2,694	162
65.78	2,694	216
65.83	2,694	269
65.88	2,694	323
65.93	2,694	377
65.98	2,694	431
66.03	2,694	485
66.08	2,694	539
66.13	2,694	593
66.18	2,694	647
66.23	2,694	700
66.28	2,694	754
66.33	2,694	808
66.38	2,694	862
66.43	2,694	916
66.48	2,694	970
66.53	2,694	1,024
66.58	2,694	1,078
66.63	2,694	1,131
66.68	2,694	1,185
66.73	2,694	1,239
66.78	2,694	1,293
66.83	2,694	1,347
66.88	2,694	1,401
66.93	2,694	1,455
66.98	2,694	1,509
67.03	2,694	1,563
67.08	2,694	1,616
67.13	2,694	1,670
67.18	2,694	1,724
67.23	2,694	1,778
67.28	2,694	1,832
67.33	2,694	1,886
67.38	2,694	1,940
67.43	2,694	1,994
67.48	2,694	2,047
67.53	2,694	2,101
67.58	2,694	2,155
67.63	2,694	2,209
67.68	2,694	2,263
67.73	2,694	2,317
67.78	2,694	2,371
67.83	2,694	2,425
67.88	2,694	2,478
67.93	2,694	2,532
67.98	2,694	2,586
68.03	2,694	2,640
68.08	2,694	2,694
68.13	2,694	2,748
68.18	2,694	2,802
68.23	2,694	2,856
68.28	2,694	2,910
68.33	2,694	2,963
68.38	2,719	3,099
68.43	2,743	3,235
68.48	2,768	3,373
68.53	2,793	3,512
68.58	2,818	3,652
68.63	2,843	3,794
68.68	2,868	3,937
68.73	2,893	4,081
68.78	2,919	4,226
68.83	**2,944**	**4,372**

Summary for Link 1L: DP-1

Inflow Area = 0.357 ac, 51.72% Impervious, Inflow Depth > 1.21" for 10-Year event
Inflow = 0.03 cfs @ 20.87 hrs, Volume= 0.036 af
Primary = 0.03 cfs @ 20.87 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 1L: DP-1

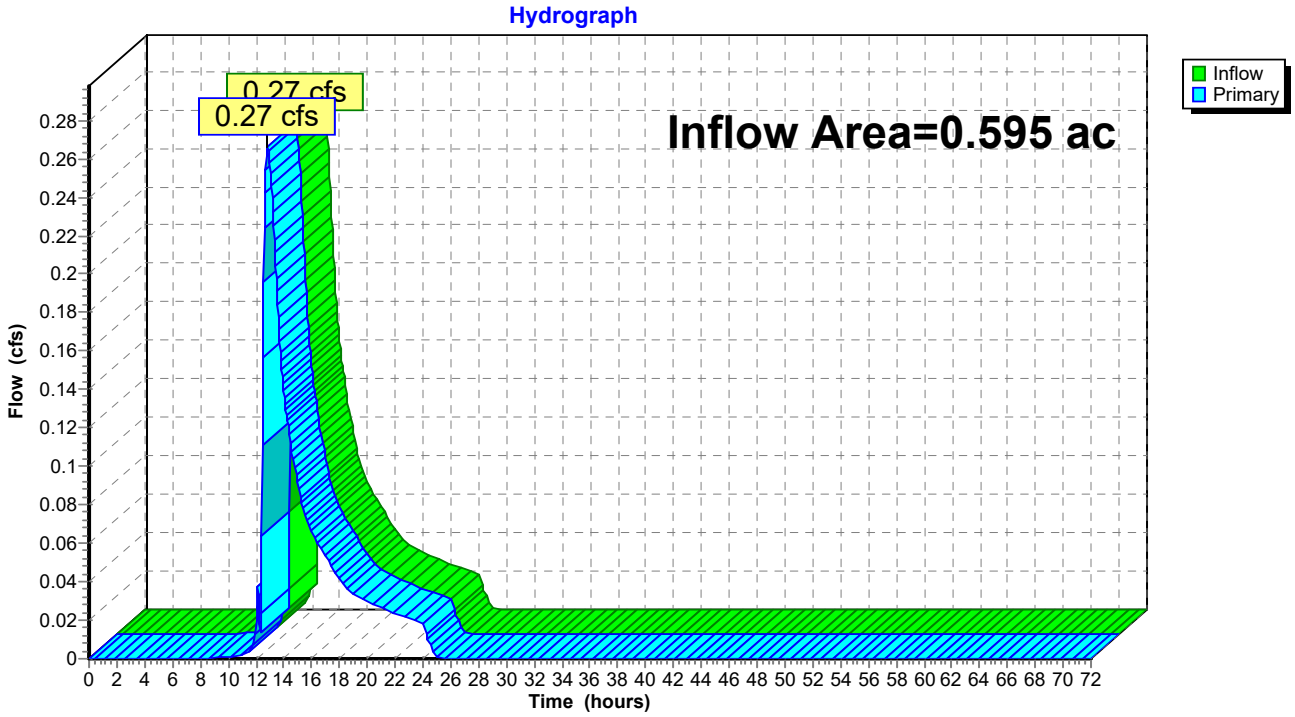


Summary for Link 2L: DP-2

Inflow Area = 0.595 ac, 70.17% Impervious, Inflow Depth = 1.36" for 10-Year event
Inflow = 0.27 cfs @ 12.85 hrs, Volume= 0.067 af
Primary = 0.27 cfs @ 12.85 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 2L: DP-2



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PR-1 Runoff Area=15,530 sf 51.72% Impervious Runoff Depth=4.95"
Tc=6.0 min CN=89 Runoff=1.78 cfs 0.147 af

Subcatchment 2S: PR-2 Runoff Area=7,443 sf 79.85% Impervious Runoff Depth=5.51"
Tc=6.0 min CN=94 Runoff=0.91 cfs 0.079 af

Subcatchment 3S: PR-3 Runoff Area=2,617 sf 100.00% Impervious Runoff Depth=5.98"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.030 af

Subcatchment 4S: PR-4 Runoff Area=6,094 sf 65.62% Impervious Runoff Depth=5.06"
Tc=6.0 min CN=90 Runoff=0.71 cfs 0.059 af

Subcatchment 5S: PR-5 Runoff Area=3,931 sf 87.18% Impervious Runoff Depth=5.63"
Tc=6.0 min CN=95 Runoff=0.48 cfs 0.042 af

Subcatchment 6S: PR-6 Runoff Area=5,199 sf 42.12% Impervious Runoff Depth=4.40"
Flow Length=194' Tc=16.7 min CN=84 Runoff=0.39 cfs 0.044 af

Subcatchment 7S: PR-7 Runoff Area=620 sf 0.00% Impervious Runoff Depth=3.77"
Tc=6.0 min CN=78 Runoff=0.06 cfs 0.004 af

Pond 1P: SSIB #1 Peak Elev=68.58' Storage=5,085 cf Inflow=2.71 cfs 0.254 af
Discarded=0.03 cfs 0.117 af Primary=0.90 cfs 0.124 af Outflow=0.92 cfs 0.242 af

Pond 3P: Bioretention Pond Peak Elev=68.78' Storage=4,221 cf Inflow=1.78 cfs 0.147 af
Outflow=0.14 cfs 0.074 af

Link 1L: DP-1 Inflow=0.14 cfs 0.074 af
Primary=0.14 cfs 0.074 af

Link 2L: DP-2 Inflow=0.91 cfs 0.129 af
Primary=0.91 cfs 0.129 af

Total Runoff Area = 0.951 ac Runoff Volume = 0.405 af Average Runoff Depth = 5.11"
36.75% Pervious = 0.350 ac 63.25% Impervious = 0.602 ac

Summary for Subcatchment 1S: PR-1

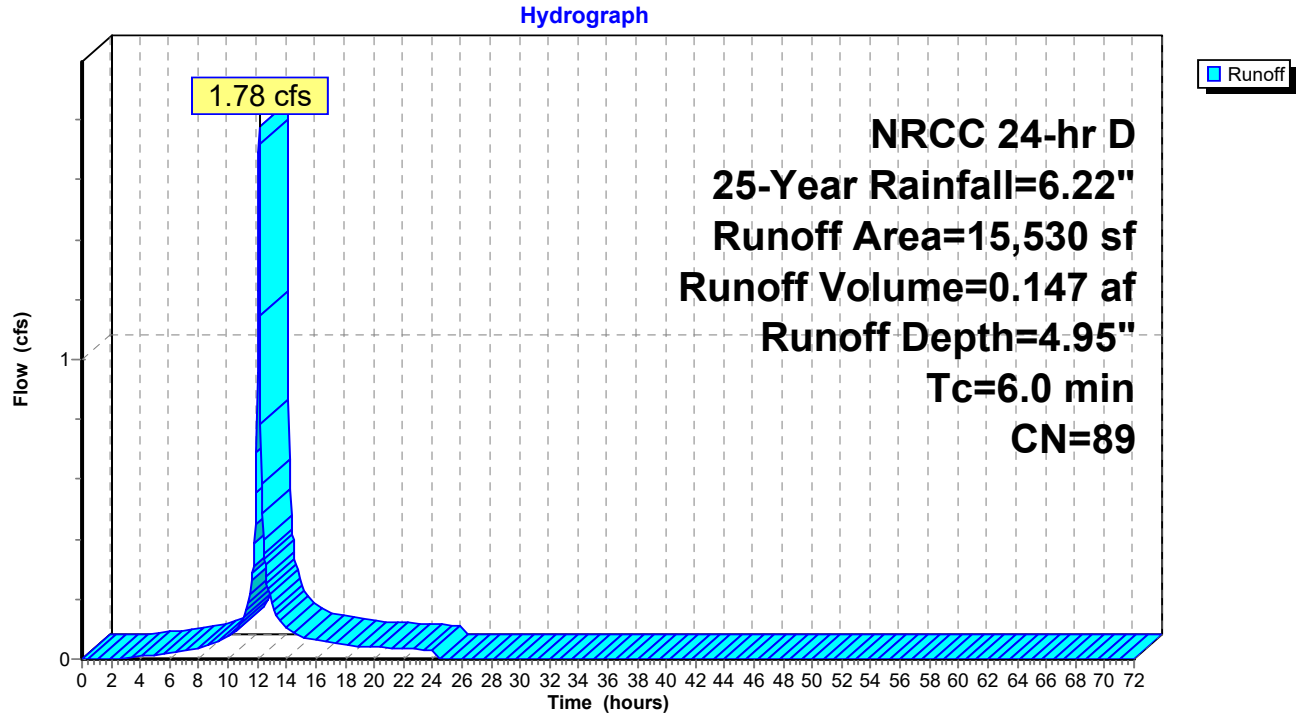
Runoff = 1.78 cfs @ 12.13 hrs, Volume= 0.147 af, Depth= 4.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.22"

	Area (sf)	CN	Description
	7,498	80	>75% Grass cover, Good, HSG D
	7,838	98	Paved parking, HSG D
*	194	98	Concrete, HSG D
	15,530	89	Weighted Average
	7,498		48.28% Pervious Area
	8,032		51.72% Impervious Area

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

Subcatchment 1S: PR-1



Summary for Subcatchment 2S: PR-2

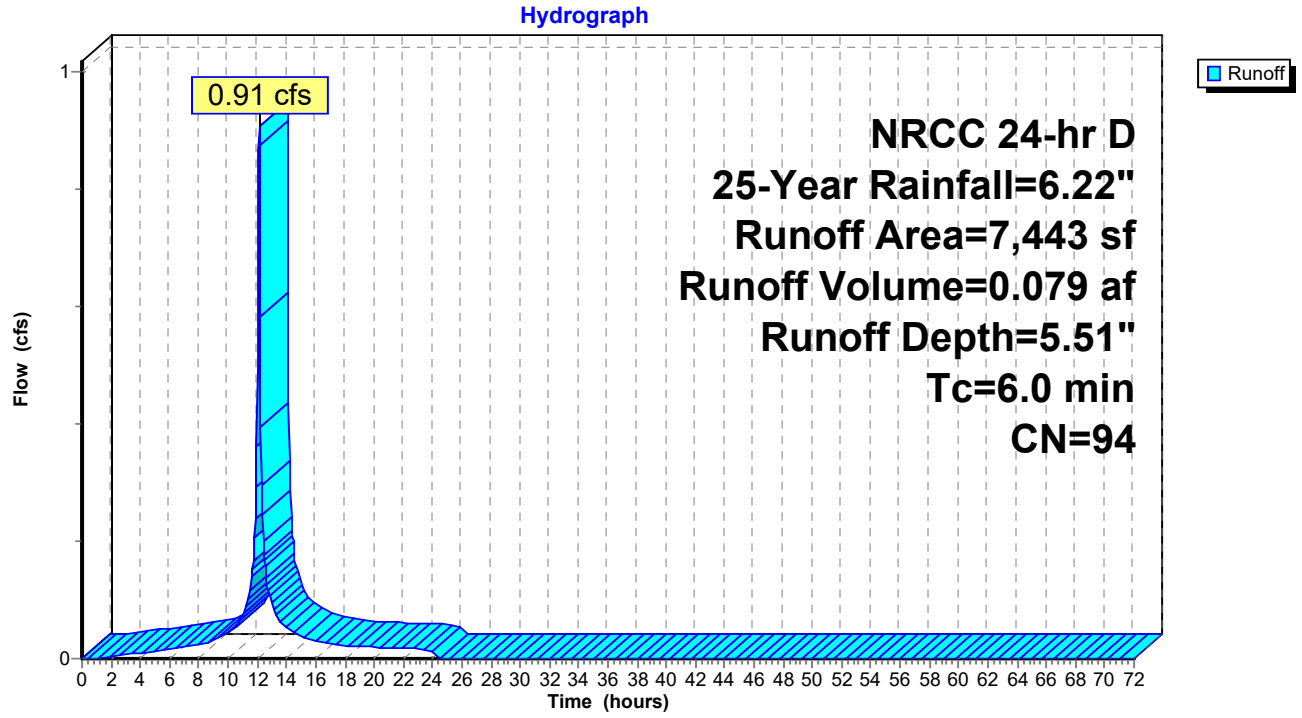
Runoff = 0.91 cfs @ 12.13 hrs, Volume= 0.079 af, Depth= 5.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.22"

	Area (sf)	CN	Description
	484	98	Paved parking, HSG C
	4,863	98	Paved parking, HSG D
	89	74	>75% Grass cover, Good, HSG C
	1,411	80	>75% Grass cover, Good, HSG D
*	526	98	Concrete Surfaces, HSG D
*	70	98	Concrete Surfaces, HSG C
	7,443	94	Weighted Average
	1,500		20.15% Pervious Area
	5,943		79.85% Impervious Area

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

Subcatchment 2S: PR-2



Summary for Subcatchment 3S: PR-3

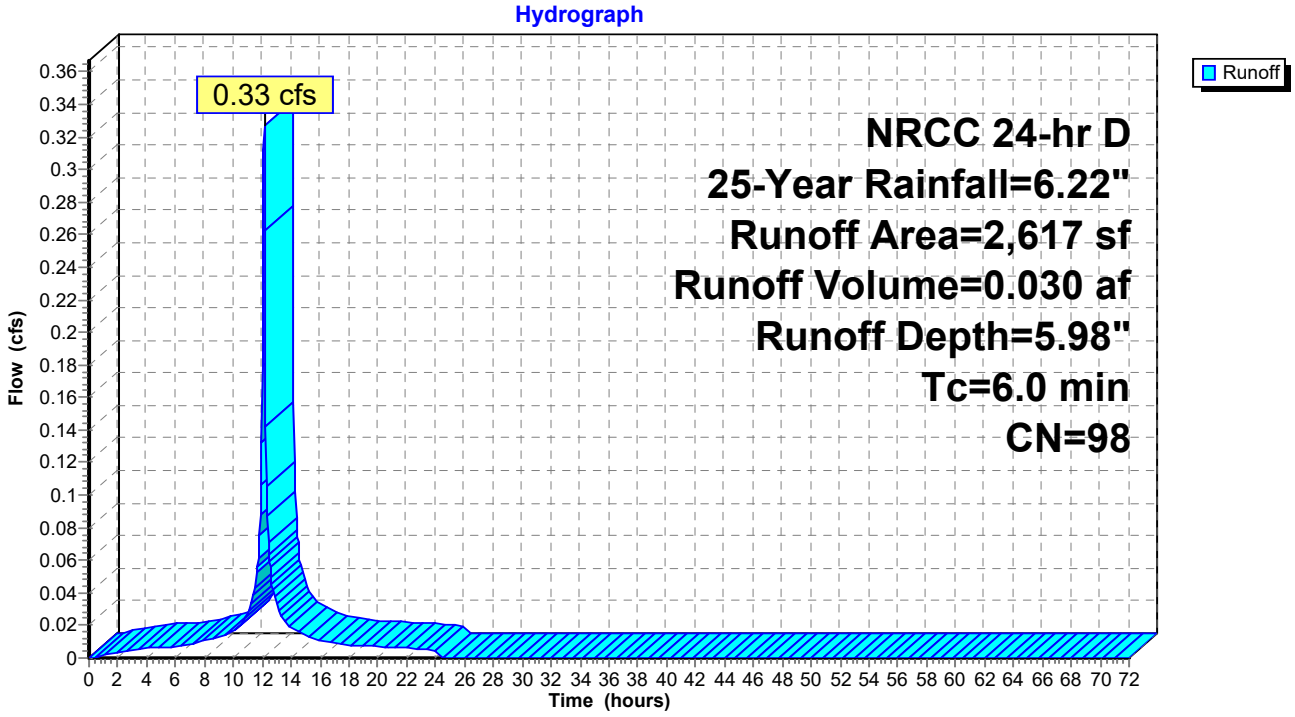
Runoff = 0.33 cfs @ 12.13 hrs, Volume= 0.030 af, Depth= 5.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.22"

Area (sf)	CN	Description
1,648	98	Roofs, HSG D
969	98	Roofs, HSG C
2,617	98	Weighted Average
2,617		100.00% Impervious Area

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

Subcatchment 3S: PR-3



Summary for Subcatchment 4S: PR-4

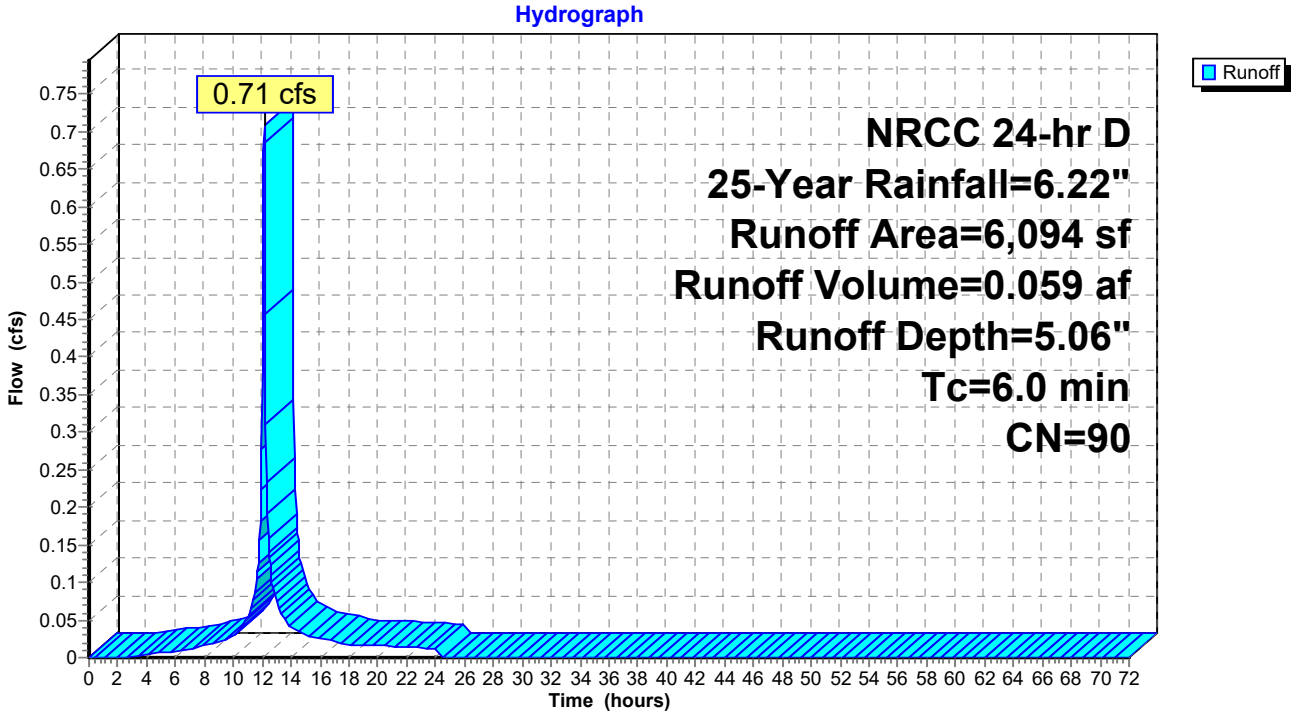
Runoff = 0.71 cfs @ 12.13 hrs, Volume= 0.059 af, Depth= 5.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.22"

	Area (sf)	CN	Description
	1,877	74	>75% Grass cover, Good, HSG C
	218	80	>75% Grass cover, Good, HSG D
	3,392	98	Paved parking, HSG C
*	607	98	Concrete Surfaces, HSG C
	6,094	90	Weighted Average
	2,095		34.38% Pervious Area
	3,999		65.62% Impervious Area

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

Subcatchment 4S: PR-4



Summary for Subcatchment 5S: PR-5

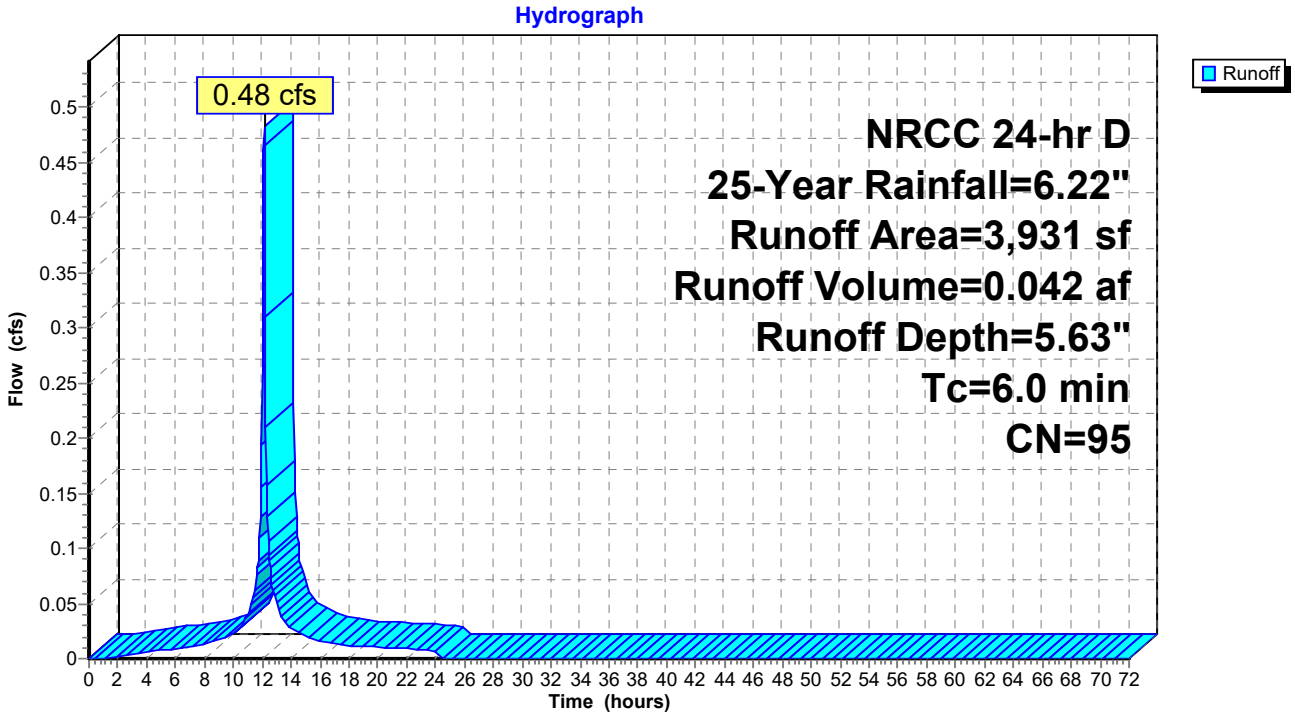
Runoff = 0.48 cfs @ 12.13 hrs, Volume= 0.042 af, Depth= 5.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.22"

	Area (sf)	CN	Description
	359	98	Paved parking, HSG D
	2,878	98	Paved parking, HSG C
	82	80	>75% Grass cover, Good, HSG D
	422	74	>75% Grass cover, Good, HSG C
*	13	98	Concrete Surfaces, HSG D
*	177	98	Concrete Surfaces, HSG C
	3,931	95	Weighted Average
	504		12.82% Pervious Area
	3,427		87.18% Impervious Area

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

Subcatchment 5S: PR-5



Summary for Subcatchment 6S: PR-6

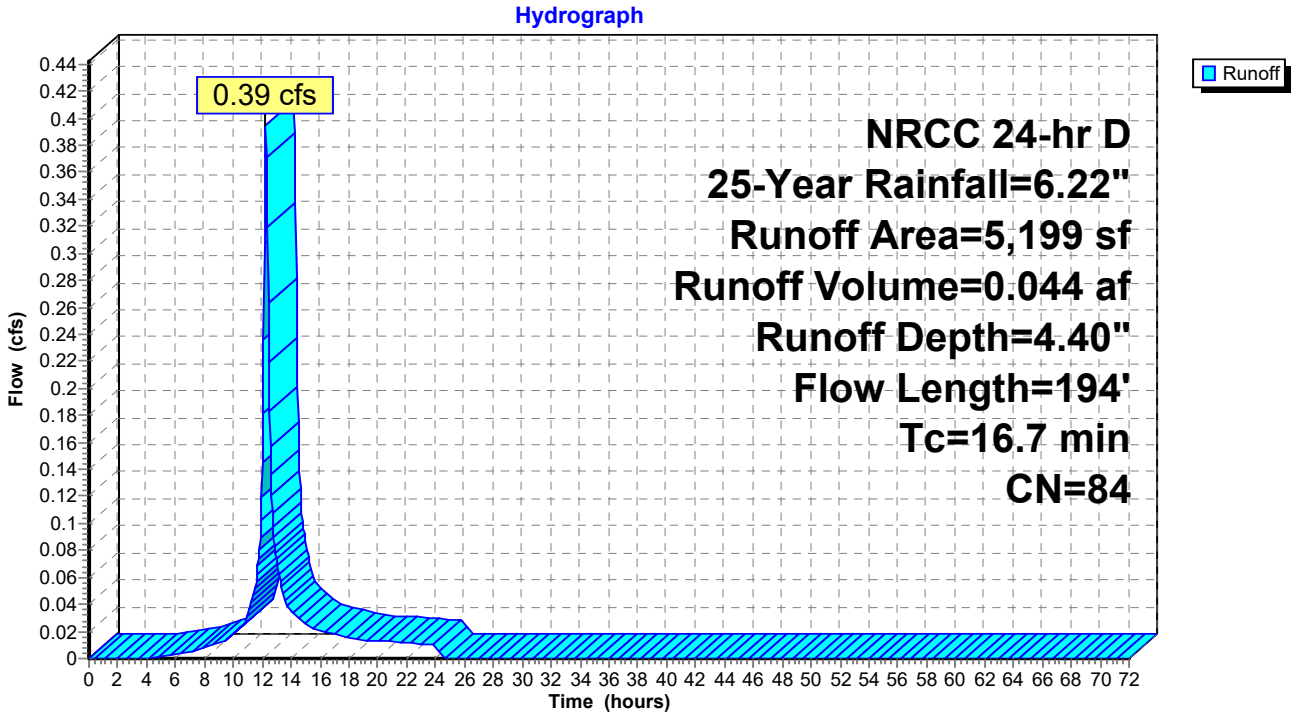
Runoff = 0.39 cfs @ 12.25 hrs, Volume= 0.044 af, Depth= 4.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.22"

	Area (sf)	CN	Description
	228	80	>75% Grass cover, Good, HSG D
	2,781	74	>75% Grass cover, Good, HSG C
	992	98	Paved parking, HSG D
	1,115	98	Paved parking, HSG C
*	83	98	Concrete sidewalk, HSG C
	5,199	84	Weighted Average
	3,009		57.88% Pervious Area
	2,190		42.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	100	0.0060	0.10		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.13"
0.3	10	0.0060	0.54		**Shallow Concentrated Flow, SCF grass** Short Grass Pasture Kv= 7.0 fps
0.3	44	0.0200	2.87		**Shallow Concentrated Flow, SCF paved** Paved Kv= 20.3 fps
0.1	40	0.0100	4.54	3.56	**Pipe Channel, Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
16.7	194	Total			

Subcatchment 6S: PR-6



Summary for Subcatchment 7S: PR-7

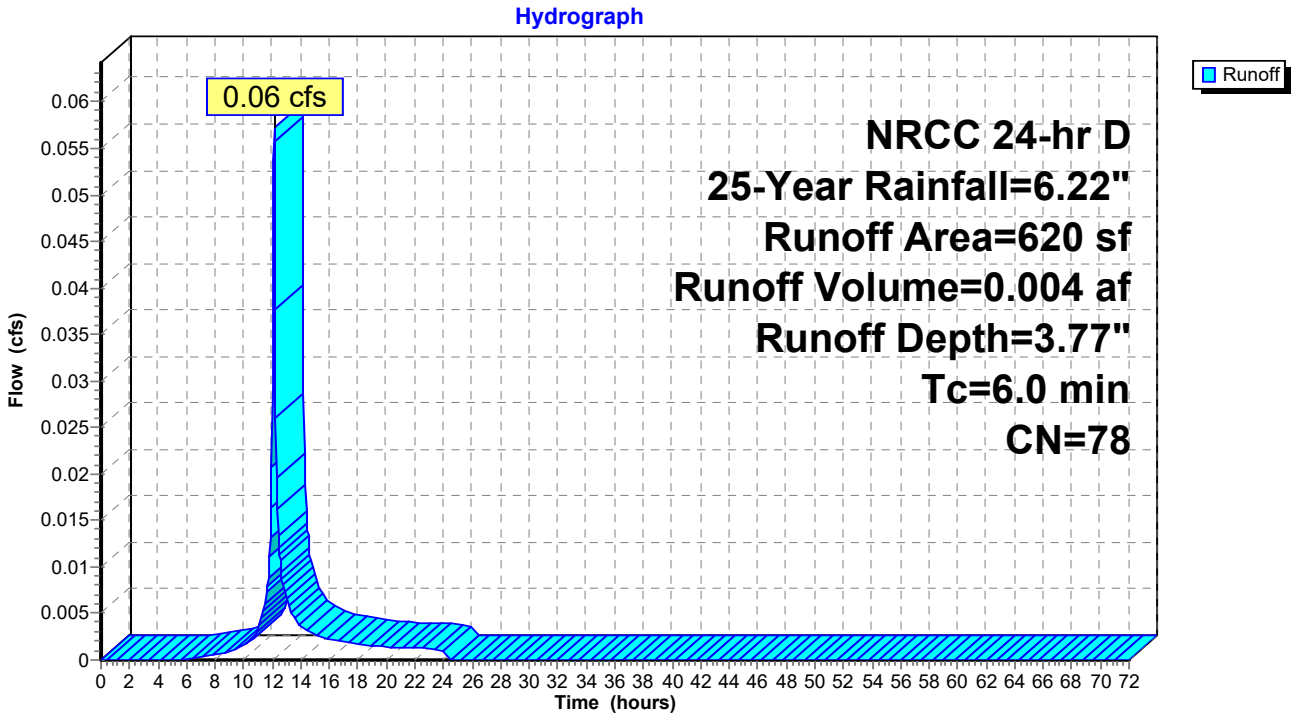
Runoff = 0.06 cfs @ 12.13 hrs, Volume= 0.004 af, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.22"

Area (sf)	CN	Description
372	80	>75% Grass cover, Good, HSG D
248	74	>75% Grass cover, Good, HSG C
620	78	Weighted Average
620		100.00% Pervious Area

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

Subcatchment 7S: PR-7



Summary for Pond 1P: SSIB #1

Inflow Area = 0.580 ac, 71.89% Impervious, Inflow Depth = 5.24" for 25-Year event
Inflow = 2.71 cfs @ 12.13 hrs, Volume= 0.254 af
Outflow = 0.92 cfs @ 12.37 hrs, Volume= 0.242 af, Atten= 66%, Lag= 14.2 min
Discarded = 0.03 cfs @ 12.37 hrs, Volume= 0.117 af
Primary = 0.90 cfs @ 12.37 hrs, Volume= 0.124 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 68.58' @ 12.37 hrs Surf.Area= 4,490 sf Storage= 5,085 cf

Plug-Flow detention time= 759.0 min calculated for 0.241 af (95% of inflow)
Center-of-Mass det. time= 731.7 min (1,515.5 - 783.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	65.75'	2,040 cf	**30.00'W x 74.82'L x 3.50'H Field A** 7,856 cf Overall - 2,756 cf Embedded = 5,099 cf x 40.0% Voids
#2A	66.25'	2,756 cf	**ADS_StormTech SC-740 +Cap** x 60 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 60 Chambers in 6 Rows
#3	64.75'	898 cf	**12" Stone (Prismatic)**Listed below (Recalc) 2,245 cf Overall x 40.0% Voids
		5,694 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
64.75	2,245	0	0
65.75	2,245	2,245	2,245

Device	Routing	Invert	Outlet Devices
#1	Discarded	64.75'	**0.200 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 50.00'
#2	Device 4	67.75'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 4	68.30'	**5.0" Vert. Orifice/Grate** C= 0.600
#4	Primary	66.40'	**12.0" Round Culvert** L= 69.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.40' / 65.60' S= 0.0116 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.03 cfs @ 12.37 hrs HW=68.58' (Free Discharge)
└**1=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.89 cfs @ 12.37 hrs HW=68.58' (Free Discharge)
└**4=Culvert** (Passes 0.89 cfs of 3.87 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 0.72 cfs @ 3.66 fps)
  └**3=Orifice/Grate** (Orifice Controls 0.17 cfs @ 1.79 fps)

Pond 1P: SSIB #1 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

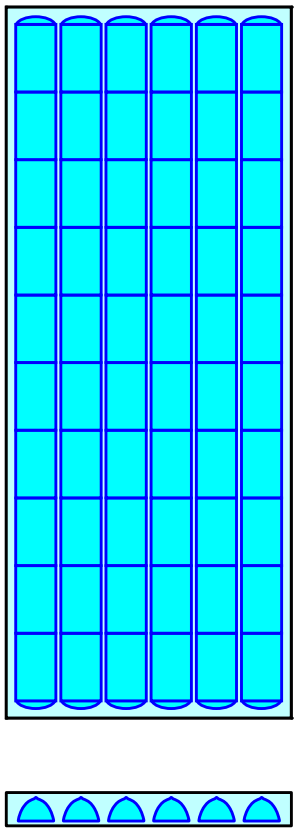
10 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 72.82' Row Length +12.0" End Stone x 2 = 74.82' Base Length
6 Rows x 51.0" Wide + 6.0" Spacing x 5 + 12.0" Side Stone x 2 = 30.00' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

60 Chambers x 45.9 cf = 2,756.4 cf Chamber Storage

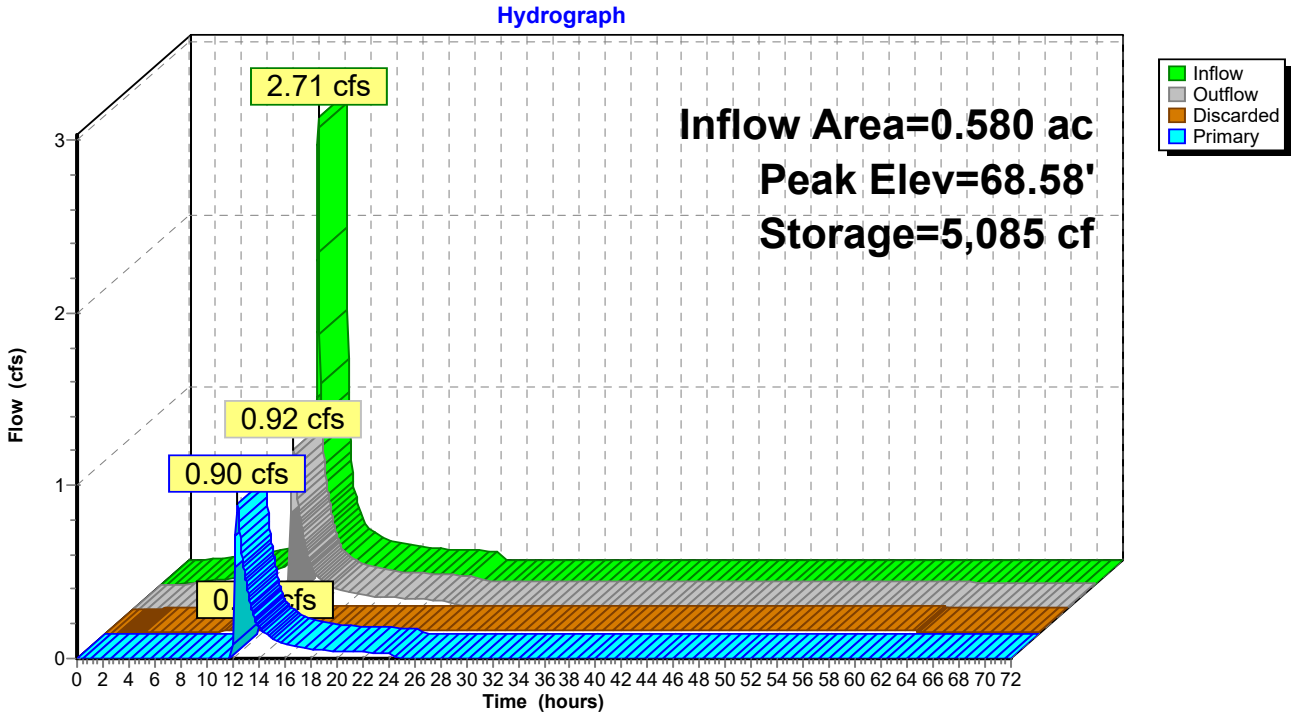
7,855.8 cf Field - 2,756.4 cf Chambers = 5,099.3 cf Stone x 40.0% Voids = 2,039.7 cf Stone Storage

Chamber Storage + Stone Storage = 4,796.1 cf = 0.110 af
Overall Storage Efficiency = 61.1%
Overall System Size = 74.82' x 30.00' x 3.50'

60 Chambers
291.0 cy Field
188.9 cy Stone



Pond 1P: SSIB #1



Stage-Area-Storage for Pond 1P: SSIB #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
64.75	2,245	0
64.80	2,245	45
64.85	2,245	90
64.90	2,245	135
64.95	2,245	180
65.00	2,245	225
65.05	2,245	269
65.10	2,245	314
65.15	2,245	359
65.20	2,245	404
65.25	2,245	449
65.30	2,245	494
65.35	2,245	539
65.40	2,245	584
65.45	2,245	629
65.50	2,245	674
65.55	2,245	718
65.60	2,245	763
65.65	2,245	808
65.70	2,245	853
65.75	**4,490**	898
65.80	4,490	943
65.85	4,490	988
65.90	4,490	1,033
65.95	4,490	1,078
66.00	4,490	1,122
66.05	4,490	1,167
66.10	4,490	1,212
66.15	4,490	1,257
66.20	4,490	1,302
66.25	4,490	1,347
66.30	4,490	1,439
66.35	4,490	1,532
66.40	4,490	1,624
66.45	4,490	1,716
66.50	4,490	1,808
66.55	4,490	1,900
66.60	4,490	1,991
66.65	4,490	2,082
66.70	4,490	2,173
66.75	4,490	2,263
66.80	4,490	2,353
66.85	4,490	2,442
66.90	4,490	2,531
66.95	4,490	2,620
67.00	4,490	2,708
67.05	4,490	2,795
67.10	4,490	2,882
67.15	4,490	2,969
67.20	4,490	3,055
67.25	4,490	3,141
67.30	4,490	3,226
67.35	4,490	3,311
67.40	4,490	3,394
67.45	4,490	3,478
67.50	4,490	3,560
67.55	4,490	3,642
67.60	4,490	3,723
67.65	4,490	3,803
67.70	4,490	3,883
67.75	4,490	3,962
67.80	4,490	4,040
67.85	4,490	4,117
67.90	4,490	4,193
67.95	4,490	4,268
68.00	4,490	4,342
68.05	4,490	4,415
68.10	4,490	4,486
68.15	4,490	4,556
68.20	4,490	4,625
68.25	4,490	4,693
68.30	4,490	4,759
68.35	4,490	4,823
68.40	4,490	4,885
68.45	4,490	4,944
68.50	4,490	5,001
68.55	4,490	5,054
68.60	4,490	5,104
68.65	4,490	5,153
68.70	4,490	5,200
68.75	4,490	5,245
68.80	4,490	5,290
68.85	4,490	5,335
68.90	4,490	5,380
68.95	4,490	5,425
69.00	4,490	5,470
69.05	4,490	5,515
69.10	4,490	5,559
69.15	4,490	5,604
69.20	4,490	5,649
69.25	4,490	**5,694**

Summary for Pond 3P: Bioretention Pond

Inflow Area = 0.357 ac, 51.72% Impervious, Inflow Depth = 4.95" for 25-Year event
Inflow = 1.78 cfs @ 12.13 hrs, Volume= 0.147 af
Outflow = 0.14 cfs @ 13.40 hrs, Volume= 0.074 af, Atten= 92%, Lag= 76.6 min
Primary = 0.14 cfs @ 13.40 hrs, Volume= 0.074 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 68.78' @ 13.40 hrs Surf.Area= 2,918 sf Storage= 4,221 cf

Plug-Flow detention time= 821.6 min calculated for 0.074 af (50% of inflow)
Center-of-Mass det. time= 676.0 min (1,474.5 - 798.5)

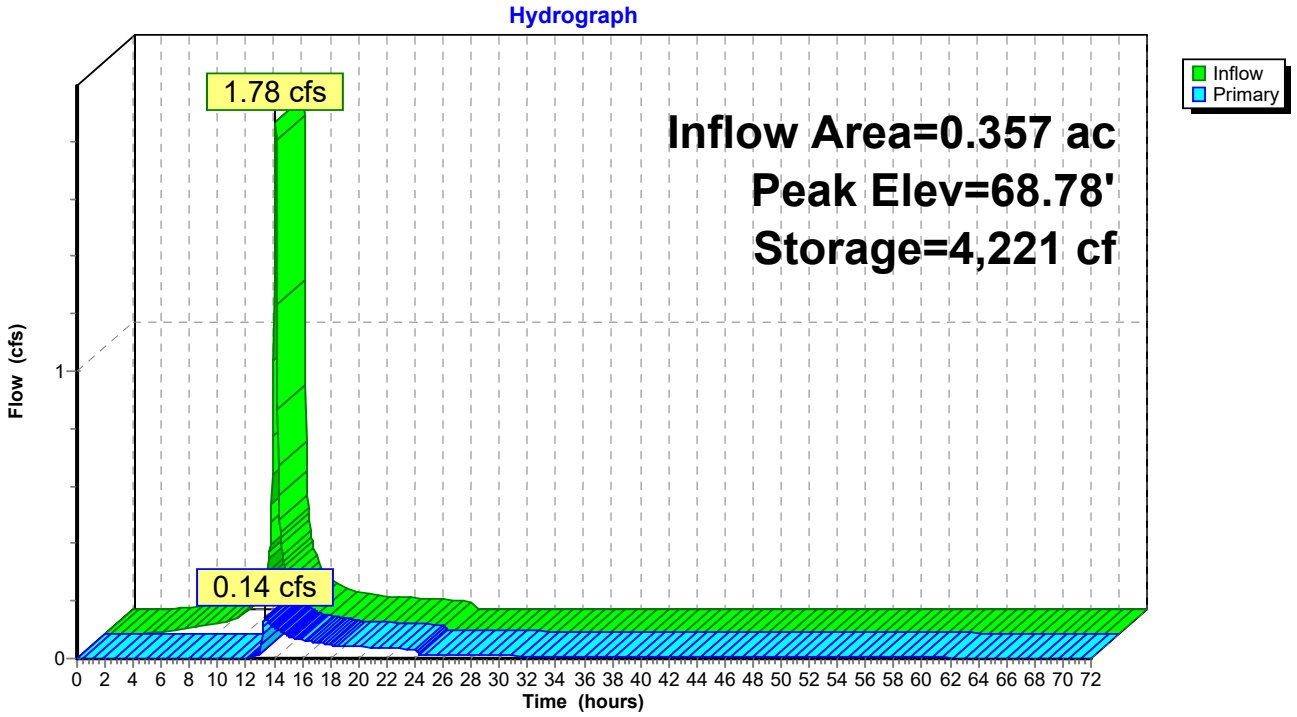
Volume	Invert	Avail.Storage	Storage Description
#1	65.58'	4,372 cf	**Storage Area (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
65.58	2,694	247.0	0.0	0	0	2,694
65.83	2,694	247.0	40.0	269	269	2,756
66.83	2,694	247.0	40.0	1,078	1,347	3,003
68.33	2,694	247.0	40.0	1,616	2,963	3,373
68.83	2,944	254.0	100.0	1,409	4,372	3,679

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	**12.0" Round Culvert** L= 7.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.00' / 66.00' S= 0.0000 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	66.00'	**2.400 in/hr Exfiltration over Surface area above 66.00'** Excluded Surface area = 2,694 sf
#3	Device 1	68.75'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 in 23.0" x 21.0" Grate (30% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.13 cfs @ 13.40 hrs HW=68.78' (Free Discharge)
└**1=Culvert** (Passes 0.13 cfs of 4.51 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)
└**3=Orifice/Grate** (Weir Controls 0.11 cfs @ 0.55 fps)

Pond 3P: Bioretention Pond



Stage-Area-Storage for Pond 3P: Bioretention Pond

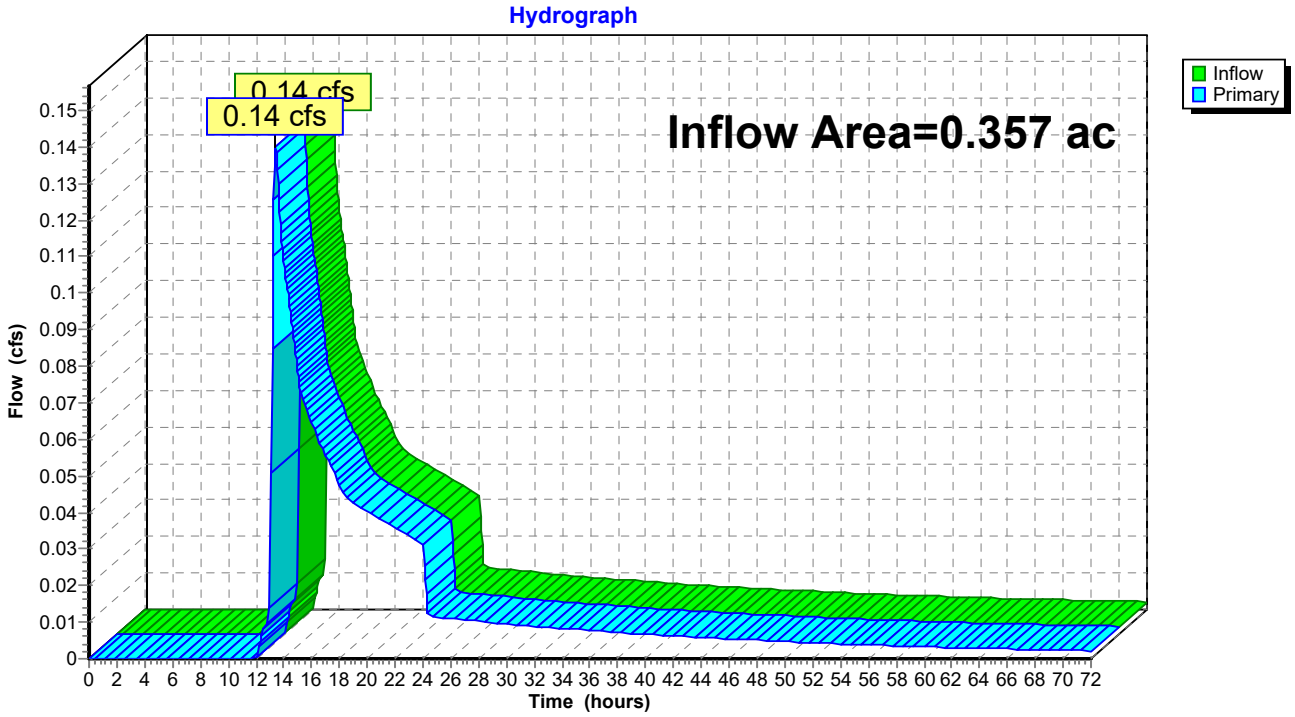
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
65.58	2,694	0
65.63	2,694	54
65.68	2,694	108
65.73	2,694	162
65.78	2,694	216
65.83	2,694	269
65.88	2,694	323
65.93	2,694	377
65.98	2,694	431
66.03	2,694	485
66.08	2,694	539
66.13	2,694	593
66.18	2,694	647
66.23	2,694	700
66.28	2,694	754
66.33	2,694	808
66.38	2,694	862
66.43	2,694	916
66.48	2,694	970
66.53	2,694	1,024
66.58	2,694	1,078
66.63	2,694	1,131
66.68	2,694	1,185
66.73	2,694	1,239
66.78	2,694	1,293
66.83	2,694	1,347
66.88	2,694	1,401
66.93	2,694	1,455
66.98	2,694	1,509
67.03	2,694	1,563
67.08	2,694	1,616
67.13	2,694	1,670
67.18	2,694	1,724
67.23	2,694	1,778
67.28	2,694	1,832
67.33	2,694	1,886
67.38	2,694	1,940
67.43	2,694	1,994
67.48	2,694	2,047
67.53	2,694	2,101
67.58	2,694	2,155
67.63	2,694	2,209
67.68	2,694	2,263
67.73	2,694	2,317
67.78	2,694	2,371
67.83	2,694	2,425
67.88	2,694	2,478
67.93	2,694	2,532
67.98	2,694	2,586
68.03	2,694	2,640
68.08	2,694	2,694
68.13	2,694	2,748
68.18	2,694	2,802
68.23	2,694	2,856
68.28	2,694	2,910
68.33	2,694	2,963
68.38	2,719	3,099
68.43	2,743	3,235
68.48	2,768	3,373
68.53	2,793	3,512
68.58	2,818	3,652
68.63	2,843	3,794
68.68	2,868	3,937
68.73	2,893	4,081
68.78	2,919	4,226
68.83	**2,944**	**4,372**

Summary for Link 1L: DP-1

Inflow Area = 0.357 ac, 51.72% Impervious, Inflow Depth > 2.50" for 25-Year event
Inflow = 0.14 cfs @ 13.40 hrs, Volume= 0.074 af
Primary = 0.14 cfs @ 13.40 hrs, Volume= 0.074 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 1L: DP-1

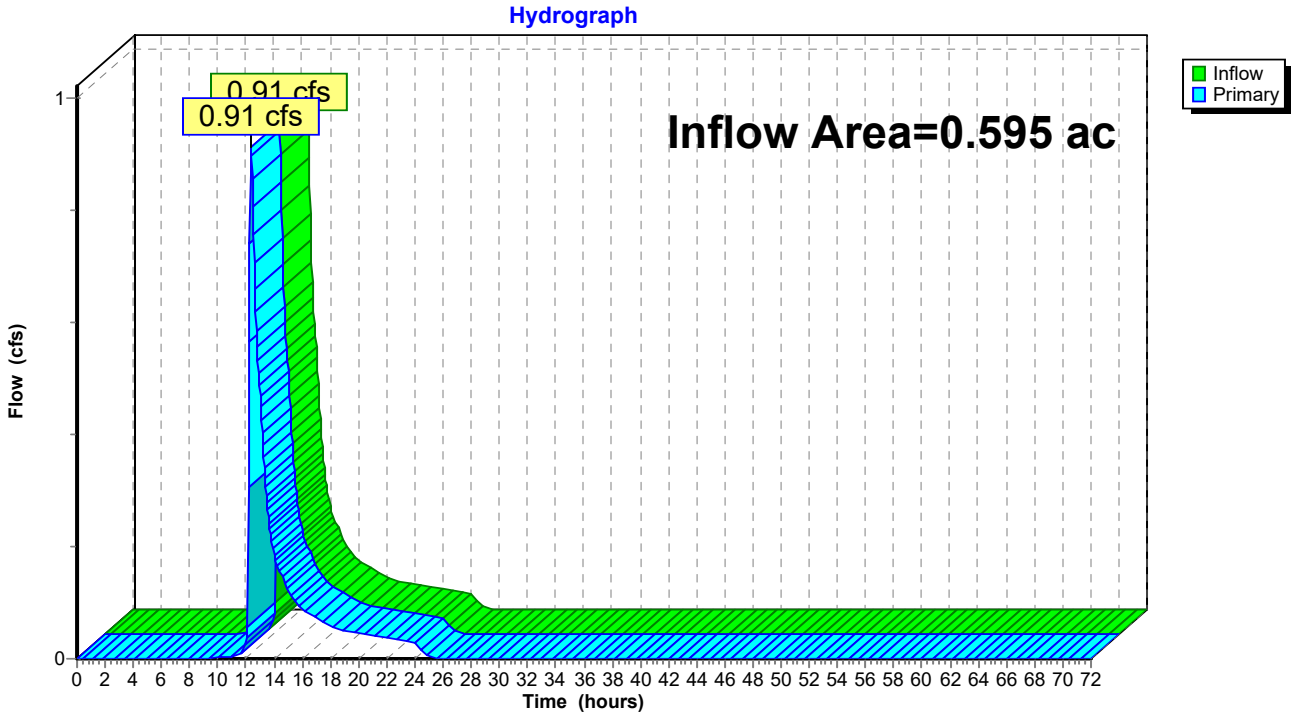


Summary for Link 2L: DP-2

Inflow Area = 0.595 ac, 70.17% Impervious, Inflow Depth = 2.60" for 25-Year event
Inflow = 0.91 cfs @ 12.36 hrs, Volume= 0.129 af
Primary = 0.91 cfs @ 12.36 hrs, Volume= 0.129 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 2L: DP-2



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PR-1 Runoff Area=15,530 sf 51.72% Impervious Runoff Depth=6.16"
Tc=6.0 min CN=89 Runoff=2.19 cfs 0.183 af

Subcatchment 2S: PR-2 Runoff Area=7,443 sf 79.85% Impervious Runoff Depth=6.75"
Tc=6.0 min CN=94 Runoff=1.10 cfs 0.096 af

Subcatchment 3S: PR-3 Runoff Area=2,617 sf 100.00% Impervious Runoff Depth=7.22"
Tc=6.0 min CN=98 Runoff=0.39 cfs 0.036 af

Subcatchment 4S: PR-4 Runoff Area=6,094 sf 65.62% Impervious Runoff Depth=6.27"
Tc=6.0 min CN=90 Runoff=0.87 cfs 0.073 af

Subcatchment 5S: PR-5 Runoff Area=3,931 sf 87.18% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=95 Runoff=0.58 cfs 0.052 af

Subcatchment 6S: PR-6 Runoff Area=5,199 sf 42.12% Impervious Runoff Depth=5.58"
Flow Length=194' Tc=16.7 min CN=84 Runoff=0.49 cfs 0.055 af

Subcatchment 7S: PR-7 Runoff Area=620 sf 0.00% Impervious Runoff Depth=4.89"
Tc=6.0 min CN=78 Runoff=0.07 cfs 0.006 af

Pond 1P: SSIB #1 Peak Elev=69.23' Storage=5,680 cf Inflow=3.29 cfs 0.312 af
Discarded=0.03 cfs 0.119 af Primary=1.61 cfs 0.181 af Outflow=1.64 cfs 0.300 af

Pond 3P: Bioretention Pond Peak Elev=68.82' Storage=4,351 cf Inflow=2.19 cfs 0.183 af
Outflow=0.49 cfs 0.110 af

Link 1L: DP-1 Inflow=0.49 cfs 0.110 af
Primary=0.49 cfs 0.110 af

Link 2L: DP-2 Inflow=1.64 cfs 0.187 af
Primary=1.64 cfs 0.187 af

Total Runoff Area = 0.951 ac Runoff Volume = 0.501 af Average Runoff Depth = 6.32"
36.75% Pervious = 0.350 ac 63.25% Impervious = 0.602 ac

Summary for Subcatchment 1S: PR-1

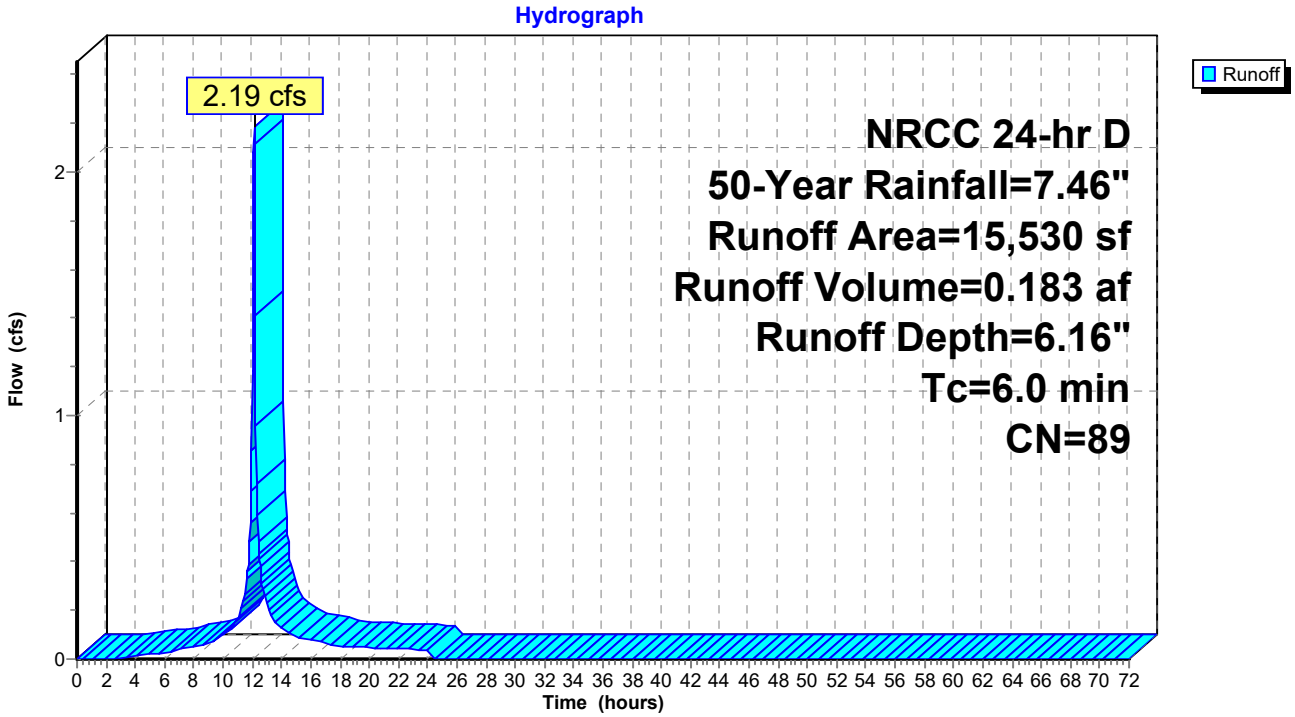
Runoff = 2.19 cfs @ 12.13 hrs, Volume= 0.183 af, Depth= 6.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 50-Year Rainfall=7.46"

	Area (sf)	CN	Description
	7,498	80	>75% Grass cover, Good, HSG D
	7,838	98	Paved parking, HSG D
*	194	98	Concrete, HSG D
	15,530	89	Weighted Average
	7,498		48.28% Pervious Area
	8,032		51.72% Impervious Area

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

Subcatchment 1S: PR-1



Summary for Subcatchment 2S: PR-2

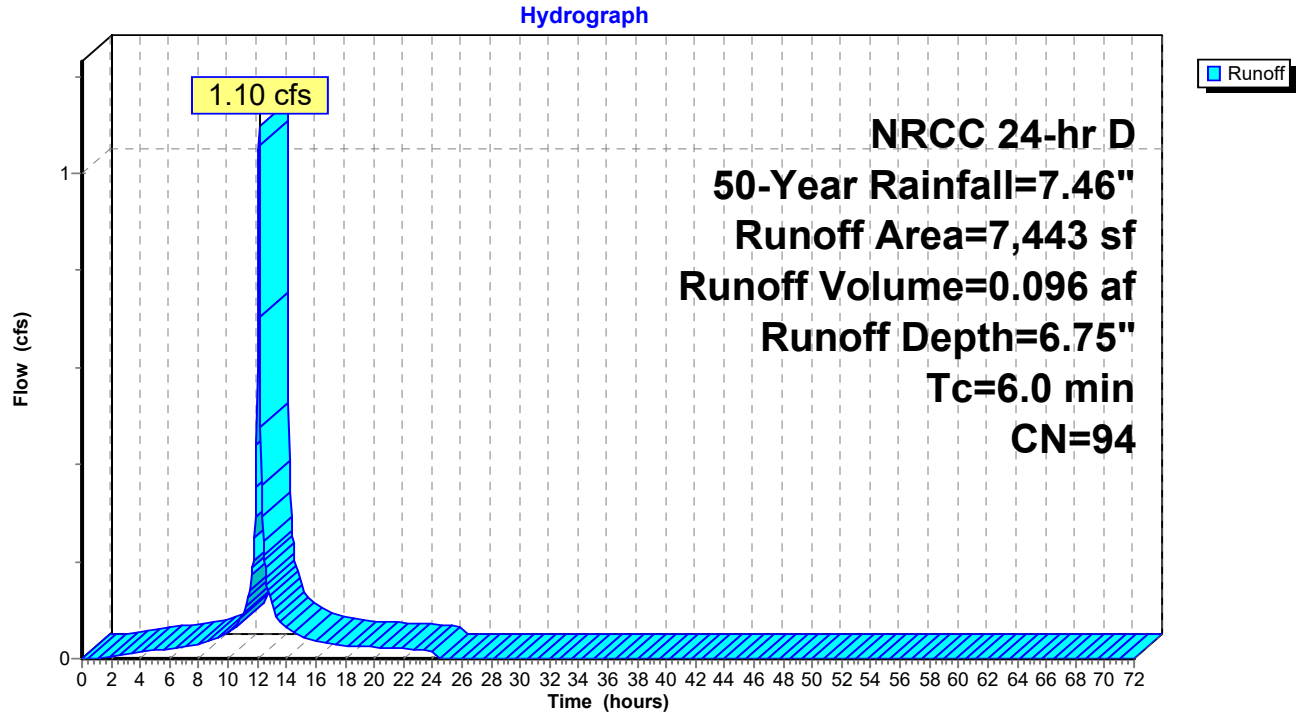
Runoff = 1.10 cfs @ 12.13 hrs, Volume= 0.096 af, Depth= 6.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 50-Year Rainfall=7.46"

	Area (sf)	CN	Description
	484	98	Paved parking, HSG C
	4,863	98	Paved parking, HSG D
	89	74	>75% Grass cover, Good, HSG C
	1,411	80	>75% Grass cover, Good, HSG D
*	526	98	Concrete Surfaces, HSG D
*	70	98	Concrete Surfaces, HSG C
	7,443	94	Weighted Average
	1,500		20.15% Pervious Area
	5,943		79.85% Impervious Area

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

Subcatchment 2S: PR-2



Summary for Subcatchment 3S: PR-3

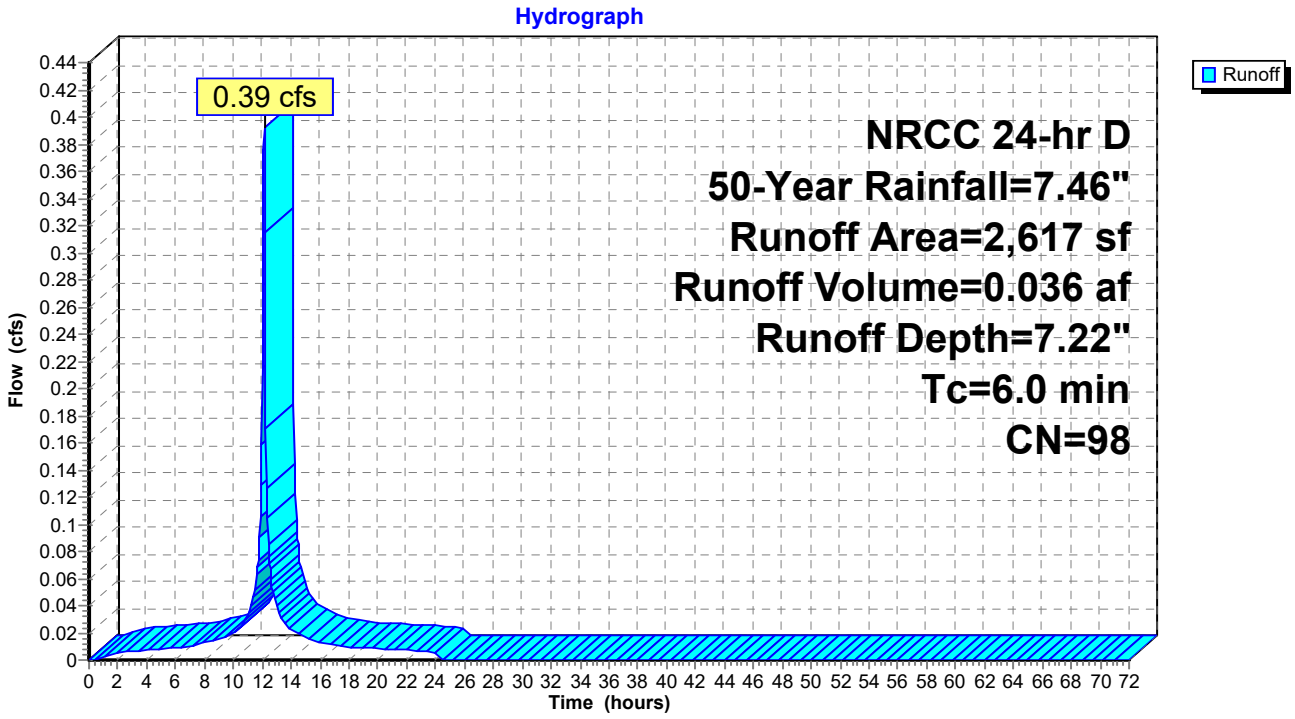
Runoff = 0.39 cfs @ 12.13 hrs, Volume= 0.036 af, Depth= 7.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 50-Year Rainfall=7.46"

Area (sf)	CN	Description
1,648	98	Roofs, HSG D
969	98	Roofs, HSG C
2,617	98	Weighted Average
2,617		100.00% Impervious Area

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

Subcatchment 3S: PR-3



Summary for Subcatchment 4S: PR-4

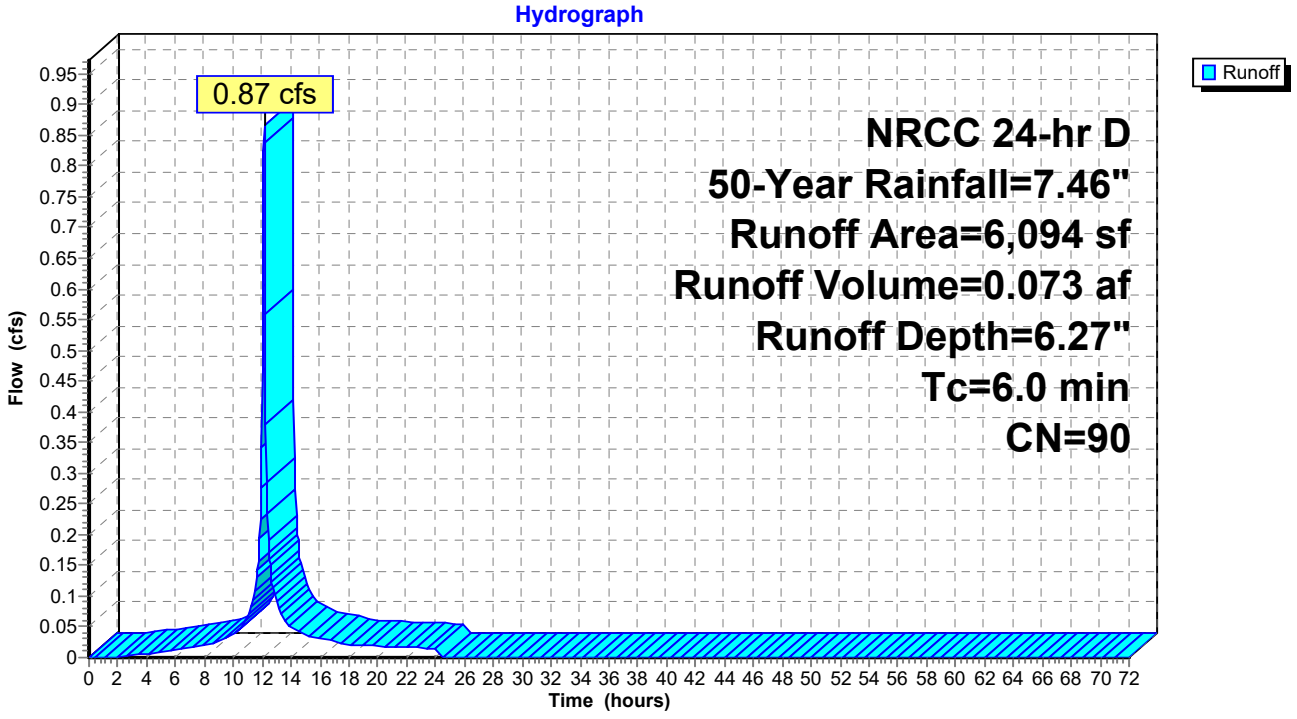
Runoff = 0.87 cfs @ 12.13 hrs, Volume= 0.073 af, Depth= 6.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 50-Year Rainfall=7.46"

	Area (sf)	CN	Description
	1,877	74	>75% Grass cover, Good, HSG C
	218	80	>75% Grass cover, Good, HSG D
	3,392	98	Paved parking, HSG C
*	607	98	Concrete Surfaces, HSG C
	6,094	90	Weighted Average
	2,095		34.38% Pervious Area
	3,999		65.62% Impervious Area

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

Subcatchment 4S: PR-4



Summary for Subcatchment 5S: PR-5

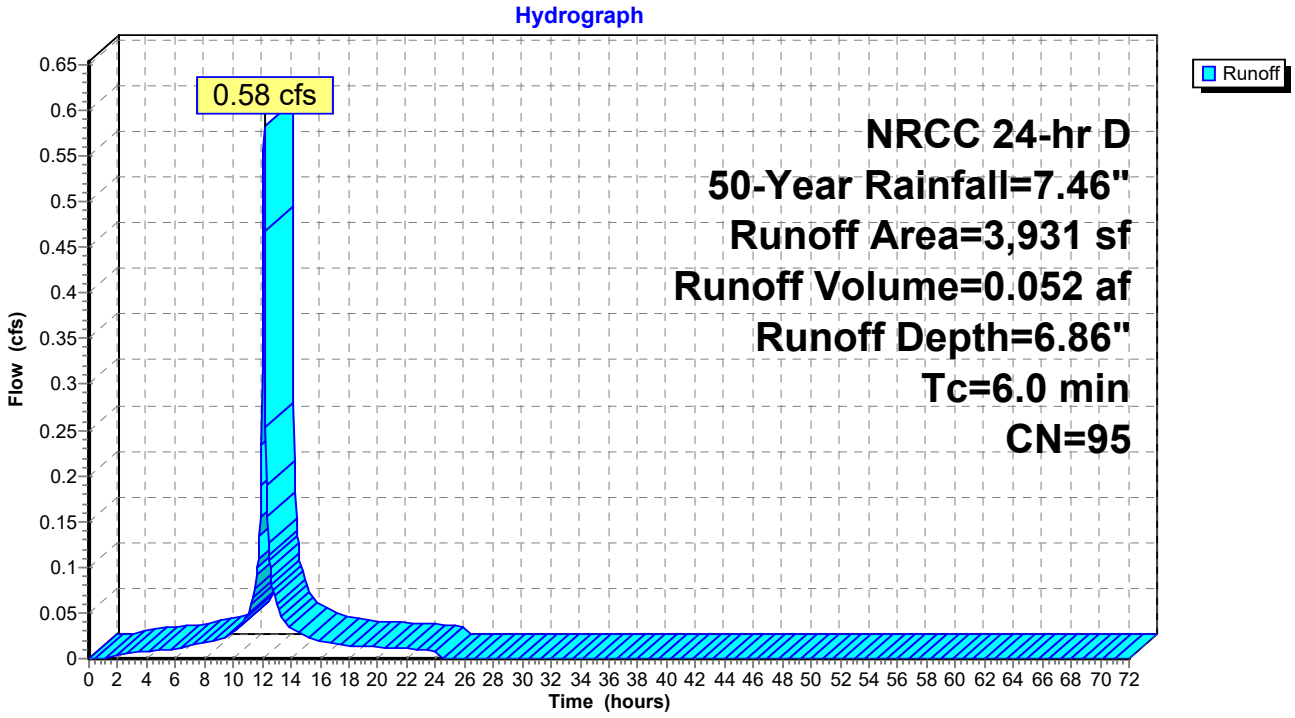
Runoff = 0.58 cfs @ 12.13 hrs, Volume= 0.052 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 50-Year Rainfall=7.46"

	Area (sf)	CN	Description
	359	98	Paved parking, HSG D
	2,878	98	Paved parking, HSG C
	82	80	>75% Grass cover, Good, HSG D
	422	74	>75% Grass cover, Good, HSG C
*	13	98	Concrete Surfaces, HSG D
*	177	98	Concrete Surfaces, HSG C
	3,931	95	Weighted Average
	504		12.82% Pervious Area
	3,427		87.18% Impervious Area

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

Subcatchment 5S: PR-5



Summary for Subcatchment 6S: PR-6

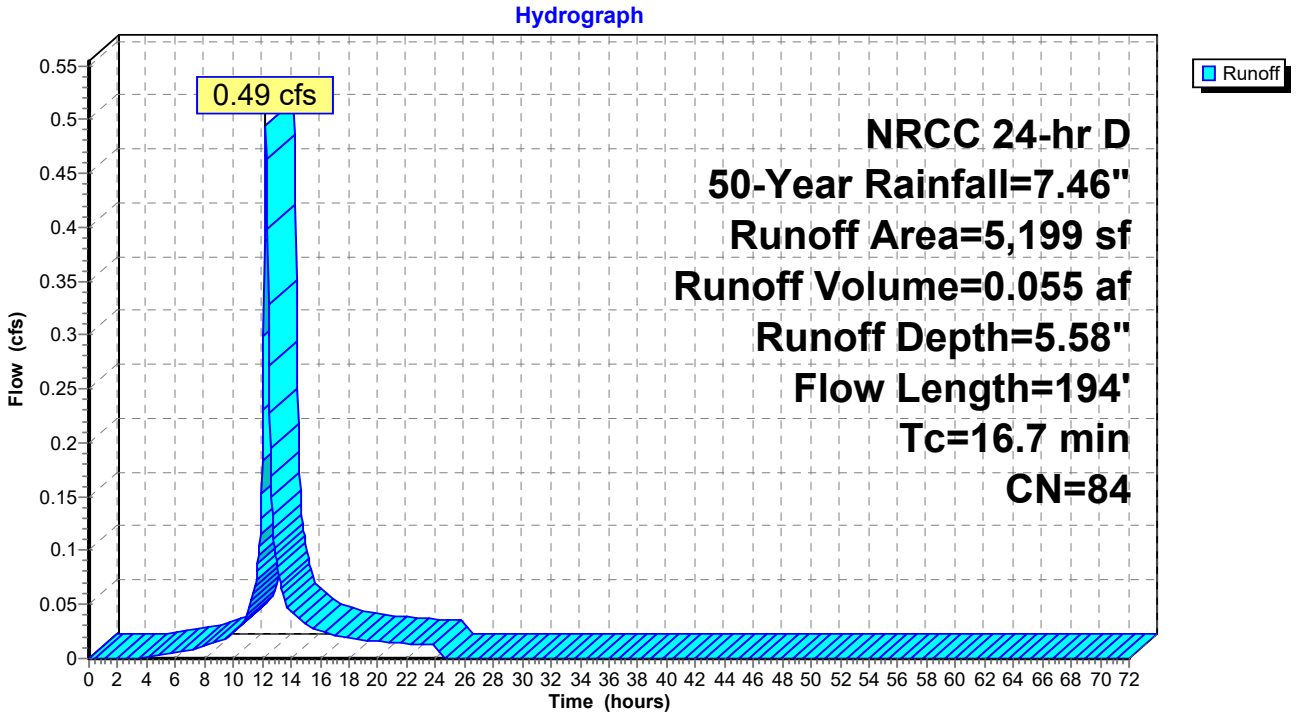
Runoff = 0.49 cfs @ 12.25 hrs, Volume= 0.055 af, Depth= 5.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 50-Year Rainfall=7.46"

	Area (sf)	CN	Description
	228	80	>75% Grass cover, Good, HSG D
	2,781	74	>75% Grass cover, Good, HSG C
	992	98	Paved parking, HSG D
	1,115	98	Paved parking, HSG C
*	83	98	Concrete sidewalk, HSG C
	5,199	84	Weighted Average
	3,009		57.88% Pervious Area
	2,190		42.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	100	0.0060	0.10		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.13"
0.3	10	0.0060	0.54		**Shallow Concentrated Flow, SCF grass** Short Grass Pasture Kv= 7.0 fps
0.3	44	0.0200	2.87		**Shallow Concentrated Flow, SCF paved** Paved Kv= 20.3 fps
0.1	40	0.0100	4.54	3.56	**Pipe Channel, Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
16.7	194	Total			

Subcatchment 6S: PR-6



Summary for Subcatchment 7S: PR-7

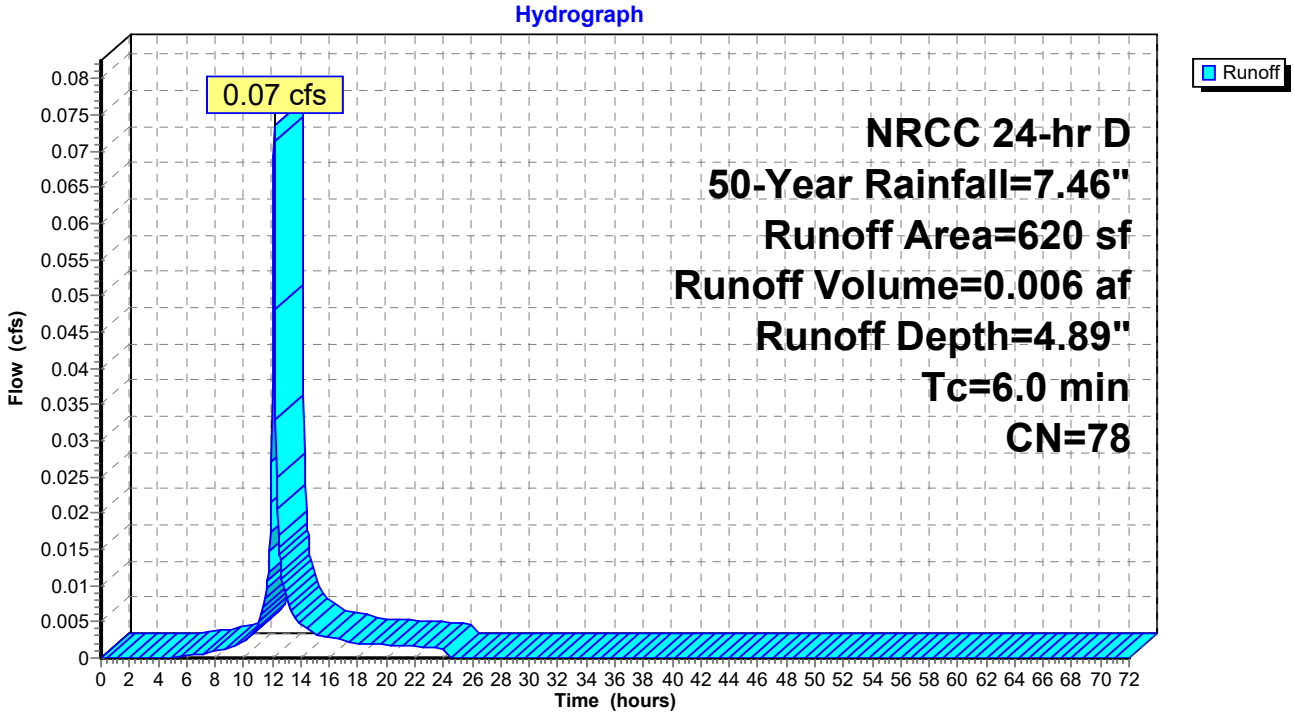
Runoff = 0.07 cfs @ 12.13 hrs, Volume= 0.006 af, Depth= 4.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 50-Year Rainfall=7.46"

Area (sf)	CN	Description
372	80	>75% Grass cover, Good, HSG D
248	74	>75% Grass cover, Good, HSG C
620	78	Weighted Average
620		100.00% Pervious Area

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

Subcatchment 7S: PR-7



Summary for Pond 1P: SSIB #1

Inflow Area = 0.580 ac, 71.89% Impervious, Inflow Depth = 6.46" for 50-Year event
Inflow = 3.29 cfs @ 12.13 hrs, Volume= 0.312 af
Outflow = 1.64 cfs @ 12.27 hrs, Volume= 0.300 af, Atten= 50%, Lag= 8.5 min
Discarded = 0.03 cfs @ 12.27 hrs, Volume= 0.119 af
Primary = 1.61 cfs @ 12.27 hrs, Volume= 0.181 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 69.23' @ 12.27 hrs Surf.Area= 4,490 sf Storage= 5,680 cf

Plug-Flow detention time= 626.8 min calculated for 0.300 af (96% of inflow)
Center-of-Mass det. time= 604.3 min (1,382.4 - 778.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	65.75'	2,040 cf	**30.00'W x 74.82'L x 3.50'H Field A** 7,856 cf Overall - 2,756 cf Embedded = 5,099 cf x 40.0% Voids
#2A	66.25'	2,756 cf	**ADS_StormTech SC-740 +Cap** x 60 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 60 Chambers in 6 Rows
#3	64.75'	898 cf	**12" Stone (Prismatic)**Listed below (Recalc) 2,245 cf Overall x 40.0% Voids
		5,694 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
64.75	2,245	0	0
65.75	2,245	2,245	2,245

Device	Routing	Invert	Outlet Devices
#1	Discarded	64.75'	**0.200 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 50.00'
#2	Device 4	67.75'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 4	68.30'	**5.0" Vert. Orifice/Grate** C= 0.600
#4	Primary	66.40'	**12.0" Round Culvert** L= 69.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.40' / 65.60' S= 0.0116 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.03 cfs @ 12.27 hrs HW=69.22' (Free Discharge)
└**1=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=1.60 cfs @ 12.27 hrs HW=69.22' (Free Discharge)
└**4=Culvert** (Passes 1.60 cfs of 4.55 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 1.05 cfs @ 5.32 fps)
  └**3=Orifice/Grate** (Orifice Controls 0.55 cfs @ 4.07 fps)

Pond 1P: SSIB #1 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

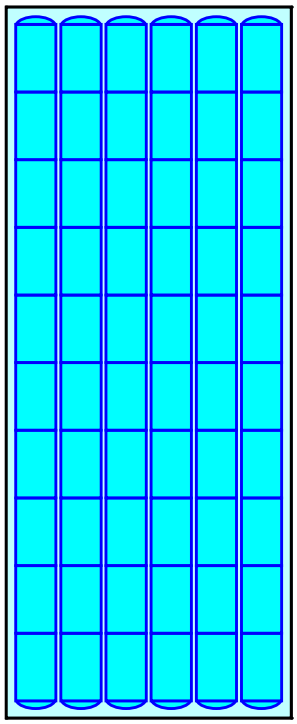
10 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 72.82' Row Length +12.0" End Stone x 2 = 74.82' Base Length
6 Rows x 51.0" Wide + 6.0" Spacing x 5 + 12.0" Side Stone x 2 = 30.00' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

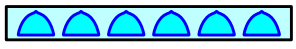
60 Chambers x 45.9 cf = 2,756.4 cf Chamber Storage

7,855.8 cf Field - 2,756.4 cf Chambers = 5,099.3 cf Stone x 40.0% Voids = 2,039.7 cf Stone Storage

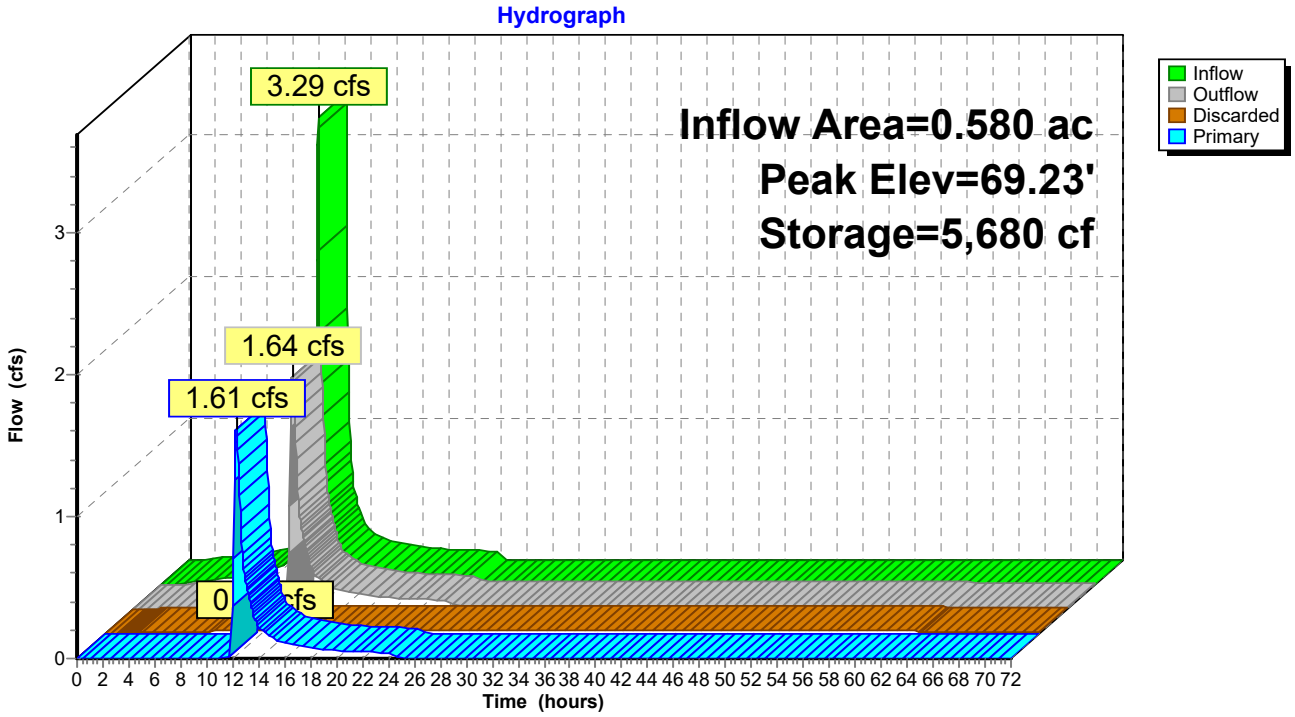
Chamber Storage + Stone Storage = 4,796.1 cf = 0.110 af
Overall Storage Efficiency = 61.1%
Overall System Size = 74.82' x 30.00' x 3.50'

60 Chambers
291.0 cy Field
188.9 cy Stone





Pond 1P: SSIB #1



Stage-Area-Storage for Pond 1P: SSIB #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
64.75	2,245	0
64.80	2,245	45
64.85	2,245	90
64.90	2,245	135
64.95	2,245	180
65.00	2,245	225
65.05	2,245	269
65.10	2,245	314
65.15	2,245	359
65.20	2,245	404
65.25	2,245	449
65.30	2,245	494
65.35	2,245	539
65.40	2,245	584
65.45	2,245	629
65.50	2,245	674
65.55	2,245	718
65.60	2,245	763
65.65	2,245	808
65.70	2,245	853
65.75	**4,490**	898
65.80	4,490	943
65.85	4,490	988
65.90	4,490	1,033
65.95	4,490	1,078
66.00	4,490	1,122
66.05	4,490	1,167
66.10	4,490	1,212
66.15	4,490	1,257
66.20	4,490	1,302
66.25	4,490	1,347
66.30	4,490	1,439
66.35	4,490	1,532
66.40	4,490	1,624
66.45	4,490	1,716
66.50	4,490	1,808
66.55	4,490	1,900
66.60	4,490	1,991
66.65	4,490	2,082
66.70	4,490	2,173
66.75	4,490	2,263
66.80	4,490	2,353
66.85	4,490	2,442
66.90	4,490	2,531
66.95	4,490	2,620
67.00	4,490	2,708
67.05	4,490	2,795
67.10	4,490	2,882
67.15	4,490	2,969
67.20	4,490	3,055
67.25	4,490	3,141
67.30	4,490	3,226
67.35	4,490	3,311
67.40	4,490	3,394
67.45	4,490	3,478
67.50	4,490	3,560
67.55	4,490	3,642
67.60	4,490	3,723
67.65	4,490	3,803
67.70	4,490	3,883
67.75	4,490	3,962
67.80	4,490	4,040
67.85	4,490	4,117
67.90	4,490	4,193
67.95	4,490	4,268
68.00	4,490	4,342
68.05	4,490	4,415
68.10	4,490	4,486
68.15	4,490	4,556
68.20	4,490	4,625
68.25	4,490	4,693
68.30	4,490	4,759
68.35	4,490	4,823
68.40	4,490	4,885
68.45	4,490	4,944
68.50	4,490	5,001
68.55	4,490	5,054
68.60	4,490	5,104
68.65	4,490	5,153
68.70	4,490	5,200
68.75	4,490	5,245
68.80	4,490	5,290
68.85	4,490	5,335
68.90	4,490	5,380
68.95	4,490	5,425
69.00	4,490	5,470
69.05	4,490	5,515
69.10	4,490	5,559
69.15	4,490	5,604
69.20	4,490	5,649
69.25	4,490	**5,694**

Summary for Pond 3P: Bioretention Pond

Inflow Area = 0.357 ac, 51.72% Impervious, Inflow Depth = 6.16" for 50-Year event
Inflow = 2.19 cfs @ 12.13 hrs, Volume= 0.183 af
Outflow = 0.49 cfs @ 12.41 hrs, Volume= 0.110 af, Atten= 78%, Lag= 17.0 min
Primary = 0.49 cfs @ 12.41 hrs, Volume= 0.110 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 68.82' @ 12.41 hrs Surf.Area= 2,940 sf Storage= 4,351 cf

Plug-Flow detention time= 609.7 min calculated for 0.110 af (60% of inflow)
Center-of-Mass det. time= 478.2 min (1,269.3 - 791.1)

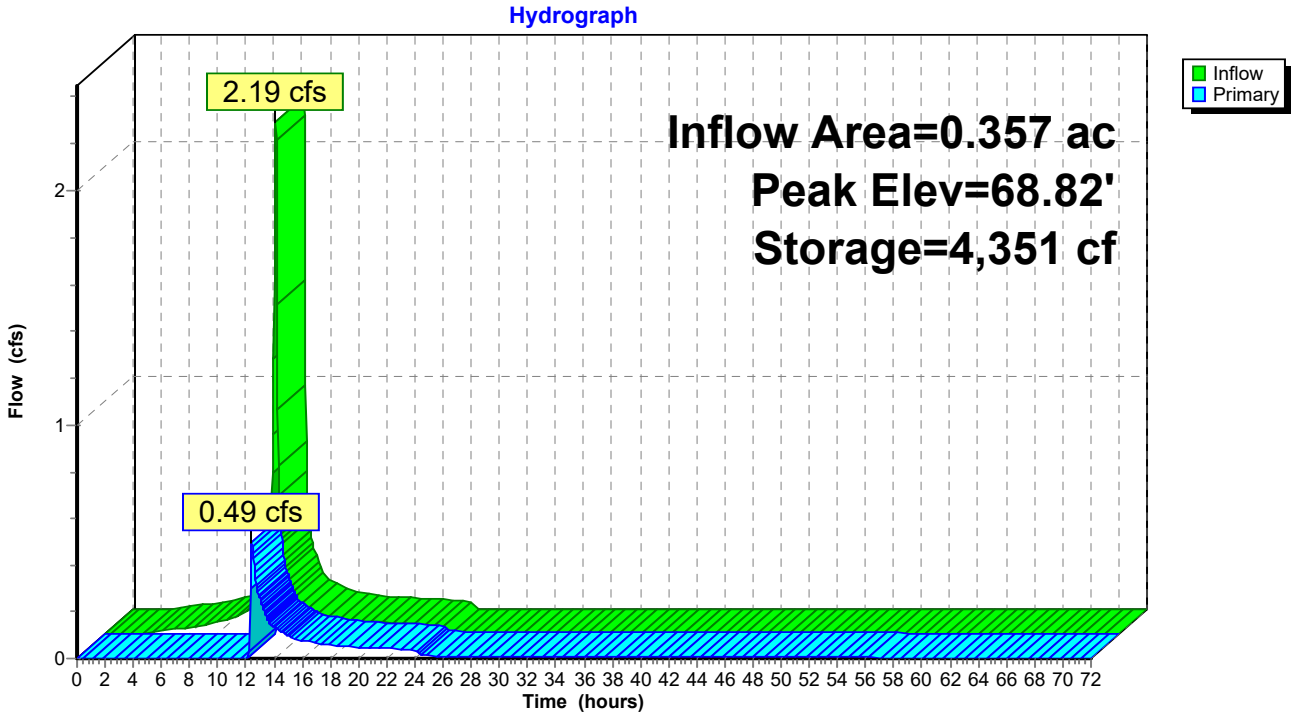
Volume	Invert	Avail.Storage	Storage Description
#1	65.58'	4,372 cf	**Storage Area (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
65.58	2,694	247.0	0.0	0	0	2,694
65.83	2,694	247.0	40.0	269	269	2,756
66.83	2,694	247.0	40.0	1,078	1,347	3,003
68.33	2,694	247.0	40.0	1,616	2,963	3,373
68.83	2,944	254.0	100.0	1,409	4,372	3,679

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	**12.0" Round Culvert** L= 7.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.00' / 66.00' S= 0.0000 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	66.00'	**2.400 in/hr Exfiltration over Surface area above 66.00'** Excluded Surface area = 2,694 sf
#3	Device 1	68.75'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 in 23.0" x 21.0" Grate (30% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.48 cfs @ 12.41 hrs HW=68.82' (Free Discharge)
└**1=Culvert** (Passes 0.48 cfs of 4.55 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)
└**3=Orifice/Grate** (Weir Controls 0.47 cfs @ 0.88 fps)

Pond 3P: Bioretention Pond



Stage-Area-Storage for Pond 3P: Bioretention Pond

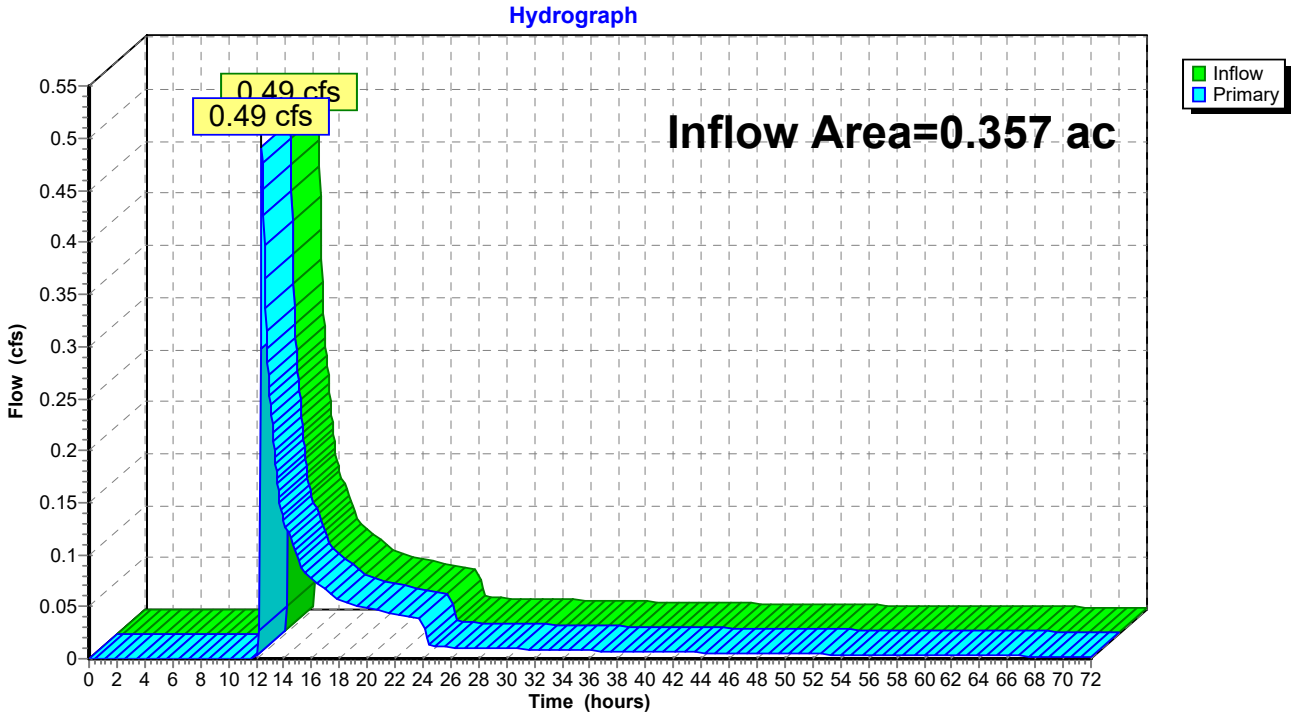
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
65.58	2,694	0
65.63	2,694	54
65.68	2,694	108
65.73	2,694	162
65.78	2,694	216
65.83	2,694	269
65.88	2,694	323
65.93	2,694	377
65.98	2,694	431
66.03	2,694	485
66.08	2,694	539
66.13	2,694	593
66.18	2,694	647
66.23	2,694	700
66.28	2,694	754
66.33	2,694	808
66.38	2,694	862
66.43	2,694	916
66.48	2,694	970
66.53	2,694	1,024
66.58	2,694	1,078
66.63	2,694	1,131
66.68	2,694	1,185
66.73	2,694	1,239
66.78	2,694	1,293
66.83	2,694	1,347
66.88	2,694	1,401
66.93	2,694	1,455
66.98	2,694	1,509
67.03	2,694	1,563
67.08	2,694	1,616
67.13	2,694	1,670
67.18	2,694	1,724
67.23	2,694	1,778
67.28	2,694	1,832
67.33	2,694	1,886
67.38	2,694	1,940
67.43	2,694	1,994
67.48	2,694	2,047
67.53	2,694	2,101
67.58	2,694	2,155
67.63	2,694	2,209
67.68	2,694	2,263
67.73	2,694	2,317
67.78	2,694	2,371
67.83	2,694	2,425
67.88	2,694	2,478
67.93	2,694	2,532
67.98	2,694	2,586
68.03	2,694	2,640
68.08	2,694	2,694
68.13	2,694	2,748
68.18	2,694	2,802
68.23	2,694	2,856
68.28	2,694	2,910
68.33	2,694	2,963
68.38	2,719	3,099
68.43	2,743	3,235
68.48	2,768	3,373
68.53	2,793	3,512
68.58	2,818	3,652
68.63	2,843	3,794
68.68	2,868	3,937
68.73	2,893	4,081
68.78	2,919	4,226
68.83	**2,944**	**4,372**

Summary for Link 1L: DP-1

Inflow Area = 0.357 ac, 51.72% Impervious, Inflow Depth > 3.70" for 50-Year event
Inflow = 0.49 cfs @ 12.41 hrs, Volume= 0.110 af
Primary = 0.49 cfs @ 12.41 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 1L: DP-1

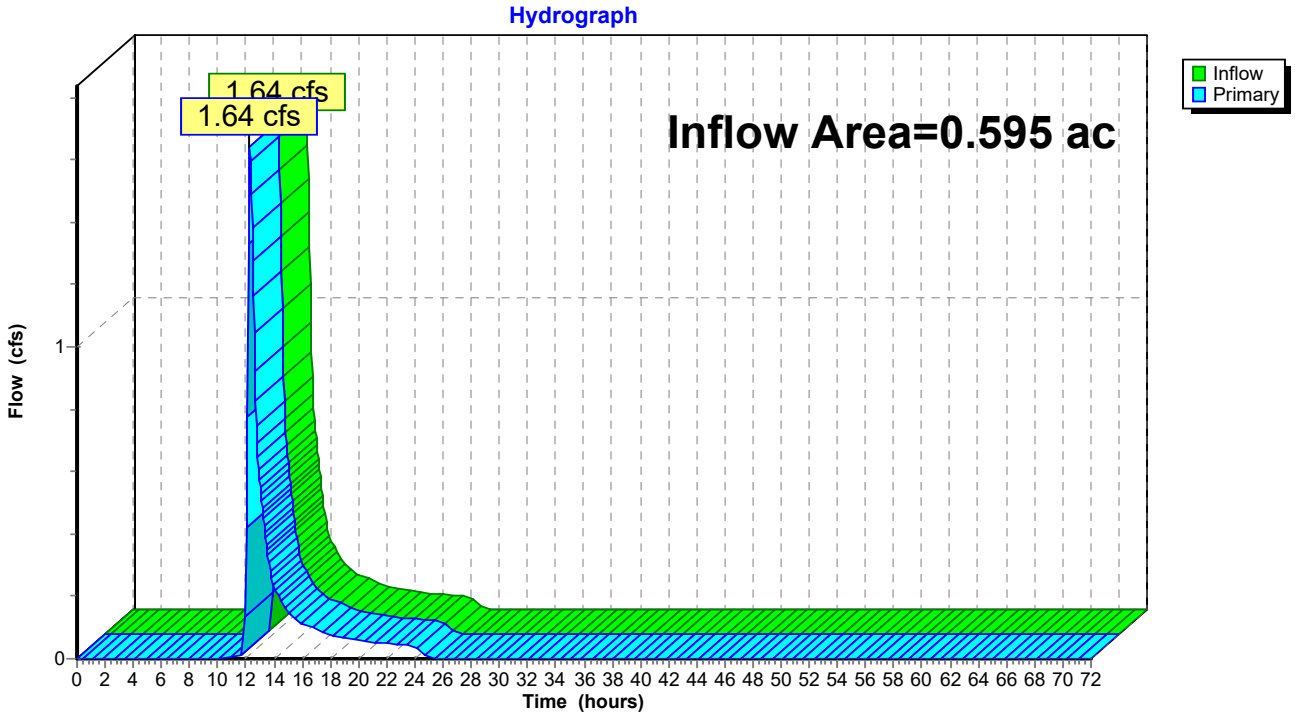


Summary for Link 2L: DP-2

Inflow Area = 0.595 ac, 70.17% Impervious, Inflow Depth = 3.78" for 50-Year event
Inflow = 1.64 cfs @ 12.27 hrs, Volume= 0.187 af
Primary = 1.64 cfs @ 12.27 hrs, Volume= 0.187 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 2L: DP-2



B

Geotechnical Data

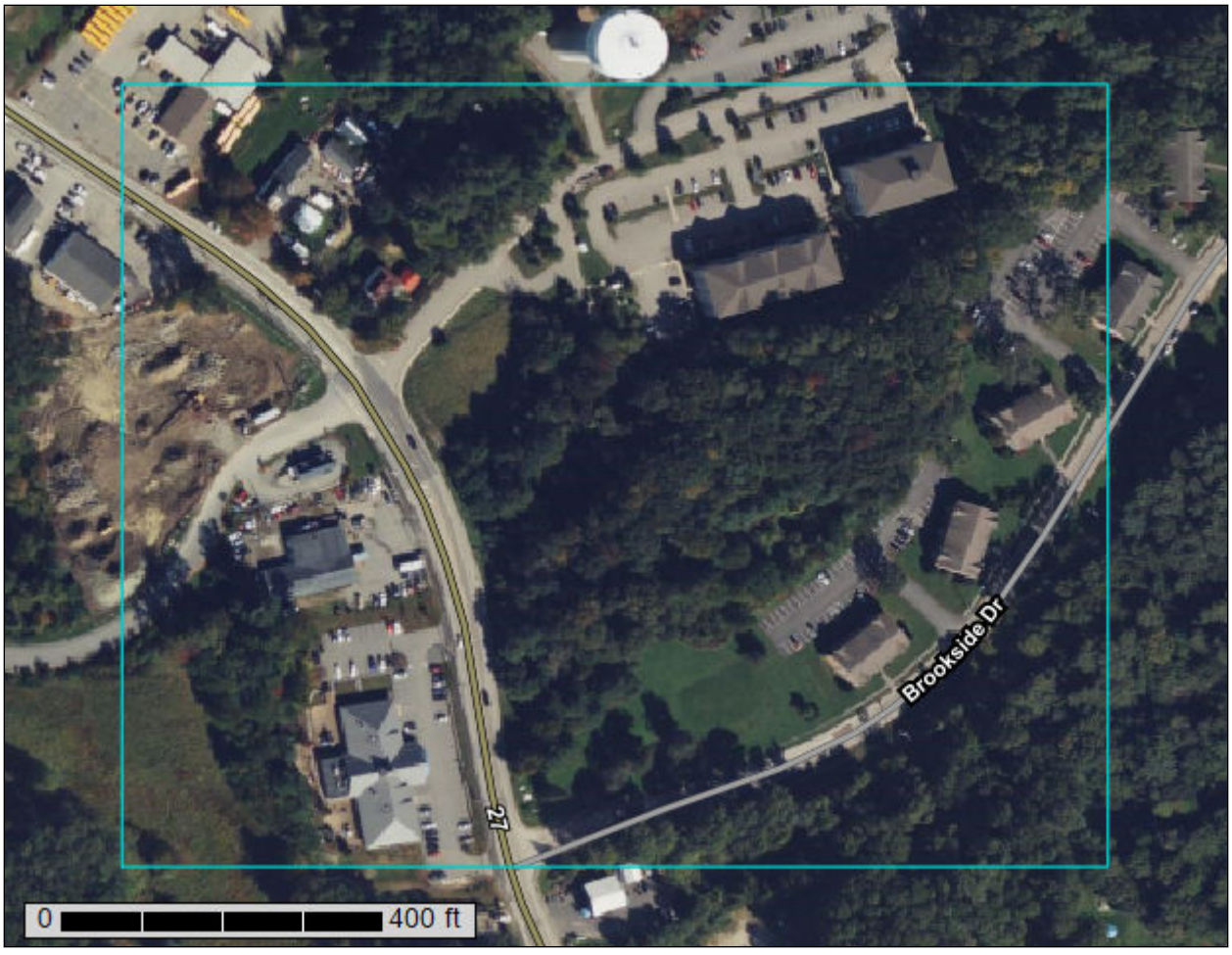
United States Department of Agriculture

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



August 31, 2022

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 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 24, Aug 31, 2021

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

Date(s) aerial images were photographed: Sep 19, 2021—Nov 1, 2021

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
32B	Boxford silt loam, 3 to 8 percent slopes	20.0	72.9%
33A	Scitico silt loam, 0 to 5 percent slopes	3.3	12.0%
38B	Eldridge fine sandy loam, 3 to 8 percent slopes	1.6	5.9%
63C	Charlton fine sandy loam, 8 to 15 percent slopes, very stony	1.7	6.3%
299	Udorthents, smoothed	0.1	0.5%
599	Urban land-Hoosic complex, 3 to 15 percent slopes	0.6	2.4%
Totals for Area of Interest		**27.5**	**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

32B—Boxford silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9cn4
Elevation: 0 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: Farmland of statewide importance

Map Unit Composition

Boxford and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Boxford

Setting

Parent material: Glaciomarine

Typical profile

H1 - 0 to 2 inches: silt loam
H2 - 2 to 13 inches: silt loam
H3 - 13 to 23 inches: silty clay loam
H4 - 23 to 60 inches: silty clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 12 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D
Ecological site: F144AY018NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Eldridge

Percent of map unit: 10 percent
Hydric soil rating: No

Scitico

Percent of map unit: 10 percent
Landform: Marine terraces

Hydric soil rating: Yes

33A—Scitico silt loam, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 9cn6
Elevation: 0 to 180 feet
Mean annual precipitation: 47 to 49 inches
Mean annual air temperature: 48 degrees F
Frost-free period: 155 to 165 days
Farmland classification: Farmland of local importance

Map Unit Composition

Scitico and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scitico

Setting

Landform: Marine terraces

Typical profile

H1 - 0 to 6 inches: silt loam
H2 - 6 to 12 inches: silty clay loam
H3 - 12 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F144AY019NH - Wet Lake Plain
Hydric soil rating: Yes

Minor Components

Squamscott

Percent of map unit: 5 percent
Landform: Marine terraces

Hydric soil rating: Yes

Boxford

Percent of map unit: 5 percent
Hydric soil rating: No

Maybid

Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

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

Scitico
Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

Squamscott
Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

63C—Charlton fine sandy loam, 8 to 15 percent slopes, very stony

Map Unit Setting
National map unit symbol: 2wh0p
Elevation: 0 to 1,570 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition
Charlton, very stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton, Very Stony

Setting
Landform: Ridges, ground moraines, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile
Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: fine sandy loam

Bw - 4 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Paxton, very stony

Percent of map unit: 5 percent
Landform: Ground moraines, hills, drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Sutton, very stony

Percent of map unit: 5 percent
Landform: Ground moraines, hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Chatfield, very stony

Percent of map unit: 3 percent
Landform: Ridges, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Leicester, very stony

Percent of map unit: 2 percent
Landform: Depressions, hills, ground moraines, drainageways
Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Concave
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

599—Urban land-Hoosic complex, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9cpg
Elevation: 90 to 1,100 feet
Mean annual precipitation: 30 to 55 inches
Mean annual air temperature: 45 to 54 degrees F
Frost-free period: 120 to 190 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 55 percent
Hoosic and similar soils: 25 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hoosic

Setting

Parent material: Outwash

Typical profile

H1 - 0 to 8 inches: gravelly fine sandy loam
H2 - 8 to 15 inches: very gravelly fine sandy loam
H3 - 15 to 60 inches: very gravelly coarse sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (2.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Eldridge

Percent of map unit: 4 percent
Hydric soil rating: No

Udorthents

Percent of map unit: 4 percent
Hydric soil rating: No

Squamscott

Percent of map unit: 4 percent
Landform: Marine terraces
Hydric soil rating: Yes

Newfields

Percent of map unit: 4 percent
Hydric soil rating: No

Scitico

Percent of map unit: 4 percent
Landform: Marine terraces
Hydric soil rating: Yes

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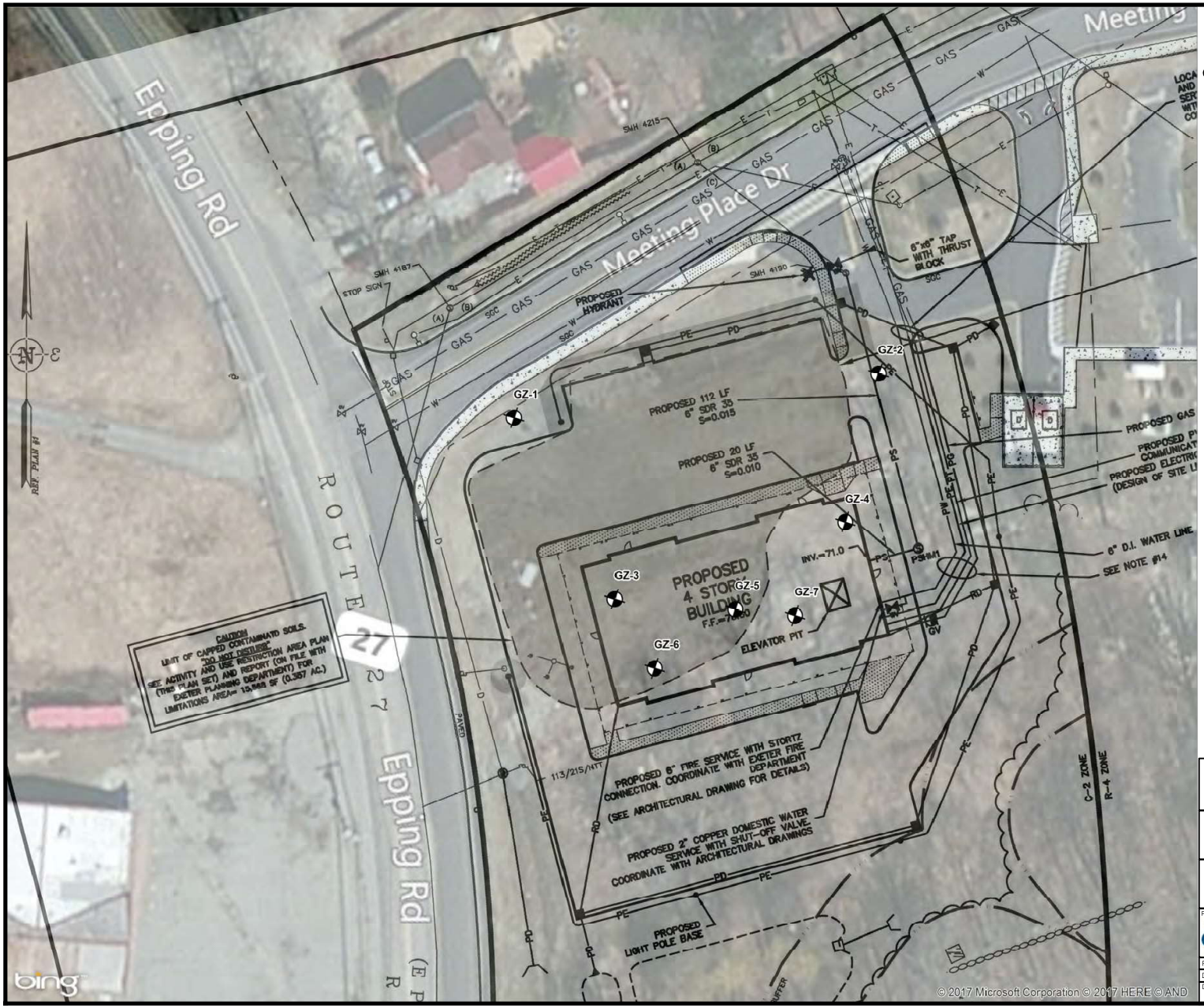
TABLE 1
SUMMARY OF TEST BORINGS
83-85 Epping Road
Exeter, New Hampshire

Boring Designation	Ground Surface[2] Elev. +/-	Exploration Depth[3]	Groundwater [4]		Thickness of Deposit (ft)						Refusal	
	(ft)	(ft)	Depth to (ft)	Elev. of (ft)	Topsoil	Sand	Consolidated Fill	Silt	Clay & Silt / Silty Clay	Glacial Till	Depth to (ft)	Elev. of (ft)
GZ-1	73.0	10.5	NE[1]	-	0.3	2.2	-	-	8.0	-	10.5	62.5
GZ-2	73.0	23.5	23.0	50.0	0.3	2.2	-	7.5	10.0	3.5	23.5	49.5
GZ-3	72.0	8.3	NE	-	-	0.3	6.3	>1.7	-	-	NE	-
GZ-4	72.5	22.0	21.5	51.0	-	3.0	-	7.0	8.5	3.5	22.0	50.5
GZ-5	72.5	6.5	NE	-	-	0.5	4.3	>1.7	-	-	NE	-
GZ-6	72.0	6.5	NE	-	-	0.5	2.4	>3.6	-	-	NE	-
GZ-7	72.0	23.5	23.0	49.0	0.3	4.7	-	-	15.5	3.0	23.5	48.5

Notes:
1. NE indicates that ground water was not encountered at this boring location.
2. Estimated ground surface elevations referenced in this table are in feet and refer to North American Vertical Datum of 1988 (NAVD 88) and are based on topographic contours shown on the existing conditions plan.
3. Boring depth reported from existing ground surface.
4. Groundwater measurements were made during drilling and represent unstabilized water levels.



LEGEND

GZ-7 ⊕ BORING LOCATION AND DESIGNATION

NOTES:

1. BASE PLAN WAS DEVELOPED FROM PDF BASE PLAN PROVIDED BY CIVILWORKS, INC ENTITLED "UTILITY PLAN" DATED MAY 29, 2015 VIA EMAIL ON JANUARY 17, 2017.

2. TEST BORINGS GZ-1 THROUGH GZ-7 WERE PERFORMED BY NEW ENGLAND BORING CONTRACTORS, INC OF DERRY, NEW HAMPSHIRE DURING THE PERIOD FROM FEBRUARY 22, 2017 THROUGH FEBRUARY 23, 2017 AND WERE OBSERVED AND LOGGED BY GZA PERSONNEL.

3. THE LOCATIONS OF EXPLORATIONS GZ-1 THROUGH GZ-7 WERE DETERMINED BY GZA USING A HANDHELD GPS. THESE LOCATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.

SOURCE:

THIS MAP CONTAINS THE ESRI ARCGIS ONLINE BING MAPS AERIAL LAYER PACKAGE, PUBLISHED DECEMBER 1, 2010 BY ESRI ARCIMS SERVICES AND UPDATED MONTHLY. THIS SERVICE USES UNIFORM NATIONALLY RECOGNIZED DATUM AND CARTOGRAPHY STANDARDS AND A VARIETY OF AVAILABLE SOURCES FROM SEVERAL DATA PROVIDERS.

N W E S

0 20 40 80 Feet

HOMESTEAD HOUSE DEVELOPMENT
83-85 EPPING ROAD
EXETER, NEW HAMPSHIRE

SUBSURFACE EXPLORATION PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: FELDER-KUEHL PROPERTIES, LLC	
PROJ MGR: JRB	REVIEWED BY: DGL	CHECKED BY: DMZ	FIGURE 2
DESIGNED BY: JRB	DRAWN BY: ADM	SCALE: 1 in = 40 ft	
DATE: MARCH 2017	PROJECT NO.: 04.0190634.00	REVISION NO.:	

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Felder-Kuehl Properties
Homestead House Development
83-85 Epping Road
Exeter, New Hampshire

EXPLORATION NO.: GZ-1
SHEET: 1 of 1
PROJECT NO: 04.0190634.00
REVIEWED BY: J. Baron

Logged By: R. Fink
Drilling Co.: New England Boring Contractors
Foreman: M. Misiaszek

Type of Rig: ATV
Rig Model: Mobile D-53
Drilling Method: HSA

Boring Location: See plan
Ground Surface Elev. (ft.): 73.0
Final Boring Depth (ft.): 10.5
Date Start - Finish: 2/22/2017 - 2/22/2017

H. Datum:
V. Datum:

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 3.25

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
Not Encountered				

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	10	4 12 11 10	23	S-1: Medium dense, brown, fine to coarse SAND, trace Silt, trace Gravel, moist.			0.3	TOPSOIL	72.7
												SAND	
											2.5		70.5
5		S-2	5.0-7.0	24	21	9 10 17 27	27	S-2: Very stiff, brown, Silty CLAY, little fine to coarse Sand, moist.				SILTY CLAY	
10		S-3	10.0-10.2	2	0	50/2"	R	S-3: No Recovery.	1		10.5		62.5
								End of exploration at 10.5 feet.					
15													
20													
25													
30													

REMARKS

1 - Auger refusal at 10.5 feet below ground surface.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: GZ-1

GZA TEMPLATE TEST BORING - GZA 2016_01_26.GDT - 3/21/17 13:19 - P:\04JOBS\GINT PROJECT DATABASES\04.0190634.00 - HOMESTEAD HOUSE - PLOG.GPJ

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Felder-Kuehl Properties
Homestead House Development
83-85 Epping Road
Exeter, New Hampshire

EXPLORATION NO.: GZ-2
SHEET: 1 of 1
PROJECT NO: 04.0190634.00
REVIEWED BY: J. Baron

Logged By: R. Fink
Drilling Co.: New England Boring Contractors
Foreman: M. Misiaszek

Type of Rig: ATV
Rig Model: Mobile D-53
Drilling Method: HSA

Boring Location: See plan
Ground Surface Elev. (ft.): 73.0
Final Boring Depth (ft.): 23.5
Date Start - Finish: 2/22/2017 - 2/22/2017

H. Datum:
V. Datum:

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 3.25

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
02/22/2017	08:50 AM	10 min	23.00	23.50

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	14	3 6 6 6	12	S-1: Medium dense, brown, fine to medium SAND, little Silt, trace root fibers, moist.			0.3	TOPSOIL	72.7
												SAND	
											2.5		70.5
5		S-2	5.0-7.0	24	24	10 20 28 39	48	S-2: Dense, brown, SILT, moist.				SILT	
10		S-3	10.0-12.0	24	24	8 14 20 20	34	S-3: Hard, brown, CLAY & SILT, trace fine Sand, moist.			10		63.0
15		S-4	15.0-17.0	24	21	7 10 13 12	23	S-4: Very stiff, brown, Silty CLAY, moist.	1			SILTY CLAY	
20		S-5	20.0-20.7	8	4	4 50/2"	R	S-5: Very dense, brown, fine to coarse SAND, and Gravel, little Silty Clay, wet.			20		53.0
												POSSIBLE TILL	
											23.5		49.5
25								End of exploration at 23.5 feet.	2				
30													

REMARKS

1 - Difficulty drilling at approximately 17 feet below ground surface.
2 - Auger refusal at 23.5 feet below ground surface.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: GZ-2

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Felder-Kuehl Properties
Homestead House Development
83-85 Epping Road
Exeter, New Hampshire

EXPLORATION NO.: GZ-3
SHEET: 1 of 1
PROJECT NO: 04.0190634.00
REVIEWED BY: J. Baron

Logged By: R. Fink
Drilling Co.: New England Boring Contractors
Foreman: M. Misiaszek

Type of Rig: ATV
Rig Model: Mobile D-53
Drilling Method: HSA

Boring Location: See plan
Ground Surface Elev. (ft.): 72.0
Final Boring Depth (ft.): 8.3
Date Start - Finish: 2/23/2017 - 2/23/2017

H. Datum:
V. Datum:

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 3.25

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
Not Encountered				

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.3-2.3	24	17	5 13 17 16	30	FILL: Brown, fine to medium SAND, little Gravel, trace Silt. S-1: Medium dense, brown, fine to medium SAND, little Silt, trace Slag, moist.	1		0.3	SAND	71.7
		S-2	2.3-4.3	24	9	23 16 12 8	28	S-2: Medium dense, brown, fine SAND, little Silt, trace Slag, moist.				CONSOLIDATED FILL	
5		S-3	4.3-6.3	24	14	7 10 11 10	21	S-3: Medium dense, brown, fine SAND, little Silt, trace Slag, moist.			6.6		65.4
		S-4	6.3-8.3	24	24	8 9 13 19	22	S-4: Top 4 inches: Medium dense, brown, fine SAND, little Silt, trace Slag, moist. Bottom 20 inches: Medium dense, brown, SILT, wet.				SILT	
10								End of exploration at 8.3 feet.			8.3		63.7
15													
20													
25													
30													

REMARKS

1 - Encountered geotextile and reinforced polyethylene lining 6-inches below ground surface. An approximately 1-foot by 1-foot flap was cut into geotextile and polyethylene lining to complete SPT and split spoon sampling. Sample descriptions were completed in addition to photo documention and the material was placed back into the borehole. The liner and geotextile layers were repaired and the 6-inches of clean fill was restored over the borehole location.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: GZ-3

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Felder-Kuehl Properties
Homestead House Development
83-85 Epping Road
Exeter, New Hampshire

EXPLORATION NO.: GZ-4
SHEET: 1 of 1
PROJECT NO: 04.0190634.00
REVIEWED BY: J. Baron

Logged By: R. Fink
Drilling Co.: New England Boring Contractors
Foreman: M. Misiaszek

Type of Rig: ATV
Rig Model: Mobile D-53
Drilling Method: HSA

Boring Location: See plan
Ground Surface Elev. (ft.): 72.5
Final Boring Depth (ft.): 22
Date Start - Finish: 2/22/2017 - 2/22/2017

H. Datum:
V. Datum:

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 3.25

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
02/22/2017	10:44 AM	10 min.	21.50	22.00

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	12	2 6 11 6	17	S-1: Medium dense, brown, fine to medium SAND, little Silt, trace Gravel, trace root fibers, moist.				SAND	
											3		69.5
5		S-2	5.0-7.0	24	20	7 13 27 31	40	S-2: Medium dense, brown, SILT, trace fine Sand, moist.				SILT	
10		S-3	10.0-12.0	24	22	7 11 15 18	26	S-3: Hard, brown, CLAY & SILT, moist.			10		62.5
15		S-4	15.0-17.0	24	23	5 6 7 9	13	S-4: Stiff, brown, Silty CLAY, moist.				SILTY CLAY	
											18.5		54.0
									1		19	COBBLES	53.5
20		S-5	20.0-21.7	20	7	16 45 2 50	47	S-5: Dense, brown, fine to coarse SAND, and Gravel, little Silty Clay, wet.				TILL	
											22		50.5
								End of exploration at 22 feet.	2				
25													
30													

REMARKS

1 - Difficulty drilling at approximately 18.5 feet below ground surface.
2 - Auger refusal at 22.0 feet below ground surface.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: GZ-4

GZA TEMPLATE TEST BORING - GZA 2016_01_26.GDT - 3/21/17 13:19 - P:\04JOBS\GINT PROJECT DATABASES\04.0190634.00 - HOMESTEAD HOUSE - PLOG.GPJ

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Felder-Kuehl Properties
Homestead House Development
83-85 Epping Road
Exeter, New Hampshire

EXPLORATION NO.: GZ-5
SHEET: 1 of 1
PROJECT NO: 04.0190634.00
REVIEWED BY: J. Baron

Logged By: R. Fink
Drilling Co.: New England Boring Contractors
Foreman: M. Misiaszek

Type of Rig: ATV
Rig Model: Mobile D-53
Drilling Method: HSA

Boring Location: See plan
Ground Surface Elev. (ft.): 72.5
Final Boring Depth (ft.): 6.5
Date Start - Finish: 2/23/2017 - 2/23/2017

H. Datum:
V. Datum:

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 3.25

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
Not Encountered				

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.5-2.5	24	7	8 31 20 11	51	FILL: Brown, fine to medium SAND, little Gravel, trace Silt. S-1: Very dense, black and dark brown, fine to medium SAND, some bricks, little Silt, trace Slag, dry.	1		0.5	SAND	72.0
		S-2	2.5-4.5	24	4	7 7 6 7	13	S-2: Medium dense, dark brown, fine to medium SAND, little Silt, little bricks, trace Slag, dry.				CONSOLIDATED FILL	
5		S-3	4.5-6.5	24	16	6 7 10 13	17	S-3: Top 4 inches: Medium dense, brown, fine to medium SAND, some Silt, little bricks, moist. Bottom 12 inches: Medium dense, brown, SILT, moist.			4.8		67.7
												SILT	
											6.5		66.0
								End of exploration at 6.5 feet.					
10													
15													
20													
25													
30													

REMARKS

1 - Encountered geotextile and reinforced polyethylene lining 6-inches below ground surface. An approximately 1-foot by 1-foot flap was cut into geotextile and polyethylene lining to complete SPT and split spoon sampling. Sample descriptions were completed in addition to photo documention and the material was placed back into the borehole. The liner and geotextile layers were repaired and the 6-inches of clean fill was restored over the borehole location.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: GZ-5

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Felder-Kuehl Properties
Homestead House Development
83-85 Epping Road
Exeter, New Hampshire

EXPLORATION NO.: GZ-6
SHEET: 1 of 1
PROJECT NO: 04.0190634.00
REVIEWED BY: J. Baron

Logged By: R. Fink
Drilling Co.: New England Boring Contractors
Foreman: M. Misiaszek

Type of Rig: ATV
Rig Model: Mobile D-53
Drilling Method: HSA

Boring Location: See plan
Ground Surface Elev. (ft.): 72.0
Final Boring Depth (ft.): 6.5
Date Start - Finish: 2/23/2017 - 2/23/2017

H. Datum:
V. Datum:

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 3.25

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
Not Encountered				

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.5-2.5	24	9	6 7 6 6	13	FILL: Brown, fine to medium SAND, little Gravel, trace Silt. S-1: Medium dense, dark brown, fine to medium SAND, trace Gravel, trace Slag, trace Silt, dry.	1		0.5	SAND	71.5
		S-2	2.5-4.5	24	13	6 10 8 6	18	S-2: Top 5 inches: Medium dense, dark brown, fine to medium SAND, trace Silt, trace Slag, moist. Bottom 8 inches: Medium dense, brown, SILT, trace fine Sand, moist.				CONSOLIDATED FILL	
5		S-3	4.5-6.5	24	14	3 4 7 7	11	S-3: Medium dense, brown, SILT, trace fine Sand, moist.			2.9		69.1
								End of exploration at 6.5 feet.				SILT	
											6.5		65.5
10													
15													
20													
25													
30													

REMARKS

1 - Encountered geotextile and reinforced polyethylene lining 6-inches below ground surface. An approximately 1.5-foot by 3-foot flap was cut into geotextile and an approximately 1-foot by 1-foot flap was cut into the polyethylene lining to complete SPT and split spoon sampling. Sample descriptions were completed in addition to photo documention and the material was placed back into the borehole. The liner and geotextile layers were repaired and the 6-inches of clean fill was restored over the borehole location.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: GZ-6

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Felder-Kuehl Properties
Homestead House Development
83-85 Epping Road
Exeter, New Hampshire

EXPLORATION NO.: GZ-7
SHEET: 1 of 1
PROJECT NO: 04.0190634.00
REVIEWED BY: J. Baron

Logged By: R. Fink
Drilling Co.: New England Boring Contractors
Foreman: M. Misiaszek

Type of Rig: ATV
Rig Model: Mobile D-53
Drilling Method: HSA

Boring Location: See plan
Ground Surface Elev. (ft.): 72.0
Final Boring Depth (ft.): 23.5
Date Start - Finish: 2/22/2017 - 2/22/2017

H. Datum:
V. Datum:

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 3.25

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
02/22/2017	12:48 PM	10 min.	23.00	23.50

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	9	9 8 9 7	17	S-1: Top 4 inches: Medium dense, dark brown to black, fine to coarse SAND, some Gravel, trace root fibers, moist. Bottom 5 inches: Medium dense, brown, fine to medium SAND, trace Gravel, trace Silt, moist.			0.3	TOPSOIL	71.7
												SAND	
5		S-2	5.0-7.0	24	24	9 16 22 29	38	S-2: Very stiff, brown, Silty CLAY, trace fine Sand, moist.			5		67.0
10		S-3	10.0-12.0	24	22	8 9 13 15	22	S-3: Very stiff, brown, Silty CLAY, moist.				SILTY CLAY	
15		S-4	15.0-17.0	24	24	6 5 6 7	11	S-4: Stiff, brown, Silty CLAY, moist.					
20		S-5	20.0-22.0	24	11	22 40 36 30	76	S-5: Top 6 inches: Hard, brown, Silty CLAY, moist. Bottom 5 inches: Very dense, brown, fine to medium SAND, trace Silt.			20.5		51.5
												TILL	
											23.5		48.5
25								End of exploration at 23.5 feet.	1				
30													

REMARKS

1 - Auger refusal at 23.5 feet below ground surface.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: GZ-7

C

Hydrodynamic Separator Sizing

Project Name: Proposed Commercial Development
Location: Exeter, NH

Date: 4/25/23

Site Designation: WQU-10

Peak Treatment Rate: (Manual Entry)	0.15	cfs
Barracuda Size:	**S3**	
Peak treatment rate:	0.86	cfs
Unit Bypass Flow:	0	cfs

Project Name: Proposed Commercial Development
Location: Exeter, NH

Date: 4/25/23

Site Designation: WQU-4

Peak Treatment Rate: (Manual Entry)	0.22	cfs
Barracuda Size:	**S3**	
Peak treatment rate:	0.86	cfs
Unit Bypass Flow:	0	cfs

D

Water Quality Data

OVERALL SUMMARY

Date (MM/DD/YYYY):	**6/23/2023**
Project Name:	**Proposed Commercial Development**
Town/City:	**Exeter**
Impacted Surface Waters:	**NA**
Applicant:	**Tropic Star Development, LLC**
DES File #:	

TOTAL PRE -DEVELOPMENT (PRE-DEV) AREA (ACRES) =	**0.95**
TOTAL PRE-DEV EFFECTIVE IMPERVIOUS AREA (ACRES) =	**0.05**
TOTAL PRE-DEV PERCENT EFFECTIVE IMPERVIOUS (%) =	**4.9%**
TOTAL POST DEVELOPMENT (POST-DEV) AREA (ACRES) =	**0.95**
TOTAL POST-DEV EFFECTIVE IMPERVIOUS AREA (ACRES) =	**0.60**
TOTAL POST-DEV PERCENT EFFECTIVE IMPERVIOUS (%) =	**63.3%**
TOTAL POST-DEV AREA THAT IS FERTILIZED ANNUALLY (ACRES) =	**0.00**
TOTAL POST-DEV PERCENT OF AREA THAT IS FERTILIZED ANNUALLY (%) =	**0.0%**

	TSS (LBS/YR)	**TP (LBS/YR)**	**TN (LBS/YR)**
PRE DEVELOPMENT LOADS (NO BMPS)	**43.5**	**0.1**	**1.5**
PRE DEVELOPMENT LOADS (WITH BMPS)	**43.5**	**0.1**	**1.5**
PRE DEVELOPMENT LOAD REDUCTION DUE TO BMPS	**0.0**	**0.0**	**0.0**
PROPOSED PERCENT REDUCTION IN FERTILIZER APPLICATION RATE	**NA**	**0.0%**	**0.0%**
POST DEVELOPMENT LOADS (NO BMPS)	**386.3**	**1.1**	**11.3**
POST DEVELOPMENT LOADS (WITH BMPS)	**8.4**	**0.4**	**4.2**
POST DEVELOPMENT LOAD REDUCTION DUE TO BMPS	**377.9**	**0.7**	**7.1**
POST DEVELOPMENT - PRE DEVELOPMENT (SHOULD BE 0 OR NEGATIVE)	**-35.1**	**0.3**	**2.7**
% DIFFERENCE FROM PRE DEVELOMENT LOADS (SHOULD BE 0 OR NEGATIVE)	**-80.7%**	**292.0%**	**182.6%**
TOTAL REMOVAL EFFICIENCY NEEDED TO MEET PRE-DEVELOPMENT LOAD	**88.7%**	**91.4%**	**86.9%**

Date (MM/DD/YYYY): 6/23/2023
Project Name: Proposed Commercial Development
Town/City: Exeter
Impacted Surface Waters: NA
Applicant: Tropic Star Development, LLC
DES File #:

TOTAL POST DEVELOPMENT - PRE DEVELOPMENT (SHOULD BE 0 OR NEGATIVE) (lbs/yr)	-35.1
% DIFFERENCE FROM PRE DEVELOMENT LOADS (SHOULD BE 0 OR NEGATIVE)	-80.7%
TOTAL REMOVAL EFFICIENCY NEEDED TO MEET PRE-DEVELOPMENT LOAD	88.7%
CURRENTLY PROPOSED REMOVAL EFFICIENCY	97.8%
REMAINING REMOVAL EFFICIENCY NECESSARY TO MEET PRE-DEVELOPMENT LOAD	-9.1%

PRE-DEVELOPMENT

PRE OR POST - DEV	SUB-AREA	POINT OF ANALYSIS NUMBER	AREA (acres)	Effective Impervious Area (acres)	Area Fertilized Annually (acres)	POLLUTANT	PERCENT REDUCTION IN FERTILIZER APPLICATION RATE	BMPS	LOAD (NO BMPS) (lbs/yr)	LOAD (WITH BMPS) (lbs/yr)	LOAD REDUCTION DUE TO BMPS (lbs/yr)	PERCENT REMOVAL
PRE	EX-1	1	0.56	0.04	NA	TSS	NA	None	31.2	31.2	0.0	0.0%
PRE	EX-2	2	0.40	0.01	NA	TSS	NA	None	12.4	12.4	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TSS	NA		0.0	0.0	0.0	0.0%
		TOTAL	0.95	0.05				TOTAL	43.5	43.5	0.0	0.0%

Date (MM/DD/YYYY): 6/23/2023
Project Name: Proposed Commercial Development
Town/City: Exeter
Impacted Surface Waters: NA
Applicant: Tropic Star Development, LLC
DES File #:

TOTAL POST DEVELOPMENT - PRE DEVELOPMENT (SHOULD BE 0 OR NEGATIVE) (lbs/yr)	-35.1
% DIFFERENCE FROM PRE DEVELOMENT LOADS (SHOULD BE 0 OR NEGATIVE)	-80.7%
TOTAL REMOVAL EFFICIENCY NEEDED TO MEET PRE-DEVELOPMENT LOAD	88.7%
CURRENTLY PROPOSED REMOVAL EFFICIENCY	97.8%
REMAINING REMOVAL EFFICIENCY NECESSARY TO MEET PRE-DEVELOPMENT LOAD	-9.1%

POST-DEVELOPMENT

PRE OR POST - DEV	SUB-AREA	POINT OF ANALYSIS NUMBER	AREA (acres)	Effective Impervious Area (acres)	Area Fertilized Annually (acres)	POLLUTANT	PERCENT REDUCTION IN FERTILIZER APPLICATION RATE	BMPS	LOAD (NO BMPS) (lbs/yr)	LOAD (WITH BMPS) (lbs/yr)	LOAD REDUCTION DUE TO BMPS (lbs/yr)	PERCENT REMOVAL
POST	PR-1	3	0.36	0.18	0.00	TSS	NA	Rain guardian turret, bioretention pond	131.8	3.3	128.5	97.5%
POST	PR-2	4	0.17	0.14	0.00	TSS	NA	Deep sump and hooded catch basin, hydrodyanmic separator, subsurface infiltration	94.2	1.9	92.3	98.0%
POST	PR-3	5	0.06	0.06	0.00	TSS	NA	Deep sump and hooded catch basin, hydrodyanmic separator, subsurface infiltration	4.9	0.1	4.8	98.0%
POST	PR-4	6	0.14	0.09	0.00	TSS	NA	Deep sump and hooded catch basin, hydrodyanmic separator, subsurface infiltration	64.3	1.3	63.0	98.0%
POST	PR-5	7	0.09	0.08	0.00	TSS	NA	Deep sump and hooded catch basin, hydrodyanmic separator, subsurface infiltration	54.0	1.1	52.9	98.0%
POST	PR-6	8	0.12	0.05	0.00	TSS	NA	Deep sump and hooded catch basin, hydrodyanmic separator, subsurface infiltration	36.7	0.7	36.0	98.0%
POST	PR-7	9	0.01	0.00	0.00	TSS	NA	Deep sump and hooded catch basin, hydrodyanmic separator, subsurface infiltration	0.5	0.0	0.5	98.0%
POST	0.00		0.00	0.00	0.00	TSS	NA	None	0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TSS	NA		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TSS	NA		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TSS	NA		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TSS	NA		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TSS	NA		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TSS	NA		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TSS	NA		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TSS	NA		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TSS	NA		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TSS	NA		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TSS	NA		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TSS	NA		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TSS	NA		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TSS	NA		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TSS	NA		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TSS	NA		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TSS	NA		0.0	0.0	0.0	0.0%
		TOTAL	0.95	0.60	0.00			TOTAL	386.3	8.4	377.9	97.8%

Date (MM/DD/YYYY): 6/23/2023
Project Name: Proposed Commercial Development
Town/City: Exeter
Impacted Surface Waters: NA
Applicant: Tropic Star Development, LLC
DES File #:

TOTAL POST DEVELOPMENT - PRE DEVELOPMENT (SHOULD BE 0 OR NEGATIVE) (lbs/yr)	0.3
% DIFFERENCE FROM PRE DEVELOMENT LOADS (SHOULD BE 0 OR NEGATIVE)	292.0%
TOTAL REMOVAL EFFICIENCY NEEDED TO MEET PRE-DEVELOPMENT LOAD	91.4%
CURRENTLY PROPOSED REMOVAL EFFICIENCY	66.4%
REMAINING REMOVAL EFFICIENCY NECESSARY TO MEET PRE-DEVELOPMENT LOAD	25.1%

PRE-DEVELOPMENT

PRE OR POST - DEV	SUB-AREA	POINT OF ANALYSIS NUMBER	AREA (acres)	Effective Impervious Area (acres)	Area Fertilized Annually (acres)	POLLUTANT	PERCENT REDUCTION IN FERTILIZER APPLICATION RATE	BMPS	LOAD (NO BMPS) (lbs/yr)	LOAD (WITH BMPS) (lbs/yr)	LOAD REDUCTION DUE TO BMPS (lbs/yr)	PERCENT REMOVAL
PRE	EX-1	1	0.56	0.04	NA	TP	NA	None	0.1	0.1	0.0	0.0%
PRE	EX-2	2	0.40	0.01	NA	TP	NA	None	0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TP	NA		0.0	0.0	0.0	0.0%
		TOTAL	0.95	0.05				TOTAL	0.1	0.1	0.0	0.0%

Date (MM/DD/YYYY): 6/23/2023
Project Name: Proposed Commercial Development
Town/City: Exeter
Impacted Surface Waters: NA
Applicant: Tropic Star Development, LLC
DES File #:

POST-DEVELOPMENT

PRE OR POST - DEV	SUB-AREA	POINT OF ANALYSIS NUMBER	AREA (acres)	Effective Impervious Area (acres)	Area Fertilized Annually (acres)	POLLUTANT	PERCENT REDUCTION IN FERTILIZER APPLICATION RATE	BMPS	LOAD (NO BMPS) (lbs/yr)	LOAD (WITH BMPS) (lbs/yr)	LOAD REDUCTION DUE TO BMPS (lbs/yr)	PERCENT REMOVAL
POST	PR-1	3	0.36	0.18	0.00	TP	0.0%	Rain guardian turret, bioretention pond	0.4	0.1	0.2	65.0%
POST	PR-2	4	0.17	0.14	0.00	TP	0.0%	Deep sump and hooded catch basin, hydrodyanmic separator, subsurface infiltration	0.3	0.1	0.2	67.0%
POST	PR-3	5	0.06	0.06	0.00	TP	0.0%	Deep sump and hooded catch basin, hydrodyanmic separator, subsurface infiltration	0.1	0.0	0.1	67.0%
POST	PR-4	6	0.14	0.09	0.00	TP	0.0%	Deep sump and hooded catch basin, hydrodyanmic separator, subsurface infiltration	0.2	0.1	0.1	67.0%
POST	PR-5	7	0.09	0.08	0.00	TP	0.0%	Deep sump and hooded catch basin, hydrodyanmic separator, subsurface infiltration	0.1	0.0	0.1	67.0%
POST	PR-6	8	0.12	0.05	0.00	TP	0.0%	Deep sump and hooded catch basin, hydrodyanmic separator, subsurface infiltration	0.1	0.0	0.1	67.0%
POST	PR-7	9	0.01	0.00	0.00	TP	0.0%	Deep sump and hooded catch basin, hydrodyanmic separator, subsurface infiltration	0.0	0.0	0.0	67.0%
POST	0.00		0.00	0.00	0.00	TP	0.0%	None	0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TP	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TP	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TP	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TP	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TP	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TP	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TP	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TP	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TP	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TP	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TP	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TP	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TP	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TP	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TP	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TP	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TP	0.0%		0.0	0.0	0.0	0.0%
		TOTAL	0.95	0.60	0.00			TOTAL	1.1	0.4	0.7	66.4%

Date (MM/DD/YYYY):	**6/23/2023**
Project Name:	**Proposed Commercial Development**
Town/City:	**Exeter**
Impacted Surface Waters:	**NA**
Applicant:	**Tropic Star Development, LLC**
DES File #:	

TOTAL POST DEVELOPMENT - PRE DEVELOPMENT (SHOULD BE 0 OR NEGATIVE) (lbs/yr)	2.7
% DIFFERENCE FROM PRE DEVELOMENT LOADS (SHOULD BE 0 OR NEGATIVE)	182.6%
TOTAL REMOVAL EFFICIENCY NEEDED TO MEET PRE-DEVELOPMENT LOAD	86.9%
CURRENTLY PROPOSED REMOVAL EFFICIENCY	62.9%
REMAINING REMOVAL EFFICIENCY NECESSARY TO MEET PRE-DEVELOPMENT LOAD	23.9%

PRE-DEVELOPMENT

PRE OR POST - DEV	SUB-AREA	POINT OF ANALYSIS NUMBER	AREA (acres)	Effective Impervious Area (acres)	Area Fertilized Annually (acres)	POLLUTANT	PERCENT REDUCTION IN FERTILIZER APPLICATION RATE	BMPS	LOAD (NO BMPS) (lbs/yr)	LOAD (WITH BMPS) (lbs/yr)	LOAD REDUCTION DUE TO BMPS (lbs/yr)	PERCENT REMOVAL
PRE	EX-1	1	0.56	0.04	NA	TN	NA	None	1.1	1.1	0.0	0.0%
PRE	EX-2	2	0.40	0.01	NA	TN	NA	None	0.4	0.4	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
PRE	0.00		0.00	0.00	NA	TN	NA		0.0	0.0	0.0	0.0%
		TOTAL	0.95	0.05				TOTAL	1.5	1.5	0.0	0.0%

Date (MM/DD/YYYY): 6/23/2023
Project Name: Proposed Commercial Development
Town/City: Exeter
Impacted Surface Waters: NA
Applicant: Tropic Star Development, LLC
DES File #:

POST-DEVELOPMENT

PRE OR POST - DEV	SUB-AREA	POINT OF ANALYSIS NUMBER	AREA (acres)	Effective Impervious Area (acres)	Area Fertilized Annually (acres)	POLLUTANT	PERCENT REDUCTION IN FERTILIZER APPLICATION RATE	BMPS	LOAD (NO BMPS) (lbs/yr)	LOAD (WITH BMPS) (lbs/yr)	LOAD REDUCTION DUE TO BMPS (lbs/yr)	PERCENT REMOVAL
POST	PR-1	3	0.36	0.18	0.00	TN	0.0%	Rain guardian turret, bioretention pond	3.5	1.2	2.3	65.0%
POST	PR-2	4	0.17	0.14	0.00	TN	0.0%	Deep sump and hooded catch basin, hydrodyanmic separator, subsurface infiltration	2.5	1.0	1.6	62.0%
POST	PR-3	5	0.06	0.06	0.00	TN	0.0%	Deep sump and hooded catch basin, hydrodyanmic separator, subsurface infiltration	1.1	0.4	0.7	62.0%
POST	PR-4	6	0.14	0.09	0.00	TN	0.0%	Deep sump and hooded catch basin, hydrodyanmic separator, subsurface infiltration	1.7	0.7	1.1	62.0%
POST	PR-5	7	0.09	0.08	0.00	TN	0.0%	Deep sump and hooded catch basin, hydrodyanmic separator, subsurface infiltration	1.4	0.5	0.9	62.0%
POST	PR-6	8	0.12	0.05	0.00	TN	0.0%	Deep sump and hooded catch basin, hydrodyanmic separator, subsurface infiltration	1.0	0.4	0.6	62.0%
POST	PR-7	9	0.01	0.00	0.00	TN	0.0%	Deep sump and hooded catch basin, hydrodyanmic separator, subsurface infiltration	0.0	0.0	0.0	62.0%
POST	0.00		0.00	0.00	0.00	TN	0.0%	None	0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TN	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TN	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TN	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TN	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TN	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TN	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TN	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TN	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TN	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TN	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TN	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TN	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TN	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TN	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TN	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TN	0.0%		0.0	0.0	0.0	0.0%
POST	0.00		0.00	0.00	0.00	TN	0.0%		0.0	0.0	0.0	0.0%
		TOTAL	0.95	0.60	0.00			TOTAL	11.3	4.2	7.1	62.9%

N1264 Treatment Train Pollutant Removal Computation for Proposed Site Development

Table 1 (Treatment Train #1)

		Rain Guardian Turret®	Bioretention Pond
TSS	BMP % Removal	75%	90%
	Cumulative % Removal	75%	97.5%
TN	BMP % Removal	0%	65%
	Cumulative % Removal	0%	65%
TP	BMP % Removal	0%	65%
	Cumulative % Removal	0%	65%

Table 2 (Treatment Train #2)

		Deep-Sump and Hooded Catch Basin	Barracuda Max® S3 Hydrodynamic Separator	ADS StormTech SC-740® Subsurface Infiltration Basin
TSS	BMP % Removal	15%	80%	90%
	Cumulative % Removal	15%	88%	98%
TN	BMP % Removal	5%	0%	60%
	Cumulative % Removal	5%	5%	62%
TP	BMP % Removal	5%	0%	65%
	Cumulative % Removal	5%	5%	67%

E

Rip Rap Sizing Calculations

N1264 Riprap Sizing Computation for Proposed Site Development

Taken from:

- *FHWA Hydraulic Design of Energy Dissipators for Culverts and Channels (Chapter 10) FHWA-NHI-06-086 July 2006*
- *NRCS Rock Outlet Protection 2012 Fact Sheet (attached)*

By: M. Perry - TEC, Inc. 6/23/2023

Checked By: C. Raymond - TEC, Inc. 6/23/2023

$$D_{50} = 0.2D\left(\frac{Q}{\sqrt{gD^{2.5}}}\right)^{4/3}\left(\frac{D}{TW}\right)$$

$$D_{50} = riprap\ size\ (ft)$$

$$Q = design\ discharge\ \left(\frac{ft^3}{s}\right)$$

$$D = culvert\ diameter\ (ft)$$

$$TW = tailwater\ depth\ (ft)$$

Use 0.4D as minimum

$$g = acceleration\ due\ to\ gravity\ \left(32.2\ \frac{ft}{s^2}\right)$$

Table 10.1. Example Riprap Classes and Apron Dimensions

Class	D_{50} (mm)	D_{50} (in)	Apron Length[1]	Apron Depth
1	125	5	4D	$3.5D_{50}$
2	150	6	4D	$3.3D_{50}$
3	250	10	5D	$2.4D_{50}$
4	350	14	6D	$2.2D_{50}$
5	500	20	7D	$2.0D_{50}$
6	550	22	8D	$2.0D_{50}$

[1]D is the culvert rise.

$$W_U = 3D$$

$$W_D = D + Length$$

$$W_U = upstream\ width\ (ft)$$

$$W_D = downstream\ width\ (ft)$$

Proposed Outfall – FES-14

The 10-year storm peak flow from drainage calculations was used for the Q value.

$$D_{50} = 0.2(1.0\ ft)\left(\frac{0.26\frac{ft^3}{s}}{\sqrt{(32.2\frac{ft}{s^2})(1.0ft)^{2.5}}}\right)^{4/3}\left(\frac{1.0ft}{0.4ft}\right) = 0.0082\ feet = 0.1\ inches$$

$0.1\ inches = Class\ 1\ (Table\ 10.1)$ *-> Class 1 min. = 5 inches*

$Length = 4D = 4(1.0\ ft) = 4\ feet$

$Depth = 3.5(D_{50}) = 3.5(5\ in) = 17.5\ inches = 1.5\ feet$

$W_U = 3D = 3(1.0\ ft) = 3\ feet$

$W_D = 1.0\ ft + 4\ ft = 5\ feet$

TEC recommends the rip-rap apron be 4 feet long by 1.5 feet deep with an upstream width of 3 feet and a downstream width of 5 feet.

Proposed Outfall – FES-16

Flow through FES-16 comes from a bioretention pond that has been sized to collect runoff from future abutting development. To construct for this expected increase in flow, the 50-year storm peak flow was utilized for the Q value. This value coincides with the flow when the storage of the bioretention pond that leads to FES-16 is full.

$$D_{50} = 0.2(1.0\ ft)\left(\frac{0.49\frac{ft^3}{s}}{\sqrt{(32.2\frac{ft}{s^2})(1.0ft)^{2.5}}}\right)^{4/3}\left(\frac{1.0ft}{0.4ft}\right) = 0.0191\ feet = 0.23\ inches$$

$0.23\ inches = Class\ 1\ (Table\ 10.1)$ *-> Class 1 min. = 5 inches*

$Length = 4D = 4(1.0\ ft) = 4\ feet$

$Depth = 3.5(D_{50}) = 3.5(5\ in) = 17.5\ inches = 1.5\ feet$

$W_U = 3D = 3(1.0\ ft) = 3\ feet$

$W_D = 1.0\ ft + 4\ ft = 5\ feet$

TEC recommends the rip-rap apron be 4 feet long by 1.5 feet deep with an upstream width of 3 feet and a downstream width of 5 feet.

F

Operation & Maintenance Plan

STORMWATER MANAGEMENT OPERATIONS AND MAINTENANCE PLAN

PROPOSED COMMERCIAL DEVELOPMENT

ASSESSORS MAP 55, LOT 75
2 MEETING PLACE DRIVE
EXETER, NEW HAMPSHIRE 03833

Prepared for:

Tropic Star Development, LLC
321 D Lafayette Road
Hampton, NH 03842

Prepared by:

TEC, Inc.
169 Ocean Boulevard
PO Box 249
Hampton, NH 03842

June 23, 2023

Stormwater Management Operation and Maintenance Plan
April 25, 2023 (Rev. June 23, 2023)

Name of Applicant: **Tropic Star Development, LLC**
Name of Facility: **Proposed Commercial Development**
Location: **2 Meeting Place Drive Exeter, NH 03833**

A detailed, written log of all scheduled preventative and corrective maintenance performed for the stormwater management measures must be kept on site, including a record of all inspections and copies of maintenance-related work orders.

Attachment 1, "Inspection and Maintenance Check List" shall be maintained as a record of regularly scheduled inspection and maintenance items as outlined below for every year. Maintenance required and actions taken shall be recorded in Attachment 2, Inspection and Maintenance Log". The location of each Best Management Practice (BMP) requiring inspection and maintenance is displayed in Attachment 3, "O&M Site Plan". The funding, operation, and maintenance of all stormwater management BMPs shall be provided by Tropic Star Development, LLC, or their appointee.

Maintenance routine and schedule: Routine inspections will be conducted on a monthly basis and thorough investigations will be conducted twice a year. Tasks that are common to all systems include regular removal of accumulated sediments, floatables and debris. Inspections will occur after every major storm event for the first six (6) months after construction. Inspections will be conducted by a Professional Engineer registered in the State of New Hampshire experienced in drainage design.

Annual reports will be prepared detailing the status of the stormwater system and the maintenance performed. A copy of the annual report will be sent to the Town of Exeter, if requested.

The owner agrees to comply with a minimum maintenance schedule as follows:

1. **Inspection and cleaning of catch basins**
   Catch basin grates shall be inspected monthly and cleared of debris to maintain inlet capacity. Sumps and inlets shall be cleaned when sediment reaches half of the sump depth and at a minimum two (2) times per year. All sediments shall be properly handled and disposed of in accordance with local, state, and federal guidelines and regulations.

2. **Semi-annual inspection and maintenance of water quality units**
   The water quality units shall be inspected every six months (spring and fall) for the first year to determine oil and sediment accumulation rates. Subsequent inspections will be planned based on the first year's inspection observations, and after any oil or chemical spill. All maintenance including removal and disposal of sediments shall be performed at the time of inspection. All sediments shall be properly handled and disposed of in accordance with local, state, and federal guidelines and regulations. Attachment 4, "Barracuda® Max & Barracuda Maintenance Guide" provides additional inspection and maintenance details.

3. Annual inspection and cleaning of subsurface infiltration basin

The underground infiltration basin shall be inspected every six months (spring and fall) for the first year to determine future inspection frequency. Subsequent inspections are expected to occur at least once per year and after all major storms. Accumulated sediment and debris will be removed during inspections. All sediments shall be properly handled and disposed of in accordance with local, state, and federal guidelines and regulations. Attachment 5, "Isolator® Row Plus O&M Manual" provides additional inspection and maintenance details.

4. Semi-annual inspection and maintenance of bioretention pond, pre-treatment filter, and outlet structure

The bioretention pond, including its pre-treatment filter and outlet structure, shall be inspected every six months and after all major storm events. Trash and debris will be removed at each inspection. Vegetation maintenance will be completed as needed and shall include pruning, removal of invasive species, and the removal and replacement of dead vegetation. The pre-treatment filter grate shall have sediment removed when the device is 75% full, and no less than once annually. Attachment 6, "Rain Guardian Pretreatment for Bioretention Maintenance Guide" provides additional inspection and maintenance details. At least once annually it shall be confirmed that the system drains within 72-hours following a rainfall event. If the system does not meet this drawdown requirement, a qualified individual shall determine steps to restore the drawdown time to meet the standard.

5. Inspection and cleaning of drainage pipes

Drainage pipes shall be inspected and cleaned of sediment at least every five (5) years or as required to maintain adequate functionality of the stormwater conveyance system. All sediments shall be properly handled and disposed of in accordance with local, state, and federal guidelines and regulations.

6. Grass Landscaping

The grass landscaping and plantings will be inspected after every major storm event for the two (2) months after seeding to ensure functionality. Thereafter, inspections should take place every six (6) months in the spring and fall and after severe storm events. Grass and mulched landscaping showing signs of wear and erosion will be re-loamed/re-seeded or re-mulched as necessary to prevent further erosion.

7. Snow Removal

Snow will be stored within the landscape areas onsite, outside of the wetlands buffer area. Salting and/or sanding will be performed as necessary to promote the public's safety. During large storm events, snow will be trucked offsite.

The Long-Term Pollution Prevention Plan

The Owner agrees to comply with the following Long-Term Pollution Prevention Plan to ensure long-term stormwater quality discharge from the site:

- *Good housekeeping practices:* The project will be maintained by the owner, including snow removal, de-icing, and BMP inspection and maintenance.

- *Provisions for storing materials and waste products inside or under cover*: No materials or waste products will be stored on-site.

- *Vehicle washing controls:* Vehicle washing is not anticipated as a reasonably foreseeable use of the site.

- *Requirements for routine inspections and maintenance of stormwater BMPs:* The owner will be responsible for providing the necessary inspections and maintenance for the stormwater BMPs.

- *Spill prevention and response plans:* There are no proposed uses at the site that would provide an opportunity for a spill of oil or hazardous materials, other than a sudden, catastrophic, vehicle failure. If a vehicle release is the result of an accident, the police and fire department will respond and address any release.

- *Provisions for maintenance of lawns, gardens, and other landscaped areas:* The owner will provide long-term maintenance for the landscaped areas.

- *Requirements for storage and use of fertilizers, herbicides, and pesticides:* At this time there would be no foreseeable need for fertilizers, herbicides, and pesticides.

- *Provisions for solid waste management:* The development will have trash removal service and will store all trash in barrels with closed lids.

- *Provisions for prevention of illicit discharges to the stormwater management system:* Only stormwater is proposed to be conveyed through the stormwater management system. No illicit materials will be permitted. The owner will be responsible for maintaining this system.

- *Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan:* Prior to implementation of the LTPPP, the owner shall provide an on-site meeting with the maintenance personnel to present the contents and requirements of the Stormwater Operation and Maintenance Plan and the LTPPP.

- *List of Emergency contacts for implementing Long-Term Pollution Prevention Plan*:

  Tropic Star Development, LLC
  321 D Lafayette Road
  Hampton, NH 03842

INSPECTION AND MAINTENANCE CHECK LIST –
2 Meeting Place Drive Exeter, NH

For Year: _____

	Inspection Item	Inspection Frequency* Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
1	Catch Basins												
2	Water Quality Units	■	■	■		■	■	■	■	■		■	■
3	Subsurface Infiltration Basin	■	■	■		■	■	■	■	■	■	■	■
4	Bioretention Pond	■	■	■		■	■	■	■	■		■	■
5	Drainage Pipes	at least every 5 years											
6	Grass Landscaping	■	■	■		■	■	■	■	■		■	■

	Maintenance Item	Maintenance Frequency* Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
1	Catch Basins		■	■		■	■		■	■		■	■
2	Water Quality Units	■	■	■		■	■	■	■	■		■	■
3	Subsurface Infiltration Basin	■	■	■		■	■	■	■	■		■	■
4	Bioretention Pond	■	■	■		■	■	■	■	■		■	■
5	Drainage Pipes	At least every 5 years											
6	Grass Landscaping	■	■	■		■	■	■	■	■		■	■

* Actual time of inspecting and maintaining items may vary. The chart shall be used to indicate the frequency of events. The inspection and maintenance frequency of BMPs during the first year may vary from normal operations and is not reflected in this chart. The above report narrative should be referenced to determine inspection and maintenance requirements for the first year.

** This chart shall be used in conjunction with the attached "Stormwater Management Operations and Maintenance Plan", dated April 25, 2023 and revised June 23, 2023.

Name of Applicant: Tropic Star Development, LLC

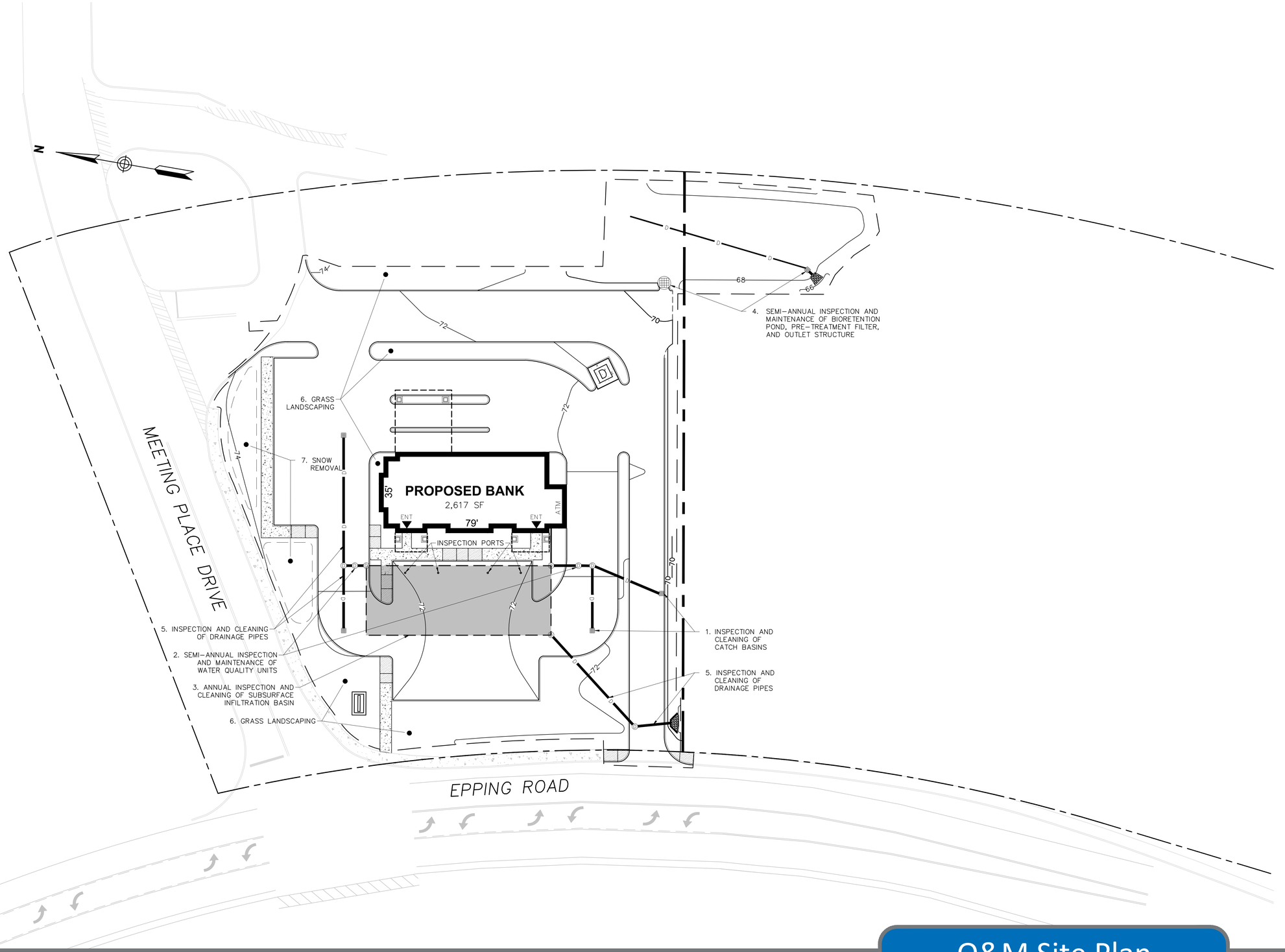
Name of Project: Proposed Commercial Development

Location: 2 Meeting Place Drive Exeter, NH 03833

Inspection and Maintenance Log

Inspection No.	Date	Inspections Performed	Maintenance Actions Taken
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Additional Sheets shall be added as needed



O&M Site Plan

2 Meeting Place Drive
Exeter, New Hampshire

Scale: 1" = 20'

June 23, 2022

TEC
282 Merrimack Street
2nd Floor
Lawrence, MA 01843
t: (978) 794-1792
169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
TheEngineeringCorp.com

Barracuda® Max & Barracuda Maintenance Guide

One of Barracuda's advantages is the ease of maintenance. Like any system that collects pollutants, the Barracuda must be maintained for continued effectiveness. Maintenance is a simple procedure performed using a vacuum truck or similar equipment. The systems were designed to minimize the volume of water removed during routine maintenance, reducing disposal costs.

Contractors can access the pollutants stored in the manhole through the manhole cover. This allows them to gain vacuum hose access to the bottom of the manhole to remove sediment and trash. There is no confined space entry necessary for inspection or maintenance.

The entire maintenance procedure typically takes 2 to 4 hours, depending on the system's size, the captured material, and the vacuum truck's capacity.

Local regulations may apply to the maintenance procedure. Safe and legal disposal of pollutants is the responsibility of the maintenance contractor. Maintenance should be performed only by a qualified contractor.

Inspection and Cleaning Cycle

Periodic inspection is needed to determine the need for and frequency of maintenance. You should begin inspecting as soon as construction is complete and then on an annual basis. Typically, the system needs to be cleaned every 1-3 years.

Excessive oils, fuels or sediments may reduce the maintenance cycle. Periodic inspection is important.

Determining When to Clean

To determine the sediment depth, the maintenance contractor should lower a stadia rod into the manhole until it contacts the top of the captured sediment and mark that spot on the rod. Then push the probe through to the bottom of the sump and mark that spot to determine sediment depth.

Maintenance should occur when the sediment has reached the levels indicated in the Storage Capacity Chart.

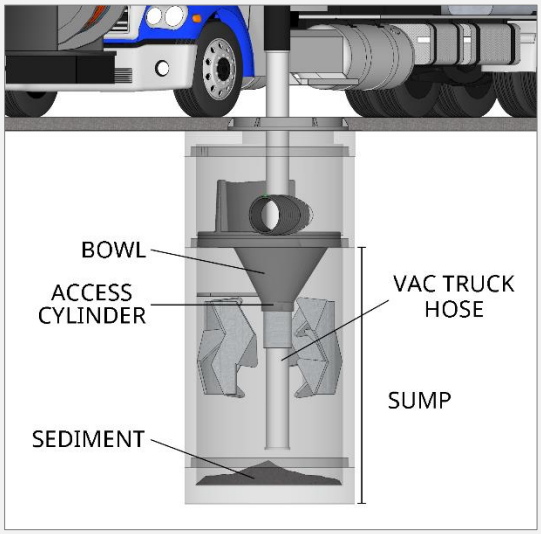
Barracuda Storage Capacities

Model	Manhole Diameter in. (mm)	Total System Volume Gallons (Liters)	Treatment Chamber Capacity Gallons (Liters)	Standard Sediment Capacity (20" depth) Yards^3 (meters^3)	NJDEP Sediment Capacity (50% of standard depth) Yards^3 (meters^3)
S3	36 (900)	264 (999)	212 (803)	0.44 (0.34)	0.22 (0.17)
S4	48 (1200)	665 (2517)	564 (2135)	0.78 (0.60)	0.39 (0.30)
S6	72 (1800)	1497 (5667)	1269 (4804)	1.75 (1.34)	0.88 (0.67)
S8	96 (2400)	4196 (15884)	3835 (14517)	3.10 (2.37)	1.55 (1.19)

Maintenance Instructions

1. Remove the manhole cover to provide access to the pollutant storage. Pollutants are stored in the sump, below the bowl assembly visible from the surface. Access this area through the 8" (200 mm), 10" (250 mm), 15" (375 mm) or 20" (500 mm) diameter access cylinder.
2. Use a vacuum truck or other similar equipment to remove all water, debris, oils and sediment. See figure 1.
3. Use a high pressure hose to clean the manhole of all the remaining sediment and debris. Then, use the vacuum truck to remove the water.
4. Fill the cleaned manhole with water until the level reaches the invert of the outlet pipe.
5. Replace the manhole cover.
6. Dispose of the polluted water, oils, sediment and trash at an approved facility.
   a. Local regulations prohibit the discharge of solid material into the sanitary system. Check with the local sewer authority for authority to discharge the liquid.
   b. Some localities treat the pollutants as leachate. Check with local regulators about disposal requirements.
   c. Additional local regulations may apply to the maintenance procedure.

Figure 1



Isolator® Row Plus
O&M Manual

ADS StormTech™

The Isolator® Row Plus

Introduction

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row Plus is a technique to inexpensively enhance Total Suspended Solids (TSS) and Total Phosphorus (TP) removal with easy access for inspection and maintenance.

The Isolator Row Plus

The Isolator Row Plus is a row of StormTech chambers, either SC-160, SC-310, SC-310-3, SC-740, DC-780, MC-3500 or MC-7200 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for sediment settling and filtration as stormwater rises in the Isolator Row Plus and passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC- 310-3 and SC-740 models) allow stormwater to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row Plus protecting the adjacent stone and chambers storage areas from sediment accumulation.

ADS geotextile fabric is placed between the stone and the Isolator Row Plus chambers. The woven geotextile provides a media for stormwater filtration, a durable surface for maintenance, prevents scour of the underlying stone and remains intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the chamber's sidewall. The non-woven fabric is not required over the SC-160, DC-780, MC-3500 or MC-7200 models as these chambers do not have perforated side walls.

The Isolator Row Plus is designed to capture the "first flush" runoff and offers the versatility to be sized on a volume basis or a flow-rate basis. An upstream manhole provides access to the Isolator Row Plus and includes a high/low concept such that stormwater flow rates or volumes that exceed the capacity of the Isolator Row Plus bypass through a manifold to the other chambers. This is achieved with an elevated bypass manifold or a high-flow weir. This creates a differential between the Isolator Row Plus row of chambers and the manifold to the rest of the system, thus allowing for settlement time in the Isolator Row Plus. After Stormwater flows through the Isolator Row Plus and into the rest of the chamber system it is either exfiltrated into the soils below or passed at a controlled rate through an outlet manifold and outlet control structure.

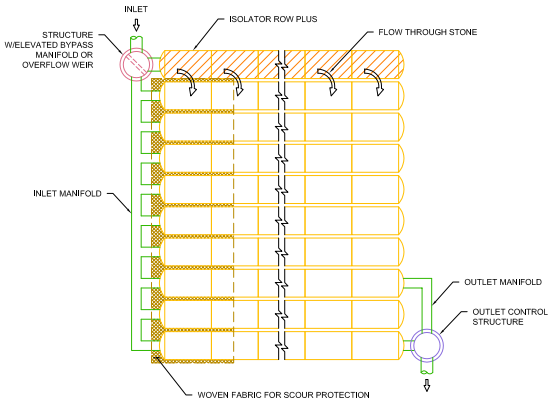
The Isolator Row FLAMP™ (patent pending) is a flared end ramp apparatus attached to the inlet pipe on the inside of the chamber end cap. The FLAMP provides a smooth transition from pipe invert to fabric bottom. It is configured to improve chamber function performance by enhancing outflow of solid debris that would otherwise collect at the chamber's end. It also serves to improve the fluid and solid flow into the access pipe during maintenance and cleaning and to guide cleaning and inspection equipment back into the inlet pipe when complete.

The Isolator Row Plus may be part of a treatment train system. The treatment train design and pretreatment device selection by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, StormTech recommend using the Isolator Row Plus to minimize maintenance requirements and maintenance costs.

Note: *See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row Plus.*

Looking down the Isolator Row PLUS from the manhole opening, ADS PLUS Fabric is shown between the chamber and stone base.

StormTech Isolator Row PLUS with Overflow Spillway (not to scale)



Isolator Row Plus Inspection/Maintenance

Inspection

The frequency of inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row Plus should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

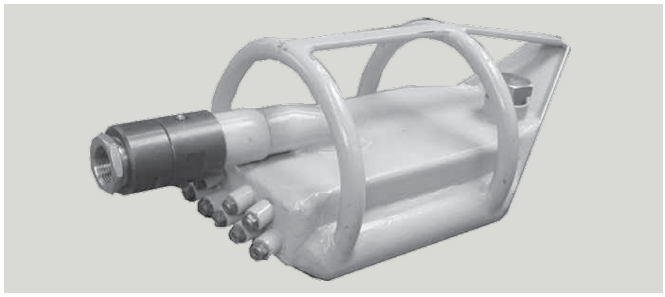
The Isolator Row Plus incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row Plus, clean-out should be performed.

Maintenance

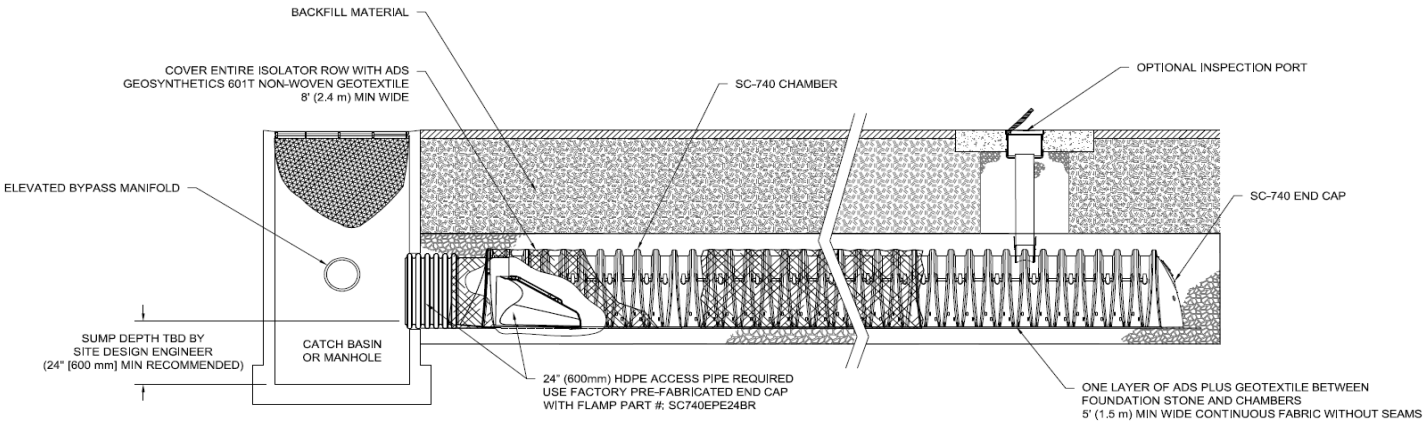
The Isolator Row Plus was designed to reduce the cost of periodic maintenance. By "isolating" sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row Plus while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" are best. StormTech recommends a maximum nozzle pressure of 2000 psi be utilized during cleaning. JetVac reels can vary in length. For ease of maintenance, ADS recommends Isolator Row Plus lengths up to 200' (61 m). **The JetVac process shall only be performed on StormTech Isolator Row Plus that have ADS Plus Fabric (as specified by StormTech) over their angular base stone.**



StormTech Isolator Row PLUS (*not to scale*)

Note: *Non-woven fabric is only required over the inlet pipe connection into the end cap for SC-160LP, DC-780, MC-3500 and MC-7200 chamber models and is not required over the entire Isolator Row PLUS.*



Isolator Row Plus Step By Step Maintenance Procedures

Step 1

Inspect Isolator Row Plus for sediment.

A) Inspection ports (if present)
- i. Remove lid from floor box frame
- ii. Remove cap from inspection riser
- iii. Using a flashlight and stadia rod,measure depth of sediment and record results on maintenance log.
- iv. If sediment is at or above 3 inch depth, proceed to Step 2. If not, proceed to Step 3.

B) All Isolator Row Plus
- i. Remove cover from manhole at upstream end of Isolator Row Plus
- ii. Using a flashlight, inspect down Isolator Row Plus through outlet pipe
  1. Mirrors on poles or cameras may be used to avoid a confined space entry
  2. Follow OSHA regulations for confined space entry if entering manhole
- iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches), proceed to Step 2.
  If not, proceed to Step 3.

Step 2

Clean out Isolator Row Plus using the JetVac process.

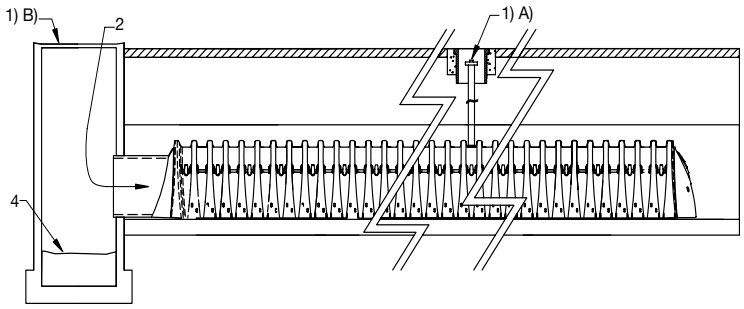
A) A fixed floor cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
B) Apply multiple passes of JetVac until backflush water is clean
C) Vacuum manhole sump as required

Step 3

Replace all caps, lids and covers, record observations and actions.

Step 4

Inspect & clean catch basins and manholes upstream of the StormTech system.



Sample Maintenance Log

Date	Stadia Rod Readings		Sedi-ment Depth (1)–(2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/11	6.3 ft	none		New installation. Fixed point is CI frame at grade	DJM
9/24/11		6.2	0.1 ft	Some grit felt	SM
6/20/13		5.8	0.5 ft	Mucky feel, debris visible in manhole and in Isolator Row PLUS, maintenance due	NV
7/7/13	6.3 ft		0	System jetted and vacuumed	DJM

adspipe.com

800-821-6710

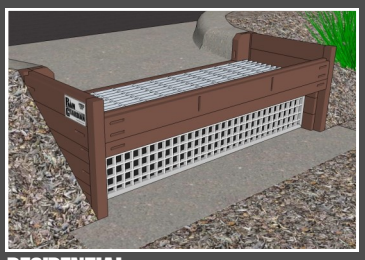
RAIN GUARDIAN

U.S. PATENT NOS. 8,501,016 AND 8,858,804

PRETREATMENT FOR BIORETENTION

Rain Gardens • Swales • Filtration Basins • Infiltration Basins

COMMERCIAL/INDUSTRIAL



RESIDENTIAL

Maintenance Guide

Rain Guardian pretreatment chambers simplify bioretention maintenance by collecting sand, leaves, grass clippings, and other debris in an easy to clean, confined location. Regularly maintaining the Rain Guardian sustains its functionality by maximizing storage and filtration capacities. Maintenance frequency is variable and depends on many factors such as rainfall frequency, drainage area size and land use type, and season of the year. The general cleaning process is identical for the Rain Guardian Turret and Rain Guardian Bunker.

Following rain events, inspect the pretreatment chamber for debris on the top grate, within the chamber, and on the vertical, drop-in filter wall. The maintenance steps described below should be completed if areas of the top grate are clogged, the chamber is >75% full, or the vertical filter wall is clogged. Maintenance should be completed when stormwater has completely drained from the bioretention practice. The filter wall allows the chamber to dry between rain events, which further simplifies maintenance by ensuring removed debris is largely dry. Ensure all debris collected during cleaning of the chamber is completely removed from the site and properly disposed of according to local environmental rules. Once cleaning is complete, reinstall the filter wall with filter fabric facing the inside of the chamber and replace the top grate.

Clear Debris from Top Grate

- Leaf litter and garbage commonly accumulate on the top grate
- Simply remove and dispose of debris by hand or with a shovel prior to removing top grate

Remove Debris from Inside Chamber

- Remove top grate and place on paved inlet to avoid damage to nearby plants
- Remove and dispose of accumulated debris within chamber using a shovel

Clean Filter Wall

- Remove drop-in filter by lifting vertically
- Clean filter wall with a stiff bristled broom or rinse clean with pressurized water

www.RainGuardian.biz

ANOKA CONSERVATION DISTRICT
1318 McKay Dr. NE, Suite 300
Ham Lake, MN 55304
(763) 434-2030 (M-F 8:00-4:30)

TOWN OF EXETER

Planning and Building Department

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

www.exeternh.gov

Date: **June 29, 2023**

To: **Planning Board**

From: **Dave Sharples, Town Planner**

Re: **Ross Engineering LLC** **PB Case #23-8**

The Applicant is seeking approval of a minor site plan and Shoreland Conditional Use Permit (CUP) for a proposed multi-family condominium development on the existing 1.06-acre parcel located at 14 Hobart Street. The Applicant is proposing to create three (3) residential units by utilizing the existing structures on the property and adding some small additions. The subject property is located in the R-2, Single Family Residential zoning district and is identified as Tax Map Parcel #74-89.

The Applicant submitted a multi-family site plan review application, Shoreland CUP application, plans and supporting documents, dated May 30th, 2023 which are enclosed for your review.

A Technical Review Committee (TRC) meeting was held on June 22, 2023 and the TRC comment letter, dated June 26, 2023 is provided for your review. There was no review of this project by Underwood Engineers (UEI).

Revised plans have not been received as of the writing of this memorandum. I'm writing the memo a week earlier than usual due to a pending vacation. I will update the board on my review of the revised plans at the meeting. The revised plans should be in the packet as Barb will be here next week to send out the packet.

There are no waivers being requested for this application.

The Applicant appeared before the Zoning Board of Adjustment at their February 21st, 2023 meeting and was granted special exception approval for the conversion with the condition that site plan approval be obtained from the Planning Board. A copy of the decision letter and minutes for the ZBA meeting are enclosed for your review.

The Applicant appeared before the Conservation Commission at their June 13th, 2023 meeting to present their Shoreland Conditional Use Permit (CUP). The Commission recommended approval with conditions. Please see enclosed CC memo from Chair Andrew Koff, to Exeter Planning Board, dated June 22, 2023.

I will be prepared with suggested conditions of approval at the meeting in the event the board decides to act on the request.

Planning Board Motion:

Conditional Use Permit (Shoreland) Motion: After reviewing the criteria for a Shoreland Conditional Use permit, I move that the request of Ross Engineering LLC (PB Case #23-8) for a Conditional Use Permit be APPROVED / APPROVED WITH THE FOLLOWING CONDITIONS / TABLED / DENIED.

Multi-Family Site Plan Motion: I move that the request of Ross Engineering LLC (PB Case #23-8) for Multi-Family Site Plan approval be APPROVED / APPROVED WITH THE FOLLOWING CONDITIONS / TABLED / DENIED.

Thank You.

Enclosures

TOWN OF EXETER
NOR SUBDIVISION, M NO
SITE PLAN, AND/OR LOT LINE
ADJUSTMENT APPLICATION

OFFICE USE ONLY

_____	**APPLICATION**
_____	**DATE RECEIVED**
_____	**APPLICATION FEE**
_____	**PLAN REVIEW FEE**
_____	**ABUTTER FEE**
_____	**LEGAL NOTICE FEE**
_____	**INSPECTION FEE**
_____	**TOTAL FEES**
_____	**AMOUNT REFUNDED**

THIS IS AN APPLICATION FOR:

(X) **MINOR SITE PLAN**
( ) **MINOR (3lots or less) SUBDIVISION** ( ) **LOTS**

( ) **LOT LINE ADJUSTMENT**

1. **NAME OF LEGAL OWNER OF RECORD:** Janine L. Richards Rev. Trust-2022

   ADDRESS: 14 Hobart St, Exeter, NH 03833

   TELEPHONE: (603) 501-1947

2. **NAME OF APPLICANT:** Ross Engineering LLC

   ADDRESS: 909 Islington St #6, Portsmouth, NH 03801

   TELEPHONE: (603)433-7560

3. **RELATIONSHIP OF APPLICANT TO PROPERTY IF OTHER THAN OWNER:** _____

   Agent

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

4. **DESCRIPTION OF PROPERTY:**

   ADDRESS: 14 Hobart St, Exeter, NH 03833

   TAX MAP: 74 **PARCEL #:** 89 **ZONING DISTRICT:** R-2

   AREA OF ENTIRE TRACT: 1.06 Acres **PORTION BEING DEVELOPED:** 0.04 Acres

5. **EXPLANAT ON OF PROPOSAL:** A three unit condo conversion is proposed by utilizing the existing structures and adding small additions. ZBA approval was granted with the condition that Planning Board site plan approval is obtained.

6. **ARE MUNICIPAL SERVICES AVAILABLE?** (YES/NO) Yes
IF YES, WATER AND SEWER SUPERINTENDENT MUST GRANT WRITTEN APPROVAL FOR CONNECTION. IF NO, SEPTIC SYSTEM MUST COMPLY WITH W.S.P.C.C. REQUIREMENTS.

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

ITEM:	NUMBER OF COPIES
A. 2019 Zoning Map	1
B. Tax Map 74	1
C.	
D.	
E.	
F.	

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

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

NAME: Alex Ross
ADDRESS: 909 Islington St, Suite #6, Portsmouth, NH 03801
PROFESSION: Civil Engineer **TELEPHONE:** (603) 433-7560

10. **LIST ALL IMPROVEMENTS AND UTILITIES TO BE INSTALLED:** 3 Condo Units utilizing existing structures with small additions, pervious asphalt driveway, overhead electric to be provided, 2 new pairs of sewer and water lines to be installed.

11. **HAVE ANY SPECIAL EXCEPTIONS OR VARIANCES BEEN GRANTED BY THE ZONING BOARDOF ADJUSTMENT TO THIS PROPERTY PREVIOUSLY?**

(Please check with the Planning Department Office to verify) (YES/NO) Yes IF YES, LIST BELOW AND NOTE ON PLAN.
Article 4, Section 4.2, Schedule 1

Article 5, Section 5.2

NOTICE:

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

DATE 5/30/23 APPLICANT'S SIGNATURE

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

Ross Engineering, LLC

909 Islington Street
Portsmouth, NH 03801

603-433-7560
alexross@comcast.net

October 6, 2022

Planning Department
Town of Exeter
10 Front Street
Exeter, NH 03833

RE: 14 Hobart St & 16-18 Hobart St
Tax Map 74, Lots 88 & 89
Exeter, NH 03833

Owners: Janine L. Richards
14 Hobart St
Exeter, NH 03833

Innoethos, LLC
16-18 Hobart St
Exeter, NH 03833

Please be advised that Alex Ross of Ross Engineering is authorized to be my agent for the above application process. Should you have any questions, please contact me.

Sincerely,

Janine L. Richards
14 Hobart St
Exeter, NH 03833

David Richards, Manager
Innoethos, LLC
16-18 Hobart St
Exeter, NH 03833

Ross Engineering, LLC
Civil / Structural Engineering
909 Islington Street **603-433-7560**
Portsmouth, NH 03801 **alexross@comcast.net**

Project Narrative

Site Plan Review
14 Hobart St
Tax Map 74, Lot 88
Exeter, NH 03833

This project is for minor site improvements to an existing developed parcel. A three-unit condo conversion is proposed by utilizing the existing structures and adding small additions. As per the attached ZBA Notice of Decision, ZBA approval was granted with the condition that Planning Board site plan approval is obtained.

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: Alex Ross
	Address: 909 Islington St #6, Portsmouth, NH 03801
	Email Address: alexross@comcast.net
	Phone: (603) 433-7560
PROPOSAL	Address: 14 Hobart St, Exeter, NH 03833
	Tax Map #_74_____ Lot#_88_____ Zoning District: R-2
	Owner of Record: Janine L. Richards Revocable Trust
Person/Business performing work outlined in proposal	Name: Alex Ross - Ross Engineering LLC
	Address: 909 Islington St #6, Portsmouth, NH 03801
	Phone: (603) 433-7560
Professional that delineated wetlands	Name: Marc Jacobs
	Address:
	Phone:

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

Due to the fact that this parcel lies within the 250' buffer zone of a shoreland, a shoreland permit is required.

The existing 0.71 acre developed upland portion of the site includes an existing house, driveway, garage, patio, deck, barn and shed. Proposed improvements include:

- Alteration of existing house, garage and barn. The footprint of the garage will be unchanged.
- Construction of new driveway along with two 400 SQ.FT garage.
- Expansion of the existing driveway

Shoreland Protection District Impact (in square footage):	
Water Body Little River	
Temporary Impact	☑ 300 Foot SPD 5,434 sf ☑ 150 foot SPD 3,033 sf ☑ SPD Building Setback 3,033 sf ☑ 75 Vegetative Buffer 484 sf
Permanent Impact	☑ 300 Foot SPD 800 sf ☑ 150 foot SPD 400 sf ☑ SPD Building Setback 400 sf ☐ 75 Vegetative Buffer _____
Impervious Lot Coverage	SF of Lot within District 46,308 sf SF of Impervious within District 3,945 sf % of Impervious within District 8.5%

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

See ZBA Notice of Decision attached - exception per Article 4, Section 4.2, Schedule I: Permitted Uses and Article 5, Section 5.2 to permit the conversion of the existing single-family hoome and accessory structures into up to four condominium units

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

There is a decrease in total impervious area, which will have no negative effect on the water quality. There is no waste discharged on site, and the proposed work is minimally invasive, reducing the impact on the surrounding habitat. The total impervious area is decreased below the limit of 10%.

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.

Ross Engineering, LLC
Civil / Structural Engineering
909 Islington Street **603-433-7560**
Portsmouth, NH 03801 **alexross@comcast.net**

Project Narrative

Conditional Use Permit Application
14 Hobart St
Tax Map 74, Lot 88
Exeter, NH 03833

This project is for minor site improvements to an existing developed parcel. A three-unit condo conversion is proposed by utilizing the existing structures and adding small additions. The design incorporates pervious surfaces so that the end result will be less imperious surface than currently exists, which will benefit the wetland buffer and surrounding wetlands.

REFERENCE PLANS

1) "SUBDIVISION PLAN" BY JONES & BEACH ENGINEERS, INC. DATED JULY 23, 2013. RCRD D-38224

2) "LOT LINE ADJUSTMENT HOBART STREET EXETER N.H." BY T.D. BROUILLETTE LAND SURVEYING DATED MARCH 8, 2013. RCRD D-37719

NOTES

1) OWNER OF RECORD:
JANINE L RICHARDS REVOCABLE TRUST-2022
TAX MAP 74, LOT 88
14 HOBART ST
EXETER, NH 03833
RCRD: 6444-1232
AREA: 34,676 SF, 0.80 ACRES

2) BASIS OF BEARING HELD FROM PLAN REFERENCE #2.

3) PARCEL IS IN RESIDENTIAL SINGLE FAMILY ZONE (R-2) & SHORELAND PROTECTION DISTRICT:
MINIMUM LOT AREA.....15,000 SF
MIN. LOT AREA PER DWELLING UNIT.....15,000 SF
MINIMUM FRONTAGE.....100 FT
MINIMUM DEPTH.....100 FT
SETBACKS:
FRONT.....25 FT
SIDE.....15 FT
REAR.....25 FT
MAXIMUM BUILDING HEIGHT.....35 FT
MAXIMUM BUILDING COVERAGE.....25%
MINIMUM OPEN SPACE.....40%
MAXIMUM LOT COVERAGE.....10%

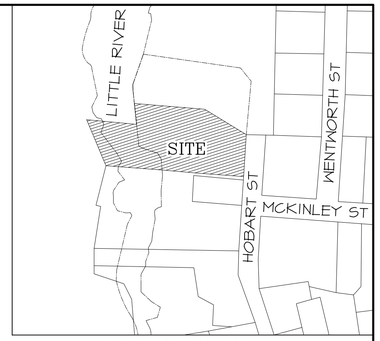
4) THE PARCEL IS PARTIALLY WITHIN FEMA FLOOD ZONE AE AND REGULATORY FLOODWAY "LITTLE RIVER", AS PER FLOOD INSURANCE RATE MAP #33015C0401E, PANEL 401 OF 681, DATED MAY 17, 2005. VERTICAL DATUM IS NGVD 1929.

5) AS PER EXETER ZONING ORDINANCE 9.3.3.A, THIS LOT IS WITHIN THE SHORELAND PROTECTION DISTRICT.

6) NO BUILDING, SEPTIC SYSTEM, OR LEACH FIELD SHALL BE CONSTRUCTED WITHIN 150' OF THE SHORELINE OF THE LITTLE RIVER AS PER EXETER ZONING ORDINANCE 9.3.4.C.

7) NO ALTERATION OF NATURAL VEGETATION OR MANAGED WOODLAND WITHIN 75 FEET OF THE SHORELINE OF THE LITTLE RIVER IS PERMITTED AS PER EXETER ZONING ORDINANCE 9.3.4.E.

8) A RIGHT OF WAY EXISTS OVER LAND OF LOT 90 TO THE PREMISES OF LOT 89 FROM THE HOBART ST EXTENSION, OF SUCH A WIDTH THAT SHALL PERMIT CONVENIENT ACCESS TO LOT 89 BY MOTOR VEHICLE OR OTHERWISE. SEE RCRD 1825-0020.



LOCUS PLAN
N.T.S.

LEGEND

- 100 — EXISTING CONTOUR
- MONUMENT SET
- MONUMENT FOUND
- UTILITY POLE
- CHICKEN WIRE FENCE
- WOODEN FENCE
- D — DRAIN LINE
- W — WATER LINE
- E — ELECTRIC LINE
- S — SEWER LINE
- DRAIN MANHOLE
- SEWER MANHOLE
- CATCH BASIN
- WETLANDS
- LAWN
- STONE WALL
- ORDINARY HIGH WATER MARK
- ORDINARY HIGH WATER SETBACK

SEE NOTE 2

REBAR SET 18" ABOVE GRADE

ORDINARY HIGH WATER MARK (OHW)

N 85°18'09" W 30.00'

RBR SET 18" ABOVE GRADE

50.0' OHW SETBACK

100.0' OHW SETBACK

150.0' OHW SETBACK

ZONE AE

16-18 HOBART ST
INNOETHOS, LLC
TAX MAP 74, LOT 89
RCRD 6435-2673

171.60'

141.60'

15' SETBACK

DH SET IN LEDGE 3" BELOW GRADE

250.0' OHW SETBACK

HOUSE

N 58°33'39" W 117.89'

5' SETBACK

SHED

N 84°31'25" W 123.92'

25' SETBACK

EDGE OF WETLANDS

TREELINE

14 HOBART ST
JANINE L. RICHARDS
REVOCABLE TRUST-2022
TAX MAP 74, LOT 88
RCRD 6444-1232
46,308 SQFT, 1.06 ACRES

LITTLE RIVER

BARN
1ST FLOOR
EL. 45.02'

LAWN

150.0' BUILDING SETBACK

GRAVEL

DECK

PATIO

HOUSE
1ST FLOOR
EL. 44.78'

25' SETBACK

FIRE PIT

15.0' VEGETATIVE BUFFER

SAND

GRAVEL

GARAGE SLAB EL. 41.65'

S 25°23'16" E 108.23'

15' SETBACK

N/F JUDITH L. FRAUMENI REV. TRUST
TAX MAP 74, LOT 81
RCRD 2604-2661

S 83°01'40" E 338.00'

IP FND

15" CULVERT

10 HOBART ST
N/F KENICK FAMILY HOMESTEAD TRUST
TAX MAP 74, LOT 86
RCRD 5938-2488

12 HOBART ST
N/F SAMUEL D. MAGNANT
TAX MAP 74, LOT 87
RCRD 6396-2103

HOUSE

IP FND

N 03°32'13" E 101.48'

HOBART ST

20 MCKINLEY ST
N/F JOSEPH T. & STEPHANIE L. BRACKETT
TAX MAP 74, LOT 91
RCRD 5285-0384

10" CULVERT

HOUSE

12" CULVERT

4"x4" GRANITE BOUND WITH DH SET FLUSH

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
SCALE: 1" = 30'

TOWN OF EXETER PLANNING BOARD

CHAIRPERSON

ISS.	DATE	DESCRIPTION OF ISSUE
5	6/2/2023	CC SUBMITTAL
4	5/30/2023	PB SUBMITTAL
3	2/6/2023	ZBA SUBMITTAL
2	1/3/2023	FOR REVIEW
1	10/7/2022	FOR REVIEW

SCALE 1" = 20'
CHECKED A.ROSS
DRAWN D.D.D.

ROSS ENGINEERING
Civil/Structural Engineering & Surveying
909 Islington St.
Portsmouth, NH 03801
(603) 433-7560

CLIENT
DAVID A. RICHARDS
14 HOBART ST
EXETER, NH 03833

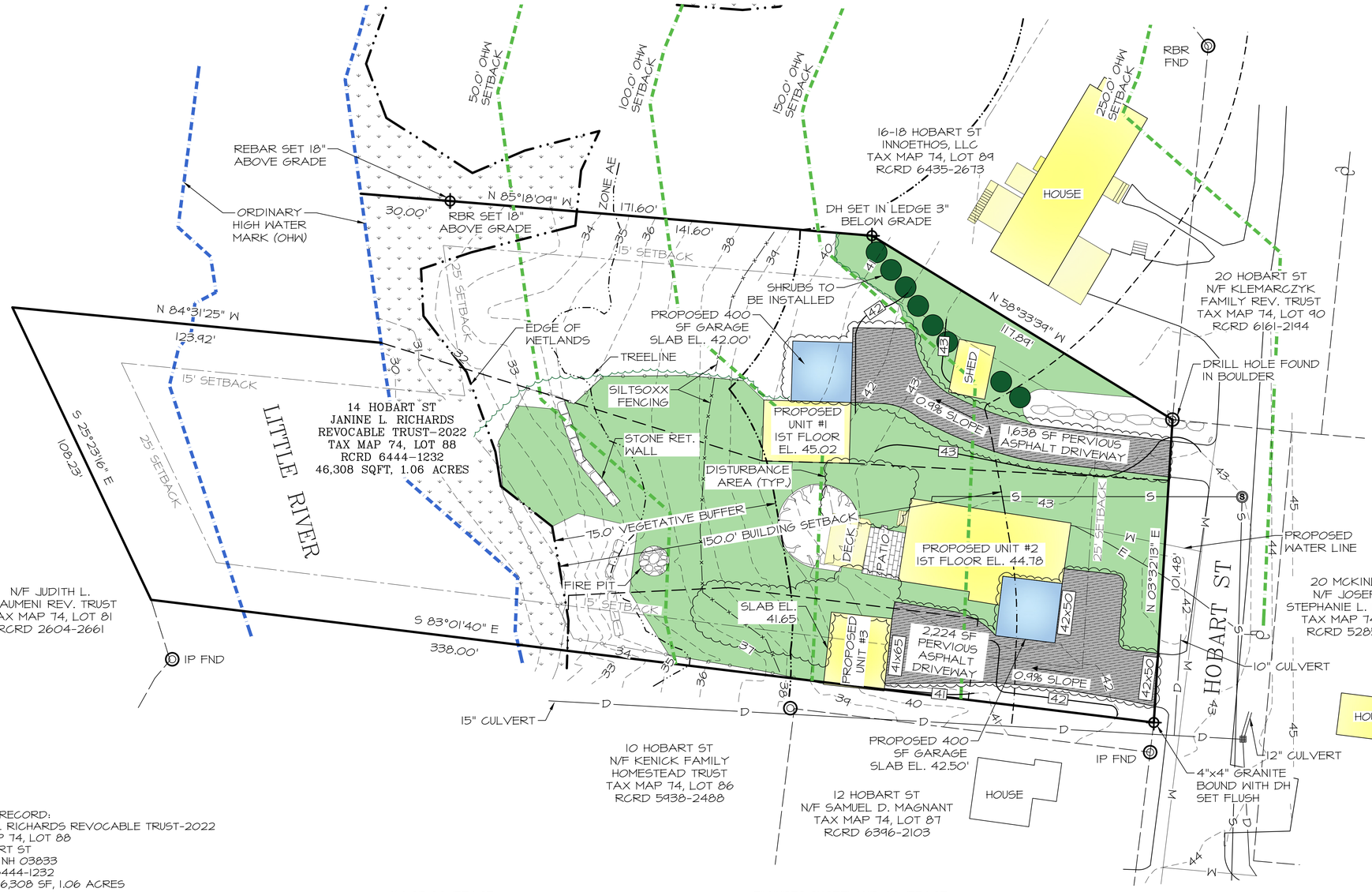
TITLE

EXISTING CONDITIONS PLAN

14 Hobart St
EXETER, NH 03833
TAX MAP 74, LOT 88

JOB NUMBER 22-049 | DWG. NO. 1 OF 5 | ISSUE 5

R. ALEX ROSS No. 9409 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE



LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- SPOT ELEVATION
- MONUMENT SET
- MONUMENT FOUND
- UTILITY POLE
- CHICKEN WIRE FENCE
- WOODEN FENCE
- DRAIN LINE
- WATER LINE
- DRAIN MANHOLE
- SEWER MANHOLE
- CATCH BASIN
- WETLANDS
- STONE WALL
- ORDINARY HIGH WATER MARK
- ORDINARY HIGH WATER SETBACK
- LIMITED COMMON AREA
- PERVIOUS ASPHALT

NOTES

1) OWNER OF RECORD:
JANINE L RICHARDS REVOCABLE TRUST-2022
TAX MAP 74, LOT 88
14 HOBART ST
EXETER, NH 03833
RCRD: 6444-1232
AREA: 46,308 SF, 1.06 ACRES

2) PARCEL IS IN RESIDENTIAL SINGLE FAMILY ZONE (R-2) & SHORELAND PROTECTION DISTRICT:

MINIMUM LOT AREA	15,000 SF
MIN. LOT AREA PER DWELLING UNIT	15,000 SF
MINIMUM FRONTAGE	100 FT
MINIMUM DEPTH	100 FT
SETBACKS:	
FRONT	25 FT
SIDE	15 FT
REAR	25 FT
MAXIMUM BUILDING HEIGHT	35 FT
MAXIMUM BUILDING COVERAGE	25%
MINIMUM OPEN SPACE	40%
MAXIMUM LOT COVERAGE	10%

3) THE EXETER ZONING BOARD OF ADJUSTMENT AT ITS 2/21/2023 MEETING APPROVED A SPECIAL EXEMPTION TO ARTICLE 4, SECTION 4.2, SCHEDULE I & ARTICLE 5, SECTION 5.2 OF THE EXETER ZONING ORDINANCE TO PERMIT THE CONVERSION OF THE EXISTING SINGLE-FAMILY HOME AND ACCESSORY STRUCTURES INTO UP TO FOUR RESIDENTIAL UNITS.

4) LOT COVERAGE

EXISTING LOT COVERAGE

HOUSE	1,596 SF
BARN	593 SF
GARAGE	496 SF
SHED	223 SF
DECK & STAIRS	251 SF
PATIO	196 SF
GRASSED LAWN	12,376 SF
SAND & GRAVEL	1,572 SF
ASPHALT	1,735 SF
LOT COVERAGE	19,038 SF = 41.1%

PROPOSED LOT COVERAGE

CONDO BUILDINGS	2,491 SF
GARAGE	800 SF
SHED	223 SF
DECK & STAIRS	238 SF
PATIO	196 SF
GRASSED LAWN	12,572 SF
LOT COVERAGE	16,520 SF = 35.7%

5) NHDES SHORELAND COVERAGE

THE ENTIRE LOT IS WITHIN THE 250' SHORELAND BUFFER

EXISTING LOT COVERAGE

HOUSE	1,596 SF
BARN	593 SF
GARAGE	496 SF
SHED	223 SF
DECK & STAIRS	251 SF
PATIO	196 SF
SAND & GRAVEL	1,572 SF
ASPHALT	1,735 SF
LOT COVERAGE	6,662 SF = 14.4%

PROPOSED LOT COVERAGE

CONDO BUILDING	2,491 SF
GARAGE	800 SF
SHED	223 SF
DECK & STAIRS	238 SF
PATIO	196 SF
LOT COVERAGE	3,948 SF = 8.5%

TOWN OF EXETER PLANNING BOARD

CHAIRPERSON

R. ALEX ROSS No. 9409 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE

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SCALE 1" = 20'
CHECKED A.ROSS
DRAWN D.D.D.

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(603) 433-7560

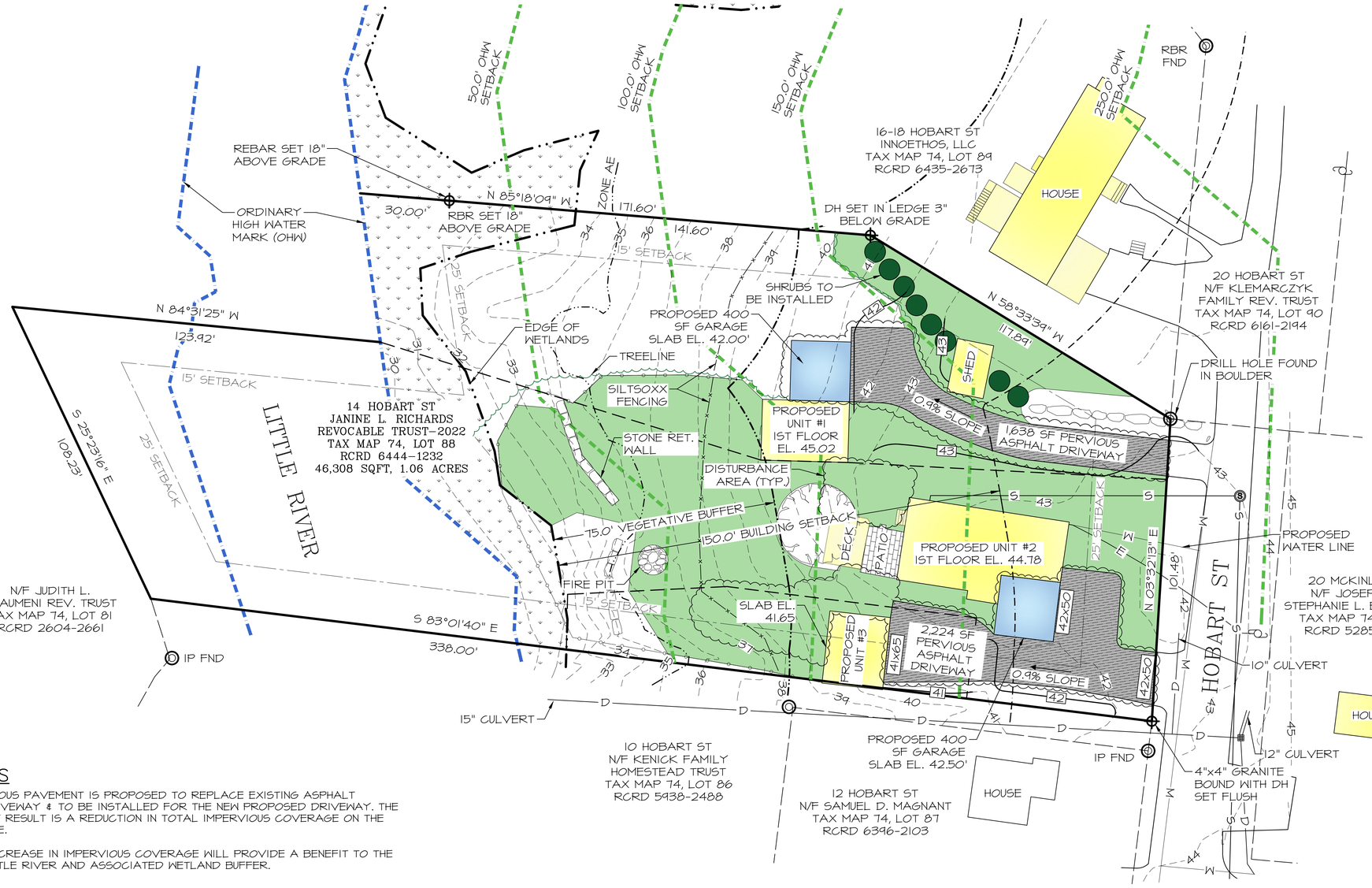
CLIENT
DAVID A. RICHARDS
14 HOBART ST
EXETER, NH 03833

TITLE

SITE PLAN

14 Hobart St
EXETER, NH 03833
TAX MAP 74, LOT 88

JOB NUMBER	DWG. NO.	ISSUE
22-049	2 OF 5	5



LEGEND

- EXISTING CONTOUR
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- WETLANDS
- STONE WALL
- ORDINARY HIGH WATER MARK
- ORDINARY HIGH WATER SETBACK
- LIMITED COMMON AREA
- PERVIOUS ASPHALT

NOTES

1) PERVIOUS PAVEMENT IS PROPOSED TO REPLACE EXISTING ASPHALT DRIVEWAY & TO BE INSTALLED FOR THE NEW PROPOSED DRIVEWAY. THE NET RESULT IS A REDUCTION IN TOTAL IMPERVIOUS COVERAGE ON THE SITE.

2) A DECREASE IN IMPERVIOUS COVERAGE WILL PROVIDE A BENEFIT TO THE LITTLE RIVER AND ASSOCIATED WETLAND BUFFER.

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CLIENT
DAVID A. RICHARDS
14 HOBART ST
EXETER, NH 03833

TITLE

STORMWATER MANAGEMENT PLAN

14 Hobart St
EXETER, NH 03833
TAX MAP 74, LOT 88

JOB NUMBER 22-049 | DWG. NO. 3 OF 5 | ISSUE 5

R. ALEX ROSS No. 9409 - STATE OF NEW HAMPSHIRE - LICENSED PROFESSIONAL ENGINEER

CONSTRUCTION SPECIFICATIONS FOR POROUS ASPHALT

REFERENCE DOCUMENT: UNHSC DESIGN SPECIFICATIONS FOR POROUS ASPHALT PAVEMENT AND INFILTRATION BEDS, UNH STORMWATER CENTER, FEBRUARY, 2014.

INSTALLATION RECOMMENDATIONS

THE FOLLOWING RECOMMENDATIONS WILL HELP ASSURE THAT THE POROUS ASPHALT PAVEMENT IS PROPERLY INSTALLED.

1. THE FULL PAVEMENT SPECIFICATION MUST BE FOLLOWED CONSCIENTIOUSLY DURING CONSTRUCTION. IT IS BASED ON UNHSC DESIGN SPECIFICATIONS FOR POROUS ASPHALT PAVEMENT AND INFILTRATION BEDS. THE UNH SPECIFICATION INCLUDE NUMEROUS VITAL PROVISIONS FOR AGGREGATE AND BITUMINOUS MATERIALS, THEIR PLACEMENT, AND QUALITY CONTROL. AMONG ITS NOTABLE PROVISIONS ARE THE FOLLOWING EXAMPLES:
   - OPEN-GRADED AGGREGATE TO MAKE ALL PAVEMENT LAYERS POROUS AND PERMEABLE;
   - STIFF ASPHALT BINDER TO ADHERE TO THE AGGREGATE PARTICLES AND RESIST "DRAINDOWN" THROUGH THE PAVEMENT'S PORES, ENHANCING THE MATERIAL'S PERFORMANCE AND DURABILITY;
   - A SPECIFIC LIMIT ON ALLOWABLE DRAINDOWN, AND ADDITION OF A STYRENE-BUTADIENE-STYRENE (SBS) POLYMER ADDITIVE TO HELP MEET THAT REQUIREMENT;
   - THE POROUS PAVEMENT IS TO BE INSTALLED ONLY AFTER MAJOR CONSTRUCTION IS COMPLETED, SO THAT CONSTRUCTION TRAFFIC WILL NOT TRACK POTENTIALLY CLOGGING SEDIMENT ONTO THE PAVEMENT SURFACE. FOR CONSTRUCTION ACCESS, A TEMPORARY SURFACE WILL BE INSTALLED, SIMILAR IN CONSTRUCTION TO A STANDARD STABILIZED CONSTRUCTION ENTRANCE. THIS TYPE OF SURFACE CAN BEAR CONSTRUCTION TRAFFIC WITHOUT ERODING.
   - PROMINENT AND REPEATED STATEMENTS OF THE SPECIAL NATURE AND PURPOSE OF POROUS PAVEMENT, AND THE NECESSITY OF COMPLYING STRICTLY WITH THESE DISTINCTIVE SPECIFICATIONS.
   - PROTECTION OF THE FINISHED POROUS ASPHALT SURFACE FROM TRACKING OF CONSTRUCTION SEDIMENT.

2. THOROUGH COMMUNICATION WITH THE POROUS ASPHALT SUPPLIER AND PAVEMENT INSTALLER IS ESSENTIAL. THEY MUST UNDERSTAND THE POROUS PAVEMENT'S SPECIAL OBJECTIVES, THE SPECIAL MATERIALS AND PROCEDURES NECESSARY TO MAKE IT EFFECTIVE, AND WHY COMPLIANCE WITH SPECIFICATIONS IS ESSENTIAL. TO THIS END, THE SPECIFICATIONS STATE PROMINENTLY AND REPEATEDLY THE SPECIAL NATURE AND PURPOSE OF THE POROUS MATERIALS. IN ADDITION, THE PROJECT ENGINEER SHOULD MEET WITH THE CONTRACTORS IN PERSON TO REVIEW THE SPECIFICATIONS AND MAKE SURE THE CONTRACTORS UNDERSTAND THE OBJECTIVES. HE SHOULD OBSERVE THE CONTRACTORS ON-SITE FREQUENTLY, TO MAKE SURE THE OBJECTIVES ARE CARRIED OUT. HE SHOULD MAINTAIN A WRITTEN RECORD DOCUMENTING REVIEW AND APPROVAL AT CRITICAL PROJECT STAGES SUCH AS EXCAVATION OF THE SUB GRADE AND QUALITY CHECKS OF BASE AND SURFACE MATERIALS. HE SHOULD INSPECT THE SITE TO MAKE SURE CONSTRUCTION VEHICLES ARE NOT ALLOWED TO TRAVERSE EXCAVATED SUB GRADE OR THE PAVEMENT STRUCTURE AT ANY INAPPROPRIATE STAGE. HE SHOULD FORBID CONSTRUCTION TRAFFIC FROM TRACKING SOIL ONTO THE FINISHED PAVEMENT SURFACE.

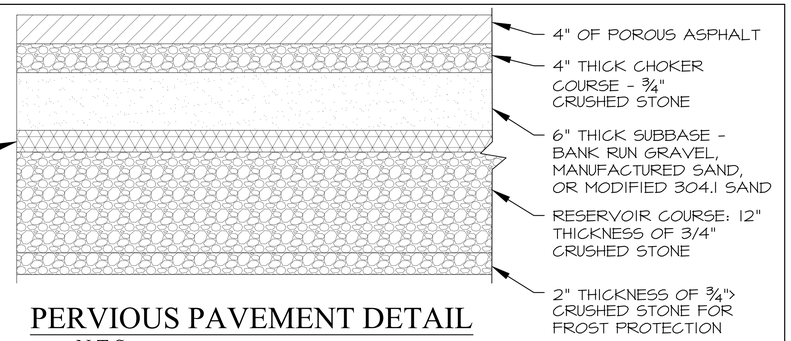
INSTALLATION

A. PERCOLATION BEDS
   1. 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 EROSIONS, PONDING, OR TRAFFIC COMPACTION BEFORE THE PLACING OF STONE. ALL BED BOTTOMS ARE LEVEL GRADE.
   3. RECHARGE BED INSTALLATION
      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 (CRUSHED STONE) IN 8-INCH MAXIMUM LIFTS, TO A MAXIMUM OF 95% STANDARD PROCTOR COMPACTION, KEEPING EQUIPMENT MOVEMENT OVER STORAGE BED SUBGRADES TO A MINIMUM. INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
      d. INSTALL FILTER COARSE (BANK RUN GRAVEL) IN 8-INCH MAXIMUM LIFTS, TO A MAXIMUM OF 95% STANDARD PROCTOR COMPACTION, KEEPING EQUIPMENT MOVEMENT OVER STORAGE BED SUBGRADES TO A MINIMUM. INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
      e. INSTALL CHOKER BASE COURSE (SEE MATERIALS SECTION) 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 LESS 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 ON THE PAVEMENT SURFACE.
      b. TO ACCOMPLISH THIS, A SEQUENCE OF TEMPORARY 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 PLANTINGS 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.

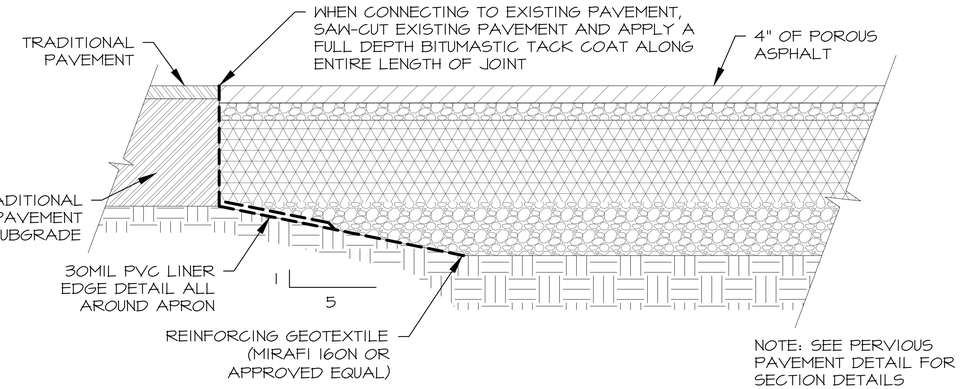
INSTALLATION (CONT...)

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 OR TWO LIFTS DIRECTLY OVER THE CHOKER COARSE, FILTER COARSE, AND CRUSHED STONE BASE COURSE TO DEPTH INDICATED. IF LAID IN TWO LIFTS THE PAVEMENT SHALL BE CLEANED AND INSPECTED BY THE ENGINEER BEFORE PLACEMENT OF THE SECOND LIFT.
      b. THE LAYING TEMPERATURE OF THE BITUMINOUS MIX SHALL BE BETWEEN 275 DEGREES FAHRENHEIT AND 325 DEGREES FAHRENHEIT (BASED ON 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 AN 8-12-TON ROLLER. BREAKDOWN ROLLING SHALL OCCUR WHEN THE MIX TEMPERATURE IS BETWEEN 275 DEGREES FAHRENHEIT AND 325 DEGREES FAHRENHEIT. INTERMEDIATE ROLLING SHALL OCCUR WHEN THE MIX TEMPERATURE IS BETWEEN 150 DEGREES FAHRENHEIT AND 200 DEGREES FAHRENHEIT. THE CESSATION TEMPERATURE OCCURS AT APPROXIMATELY 175 DEGREES FAHRENHEIT, AT WHICH POINT THE MIX BECOMES RESISTANT TO COMPACTION. IF COMPACTION HAS NOT BEEN DONE AT TEMPERATURE GREATER THAN THE CESSATION TEMPERATURE, THE PAVEMENT WILL NOT ACHIEVE ADEQUATE DURABILITY.
   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 PARKING STRIPING AND 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.
   7. 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.
   8. 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.
   9. 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 BE REPAIRED TO THE SATISFACTION OF THE OWNER WITHOUT ADDITIONAL COST TO THE OWNER.
   10. FULL 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 3/16 OF AN INCH.



PERVIOUS PAVEMENT DETAIL

N.T.S.



PERVIOUS PAVEMENT TRANSITION DETAIL

N.T.S.

MAINTENANCE SPECIFICATIONS FOR POROUS ASPHALT

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 (NaCl, MgCl2, OR EQUIVALENT). REDUCED SALT APPLICATION OF 50% OVER TRADITIONAL PAVEMENT APPLICATION RATES, 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 SLIGHTLY RAISED (ALTHOUGH NOT NECESSARY, THIS WILL PREVENT PAVEMENT SCARING). ICE AND LIGHT SNOW ACCUMULATION ARE GENERALLY NOT AS PROBLEMATIC AS FOR STANDARD ASPHALT. SNOW WILL ACCUMULATE DURING HEAVIER STORMS AND SHOULD BE PLOWED AFTER 2 TO 4 INCHES OF SNOW ACCUMULATION.

ROUTINE MAINTENANCE:

1. ASPHALT SEAL COATING MUST BE ABSOLUTELY FORBIDDEN. SURFACE SEAL COATING IS NOT REVERSIBLE.
2. THE PAVEMENT SURFACE SHOULD BE VACUUMED 2 TO 4 TIMES PER YEAR, ESPECIALLY AFTER WINTER AND FALL SEASONS, 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: FOR THE POROUS ASPHALT PARKING LOT, 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. IS 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. REPAIRS TO THE POROUS ASPHALT SIDEWALK SHALL BE MADE WITH A PERVIOUS MIX.
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.

STORMWATER INSPECTION & MAINTENANCE LOG

ACTIVITY	DATE OF INSPECTION	WHO INSPECTED	SATISFACTORY: YES, NO, N/A	MAINTENANCE NEEDED	IMPLEMENTED DATE OF CORRECTIVE ACTION	FINDINGS OF INSPECTOR
PERVIOUS ASPHALT						

KEEP MAINTENANCE LOG ON SITE. FILL OUT AS PER THE DIRECTIONS IN THE MAINTENANCE NOTES.

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DETAILS

14 Hobart St
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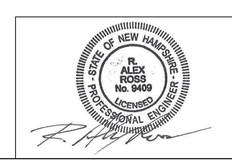
TAX MAP 74, LOT 88

JOB NUMBER: 22-049
DWG. NO.: 4 OF 5
ISSUE: 5



EROSION AND SEDIMENTATION CONTROL CONSTRICTION PHASING AND SEQUENCING

1. SEE "EROSION AND SEDIMENTATION CONTROL GENERAL NOTES" WHICH ARE TO BE AN INTEGRAL PART OF THIS PROCESS.
2. INSTALL SILTSOXX FENCING AS PER DETAILS AND AT SEDIMENT MIGRATION.
3. CONSTRUCT TREATMENT SWALES , LEVEL SPREADERS AND DETENTION STRUCTURES AS DEPICTED ON DRAWINGS.
4. STRIP AND STOCKPILE TOPSOIL. STABILIZE PILES OF SOIL CONSTRUCTION MATERIAL & COVER WHERE PRACTICABLE.
5. MINIMIZE DUST THROUGH APPROPRIATE APPLICATION OF WATER OR OTHER DUST SUPPRESSION TECHNIQUES ON SITE.
6. ROUGH GRADE SITE. INSTALL CULVERTS AND ROAD DITCHES.
7. FINISH GRADE AND COMPACT SITE.
8. RE-SPREAD AND ADD TOPSOIL TO ALL ROADSIDE SLOPES. TOTAL TOPSOIL THICKNESS TO BE A MINIMUM OF FOUR TO SIX INCHES.
9. STABILIZE ALL AREAS OF BARE SOIL WITH MULCH AND SEEDING.
10. RE-SEED PER EROSION AND SEDIMENTATION CONTROL GENERAL NOTES.
11. SILT SOXX FENCING TO REMAIN AND BE MAINTAINED FOR TWENTY FOUR MONTHS AFTER CONSTRUCTION TO ENSURE ESTABLISHMENT OF ADEQUATE SOIL STABILIZATION AND VEGETATIVE COVER. ALL SILT SOXX FENCING ARE THEN TO BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.
12. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH MOVING OPERATIONS.
13. ALL TEMPORARY WATER DIVERSION (SWALES, BASINS, ETC. MUST BE USED AS NECESSARY UNTIL AREAS ARE STABILIZED.
14. PONDS AND SWALES SHALL BE INSTALLED EARLY ON IN THE CONSTRUCTION SEQUENCE - BEFORE ROUGH GRADING THE SITE.
15. ALL DITCHES AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM
16. ALL ROADWAYS AND PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
17. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.
18. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.
19. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL EXCEED 5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
20. LOT DISTURBANCE, OTHER THAN THAT SHOWN ON THE APPROVED PLANS, SHALL NOT COMMENCE UNTIL AFTER THE ROADWAY HAS THE BASE COURSE TO DESIGN ELEVATION AND THE ASSOCIATED DRAINAGE IS COMPLETE AND STABLE.

PLANTING NOTES:

1. ALL PLANT MATERIALS SHALL BE FIRST QUALITY NURSERY GROWN STOCK.
2. ALL PLANTS SHALL BE PLANTED IN ACCORDANCE WITH NEW HAMPSHIRE LANDSCAPE ASSOCIATION STANDARDS AND GUARANTEED FOR ONE YEAR BY THE LANDSCAPE CONTRACTOR.
3. ALL TREES AND SHRUBS SHALL HAVE WATER SAUCERS BUILT AROUND THEIR BASES AND THESE SHALL BE MULCHED WITH 4" OF DARK BROWN AGED BARK MULCH. MULCH MUST BE KEPT 2" AWAY FROM THEIR TRUNKS.
4. ALL TREES AND SHRUBS SHALL BE PLANTED AND MULCHED BEFORE LAWN IS SEEDED.

MAINTENANCE REQUIREMENTS:

1. ALL TREES, SHRUBS, AND PERENNIALS WILL NEED TO BE WATERED THROUGH THANKSGIVING DURING THE FIRST SEASON IN WHICH THEY ARE INSTALLED.
2. AN UNDERGROUND DRIP IRRIGATION SYSTEM IS RECOMMENDED. IF AN UNDERGROUND DRIP IRRIGATION SYSTEM IS NOT INSTALLED, SOAKER HOSES WOUND THROUGHOUT PLANTING BEDS ARE ACCEPTABLE. ALTHOUGH OVERHEAD SPRINKLERS ARE RECOMMENDED FOR LAWN AREAS, THEY ARE NOT ACCEPTABLE FOR IRRIGATING TREES AND SHRUBS.

SEEDING AND STABILIZATION FOR LOAMED SITE:

FOR TEMPORARY & LONG TERM SEEDINGS USE AGWAY'S SOIL CONSERVATION GRASS SEED OR EQUAL
COMPONENTS: ANNUAL RYE GRASS, PERENNIAL RYE GRASS, WHITE CLOVER, 2 FESCUES, SEED AT A RATE OF 100 POUNDS PER ACRE,
FERTILIZER & LIME:
NITROGEN (N) 50 LBS/ACRE, PHOSPHATE (P205) 100 LBS/ACRE, POTASH (K20) 100 LBS/ACRE, LIME 2000 LBS/ACRE
MULCH:
HAY OR STRAW 1.5-2 TONS/ACRE

A) GRADING AND SHAPING
1) 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.

B) SEED BED PREPARATION
1) SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
2) 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 A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.

EROSION AND SEDIMENTATION CONTROL GENERAL NOTES

1. CONDUCT ALL CONSTRUCTION IN A MANNER AND SEQUENCE THAT CAUSES THE LEAST PRACTICAL DISTURBANCE OF THE PHYSICAL ENVIRONMENT, BUT IN NO CASE SHALL EXCEED 2 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
2. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
3. ALL DITCHES, SWALES AND PONDS MUST BE STABILIZED PRIOR TO DIRECTING FLOW TO THEM.
4. ALL GROUND AREAS OPENED UP FOR CONSTRUCTION WILL BE STABILIZED WITHIN 24 HOURS OF EARTH-DISTURBING ACTIVITIES BEING CEASED, AND WILL BE FULLY STABILIZED NO LONGER THAN 14 DAYS AFTER INITIATION, (SEE NOTE 11 FOR DEFINITION OF STABLE). ALL SOILS FINISH GRADED MUST BE STABILIZED WITHIN SEVENTY TWO HOURS OF DISTURBANCE. ALL TEMPORARY OR LONG TERM SEEDING MUST BE APPLIED TO COMPLY WITH "WINTER CONSTRUCTION NOTES" (SEE WINTER CONSTRUCTION NOTES). EMPLOY TEMPORARY EROSION AND SEDIMENTATION CONTROL DEVICES AS DETAILED ON THIS PLAN AS NECESSARY UNTIL ADEQUATE STABILIZATION HAS BEEN ASSURED (SEE NOTE 11 FOR DEFINITION OF STABLE).
5. TEMPORARY & LONG TERM SEEDING: USE SEED MIXTURES, FERTILIZER, LIME AND MULCHING AS RECOMMENDED (SEE SEEDING AND STABILIZATION NOTES).
6. SILTSOXX FENCING TO BE SECURELY EMBEDDED AND STAKED AS DETAILED. WHEREVER POSSIBLE A VEGETATED STRIP OF AT LEAST TWENTY FIVE FEET IS TO BE KEPT BETWEEN SILTSOXX AND ANY EDGE OF WET AREA.
7. SEEDED AREAS WILL BE FERTILIZED AND RE-SEEDED AS NECESSARY TO ENSURE VEGETATIVE ESTABLISHMENT.
8. SEDIMENT BASIN(S), IF REQUIRED, TO BE CHECKED AFTER EACH SIGNIFICANT RAINFALL AND CLEANED AS NEEDED TO RETAIN DESIGN CAPACITY.
9. SILTSOXX FENCING WILL BE CHECKED REGULARLY AND AFTER EACH SIGNIFICANT RAINFALL. NECESSARY REPAIRS WILL BE MADE TO CORRECT UNDERMINING OR DETERIORATION OF THE BARRIER AS WELL AS CLEANING, REMOVAL AND PROPER DISPOSAL OF TRAPPED SEDIMENT.
10. TREATMENT SWALES WILL BE CHECKED WEEKLY AND REPAIRED WHEN NECESSARY UNTIL ADEQUATE VEGETATIVE COVER HAS BEEN ESTABLISHED.
11. AN AREA SHALL BE CONSIDERED FULLY STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    - BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED
    - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
    - A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED.
    - EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
12. ALL EROSION AND SEDIMENTATION CONTROL MEASURES IN THE PLAN SHALL MEET THE DESIGN BASED ON STANDARDS AND SPECIFICATIONS SET FORTH IN THE STORM WATER MANAGEMENT AND EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE (DECEMBER 2008 OR LATEST) PREPARED BY ROCKINGHAM COUNTY CONSERVATION DISTRICT, N.H. DES AND NRCS.

WINTER CONSTRUCTION NOTES

1. ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPETED IN ADVANCE OF THAW OR SPRING MELT EVENT.;
2. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;
3. AFTER OCTOBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.

LONG TERM SEEDING

*WELL TO MODERATELY WELL DRAINED SOILS

FOR CUT AND FILL AREA AND FOR WATERWAYS AND CHANNELS

SEEDING MIXTURE C

	lb/ACRE	lb/1000SF
TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
RED CLOVER (ALSIKE)	20	0.45
TOTAL	48	1.35

LIME: AT 2 TONS PER ACRE OR 100 LBS PER 1,000 S.F.
FERTILIZER: 10 20 20 (NITROGEN, PHOSPHATE, POTASH AT 500# PER ACRE.
MULCH: HAY OR CLEAN STRAW; 2 TONS/ACRE OR 2 BALES/1000 S.F.

GRADING AND SHAPING:
SLOPES SHALL NOT BE STEEPER THAN 2 TO 1. 3 TO 1 OR FLATTER SLOPES ARE PREFERRED.
SEEDBED PREPARATION:
SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
STONES LARGER THAN FOUR INCHES AND TRASH SHOULD BE REMOVED.
SOD SHOULD BE TILLED TO A DEPTH OF FOUR INCHES TO PREPARE SEEDBED. FERTILIZER & LIME SHOULD BE MIXED INTO THE SOIL.
THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.

* FROM: STORMWATER MANAGEMENT AND EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE, DECEMBER 2008.

SHORT TERM SEEDING

*WELL TO MODERATELY WELL DRAINED SOILS

FOR CUT AND FILL AREA AND FOR WATERWAYS AND CHANNELS

SEEDING MIXTURE C

	#/ACRE	#/1000SF
FOR APRIL 1 - AUGUST 15		
ANNUAL RYE GRASS	40	1
FOR FALL SEEDING		
WINTER RYE	112	2.5

LIME: AT 1 TON PER ACRE OR 100 LBS PER 1,000 S.F.
FERTILIZER: 10 10 10 (NITROGEN, PHOSPHATE, POTASH AT 500# PER ACRE.
MULCH: HAY OR CLEAN STRAW; 2 TONS/ACRE OR 2 BALES/1000 S.F.

GRADING AND SHAPING:
SLOPES SHALL NOT BE STEEPER THAN 2 TO 1. 3 TO 1 OR FLATTER SLOPES ARE PREFERRED.
SEEDBED PREPARATION:
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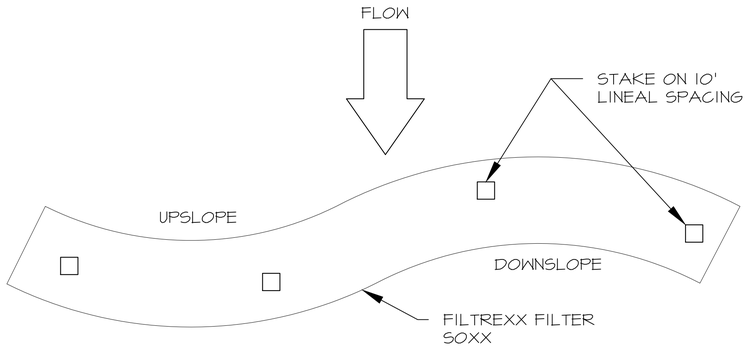
STONES LARGER THAN FOUR INCHES AND TRASH SHOULD BE REMOVED.
SOD SHOULD BE TILLED TO A DEPTH OF FOUR INCHES TO PREPARE SEEDBED. FERTILIZER & LIME SHOULD BE MIXED INTO THE SOIL.
THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.

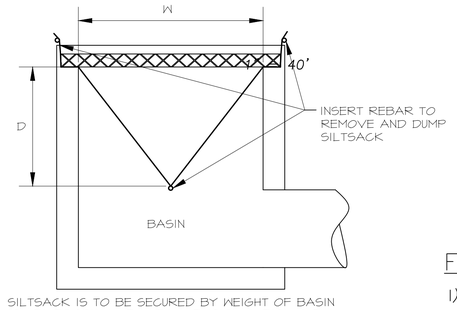
* FROM: STORMWATER MANAGEMENT AND EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE, DECEMBER 2008.

WHEN PROPOSED FOR ALTERATION DURING CONSTRUCTION AS BEING INFESTED WITH INVASIVE SPECIES SHALL BE MANAGED APPROPRIATELY USING THE DISPOSAL PRACTICES IDENTIFIED IN "NHDOT - BEST MANAGEMENT PRACTICES FOR ROADSIDE INVASIVE PLANTS -2008" AND "METHODS FOR DISPOSING NON-NATIVE INVASIVE PLANTS - UNH COOPERATIVE EXTENSION - 2010"

SEED MIXES SHALL NOT CONTAIN ANY SPECIES IDENTIFIED BY THE NEW HAMPSHIRE PROHIBITED INVASIVE PLANT SPECIES LIST.



Filtrexx SiltSoxx Plan View
N.T.S.



SILTSACK IS TO BE SECURED BY WEIGHT OF BASIN GRATE TO PREVENT SEDIMENT FROM ENTERING THE DRAIN LINE

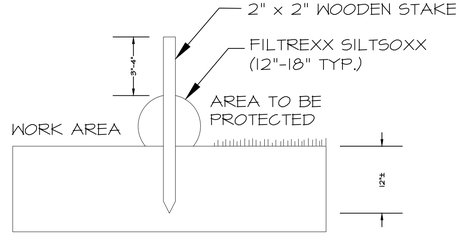
INSTALL SILTSACK TO CATCH BASINS 1, 2, & 3 PRIOR TO CONSTRUCTION & TO CATCH BASINS A, B, C & D DURING CONSTRUCTION. DO NOT REMOVE SILTSACK UNTIL CONSTRUCTION IS COMPLETE.

Siltsack
N.T.S.

FILTREXX SILTSOXX NOTES

1) ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS

2) SILTSOXX COMPOST, SOIL, ROCK, SEED FILL TO MEET APPLICATION REQUIREMENTS



Filtrexx SiltSoxx Section
N.T.S.

R. ALEX ROSS No. 9409 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE

ISS.	DATE	DESCRIPTION OF ISSUE
5	6/2/2023	CC SUBMITTAL
4	5/30/2023	PB SUBMITTAL
3	2/6/2023	ZBA SUBMITTAL
2	1/3/2023	FOR REVIEW
1	10/7/2022	FOR REVIEW

SCALE 1" = 20'
CHECKED A.ROSS
DRAWN D.D.D.

ROSS ENGINEERING
Civil/Structural Engineering & Surveying
909 Islington St.
Portsmouth, NH 03801
(603) 433-7560

CLIENT
DAVID A. RICHARDS
14 HOBART ST
EXETER, NH 03833

TITLE
EROSION CONTROL PLAN

14 Hobart St
EXETER, NH 03833
TAX MAP 74, LOT 88

JOB NUMBER	DWG. NO.	ISSUE
22-049	5 OF 5	5

Ross Engineering
Civil / Structural Engineering

909 Islington Street **603-433-7560**
Portsmouth, NH 03801 **alexross@comcast.net**

List of Abutters

Dated 5-30-23

Applicant & Land Owner's Name:
Janine L. Richards
Janine L. Richards Revocable Trust-2022
14 Hobart St
Exeter, NH 03833

Location of Land:
14 Hobart St
Exeter, NH 03833
Tax Map 74, Lot 88

Abutters:

1) Kenick Family Homestead Trust
10 Hobart St
Exeter, NH 03833
Tax Map 74, Lot 86

2) Joseph T. Brackett
16 Mckinley St
Exeter, NH 03833
Tax Map 74, Lot 91

3) Samuel D. Magnant & Paige L. Smith
12 Hobart St
Exeter, NH 03833
Tax Map 74, Lot 87

4) Judith L. Fraumeni Rev. Trust
7 Glenn Dr.
Lynnfield, MA 01940
Tax Map 74, Lot 81

5) The 16-18 Hobart Street Rev. Trust
49 Liberty Hill Rd
Bedford, NH 03110
Tax Map 74, Lot 89

6) Geoffrey F. Simard
2 Crestview Dr
Exeter, NH
Tax Map 74, Lot 92

7) Klemarczyk Family Rev. Trust
20 Hobart St
Exeter, NH 03833
Tax Map 74, Lot 90

8) Brett Kostolansky
4 Crestview Dr.
Exeter, NH 03833
Tax Map 74, Lot 93

Owners:

9) Janine L. Richards
Janine L. Richards Revocable Trust-2022
14 Hobart St
Exeter, NH 03833

Professionals:

10) Alex Ross, Ross Engineering, LLC
909 Islington St.
Portsmouth, NH 03801

11) Marc Jacobs CSS, CWS
P.O. Box 417
Greenland, NH 03840-0417

TOWN OF EXETER

Planning and Building Department

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

Date: June 26, 2023

To: Alex Ross, P.E., Ross Engineering LLC
Dave Richards, property owner

From: Dave Sharples, Town Planner

Re: Site Plan Review TRC Comments Ross Engineering LLC
PB Case #23-8
14 Hobart Street Tax Map Parcel #74-89

The following comments are provided as a follow-up for technical review of the site plans and supporting documents submitted on May 30th and June 2nd, 2023 for the above-captioned project. The TRC meeting was held on June 22, 2023 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. Monumentation shall be set in accordance with Section 9.25;
3. Provide a stormwater maintenance checklist for all stormwater features that lists all tasks needed to maintain the systems and frequency they need to be accomplished. A completed checklist will need to be submitted to the Town of Exeter each year to insure proper ongoing maintenance.
4. Proposed Unit # 3 is partially located on the adjacent property. This needs to be resolved prior to the Planning Board issuing an approval.
5. There is proposed grading within 5' of a property line that is prohibited per section 9.3.6.4 of the Site Plan Review and Subdivision Regulations.
6. All units shall tie into municipal water and sewer. Show connections on plans.
7. Provide LLS stamp on plans.
8. Condo documents shall be submitted when available. Final site plan approval cannot occur until these documents are reviewed and approved by the Town.

PUBLIC WORKS COMMENTS

No comments received.

FIRE DEPARTMENT COMMENTS

Per e-mail from Deputy Chief Jason Fritz, dated 6/27/23, he has been working with the Applicant directly regarding fire department access.

NATURAL RESOURCE PLANNER COMMENTS

At the June 13th, 2023 meeting, the Conservation Commission recommended approval of the Shoreland Conditional Use Permit with the following conditions:

- Condominium documents to include maintenance requirements for pervious pavement
- Condominium documents to reference fertilizer use limitations as defined by zoning ordinance 9.3.4.F.12

Should design changes occur in a way that alters impacts to the buffers, we would request an opportunity for additional review.

In order to be heard at the July 13th, 2023 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 June 30th, 2023** but sooner if possible, to allow staff adequate time to review the revisions and responses prior to the planning board hearing.

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

February 22, 2023

Sharon Cuddy Somers, Esquire
Donahue, Tucker & Ciandella PLLC
16 Acadia Lane
POB 630
Exeter, New Hampshire 03833

Re: Zoning Board of Adjustment Case #23-4 – Special Exception for Janine L. Richards
14 Hobart Street, Exeter, N. H.
Tax Map Parcel #74-88

Dear Attorney Somers:

This letter will serve as official confirmation that the Zoning Board of Adjustment, at its February 21st, 2023 meeting, voted to grant the above-captioned application for a special exception per Article 4, Section 4.2, Schedule I: Permitted Uses and Article 5, Section 5.2 to permit the conversion of the existing single-family home and accessory structures (detached barn and garage) located at 14 Hobart Street into up to four (4) residential condominium units, as presented, with the commitment from the Applicant that additional screening will be provided along the northern and southern property lines. This approval was granted subject to the condition that site plan review approval be obtained from the Planning Board and that the condominium units shall be owner-occupied.

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

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

Sincerely,

Robert V. Prior /bsm

Robert V. Prior
Vice Chairman
Exeter Zoning Board of Adjustment

cc: Janine L. and David Richards, property owner
Douglas Eastman, Building Inspector/Code Enforcement Officer
Janet Whitten, Town Assessor

RVP: bsm

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David Taylor of 117 Court Street said he brings the perspective of a non-neighbor. He's concerned about the number of cars and increase in traffic. There's a bottleneck in traffic downtown, especially with the bridge. The application has a reliance on the MUND but this isn't mixed use, it's a couple of bathrooms in a building facing the parking lot. Also, who will be maintaining the "ambassador suite"?

Attorney Phoenix said he's surprised at the level of opposition. What the applicant proposed is a vast improvement on what's there. Legally, since we comply, the parking issue is a Planning Board issue, but since there is concern, we request to withdraw our application for now so we can take more time to address their concerns. We are not asking for a continuance.

Ms. Davies made a motion to accept the applicant's request to withdraw. Ms. Olson-Murphy seconded. Mr. Prior, Ms. Olson-Murphy, Ms. Davies, Mr. Mirsky, and Ms. Montagno voted aye, and the motion passed 5-0.

C. The application of Janine L Richards for a special exception per Article 4, Section 4.2, Schedule I: Permitted Uses and Article 5, Section 5.2 to permit the conversion of the existing single-family home and accessory structures (detached barn and garage) located at 14 Hobart Street into four (4) residential condominium units. The subject property is located in the R-2, Single Family Residential zoning district. Tax Map Parcel #74-88. ZBA Case #23-4.

Attorney Sharon Somers of DTC spoke on behalf of the applicant Janine Richards, who was not present. The applicant's husband, David Richards, was also present.

Attorney Somers said the relief sought is to authorize the single-family property to be converted into 4 residential units. She added that Mr. Richards is not sure whether he wants to go up to 4, so she requests to amend the relief to allow "up to 4 units". She presented a tax card with a photo of the property; to the left of the house is the garage, which is also noted on the plan. The tax map has asterisks which note the lots in the vicinity that have multiple units. Most have 2 units, but one has 5 units.

Attorney Somers said the existing conditions are a single family house with barn, garage, and shed. The site plan shows the existing driveway. We're proposing to have 1 or 2 units in the single family house. If 2, there would be a second garage attached to service the second unit. One unit is proposed for the existing garage and one unit is proposed in the barn. The barn would have a new 400 square foot attached garage and new driveway. Each of the proposed units, other than the garage unit, will have its own separate garage. We conform with setbacks with the existing garage, and with the impervious surface requirements. There won't be any change to the site other than the new driveway and the creation of 2 or 3 garage spaces depending on how many units are created in the single-family house. There are other properties in the neighborhood that are

multi-family. The proposed units are condominium units and will be owner-occupied. The property is serviced by municipal water and sewer.

Attorney Somers went through the special exception criteria. A) The use is a permitted special exception as set forth in Article 4.2, Schedule I; yes. B) That the use is so designed, located and proposed to be operated that the public health, safety, welfare, and convenience would be protected; yes. C) That the proposed use will be compatible with the zone district and adjoining post-1972 development where it is to be located; yes. D) That adequate landscaping and screening are provided; yes, the site plan shows that there will be a fence between the existing garage and 12 Hobart Street. Between the property and 16-18 Hobart Street, there's a stone wall, and that wall and some landscaping will act as screening between the barn unit and 16-18 Hobart Street. E) That adequate off-street parking and loading is provided and ingress and egress is so designed as to cause minimum interference with traffic on abutting streets; yes, each unit will have its own garage. F) That the use conforms with all applicable regulations governing the district where located; yes. G) The applicant may be required to obtain Planning Board or Town Planning approval; yes, we are aware that the Planning Board will have to review the proposal. H) That the use shall not adversely affect abutting or nearby property values; yes, the proposed use is residential, and all the properties in the area are single-family or multi-family residential.

Ms. Davies asked if the buildings would be single-story. Mr. Richards said we're planning to adhere to the rules that make it smaller than 400 square feet. We haven't designed it yet. He's envisioning them being a standard garage height. Mr. Prior asked if the existing footprint of the buildings would not change, and Attorney Somers confirmed that the footprint would not change.

Ashley Comarsik of 20 Hobart Street said she has a right of way with the neighbors at 16 and 18 Hobart. Her concern is parking. This was proposed years ago and the concern then was impact on the neighborhood. This is a narrow dead-end street which tapers off toward the end of the road. 16-18 Hobart has four cars. There's a lot of traffic and turning around. Mailboxes have been hit and people have driven off the road. How will the infrastructure of the road be upgraded? Pipes are collapsing and water is spraying into the road. Does the proposed driveway cut into 20 Hobart Street's property? The applicant mentioned moving a rock wall, how will that be moved?

Cassandra Shawver of 16-18 Hobart Street, a direct abutter, said she has concerns about traffic and parking. The spot where the driveway comes out at McKinley and Hobart is a chokepoint. There are garages proposed, but where will visitors park?

Ms. Davies said she has a question about the lot lines. Attorney Somers said there was a lot line adjustment a few months ago, which is reflected in the plan but not the tax map. The effect of the lot line adjustment made the 14 lot larger in order to meet the dimensional requirements.

Attorney Somers said the total of parking spaces required is 9 spaces for the 4 units. There will be 3-4 bedrooms in unit 1 in the barn, 3 bedrooms each in units 2 and 3 but that may decrease, and 2 bedrooms in unit 4. The garages themselves will house 6 cars, and the remaining 3 cars can be parked in the driveway, so we believe there is adequate space to house the cars on the property. Traffic will be a Planning Board issue. She agrees that it's a little tight down there. The stone wall is on the 14 Hobart Street property. It wouldn't be moved, but the length might be extended and some additional greenery might be installed.

Mr. Prior asked for further public comment, but there was none. He brought the discussion to the Board for deliberation.

Mr. Prior said the application is for up to 4 units in existing structures. It meets all of the other requirements for setbacks and parking.

Ms. Olson-Murphy asked about the current condition of the garage and barn. Can they be rehabbed? Mr. Prior said that's up to them and the Code Enforcement Officer. It just has to be the same footprint.

Ms. Davies asked if there needs to be a permit for the second driveway, and Mr. Eastman said we can require them to get a driveway permit. Ms. Davies asked if there's any problem with two driveways for a certain amount of frontage, and Mr. Eastman said no.

Ms. Davies went through the special exception criteria. A) The use is a permitted special exception as set forth in Article 4.2, Schedule 1; yes, it is permitted. B) That the use is so designed, located and proposed to be operated that the public health, safety, welfare, and convenience would be protected; yes, there are mild concerns from the nearby property owners, but that's more about the public right of way than this proposal. She doesn't see this proposal as presenting significant concerns. There's not a great change in the physical aspects of the property, other than the addition of the three garages. C) That the proposed use will be compatible with the zone district and adjoining post-1972 development where it is to be located; yes, there are no new structures other than the garages, and there are multiple properties nearby that have more than one unit. D) That adequate landscaping and screening are provided; the Board should condition the approval on the assertions made by the applicant regarding the screening. E) That adequate off-street parking and loading is provided and ingress and egress is so designed as to cause minimum interference with traffic on abutting streets; yes, she's satisfied that there is adequate off-street parking between the garages and the driveway parking. F) That the use conforms with all applicable regulations governing the district where located; yes, it does conform. They don't require any additional relief. G) The applicant may be required to obtain Planning Board or Town Planner approval; yes, they are intending to go to the Planning Board. Mr. Prior said we should make that a condition of any motion. H) That the use shall not adversely affect abutting or nearby property values; yes, there will be an increase in the number of units, but not the physical

aspects other than the garages. The property is well within its lot coverage and other requirements. I) and J) do not apply.

Ms. Montagno asked if the owner-occupied condition would be looked at by the Planning Board to ensure that it gets into the condo documents. Mr. Eastman said that would go through the Planning Office. Mr. Prior said when we approve the application as presented, that would become part of the acceptance.

Ms. Davies moved to accept the application of Janine L Richards for a special exception per Article 4, Section 4.2, Schedule I: Permitted Uses and Article 5, Section 5.2 to permit the conversion of the existing single-family home and accessory structures at 14 Hobart Street into up to four residential condominium units as presented, with the commitment of the applicant to provide screening on the north and south property lines and with a condition that the site plan be reviewed by the Planning Board. This is ZBA case #23-4. Ms. Olson-Murphy seconded. Mr. Mirsky asked if we have to require that the units be owner-occupied. Mr. Prior said it's useful to repeat that as a condition of acceptance, but it is in the application as presented.

Mr. Mirsky moved to amend the motion to include that the application is being voted on based on the presentation by the applicant, and that the applicant intends to convey the units as condominium units and prevent them from becoming rental units. The condominium documents will require that the units be owner-occupied. Ms. Montagno seconded. Mr. Mirsky, Ms. Olson-Murphy, Mr. Prior, Ms. Davies, and Ms. Montagno voted aye, and the amendment passed 5-0.

On the amended motion, Mr. Mirsky, Ms. Olson-Murphy, Mr. Prior, Ms. Davies, and Ms. Montagno voted aye, and the amended motion passed 5-0.

The Board took a short break and reconvened at 9:10 PM.

D. The application of Samuel Lightner for a variance from Article 4, Section 4.3 Schedule II: Density & Dimensional Regulations-Residential to permit the proposed construction of a 200 S.F. addition to the existing residence at 25 Clover Street with less than the required minimum front yard setback. The subject property is located in the R-3, Single Family Residential zoning district. Tax Map Parcel #64-66. ZBA Case #23-5.

Attorney Somers spoke on behalf of the applicants, owners Sam and Colleen Lightner, who were also present. Attorney Somers said the applicants are looking to create an addition to the front of their existing home. The setback would be 12.8 feet from the street as opposed to the required 25 feet. The corner of the proposed building is 13.9 to the street and the roof corner is 12.8. It's a two story structure. Exhibit 4 depicts a fence around the boundary of the property and shows the trees that are on the property itself, including a large maple tree to the right of the existing structure.

TOWN OF EXETER
CONSERVATION COMMISSION MEMORANDUM

Date: June 22, 2023
To: Exeter Planning Board
From: Andrew Koff, Chair, Exeter Conservation Commission
Subject: Shoreland Conditional Use Permit

Project Information:
Project Location: 14 Hobart Street, Exeter, NH
Map/Lot: Map 74, Lots 88
CC Review Date: 6/13/23
PB CASE: #23-08

Following a presentation and review of the conditional use permit criteria, the Exeter Conservation Commission voted as follows:

They recommend approval of the Shoreland Conditional Use Permit with the following conditions:

- Condominium documents to include maintenance requirements for pervious pavement
- Condominium documents to reference fertilizer use limitations as defined by zoning ordinance 9.3.4.F.12

Should design changes occur in a way that alters impacts to the buffers, we would request an opportunity for additional review.

Andrew Koff
Chair, Exeter Conservation Commission

Ross Engineering
Civil/Structural Engineering & Surveying

909 Islington Street **603-433-7560**
Portsmouth, NH 03801 **alexross@comcast.net**

June 30, 2023

Dave Sharples, Town Planner
10 Front St
Exeter, NH 03833

RE: Site Plan Review TRC Comments
Ross Engineering LLC
PB Case #23-8
14 Hobart St
Tax Map Parcel #74-89

Dear Mr. Sharples,

I am writing in response to your letter dated June 26, 2023. Your concerns are italicized with our comments below 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;*

   There are no known environmental hazards onsite. No studies have been completed.

2. *Monumentation shall be set in accordance with Section 9.25;*

   Monumentation will be set in accordance with Section 9.25 of the Exeter Site Plan Review and Subdivision Regulations. Corners of the property to be monumented have been shown as monuments to be set.

3. *Provide a stormwater maintenance checklist for all stormwater features that lists all tasks needed to maintain systems and frequency they need to be accomplished. A completed checklist will need to be submitted to the Town of Exeter each year to insure proper ongoing maintenance.*

   A stormwater operations and maintenance manual has been added to this submission. A checklist is provided in this manual to be submitted to the Town of Exeter annually.

4. *Proposed Unit #3 is partially located on the adjacent property. This needs to be resolved prior to the Planning Board issuing an approval.*

   Unit #3 does not encroach on the abutting property. Proposed Unit #3 will be constructed to ensure it does not encroach on the abutting property.

Ross Engineering
Civil/Structural Engineering & Surveying
909 Islington Street **603-433-7560**
Portsmouth, NH 03801 **alexross@comcast.net**

5. *There is proposed grading within 5' of a property line that is prohibited per section 9.3.6.4 of the Site Plan Review and Subdivision Regulations.*

   Grading along the southern driveway has been removed. Proposed pervious asphalt driveway to follow the same grade as the existing asphalt driveway. No fill is proposed 5' from the property line.

6. *All units shall tie into municipal water and sewer. Show connections on plans.*

   Sheet 4 "Utility Plan" has been added to this plan set. One configuration for tie-ins to municipal water and sewer has been shown. Contractor to coordinate with the Public Works Department and install as per their specifications.

7. *Provide LLS stamp on plans.*

   An LLS stamp has been added to the Existing Conditions Plan.

8. *Condo documents shall be submitted when available. Final site plan approval cannot occur until these documents are reviewed and approved by the Town.*

   Condo documents will be submitted to the Town when completed.

Natural Resource Planner Comments

1. *Condominium documents to include maintenance requirements for pervious pavement.*

   Condominium documents will include maintenance requirements for pervious pavement.

2. *Condominium documents to reference fertilizer use limitations as defined by zoning ordinance 9.3.4.F.12.*

   Condominium documents will reference fertilizer use limitations as defined by zoning ordinance 9.3.4.F.12

Sincerely,

Alex Ross, P.E.

Ross Engineering

909 Islington Street **603-433-7560**
Portsmouth, NH 03801 **alexross@comcast.net**

STORMWATER MANAGEMENT OPERATION & MAINTENANCE

14 Hobart St, Exeter, NH

Inspection and Maintenance of Facilities and Property

A. Maintenance of Common Facilities or Property

1. Future owners or assigns are responsible for maintenance of all stormwater infrastructure associated with the facility and the property. This includes the pervious asphalt and landscaping.

B. General Inspection and Maintenance Requirements

1. Permanent stormwater and sediment and erosion control facilities to be maintained on the site include but are not limited to the following:

   a. Pervious Asphalt
   b. Landscaped areas

2. Maintenance of permanent measures shall follow the following schedule:

   a. **<u>Pervious Asphalt:</u>**
   Visually inspect pavement to ensure it is clean of debris, de-waters between storms and is clean of sediments. Maintain all adjacent and upland areas. Keep surface free of sediment by blowing, and vacuuming as needed. Avoid any sealing or repaving with impervious materials.

   1. Inspect every 6 months during the first year of operation. Adjust the inspection interval based on previous observations of sediment accumulation and high water elevations. Adjustment to the inspection interval timeframe shall not be greater than 12 months.

   2. Conduct jetting and vactoring annually or when inspection shows that maintenance is necessary.

   The following requirements will help assure that the pervious asphalt system is maintained to preserves its effectiveness.

909 Islington Street **603-433-7560**
Portsmouth, NH 03801 **alexross@comcast.net**

i. Inspection of site shall occur monthly for the first few months after construction. Then inspections can occur on an annual basis, preferably after rain events when clogging can occur and be obvious. Pervious asphalt requires minimal maintenance; however, maintenance is absolutely necessary to ensure a proper working system.

ii. Asphalt seal coating is absolutely forbidden. Surface seal coating is not reversible.

iii. Street sweepers with vacuums, water, and brushes can be used to restore permeability. Follow sweeping with high-pressure hosing of the surface pores. Surface should be vacuumed periodically (2-4 times per year), and at any additional times sediment is spilled, eroded, or tracked onto the surface.

iv. Planted areas adjacent to pervious pavers 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.

v. Immediately clean any soil deposited on pavers. Superficial dirt does not necessarily clog the 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.

vi. Do not allow construction staging, soil/mulch storage, etc. on unprotected pavers surface.

vii. No winter sanding. Mechanical snow and ice removal preferred.

viii. Written and verbal communication to the porous paver's future owner should make clear the special purpose and special maintenance requirements such as those listed here.

b. **Landscaped Areas:**
Annual inspection of site's vegetation and landscaping. Any areas that are bare shall be reseeded and mulched with hay or, if the case is extreme, loamed and seeded or sodded to ensure adequate vegetative cover. Landscape specimens shall be replaced in-kind, if they are found to be dead or dying.

Owners shall provide a report on activities performed throughout the year. Report shall include documentation that pavement cleaning is accomplished per this document and a certification that the system continues to function as designed.

Ross Engineering

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Portsmouth, NH 03801 **alexross@comcast.net**

Annual Operations and Maintenance Report

Activity	Date of Inspection	Who Inspected	Satisfactory: Yes, No, N/A	Maintenance Needed	Implemented date of corrective action	Findings of Inspector
Pervious Asphalt (Annual Inspection of Sediment Accumulation)						
Pervious Asphalt (Sweeping & Vacuuming)						
Landscaped Areas						

Checklist of Required Inspection

Inspected Annually

Pervious Asphalt

- ☐ Visual Inspection for sediment accumulation has been performed
- ☐ Jetting/Vactoring
  - Jetting/Vactoring has been conducted; **OR**
  - Jetting/Vactoring has been deemed not necessary

Landscaping

- ☐ Visual inspection of bare areas
  - No Bare Areas; **OR**
  - Bare Areas have been reseeded and mulched; **OR**
  - Bare areas have been loamed and seeded

Inspected Twice Annually

Pervious Asphalt

- ☐ Vacuum and sweep surface #1
- ☐ Vacuum and sweep surface #2

*This checklist must be submitted to the Town of Exeter each year to insure proper ongoing maintenance.

REFERENCE PLANS

1) "SUBDIVISION PLAN" BY JONES & BEACH ENGINEERS, INC. DATED JULY 23, 2013. RCRD D-38224

2) "LOT LINE ADJUSTMENT HOBART STREET EXETER N.H." BY T.D. BROUILLETTE LAND SURVEYING DATED MARCH 8, 2013. RCRD D-37719

NOTES

1) OWNER OF RECORD:
JANINE L RICHARDS REVOCABLE TRUST-2022
TAX MAP 74, LOT 88
14 HOBART ST
EXETER, NH 03833
RCRD: 6444-1232
AREA: 46,308 SF, 1.06 ACRES

2) BASIS OF BEARING HELD FROM PLAN REFERENCE #2.

3) PARCEL IS IN RESIDENTIAL SINGLE FAMILY ZONE (R-2) & SHORELAND PROTECTION DISTRICT:
MINIMUM LOT AREA.....15,000 SF
MIN. LOT AREA PER DWELLING UNIT.....15,000 SF
MINIMUM FRONTAGE.....100 FT
MINIMUM DEPTH.....100 FT
SETBACKS:
FRONT.....25 FT
SIDE.....15 FT
REAR.....25 FT
MAXIMUM BUILDING HEIGHT.....35 FT
MAXIMUM BUILDING COVERAGE.....25%
MINIMUM OPEN SPACE.....40%
MAXIMUM LOT COVERAGE.....10%

4) THE PARCEL IS PARTIALLY WITHIN FEMA FLOOD ZONE AE AND REGULATORY FLOODWAY "LITTLE RIVER", AS PER FLOOD INSURANCE RATE MAP #33015C0401E, PANEL 401 OF 681, DATED MAY 17, 2005. VERTICAL DATUM IS NGVD 1929.

5) AS PER EXETER ZONING ORDINANCE 9.3.3.A, THIS LOT IS WITHIN THE SHORELAND PROTECTION DISTRICT.

6) NO BUILDING, SEPTIC SYSTEM, OR LEACH FIELD SHALL BE CONSTRUCTED WITHIN 150' OF THE SHORELINE OF THE LITTLE RIVER AS PER EXETER ZONING ORDINANCE 9.3.4.C.

7) NO ALTERATION OF NATURAL VEGETATION OR MANAGED WOODLAND WITHIN 75 FEET OF THE SHORELINE OF THE LITTLE RIVER IS PERMITTED AS PER EXETER ZONING ORDINANCE 9.3.4.E.

LOCUS PLAN
N.T.S.

LEGEND

- 100 — EXISTING CONTOUR
- MONUMENT FOUND
- UTILITY POLE
- CHICKEN WIRE FENCE
- WOODEN FENCE
- D — DRAIN LINE
- W — WATER LINE
- UGE — UNDERGROUND ELECTRIC
- S — SEWER LINE
- S — SEWER MANHOLE
- CATCH BASIN
- HYDRANT
- WETLANDS
- LAWN
- STONE WALL
- ORDINARY HIGH WATER MARK
- ORDINARY HIGH WATER SETBACK

SEE NOTE 2

50.0' OHW SETBACK
100.0' OHW SETBACK
150.0' OHW SETBACK
250.0' OHW SETBACK

REBAR SET 18" ABOVE GRADE
ORDINARY HIGH WATER MARK (OHW)
RBR 18" ABOVE GRADE
N 85°18'09" W
30.00'
171.60'
141.60'
ZONE AE
16-18 HOBART ST
INNOETHOS, LLC
TAX MAP 74, LOT 89
RCRD 6435-2673
DH IN LEDGE 3" BELOW GRADE
HOUSE
N 58°33'39" W
117.89'
5' SETBACK
15' SETBACK
25' SETBACK
N 84°31'25" W
123.92'
EDGE OF WETLANDS
TREELINE
SHED
DRILL HOLE FOUND IN BOULDER
GRAVEL DRIVEWAY
14 HOBART ST
JANINE L. RICHARDS
REVOCABLE TRUST-2022
TAX MAP 74, LOT 88
RCRD 6444-1232
46,308 SQFT, 1.06 ACRES
LITTLE RIVER
BARN
1ST FLOOR
EL. 45.02'
LAWN
150.0' BUILDING SETBACK
GRAVEL
DECK
PATIO
HOUSE
1ST FLOOR
EL. 44.78'
FIRE PIT
15.0' VEGETATIVE BUFFER
SAND
GRAVEL
GARAGE
SLAB
EL. 41.65'
S 25°23'16" E
108.23'
N/F JUDITH L.
FRAUMENI REV. TRUST
TAX MAP 74, LOT 81
RCRD 2604-2661
IP FND
S 83°01'40" E
338.00'
15" CULVERT
EXISTING FOUNDATION DOES NOT ENCROACH ON ABUTTING LAND
10 HOBART ST
N/F KENICK FAMILY
HOMESTEAD TRUST
TAX MAP 74, LOT 86
RCRD 5938-2488
12 HOBART ST
N/F SAMUEL D. MAGNANT
TAX MAP 74, LOT 87
RCRD 6396-2103
HOUSE
IP FND
4"x4" GRANITE BOUND WITH DH FLUSH
N 03°32'13" E
101.48'
HOBART ST
20 MCKINLEY ST
N/F JOSEPH T. & STEPHANIE L. BRACKETT
TAX MAP 74, LOT 91
RCRD 5285-0384
10" CULVERT
12" CULVERT
HOUSE

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
SCALE: 1" = 20'

ISS.	DATE	DESCRIPTION OF ISSUE
6	6/30/2023	PB SUBMITTAL
5	6/2/2023	CC SUBMITTAL
4	5/30/2023	PB SUBMITTAL
3	2/6/2023	ZBA SUBMITTAL
2	1/3/2023	FOR REVIEW

SCALE 1" = 20'
CHECKED A.ROSS
DRAWN D.D.D.

ROSS ENGINEERING
Civil/Structural Engineering & Surveying
909 Islington St.
Portsmouth, NH 03801
(603) 433-7560

CLIENT
DAVID A. RICHARDS
14 HOBART ST
EXETER, NH 03833

TITLE

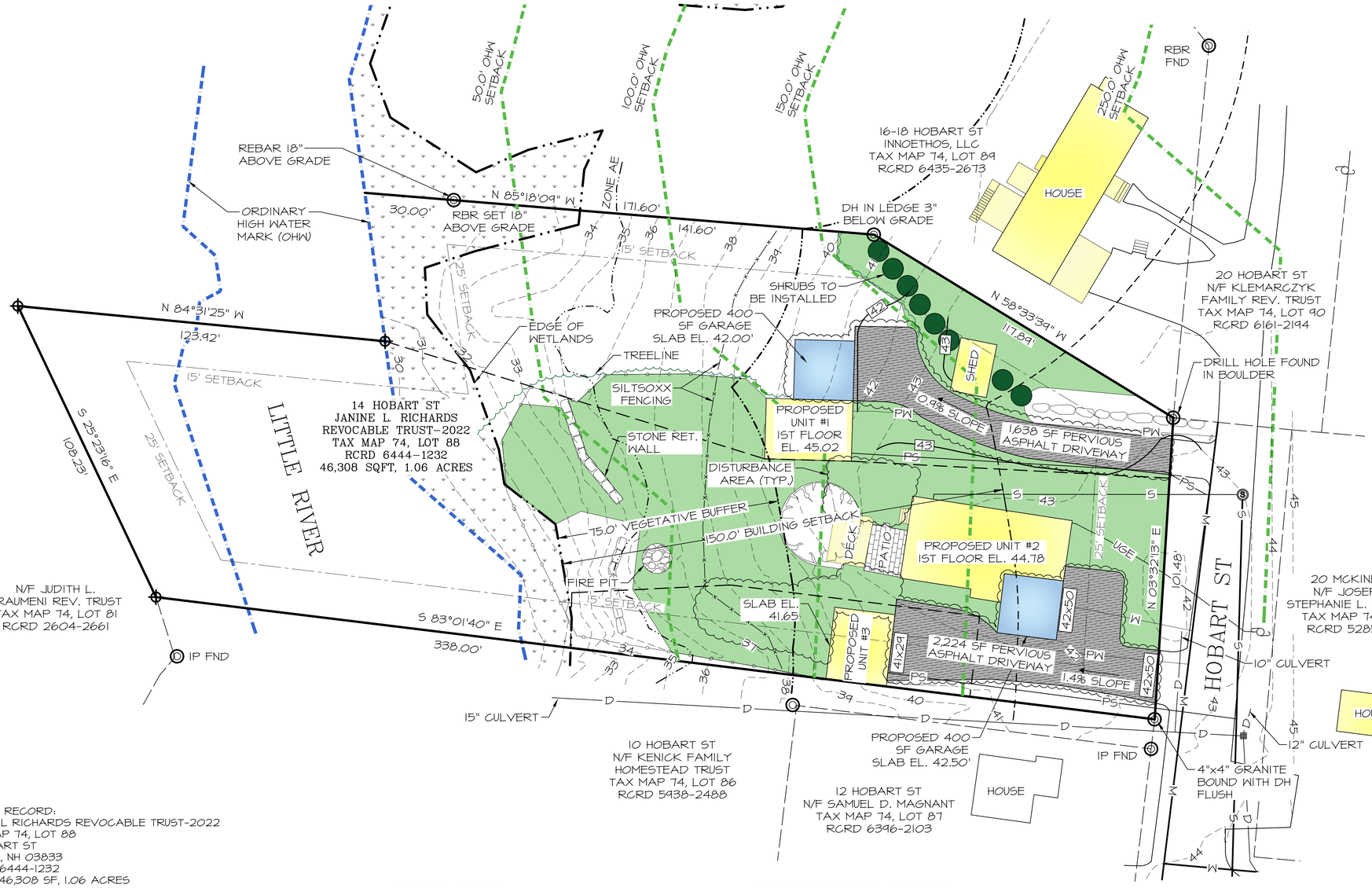
EXISTING CONDITIONS PLAN

14 Hobart St
EXETER, NH 03833
TAX MAP 74, LOT 88

JOB NUMBER 22-049 | DWG. NO. 1 OF 6 | ISSUE 6

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR 907 R. ALEX ROSS

R. ALEX ROSS No. 9409 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE



LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- SPOT ELEVATION
- MONUMENT TO BE SET
- MONUMENT FOUND
- UTILITY POLE
- CHICKEN WIRE FENCE
- WOODEN FENCE
- DRAIN LINE
- EXISTING WATER LINE
- PROPOSED WATER LINE
- UNDERGROUND ELECTRIC
- EXISTING SEWER LINE
- PROPOSED SEWER LINE
- SEWER MANHOLE
- CATCH BASIN
- WETLANDS
- STONE WALL
- ORDINARY HIGH WATER MARK
- ORDINARY HIGH WATER SETBACK
- LIMITED COMMON AREA
- PERVIOUS ASPHALT

NOTES

1) OWNER OF RECORD:
JANINE L RICHARDS REVOCABLE TRUST-2022
TAX MAP 74, LOT 88
14 HOBART ST
EXETER, NH 03833
RCRD: 6444-1232
AREA: 46,308 SF, 1.06 ACRES

2) PARCEL IS IN RESIDENTIAL SINGLE FAMILY ZONE (R-2) & SHORELAND PROTECTION DISTRICT:

MINIMUM LOT AREA	15,000 SF
MIN. LOT AREA PER DWELLING UNIT	15,000 SF
MINIMUM FRONTAGE	100 FT
MINIMUM DEPTH	100 FT
SETBACKS:	
FRONT	25 FT
SIDE	15 FT
REAR	25 FT
MAXIMUM BUILDING HEIGHT	35 FT
MAXIMUM BUILDING COVERAGE	25%
MINIMUM OPEN SPACE	40%
MAXIMUM LOT COVERAGE	10%

3) THE EXETER ZONING BOARD OF ADJUSTMENT AT ITS 2/21/2023 MEETING APPROVED A SPECIAL EXEMPTION TO ARTICLE 4, SECTION 4.2, SCHEDULE I & ARTICLE 5, SECTION 5.2 OF THE EXETER ZONING ORDINANCE TO PERMIT THE CONVERSION OF THE EXISTING SINGLE-FAMILY HOME AND ACCESSORY STRUCTURES INTO UP TO FOUR RESIDENTIAL UNITS.

4) LOT COVERAGE

EXISTING LOT COVERAGE

HOUSE	1,596 SF
BARN	593 SF
GARAGE	496 SF
SHED	223 SF
DECK & STAIRS	251 SF
PATIO	196 SF
GRASSED LAWN	12,041 SF
SAND & GRAVEL	1,901 SF
ASPHALT	1,730 SF
LOT COVERAGE	19,027 SF = 41.1%

PROPOSED LOT COVERAGE

CONDO BUILDINGS	2,491 SF
GARAGE	800 SF
SHED	223 SF
DECK & STAIRS	238 SF
PATIO	196 SF
GRASSED LAWN	12,558 SF
LOT COVERAGE	16,506 SF = 35.6%

5) NHDES SHORELAND COVERAGE

THE ENTIRE LOT IS WITHIN THE 250' SHORELAND BUFFER

EXISTING LOT COVERAGE

HOUSE	1,596 SF
BARN	593 SF
GARAGE	496 SF
SHED	223 SF
DECK & STAIRS	251 SF
PATIO	196 SF
SAND & GRAVEL	1,901 SF
ASPHALT	1,730 SF
LOT COVERAGE	6,986 SF = 15.1%

PROPOSED LOT COVERAGE

CONDO BUILDING	2,491 SF
GARAGE	800 SF
SHED	223 SF
DECK & STAIRS	238 SF
PATIO	196 SF
LOT COVERAGE	3,948 SF = 8.5%

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
SCALE: 1" = 20'

TOWN OF EXETER PLANNING BOARD

CHAIRPERSON

R. ALEX ROSS No. 9409 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE

ISS.	DATE	DESCRIPTION OF ISSUE
6	6/30/2023	PB SUBMITTAL
5	6/2/2023	CC SUBMITTAL
4	5/30/2023	PB SUBMITTAL
3	2/6/2023	ZBA SUBMITTAL
2	1/3/2023	FOR REVIEW

SCALE 1" = 20'
CHECKED A.ROSS
DRAWN D.D.D.

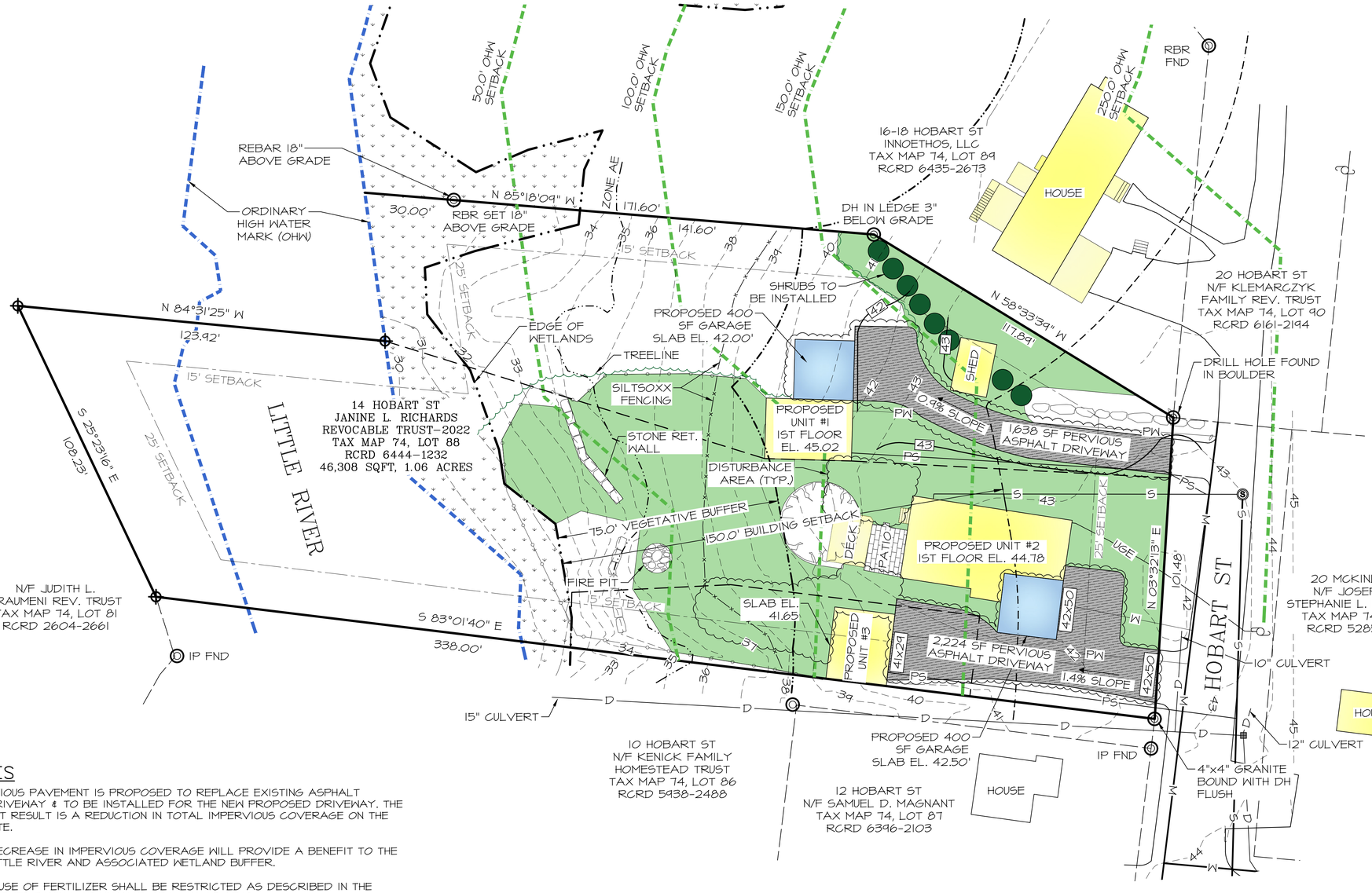
ROSS ENGINEERING
Civil/Structural Engineering & Surveying
909 Islington St.
Portsmouth, NH 03801
(603) 433-7560

CLIENT
DAVID A. RICHARDS
14 HOBART ST
EXETER, NH 03833

TITLE
SITE PLAN

14 Hobart St
EXETER, NH 03833
TAX MAP 74, LOT 88

JOB NUMBER	DWG. NO.	ISSUE
22-049	2 OF 6	6



LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- SPOT ELEVATION
- MONUMENT TO BE SET
- MONUMENT FOUND
- UTILITY POLE
- CHICKEN WIRE FENCE
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- UNDERGROUND ELECTRIC
- EXISTING SEWER LINE
- PROPOSED SEWER LINE
- SEWER MANHOLE
- CATCH BASIN
- WETLANDS
- STONE WALL
- ORDINARY HIGH WATER MARK
- ORDINARY HIGH WATER SETBACK
- LIMITED COMMON AREA
- PERVIOUS ASPHALT

NOTES

1) PERVIOUS PAVEMENT IS PROPOSED TO REPLACE EXISTING ASPHALT DRIVEWAY & TO BE INSTALLED FOR THE NEW PROPOSED DRIVEWAY. THE NET RESULT IS A REDUCTION IN TOTAL IMPERVIOUS COVERAGE ON THE SITE.

2) A DECREASE IN IMPERVIOUS COVERAGE WILL PROVIDE A BENEFIT TO THE LITTLE RIVER AND ASSOCIATED WETLAND BUFFER.

3) THE USE OF FERTILIZER SHALL BE RESTRICTED AS DESCRIBED IN THE EXETER ZONING ORDINANCE, SECTION 9.3.4.F.12.

4) CONDOMINIUM DOCUMENTS TO INCLUDE MAINTENANCE REQUIREMENTS FOR PERVIOUS PAVEMENT.

5) CONDOMINIUM DOCUMENTS TO REFERENCE FERTILIZER USE LIMITATIONS AS DEFINED BY ZONING ORDINANCE 9.3.4.F.12.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
SCALE: 1" = 20'

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CLIENT
DAVID A. RICHARDS
14 HOBART ST
EXETER, NH 03833

TITLE

STORMWATER MANAGEMENT PLAN

14 Hobart St
EXETER, NH 03833
TAX MAP 74, LOT 88

JOB NUMBER 22-049 | DWG. NO. 3 OF 6 | ISSUE 6

STATE OF NEW HAMPSHIRE · R. ALEX ROSS No. 9409 LICENSED · PROFESSIONAL ENGINEER

LEGEND

- MONUMENT FOUND
- UTILITY POLE
- D — DRAIN LINE
- W — EXISTING WATER LINE
- PW — PROPOSED WATER LINE
- S — EXISTING SEWER LINE
- PS — PROPOSED SEWER LINE
- UGE — UNDERGROUND ELECTRIC
- SEWER MANHOLE
- CATCH BASIN
- WATER STOP
- STONE WALL
- LIMITED COMMON AREA
- PERVIOUS ASPHALT

GENERAL NOTES

1) ALL UNITS SHALL TIE INTO MUNICIPAL WATER & SEWER. UNIT #2 IS CURRENTLY TIED INTO TOWN WATER & SEWER. CONTRACTOR TO REVIEW ALL SURFACING TYPES, UTILITY TIE INS, AND MATERIAL SPECIFICATIONS WITH EXETER PUBLIC WORKS.
2) ALL NECESSARY NHDOT, NHDES & TOWN PERMITS MUST BE OBTAINED.
3) ALL CONSTRUCTION SHALL BE PER NH-DOT, STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION, LATEST REVISION, AND STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER, NEW HAMPSHIRE, LATEST REVISION. CONTRACTOR SHALL MEET STATE AND TOWN REQUIREMENTS, TO ASSURE TYPE, SEPARATION, COVER, ETC. ALWAYS CALL DIGSAFE PRIOR TO DIGGING. UTILITIES SHOWN ARE APPROXIMATE AND MUST BE VERIFIED.
4) FINAL CONFIGURATION, LAYOUT, AND CONNECTIONS OF SEWER AND WATER LINES TO BE REVIEWED AND APPROVED BY EXETER PUBLIC WORKS DEPARTMENT.
5) APPLICABLE NFPA & IRC REQUIREMENTS SHALL BE MET. DUE TO THE PROXIMITY OF UNIT #3 RELATIVE TO UNIT #2, SPECIAL BUILDING MATERIAL MAY BE NECESSARY.

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
SCALE: 1" = 10'

R. ALEX ROSS No. 9409 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE

ISS.	DATE	DESCRIPTION OF ISSUE
6	6/30/2023	PB SUBMITTAL
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3	2/6/2023	ZBA SUBMITTAL
2	1/3/2023	FOR REVIEW

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TAX MAP 74, LOT 88

JOB NUMBER	DWG. NO.	ISSUE
22-049	4 OF 6	6

CONSTRUCTION SPECIFICATIONS FOR POROUS ASPHALT

REFERENCE DOCUMENT: UNHSC DESIGN SPECIFICATIONS FOR POROUS ASPHALT PAVEMENT AND INFILTRATION BEDS, UNH STORMWATER CENTER, FEBRUARY, 2014.

INSTALLATION RECOMMENDATIONS

THE FOLLOWING RECOMMENDATIONS WILL HELP ASSURE THAT THE POROUS ASPHALT PAVEMENT IS PROPERLY INSTALLED.

1. THE FULL PAVEMENT SPECIFICATION MUST BE FOLLOWED CONSCIENTIOUSLY DURING CONSTRUCTION. IT IS BASED ON UNHSC DESIGN SPECIFICATIONS FOR POROUS ASPHALT PAVEMENT AND INFILTRATION BEDS. THE UNH SPECIFICATION INCLUDE NUMEROUS VITAL PROVISIONS FOR AGGREGATE AND BITUMINOUS MATERIALS, THEIR PLACEMENT, AND QUALITY CONTROL. AMONG ITS NOTABLE PROVISIONS ARE THE FOLLOWING EXAMPLES:
   - OPEN-GRADED AGGREGATE TO MAKE ALL PAVEMENT LAYERS POROUS AND PERMEABLE;
   - STIFF ASPHALT BINDER TO ADHERE TO THE AGGREGATE PARTICLES AND RESIST "DRAINDOWN" THROUGH THE PAVEMENT'S PORES, ENHANCING THE MATERIAL'S PERFORMANCE AND DURABILITY;
   - A SPECIFIC LIMIT ON ALLOWABLE DRAINDOWN, AND ADDITION OF A STYRENE-BUTADIENE-STYRENE (SBS) POLYMER ADDITIVE TO HELP MEET THAT REQUIREMENT;
   - THE POROUS PAVEMENT IS TO BE INSTALLED ONLY AFTER MAJOR CONSTRUCTION IS COMPLETED, SO THAT CONSTRUCTION TRAFFIC WILL NOT TRACK POTENTIALLY CLOGGING SEDIMENT ONTO THE PAVEMENT SURFACE. FOR CONSTRUCTION ACCESS, A TEMPORARY SURFACE WILL BE INSTALLED, SIMILAR IN CONSTRUCTION TO A STANDARD STABILIZED CONSTRUCTION ENTRANCE. THIS TYPE OF SURFACE CAN BEAR CONSTRUCTION TRAFFIC WITHOUT ERODING.
   - PROMINENT AND REPEATED STATEMENTS OF THE SPECIAL NATURE AND PURPOSE OF POROUS PAVEMENT, AND THE NECESSITY OF COMPLYING STRICTLY WITH THESE DISTINCTIVE SPECIFICATIONS.
   - PROTECTION OF THE FINISHED POROUS ASPHALT SURFACE FROM TRACKING OF CONSTRUCTION SEDIMENT.

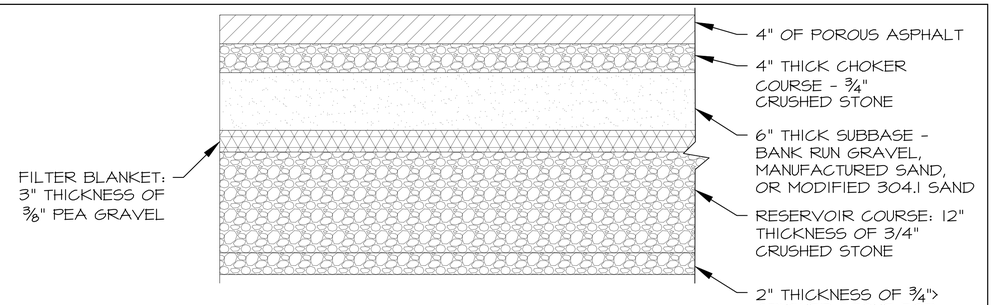
2. THOROUGH COMMUNICATION WITH THE POROUS ASPHALT SUPPLIER AND PAVEMENT INSTALLER IS ESSENTIAL. THEY MUST UNDERSTAND THE POROUS PAVEMENT'S SPECIAL OBJECTIVES, THE SPECIAL MATERIALS AND PROCEDURES NECESSARY TO MAKE IT EFFECTIVE, AND WHY COMPLIANCE WITH SPECIFICATIONS IS ESSENTIAL. TO THIS END, THE SPECIFICATIONS STATE PROMINENTLY AND REPEATEDLY THE SPECIAL NATURE AND PURPOSE OF THE POROUS MATERIALS. IN ADDITION, THE PROJECT ENGINEER SHOULD MEET WITH THE CONTRACTORS IN PERSON TO REVIEW THE SPECIFICATIONS AND MAKE SURE THE CONTRACTORS UNDERSTAND THE OBJECTIVES. HE SHOULD OBSERVE THE CONTRACTORS ON-SITE FREQUENTLY, TO MAKE SURE THE OBJECTIVES ARE CARRIED OUT. HE SHOULD MAINTAIN A WRITTEN RECORD DOCUMENTING REVIEW AND APPROVAL AT CRITICAL PROJECT STAGES SUCH AS EXCAVATION OF THE SUB GRADE AND QUALITY CHECKS OF BASE AND SURFACE MATERIALS. HE SHOULD INSPECT THE SITE TO MAKE SURE CONSTRUCTION VEHICLES ARE NOT ALLOWED TO TRAVERSE EXCAVATED SUB GRADE OR THE PAVEMENT STRUCTURE AT ANY INAPPROPRIATE STAGE. HE SHOULD FORBID CONSTRUCTION TRAFFIC FROM TRACKING SOIL ONTO THE FINISHED PAVEMENT SURFACE.

INSTALLATION

A. PERCOLATION BEDS
   1. 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 EROSIONS, PONDING, OR TRAFFIC COMPACTION BEFORE THE PLACING OF STONE. ALL BED BOTTOMS ARE LEVEL GRADE.
   3. RECHARGE BED INSTALLATION
      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 (CRUSHED STONE) IN 8-INCH MAXIMUM LIFTS, TO A MAXIMUM OF 95% STANDARD PROCTOR COMPACTION, KEEPING EQUIPMENT MOVEMENT OVER STORAGE BED SUBGRADES TO A MINIMUM. INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
      d. INSTALL FILTER COARSE (BANK RUN GRAVEL) IN 8-INCH MAXIMUM LIFTS, TO A MAXIMUM OF 95% STANDARD PROCTOR COMPACTION, KEEPING EQUIPMENT MOVEMENT OVER STORAGE BED SUBGRADES TO A MINIMUM. INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
      e. INSTALL CHOKER BASE COURSE (SEE MATERIALS SECTION) 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 LESS 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 ON THE PAVEMENT SURFACE.
      b. TO ACCOMPLISH THIS, A SEQUENCE OF TEMPORARY 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 PLANTINGS 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.

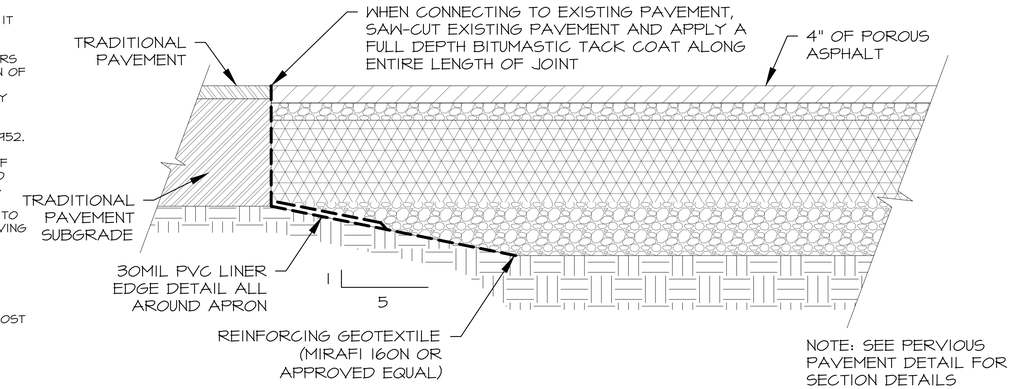
INSTALLATION (CONT...)

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 OR TWO LIFTS DIRECTLY OVER THE CHOKER COARSE, FILTER COARSE, AND CRUSHED STONE BASE COURSE TO DEPTH INDICATED. IF LAID IN TWO LIFTS THE PAVEMENT SHALL BE CLEANED AND INSPECTED BY THE ENGINEER BEFORE PLACEMENT OF THE SECOND LIFT.
      b. THE LAYING TEMPERATURE OF THE BITUMINOUS MIX SHALL BE BETWEEN 275 DEGREES FAHRENHEIT AND 325 DEGREES FAHRENHEIT (BASED ON 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 AN 8-12-TON ROLLER. BREAKDOWN ROLLING SHALL OCCUR WHEN THE MIX TEMPERATURE IS BETWEEN 275 DEGREES FAHRENHEIT AND 325 DEGREES FAHRENHEIT. INTERMEDIATE ROLLING SHALL OCCUR WHEN THE MIX TEMPERATURE IS BETWEEN 150 DEGREES FAHRENHEIT AND 200 DEGREES FAHRENHEIT. THE CESSATION TEMPERATURE OCCURS AT APPROXIMATELY 175 DEGREES FAHRENHEIT, AT WHICH POINT THE MIX BECOMES RESISTANT TO COMPACTION. IF COMPACTION HAS NOT BEEN DONE AT TEMPERATURE GREATER THAN THE CESSATION TEMPERATURE, THE PAVEMENT WILL NOT ACHIEVE ADEQUATE DURABILITY.
   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 PARKING STRIPING AND 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.
   7. 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.
   8. 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.
   9. 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 BE REPAIRED TO THE SATISFACTION OF THE OWNER WITHOUT ADDITIONAL COST TO THE OWNER.
   10. FULL 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 3/16 OF AN INCH.



PERVIOUS PAVEMENT DETAIL

N.T.S.



PERVIOUS PAVEMENT TRANSITION DETAIL

N.T.S.

MAINTENANCE SPECIFICATIONS FOR POROUS ASPHALT

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 (NaCl, MgCl2, OR EQUIVALENT). REDUCED SALT APPLICATION OF 50% OVER TRADITIONAL PAVEMENT APPLICATION RATES, 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 SLIGHTLY RAISED (ALTHOUGH NOT NECESSARY, THIS WILL PREVENT PAVEMENT SCARING). ICE AND LIGHT SNOW ACCUMULATION ARE GENERALLY NOT AS PROBLEMATIC AS FOR STANDARD ASPHALT. SNOW WILL ACCUMULATE DURING HEAVIER STORMS AND SHOULD BE PLOWED AFTER 2 TO 4 INCHES OF SNOW ACCUMULATION.

ROUTINE MAINTENANCE:

1. ASPHALT SEAL COATING MUST BE ABSOLUTELY FORBIDDEN. SURFACE SEAL COATING IS NOT REVERSIBLE.
2. THE PAVEMENT SURFACE SHOULD BE VACUUMED 2 TO 4 TIMES PER YEAR, ESPECIALLY AFTER WINTER AND FALL SEASONS, 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: FOR THE POROUS ASPHALT PARKING LOT, 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. IS 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. REPAIRS TO THE POROUS ASPHALT SIDEWALK SHALL BE MADE WITH A PERVIOUS MIX.
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.

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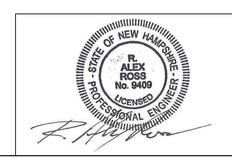

EROSION AND SEDIMENTATION CONTROL CONSTRICTION PHASING AND SEQUENCING

1. SEE "EROSION AND SEDIMENTATION CONTROL GENERAL NOTES" WHICH ARE TO BE AN INTEGRAL PART OF THIS PROCESS.
2. INSTALL SILTSOXX FENCING AS PER DETAILS AND AT SEDIMENT MIGRATION.
3. CONSTRUCT TREATMENT SWALES , LEVEL SPREADERS AND DETENTION STRUCTURES AS DEPICTED ON DRAWINGS.
4. STRIP AND STOCKPILE TOPSOIL. STABILIZE PILES OF SOIL CONSTRUCTION MATERIAL & COVER WHERE PRACTICABLE.
5. MINIMIZE DUST THROUGH APPROPRIATE APPLICATION OF WATER OR OTHER DUST SUPPRESSION TECHNIQUES ON SITE.
6. ROUGH GRADE SITE. INSTALL CULVERTS AND ROAD DITCHES.
7. FINISH GRADE AND COMPACT SITE.
8. RE-SPREAD AND ADD TOPSOIL TO ALL ROADSIDE SLOPES. TOTAL TOPSOIL THICKNESS TO BE A MINIMUM OF FOUR TO SIX INCHES.
9. STABILIZE ALL AREAS OF BARE SOIL WITH MULCH AND SEEDING.
10. RE-SEED PER EROSION AND SEDIMENTATION CONTROL GENERAL NOTES.
11. SILT SOXX FENCING TO REMAIN AND BE MAINTAINED FOR TWENTY FOUR MONTHS AFTER CONSTRUCTION TO ENSURE ESTABLISHMENT OF ADEQUATE SOIL STABILIZATION AND VEGETATIVE COVER. ALL SILT SOXX FENCING ARE THEN TO BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.
12. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH MOVING OPERATIONS.
13. ALL TEMPORARY WATER DIVERSION (SWALES, BASINS, ETC. MUST BE USED AS NECESSARY UNTIL AREAS ARE STABILIZED.
14. PONDS AND SWALES SHALL BE INSTALLED EARLY ON IN THE CONSTRUCTION SEQUENCE - BEFORE ROUGH GRADING THE SITE.
15. ALL DITCHES AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM
16. ALL ROADWAYS AND PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
17. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.
18. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.
19. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL EXCEED 5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
20. LOT DISTURBANCE, OTHER THAN THAT SHOWN ON THE APPROVED PLANS, SHALL NOT COMMENCE UNTIL AFTER THE ROADWAY HAS THE BASE COURSE TO DESIGN ELEVATION AND THE ASSOCIATED DRAINAGE IS COMPLETE AND STABLE.

PLANTING NOTES:

1. ALL PLANT MATERIALS SHALL BE FIRST QUALITY NURSERY GROWN STOCK.
2. ALL PLANTS SHALL BE PLANTED IN ACCORDANCE WITH NEW HAMPSHIRE LANDSCAPE ASSOCIATION STANDARDS AND GUARANTEED FOR ONE YEAR BY THE LANDSCAPE CONTRACTOR.
3. ALL TREES AND SHRUBS SHALL HAVE WATER SAUCERS BUILT AROUND THEIR BASES AND THESE SHALL BE MULCHED WITH 4" OF DARK BROWN AGED BARK MULCH. MULCH MUST BE KEPT 2" AWAY FROM THEIR TRUNKS.
4. ALL TREES AND SHRUBS SHALL BE PLANTED AND MULCHED BEFORE LAWN IS SEEDED.

MAINTENANCE REQUIREMENTS:

1. ALL TREES, SHRUBS, AND PERENNIALS WILL NEED TO BE WATERED THROUGH THANKSGIVING DURING THE FIRST SEASON IN WHICH THEY ARE INSTALLED.
2. AN UNDERGROUND DRIP IRRIGATION SYSTEM IS RECOMMENDED. IF AN UNDERGROUND DRIP IRRIGATION SYSTEM IS NOT INSTALLED, SOAKER HOSES WOUND THROUGHOUT PLANTING BEDS ARE ACCEPTABLE. ALTHOUGH OVERHEAD SPRINKLERS ARE RECOMMENDED FOR LAWN AREAS, THEY ARE NOT ACCEPTABLE FOR IRRIGATING TREES AND SHRUBS.

SEEDING AND STABILIZATION FOR LOAMED SITE:

FOR TEMPORARY & LONG TERM SEEDINGS USE AGWAY'S SOIL CONSERVATION GRASS SEED OR EQUAL
COMPONENTS: ANNUAL RYE GRASS, PERENNIAL RYE GRASS, WHITE CLOVER, 2 FESCUES, SEED AT A RATE OF 100 POUNDS PER ACRE,
FERTILIZER & LIME:
NITROGEN (N) 50 LBS/ACRE, PHOSPHATE (P205) 100 LBS/ACRE, POTASH (K20) 100 LBS/ACRE, LIME 2000 LBS/ACRE
MULCH:
HAY OR STRAW 1.5-2 TONS/ACRE

A) GRADING AND SHAPING
1) 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.

B) SEED BED PREPARATION
1) SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
2) 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 A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.

EROSION AND SEDIMENTATION CONTROL GENERAL NOTES

1. CONDUCT ALL CONSTRUCTION IN A MANNER AND SEQUENCE THAT CAUSES THE LEAST PRACTICAL DISTURBANCE OF THE PHYSICAL ENVIRONMENT, BUT IN NO CASE SHALL EXCEED 2 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
2. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
3. ALL DITCHES, SWALES AND PONDS MUST BE STABILIZED PRIOR TO DIRECTING FLOW TO THEM.
4. ALL GROUND AREAS OPENED UP FOR CONSTRUCTION WILL BE STABILIZED WITHIN 24 HOURS OF EARTH-DISTURBING ACTIVITIES BEING CEASED, AND WILL BE FULLY STABILIZED NO LONGER THAN 14 DAYS AFTER INITIATION, (SEE NOTE 11 FOR DEFINITION OF STABLE). ALL SOILS FINISH GRADED MUST BE STABILIZED WITHIN SEVENTY TWO HOURS OF DISTURBANCE. ALL TEMPORARY OR LONG TERM SEEDING MUST BE APPLIED TO COMPLY WITH "WINTER CONSTRUCTION NOTES" (SEE WINTER CONSTRUCTION NOTES). EMPLOY TEMPORARY EROSION AND SEDIMENTATION CONTROL DEVICES AS DETAILED ON THIS PLAN AS NECESSARY UNTIL ADEQUATE STABILIZATION HAS BEEN ASSURED (SEE NOTE 11 FOR DEFINITION OF STABLE).
5. TEMPORARY & LONG TERM SEEDING: USE SEED MIXTURES, FERTILIZER, LIME AND MULCHING AS RECOMMENDED (SEE SEEDING AND STABILIZATION NOTES).
6. SILTSOXX FENCING TO BE SECURELY EMBEDDED AND STAKED AS DETAILED. WHEREVER POSSIBLE A VEGETATED STRIP OF AT LEAST TWENTY FIVE FEET IS TO BE KEPT BETWEEN SILTSOXX AND ANY EDGE OF WET AREA.
7. SEEDED AREAS WILL BE FERTILIZED AND RE-SEEDED AS NECESSARY TO ENSURE VEGETATIVE ESTABLISHMENT.
8. SEDIMENT BASIN(S), IF REQUIRED, TO BE CHECKED AFTER EACH SIGNIFICANT RAINFALL AND CLEANED AS NEEDED TO RETAIN DESIGN CAPACITY.
9. SILTSOXX FENCING WILL BE CHECKED REGULARLY AND AFTER EACH SIGNIFICANT RAINFALL. NECESSARY REPAIRS WILL BE MADE TO CORRECT UNDERMINING OR DETERIORATION OF THE BARRIER AS WELL AS CLEANING, REMOVAL AND PROPER DISPOSAL OF TRAPPED SEDIMENT.
10. TREATMENT SWALES WILL BE CHECKED WEEKLY AND REPAIRED WHEN NECESSARY UNTIL ADEQUATE VEGETATIVE COVER HAS BEEN ESTABLISHED.
11. AN AREA SHALL BE CONSIDERED FULLY STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    - BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED
    - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
    - A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED.
    - EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
12. ALL EROSION AND SEDIMENTATION CONTROL MEASURES IN THE PLAN SHALL MEET THE DESIGN BASED ON STANDARDS AND SPECIFICATIONS SET FORTH IN THE STORM WATER MANAGEMENT AND EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE (DECEMBER 2008 OR LATEST) PREPARED BY ROCKINGHAM COUNTY CONSERVATION DISTRICT, N.H. DES AND NRCS.

WINTER CONSTRUCTION NOTES

1. ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPETED IN ADVANCE OF THAW OR SPRING MELT EVENT.;
2. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;
3. AFTER OCTOBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.

LONG TERM SEEDING

*WELL TO MODERATELY WELL DRAINED SOILS

FOR CUT AND FILL AREA AND FOR WATERWAYS AND CHANNELS

SEEDING MIXTURE C

	lb/ACRE	lb/1000SF
TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
RED CLOVER (ALSIKE)	20	0.45
TOTAL	48	1.35

LIME: AT 2 TONS PER ACRE OR 100 LBS PER 1,000 S.F.
FERTILIZER: 10 20 20 (NITROGEN, PHOSPHATE, POTASH AT 500# PER ACRE.
MULCH: HAY OR CLEAN STRAW; 2 TONS/ACRE OR 2 BALES/1000 S.F.

GRADING AND SHAPING:
SLOPES SHALL NOT BE STEEPER THAN 2 TO 1. 3 TO 1 OR FLATTER SLOPES ARE PREFERRED.
SEEDBED PREPARATION:
SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
STONES LARGER THAN FOUR INCHES AND TRASH SHOULD BE REMOVED.
SOD SHOULD BE TILLED TO A DEPTH OF FOUR INCHES TO PREPARE SEEDBED. FERTILIZER & LIME SHOULD BE MIXED INTO THE SOIL.
THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.

* FROM: STORMWATER MANAGEMENT AND EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE, DECEMBER 2008.

SHORT TERM SEEDING

*WELL TO MODERATELY WELL DRAINED SOILS

FOR CUT AND FILL AREA AND FOR WATERWAYS AND CHANNELS

SEEDING MIXTURE C

	#/ACRE	#/1000SF
FOR APRIL 1 - AUGUST 15		
ANNUAL RYE GRASS	40	1
FOR FALL SEEDING		
WINTER RYE	112	2.5

LIME: AT 1 TON PER ACRE OR 100 LBS PER 1,000 S.F.
FERTILIZER: 10 10 10 (NITROGEN, PHOSPHATE, POTASH AT 500# PER ACRE.
MULCH: HAY OR CLEAN STRAW; 2 TONS/ACRE OR 2 BALES/1000 S.F.

GRADING AND SHAPING:
SLOPES SHALL NOT BE STEEPER THAN 2 TO 1. 3 TO 1 OR FLATTER SLOPES ARE PREFERRED.
SEEDBED PREPARATION:
SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
STONES LARGER THAN FOUR INCHES AND TRASH SHOULD BE REMOVED.
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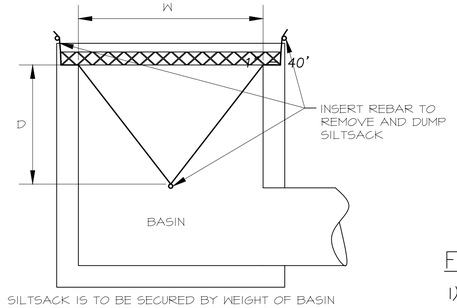
THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.

* FROM: STORMWATER MANAGEMENT AND EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE, DECEMBER 2008.

WHEN PROPOSED FOR ALTERATION DURING CONSTRUCTION AS BEING INFESTED WITH INVASIVE SPECIES SHALL BE MANAGED APPROPRIATELY USING THE DISPOSAL PRACTICES IDENTIFIED IN "NHDOT - BEST MANAGEMENT PRACTICES FOR ROADSIDE INVASIVE PLANTS -2008" AND "METHODS FOR DISPOSING NON-NATIVE INVASIVE PLANTS - UNH COOPERATIVE EXTENSION - 2010"

SEED MIXES SHALL NOT CONTAIN ANY SPECIES IDENTIFIED BY THE NEW HAMPSHIRE PROHIBITED INVASIVE PLANT SPECIES LIST.



SILTSACK IS TO BE SECURED BY WEIGHT OF BASIN GRATE TO PREVENT SEDIMENT FROM ENTERING THE DRAIN LINE

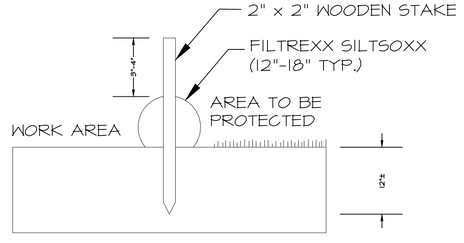
INSTALL SILTSACK TO CATCH BASINS 1, 2, & 3 PRIOR TO CONSTRUCTION & TO CATCH BASINS A, B, C & D DURING CONSTRUCTION. DO NOT REMOVE SILTSACK UNTIL CONSTRUCTION IS COMPLETE.

Siltsack
N.T.S.

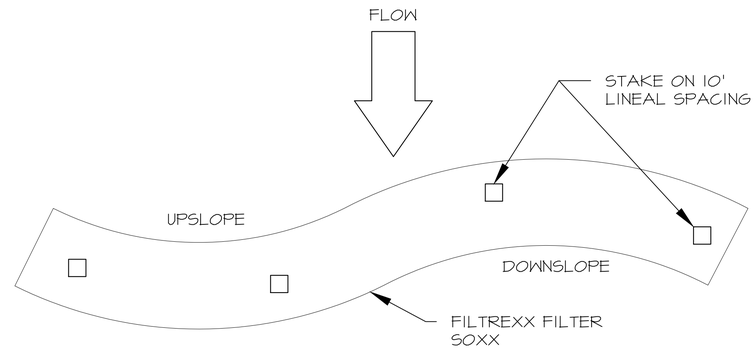
FILTREXX SILTSOXX NOTES

1) ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS

2) SILTSOXX COMPOST, SOIL, ROCK, SEED FILL TO MEET APPLICATION REQUIREMENTS



Filtrexx SiltSoxx Section
N.T.S.



Filtrexx SiltSoxx Plan View
N.T.S.

ISS.	DATE	DESCRIPTION OF ISSUE
6	6/30/2023	PB SUBMITTAL
5	6/2/2023	CC SUBMITTAL
4	5/30/2023	PB SUBMITTAL
3	2/6/2023	ZBA SUBMITTAL
2	1/3/2023	FOR REVIEW

SCALE
CHECKED A.ROSS
DRAWN D.D.D.

ROSS ENGINEERING
Civil/Structural Engineering & Surveying
909 Islington St.
Portsmouth, NH 03801
(603) 433-7560

CLIENT
DAVID A. RICHARDS
14 HOBART ST
EXETER, NH 03833

TITLE
EROSION CONTROL PLAN

14 Hobart St
EXETER, NH 03833
TAX MAP 74, LOT 88

JOB NUMBER 22-049 | DWG. NO. 6 OF 6 | ISSUE 6

R. ALEX ROSS No. 9409 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE

TOWN OF EXETER

Planning and Building Department

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

www.exeternh.gov

Date: **July 6, 2023**

To: **Planning Board**

From: **Dave Sharples, Town Planner**

Re: **Eversource Energy** **PB Case #23-9**

The Applicant is seeking approval of a Wetlands Conditional Use Permit (CUP) for proposed replacement of thirty-six (36) existing transmission poles associated with the A126 and H141 lines within the existing Eversource ROW in various locations. The project is being identified as the RASH Structure Replacement project.

The subject properties included in the project footprint are located in the RU-Rural and R-1, Low Density Residential zoning districts and are identified as Tax Map Parcels # 30-8, 30-9, 29-31, 29-32, 28-3, 28-6, 28-13, 28-18, 17-19, 18-3, 19-3, 19-2, 19-1, 19-16, 19-16-1, 24-1, 25-1, 20-8, 24-3 & 24-30

The Applicant submitted plans and supporting documents, dated May 30, 2023, which are enclosed for your review.

The Applicant appeared before the Conservation Commission at their June 13th, 2023 meeting and presented their proposal. The Commission had no objection to the application and recommended approval, as presented. A copy of the draft meeting minutes and a memo from Conservation and Sustainability Planner Kristen Murphy, dated June 27, 2023, are enclosed for your review.

No TRC meeting was held but the materials were distributed to staff for review. If any comments are received I will update the board at the meeting.

There are no waivers being requested for this application. I will be prepared with suggested conditions of approval at the meeting in the event the board decides to act on the request.

Our office has received notification that Normandeau Associates, on behalf of the Applicant, has filed a Utility Maintenance Activity Statutory Permit-by-Notification with the NH Department of Environmental Services.

Planning Board Motion:

Conditional Use Permit (Wetlands) Motion: After reviewing the criteria for a Wetlands Conditional Use permit, I move that the request of Eversource Energy (PB Case #23-9) for a Conditional Use Permit be APPROVED / APPROVED WITH THE FOLLOWING CONDITIONS / TABLED / DENIED.

Thank You.

Enclosures

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

May 25, 2022

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

Re: Town of Exeter Conditional Use Permit Application
Letter of Intent and Authorization
RASH Structure Replacement Project – Exeter, New Hampshire

Dear Mr. Plumer:

On behalf of Eversource Energy (Eversource), Normandeau Associates, Inc. (Normandeau) is submitting this Conditional Use Permit Application for proposed utility maintenance work on the existing A126 and H141 115-kV transmission lines in Exeter, NH. This Conditional Use Permit is being submitted in accordance with *Article 9.1.6* of the Town's Zoning Ordinance. A Conditional Use Permit is required for the proposed maintenance work to allow impacts to wetlands protected under the Wetlands Conservation District and their associated buffers.

Project Description

Eversource proposes to replace thirty-six (36) existing 115-kV transmission poles associated with the existing A126 and H141 lines in several stretches of the existing Eversource ROW: from the Brentwood-Exeter boundary line near Route 101; off Old Town Farm Road; and from Beechhill Road to Raynes Farm off Newfields Road. Replacement of these structures is necessary to continue providing reliable electrical power to customers while maintaining safe operation. The structures will be replaced in-kind as H-frame configurations; however, structure will need to be increased in height generally 0-15 feet to meet current National Electrical Safety Code requirements. The new structures will be steel rather than wood as the steel is expected to last longer and be less susceptible to environmental degradation such as woodpeckers, weathering, and rot. Most of the structures to be replaced are in upland areas, however several structures are located within wetlands themselves or their upland buffers.

The proposed project is scheduled to commence in August 2023 following receipt of all regulatory approvals. The project will utilize existing access routes within the existing Eversource ROW to the greatest extent practicable through on-site evaluations of access routes and work pad placements. Work will be conducted in accordance with Eversource's standard Best Management Practices (BMPs) as designated by the *NHDES Best Management Practices Manual for Utility Maintenance in and Adjacent to Wetlands and Waterbodies in New Hampshire* dated March 2019. Where necessary, perimeter protective measures consisting of wildlife-friendly silt fence, straw wattle, mulch, ECM berms, or straw bales will be installed around the structures to minimize potential impacts to nearby resource areas. All protective measures will be wildlife friendly and not contain openings larger than 1/8-inch square. Water bars will be installed in areas of road improvements with steep slopes as identified by the Contractor. If necessary and based on localized site conditions, a silt fence may be used. Erosion controls will be implemented during construction as detailed in Attachment B – Construction Plan Set note sheets 1 through 3 to minimize potential impacts during construction. Mowing of shrubs and

saplings will occur as necessary as part of establishing access routes and work pads for the project; however no tree clearing or expansion of the right-of-way (ROW) is proposed.

In upland areas, existing access routes are proposed to be improved as part of this project through the application of top dressing with gravel/stone up to 16-foot-wide and new gravel roads shall be established where there are no existing roads/trails. Gravel work pads a maximum of 100-ft by 100-ft will be constructed around structures to be replaced in upland area. These work pads are necessary to stage the construction equipment and vehicles necessary to replace the structures. Work pads will be constructed using clean modified stone and will be top-dressed with smaller diameter clean stone.

Timber matting (16-foot by 4-foot) will be used to construct access roads and work pads in and immediately adjacent to all wetlands and where temporary stream crossings are required, as well as in upland areas where an access road or work pad is in a maintained property owner lawn, farm fields, and near or within sensitive archaeological resource areas. Timber matting will be placed from either upland areas or from timber matting that has already been installed, thereby limiting soil disturbance.

Following access and work pad establishment, the structures to be replaced will be cut at the ground surface. In addition to the removal of old structures, old cross-arms, wires, and accessory equipment will be removed off-site and disposed of. Old structure butts may be dug up and removed depending on field conditions and whether the remaining pole butt would impact the structural integrity of new structures. Installation of the replacing structures consists of drilling an approximately 4-ft diameter hole for each pole to install a caisson approximately 7 to 15 ft below the ground surface. New structure poles will be installed in caissons and backfilled with clean, suitable materials. Spoils produced from drilling will be disposed in approved upland areas at a minimum distance of 100 feet from wetland areas.

Upon completion of the structure replacement work, the gravel upland work pads will be reduced to a 30-foot by 60-foot gravel maintenance work pad. Timber matting will be removed in the reverse of the process used to install the mats with equipment working from non-wetland areas or other mats. The restored portions of the gravel work pads and disturbed upland areas in proximity to the project area will be seeded and mulched with straw for stabilization. Soil disturbance where timber matting is used is expected to be minimal and appropriate restoration measures will be implemented where required including application of wetland or upland seed mix. Additionally, removal of BMPs will occur during these restoration activities. The improvement and/or establishment of the gravel upland access roads and maintenance roads and maintenance work pads will provide reliable, permanent, and efficient access to utility structures for future maintenance activities and when emergency repairs are required.

Natural Resources

Portions of the proposed project will take place within the Town of Exeter Wetlands Conservation Overly District. Eight of the structures to be replaced are located in wetlands, while others and their associated access routes and work pads will also result in temporary impacts to wetlands and temporary and permanent impacts to their upland buffers.

Wetlands along the project ROW were previously delineated in 2013/2014 by Vanasse Hangen Brustlin (VHB) and GZA GeoEnvironmental, Inc (GZA). On April 11th and 13th, 2023, Normandeau Associates, Inc. (Normandeau) wetland scientists, including a NH Certified Wetland Scientist, reviewed and confirmed all previously delineated wetland areas in the vicinity of work areas associated with this project and confirmed or adjusted boundaries as needed within the project areas. Wetland boundary review was performed in

accordance with the *Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0* (January 2012), the *Northcentral-Northeast Regional Wetland Plant List* published by the U.S. Army Corps of Engineers, the *Field Indicators of Hydric Soils in the United States, Version 8.2* published by the Natural Resources Conservation Service ("NRCS"), and the *Field Indicators for Identifying Hydric Soils in New England, Version 4* published by the New England Interstate Water Pollution Control Commission. Wetlands were classified following the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979, revised 1998). Functions and values were assessed using the *Highway Methodology Workbook Supplement* (USACE, 1999).

The wetlands that were delineated within the project area are primarily palustrine scrub-shrub (PSS) and palustrine emergent (PEM) wetlands. The vegetation along the ROW is routinely maintained via mechanical mowing to maintain a safe vertical distance between vegetation and the existing transmission lines, thus maintaining a shrub/emergent habitat. Species typically found within these wetlands include tree species, which are not permitted to grow beyond a sapling growth stage, including red maple (*Acer rubrum*), poplar (*Populus* spp.), and birch (*Betula* spp.). Common shrub species found within these wetlands include meadowsweet (*Spirea* spp.), winterberry (*Ilex verticillata*), speckled alder (*Alnus incana*), and willow (*Salix* spp.). PEM wetlands are typically dominated by New England aster (*Symphyotrichum novae-angliae*), woolgrass (*Scripus cyperinus*), interrupted fern (*Osmunda claytoniana*), sensitive fern (*Onoclea sensibilis*), and bristly dewberry (*Rubis hispidus*), cinnamon fern (*Osmundastrum cinnamoemeum*), sedges (*Carex* spp.), cattail (*Typha latifolia*) and other typical herbaceous species.

Soil series within these wetlands vary greatly, but typically consist of stony glacial tills. Evidence of hydrology observed during field studies include drainage patterns, saturated soils, geomorphic position, water-stained leaves, and a water table observed within 10 inches of the soil surface. Common functions and values observed in these wetlands include floodflow alteration, groundwater recharge/discharge, sediment/toxicant retentions, nutrient removal/retention, and wildlife habitat.

A total of seven of the twenty-nine wetlands within the project area are mapped as Prime Wetland and three contain a vernal pool. Wetlands in the vicinity of the project were mapped with upland buffers in accordance with the Town's Zoning Ordinance ranging from 40 to 100 feet. The exceptions to this were wetlands EXW15 and EXW24 for which no upland buffer was mapped due to the determination that they are wetlands with somewhat poorly drained soils, a category that is not outlined as requiring an upland buffer in the Town's Zoning Ordinance.

Please see Attachment B – USGS Topographic Map and Construction Plan Set for the overall project locations and aerial photo maps showing the proposed impact footprint, wetland locations and type, and upland buffers. The buffers for wetlands within the project area were determined by a NH Certified Wetland Scientist based the criteria outlined in *Article 9.1.3* of the Town's Zoning Ordinance.

Proposed Impacts

The proposed work to replace 36 structures on the A126 and H141 lines will require approximately 102,790 square feet (SF) of temporary wetland impacts for matting in wetlands, 43,204 SF of temporary impacts to upland buffers where gravel access routes shall be removed following completion of work in alignment with the previous agreement with the Town of Exeter to restore all disturbed areas between Watson Road and Captains Way, and 107,156 SF of permanent impacts to upland buffers for the establishment of new gravel

access roads and work pads. No permanent impacts within wetlands, streams, vernal pools, or the buffers of vernal pools is proposed.

Table 1. Summary of Determined Wetland Buffers, Soil Drainage Classifications, and Cowardin Classifications.

Wetland ID	Determined Buffer (ft)	Soils (Drainage Classification)	Cowardin Class (%)
EXW1*	100	Poorly drained	PSS1B (100%)
EXW2*	100	Poorly drained	PSS1E (100%)
EXW3*	100	Very poorly drained	PSS1E (100%)
EXW4*	100	Poorly drained	PSS1E (100%)
EXW6	40	Poorly drained	PSS1E (100%)
EXW7	40	Poorly drained	PSS1B (100%)
EXW8	40	Poorly drained	PSS1E (100%)
EXW10	40	Poorly drained	PSS1E (100%)
EXW11*	100	Very poorly drained	PSS1E (100%)
EXW12*	100	Very poorly drained	PEM1E/PSS1E (90/10%)
EXW13	50	Very poorly drained	PFO1E (100%)
EXW14+	50	Very poorly drained	PSS1E (100%)
EXW15	No buffer	Somewhat poorly drained	PSS1E (100%)
EXW16+	50	Very poorly drained	PEM1E/PFO1E (90/10%)
EXW17	50	Very poorly drained	PSS1E(100%)
EXW18*	100	Very poorly drained	PEM1E/PSS1E (80/20%)
EXW19+	50	Very poorly drained	PEM1E/PSS1E (80/20%)
EXW20	40	Poorly drained	PSS1F (100%)
EXW21	50	Very poorly drained	PSS1E (100%)
EXW22	50	Very poorly drained	PFO1F (100%)
EXW23	50	Very poorly drained	PSS1E (100%)
EXW24	No buffer	Somewhat poorly drained	PEM1E (100%)
EXW25	40	Poorly drained	PSS1B (100%)
EXW26	50	Very poorly drained	PEM1E/PSS1E (90/10%)
EXW27	50	Very poorly drained	PSS1E (100%)
EXW28	40	Poorly drained	PEM1B (100%)
EXW29	40	Poorly drained	PEM1E (100%)

* Prime Wetland.
+ Contains vernal pool.

Conditional Use Permit – Permissible Uses

In accordance with the requirements for a Conditional Use Permit, the construction and maintenance of powerlines in the Wetlands Conservation District is an allowable use if the Planning Board determines the conditions found in *Article 9.1.6.B* of the Town's Zoning Ordinance are met. Evidence that the proposed project meets these conditions is provided below.

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

   The proposed project is maintenance of existing utility assets within an existing transmission line ROW. This maintenance is proposed to increase the reliability of the transmission lines within the ROW. Since the Eversource 115-kV transmission system is an integral part of the regional power system delivering electricity to customers throughout New England, it is critical that the 115-kV system remain operational without interruption from preventable outages. This project to replace these selected wooden structures with steel structures contributes to Eversource's regional effort to reduce the need for future work and emergency repairs.

2. ***No alternative design which does not impact a wetland or wetland buffer or which has less detrimental impact on the wetland or wetland buffer is feasible.***

   The least impactful access route and work pad alignment has been chosen to complete the structure replacement within the Wetlands Conservation District. The project will utilize existing access routes within the existing ROW to the greatest extent practicable. Selection of new access routes were made through a combination of on-site evaluations of potential access routes and remote mapping informed with wetland delineations to avoid wetland and upland buffer impacts to the greatest extent practicable.

3. ***A wetland scientist has provided an impact evaluation that includes the "functions and values" of the wetland(s), an assessment of the potential project-related impacts, and concluded to the extent feasible, the proposed impact is not detrimental to the value and functions of the wetland(s) or the greater hydrologic system.***

   As stated above, common functions and values observed in the wetlands in the vicinity of the proposed work include floodflow alteration, groundwater recharge/discharge, sediment/toxicant retentions, nutrient removal/retention, and wildlife habitat. In wetland areas, temporary timber matting will be used to construct access routes and work pads to reduce impacts to the wetlands by reducing soil compaction through more even distributing of the weight of the heavy equipment necessary to complete the work. Proposed structure replacements in wetland areas are in-kind with existing structures, and therefore there will not be a net increase of structures within wetland areas. The combination of timber matting and in-kind replacements will not have a detrimental effect on the existing functions and values of wetlands within the existing ROW. Erosion control BMPs, restoration, and other BMPs in coordination with NHDES and NHFG will further serve to minimize impacts to wetlands, streams and the greater hydrologic systems.

   In upland areas, proposed impacts have been minimized where possible, while still allowing for safe and stable work areas. Work pads will be reduced in size to 30-feet by 60-feet and all disturbed areas will be stabilized following construction. The same erosion control BMPs, restoration, and other BMPs will further serve to minimize impacts to wetlands, streams and the greater hydrologic systems located near proposed work areas.

   Eversource has minimized the project's impact on wetlands, streams, and other associated areas to the greatest extent feasible. Maintenance within Eversource's transmission line ROWs is frequently needed to maintain reliable service for Eversource customers and for the surrounding states which rely upon Eversource's network of transmission lines and substations. Construction of reliable access roads within upland areas to support current and future maintenance activities will reduce the need for frequent re-disturbance each time a maintenance activity is required. Over time, this will result in a

reduction of impacts to areas near existing structures and in upland areas located between other structures.

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.***

   Eversource will use timber matting in wetland areas located with the Wetlands Conservation Overlay District. Timber mats will limit the amount of soil disturbance and impact of the project on wetland and wetland buffer functions and values. Following work at the site, the timber matting will be removed and any exposed soils will be stabilized and seeded with the appropriate upland or wetland seed mix. Existing vegetation, temporarily mowed, will be allowed to revegetate naturally within the matted work areas associated with the Wetlands Conservation Overlay District. All disturbed areas on the stretch between Watson Road and Captain's Way will be restored to pre-construction conditions in alignment with a previous agreement with the Town of Exeter. During project work, crews will install and maintain erosion and sediment control barriers in accordance with the permitting plans and details, New Hampshire Department of Environmental Services (NHDES) conditions, and the *Best Management Practices Manual for Utility Maintenance in and Adjacent to Wetlands and Waterbodies in New Hampshire* ('Utility BMP Manual,' March 2019), published by the New Hampshire Department of Natural and Cultural Resources (NHDNCR).

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

   Only temporary impacts to wetlands are proposed and no risks to individual or public health are anticipated as part of this project work.

6. ***The applicant may propose an increase in wetland buffers elsewhere on the site that surround a wetland of equal or greater size, and of equal or greater functional value than the impacted wetland.***

   All impacts to wetlands shall be temporary and no increase to any wetland buffers is proposed as part of this maintenance project.

7. ***In cases where the proposed use is temporary or where construction activity disturbs areas adjacent the immediate use, the applicant has included a restoration proposal revegetating any disturbed areas within the buffer with the goal to restore the site as nearly as possible to its original grade and condition following construction.***

   The timber matting proposed in wetland and upland areas will limit the amount of soil disturbance and impact of the project on wetland and wetland buffer functions and values. Following removal of these timber mats and removal of gravel access roads and work pads between Watson Road and Captain's Way, exposed soils will be stabilized and seeded with the appropriate upland or wetland seed mix. Existing vegetation, temporarily mowed for the project work, will be allowed to revegetate naturally within the matted work areas associated with the Wetlands Conservation Overlay District.

8. ***That all required permits shall be obtained from the New Hampshire Department of Environmental Services Water Supply and Pollution Control Division under NH RSA §485-A: 17, the New Hampshire***

Wetlands Board under NH RSA §483-A, and the United States Army Corps of Engineers under Section 404 of the Clean Water Act.

Other regulatory permits and notifications anticipated for the proposed work in Exeter are summarized below:

Agency	Permit/Notification	Status
Local		
Town of Exeter	Conditional Use Permit	*Pending*
State		
NHDES Alteration of Terrain Bureau	Alteration of Terrain Permit	*Pending*
NHDES Wetlands Bureau	One Utility Maintenance Activity Statutory Permit-By-Notifications (SPN)	*Pending*
NHDES Shorelands Program	One Shoreland Permit By Notifications (PBN)	*Pending*
Federal		
EPA (Construction General Permit)	Stormwater Pollution Prevention Plan (SWPPP) and USACE Self-Verification under the NH CGP	*Pending*

Property Ownership and Abutters

All proposed work will occur within the limits of an existing electric utility ROW that is either owned in fee or maintained as easement by Eversource. All owners of parcels where impacts related to the project are to occur, as well as owners of parcels who abut or are located across the street from these properties will be notified of the proposed project in accordance with the Town of Exeter's Conditional Use Permit application process. Please see Attachment A for the lists of the tax map numbers, address, and property owners for all properties within the project footprint and all abutters. Please see Attachment C for a notification letter for all property owners within and abutting the project and for the relevant easement numbers.

If you have questions or require additional information, please contact Mr. William McCloy at 802.855.1246 or wmccloy@normandeau.com.

Sincerely,

William McCloy, NH CWS, PWS

Project Manager

ATTACHMENT A - Town of Exeter Conditional Use Permit Application Form

Town of Exeter

Planning Board Application for Conditional Use Permit:

Wetlands Conservation Overlay District

March 2020

Town of Exeter Planning Board Application

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

SUBMITTAL REQUIREMENTS: **(Note: See Application Deadlines and Submission Requirements for Conservation Commission 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**

(229 abutters x Abutter Fee) + Planning Board Fee = $2,340.00

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: Jeremy Fennell [Eversource Energy]
	Address: 13 Legends Drive Hooksett, NH 03106
	Email Address: jeremy.fennell@eversource.com
	Phone: 603-634-3396
PARCELS IN PROPOSED PROJECT FOODPRINT (20)	Address: Epping Road Exeter, NH 03833
	Tax Map #30 Lot#8 Zoning District: I
	Owner of Record: Silver Granada Realty, LLC
	Address: Epping Road Exeter, NH 03833
	Tax Map #30 Lot#9 Zoning District: RU
	Owner of Record: Properties, Inc.
	Address: 289 Epping Road Exeter, NH 03833
	Tax Map #29 Lot#31 Zoning District: R-1
	Owner of Record: Michelle Lebor

	Address: 279 Eppings Road Exeter, NH 03833
	Tax Map #29 Lot#32 Zoning District: R-1
	Owner of Record: Carl E. Bouchard
	Address: Old Town Farm Road Exeter, NH 03833
	Tax Map #28 Lot#3 Zoning District: RU
	Owner of Record: Robert M. Noel
	Address: 36 Old Town Farm Road Exeter, NH 03833
	Tax Map #28 Lot#6 Zoning District: RU
	Owner of Record: Kenneth Bolster
	Address: Old Town Farm Road
	Tax Map #28 Lot#13 Zoning District: RU
	Owner of Record: Town of Exeter
	Address: 27 Old Town Farm Road
	Tax Map #28 Lot#18 Zoning District: R-1
	Owner of Record: Michael D. Wissler
	Address: Beech Hill Road
	Tax Map #17 Lot#19 Zoning District: RU
	Owner of Record: State of New Hampshire
	Address: 70 Beech Hill Road
	Tax Map #18 Lot#3 Zoning District: RU
	Owner of Record: Kenneth P. Barker II
	Address: 104 Watson Road
	Tax Map #19 Lot#3 Zoning District: RU
	Owner of Record: St. Laurent Irrevocable Trust
	Address: 102 Watson Road
	Tax Map #19 Lot#2 Zoning District: RU
	Owner of Record: Joshua E. Bauer
	Address: 90 Watson Road
	Tax Map #19 Lot#1 Zoning District: RU
	Owner of Record: Matthew N. Ross
	Address: Watson Road
	Tax Map #19 Lot#16 Zoning District: RU
	Owner of Record: Town of Exetor
	Address: Watson Road
	Tax Map #19 Lot#16-1 Zoning District: None provided
	Owner of Record: Oaklands Forest Ridge
	Address: 54 Newfields Road
	Tax Map #24 Lot#1 Zoning District: RU
	Owner of Record: Keith Randall Limberg II
	Address: Newfields Road
	Tax Map #25 Lot#1 Zoning District: RU
	Owner of Record: Town of Exeter

	Address: The Oaklands
	Tax Map #____20____ Lot#____8____ Zoning District: None provided
	Owner of Record: Town of Exeter
	Address: Newfields Road
	Tax Map #____24____ Lot#____3____ Zoning District: ____RU____
	Owner of Record: Captains Meadow Homeowners
	Address: 61 Newfields Road
	Tax Map #____24____ Lot#____30____ Zoning District: ____RU____
	Owner of Record: Town of Exeter
Person/Business performing work outlined in proposal	Name: Jeremy Fennell [Eversource Energy]
	Address: 13 Legends Drive Hooksett, NH 03106
	Phone: 603-634-3396
Professional that delineated wetlands	Name: William McCloy [Normandeau Associates, Inc.
	Address: 25 Nashua Road Bedford, NH 03110
	Phone: 802-861-7038

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)

Please see the attached Cover Letter Report.

Wetland Conservation Overlay District Impact (in square footage):

	Wetland:	(SQ FT.)	Buffer:	(SQ FT.)
Temporary Impact Temporary impacts are defined as areas which are to be matted or areas where gravel access road or work pad will be restored to pre-construction conditions following completion of work.	☒ Prime Wetlands	89,880	☒ Prime Wetlands	11,134
	☐ Exemplary Wetlands		☐ Exemplary Wetlands	
	☐ Vernal Pools (>200SF)		☒ Vernal Pools (>200SF)	17,663
	☒ VPD	8,754	☒ VPD	9,789
	☒ PD	4,072	☒ PD	3,504
	☒ Inland Stream	84	☒ Inland Stream	1,114
Permanent Impact	Wetland:		Buffer:	
	☐ Prime Wetlands		☒ Prime Wetlands	69,572
	☐ Exemplary Wetlands		☐ Exemplary Wetlands	
	☐ Vernal Pools (>200SF)		☐ Vernal Pools (>200SF)	
	☐ VPD		☒ VPD	27,452
	☐ PD		☒ PD	10,132
	☐ Inland Stream		☐ Inland Stream	

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

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

Please see the attached Cover Letter Report.

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

TAX MAP 029-010-0001
NAME Silver Granada Realty LLC
ADDRESS 131 Pine Rd, Brentwood NH 03833

TAX MAP 029-030-0000
NAME Joseph G. Clark
ADDRESS PO Box 383, Newfields NH 03856

TAX MAP 018-004-0000
NAME State of New Hampshire
ADDRESS 11 Hazen Dr, Concord NH 03301

TAX MAP 021-001-0000
NAME Captain Meadows Homeowners
ADDRESS PO Box 544, Exeter NH 03833

TAX MAP 018-004-0021
NAME Publicover Eric Dean Revocable Trust
ADDRESS 8 Oaklands Rd, Exeter NH 03833

TAX MAP 035-003-0008
NAME Joseph King
ADDRESS 685 Third Ave 4th Fl, New York NY 10017

TAX MAP 029-022-0000
NAME Homeowners Association
ADDRESS 6 Anna Louise Dr, Exeter NH 03833

TAX MAP 018-002-0000
NAME Kenneth P. Barker II
ADDRESS 62 Beech Hill Rd, Exeter NH 03833

TAX MAP 027-012-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAXMAP 030-010-0000
NAME State of New Hampshire
ADDRESS PO BOX 483, Concord NH 03302

TAX MAP 028-007-0000
NAME Kasnet Revocable Trust
ADDRESS 42 Old Town Farm Rd, Exeter NH 03833

TAXMAP 019-005-0000
NAME Perrin T. Prescott Revocable Trust
ADDRESS 110 Watson Rd, Exeter NH 03833

TAX MAP 028-014-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 018-008-0000
NAME Michael L. Perreault
ADDRESS 9 Oaklands Rd, Exeter NH 03833

TAX MAP 030-004-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 028-019-0000
NAME Hilary M Skovron H Trust
ADDRESS 25 Old Town Farm Rd, Exeter NH 03833

TAX MAP 018-009-0000
NAME Edward J. Kotkowski
ADDRESS 7 Oaklands Rd, Exeter NH 03833

TAX MAP 019-016-0011
NAME Mark E. Johnson
ADDRESS 4 Wood Ridge Ln, Exeter NH 03833

Please attach additional sheets if needed

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

TAX MAP 035-003-0007
NAME Dustin R. Garvey
ADDRESS 14 Walters Way, Exeter NH 03833

TAX MAP 023-004-0000
NAME Boston and Maine Railroad
ADDRESS 1700 Iron Horse Park, North Billerica MA 01862

TAX MAP 016-004-0000
NAME Exeter Region Cooperative
ADDRESS 30 Linden St, Exeter NH 03833

TAX MAP 028-005-0000
NAME David E. Richard
ADDRESS 26 Old Town Farm Rd, Exeter NH 03833

TAX MAP 028-015-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 018-011-0000
NAME Vincent P. Corson
ADDRESS 3 Oaklands Rd, Exeter NH 03833

TAX MAP 026-013-0000
NAME Ellen Whitman TR
ADDRESS 84 Watson Rd, Exeter NH 03833

TAX MAP 020-002-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 031-010-0000
NAME Stephanie L. Shea-Estabrook
ADDRESS 263 Epping Rd, Exeter NH 03833

TAXMAP 020-001-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 030-002-0001
NAME Carl E. Bouchard
ADDRESS PO Box 219, Exeter NH 03833

TAXMAP 031-009-0000
NAME Field and Forest Realty Trust
ADDRESS PO Box 189, Rollinsford NH 03869

TAX MAP 017-009-0000
NAME State of New Hampshire
ADDRESS 11 Hazen Dr, Concord NH 03301

TAX MAP 018-001-0000
NAME 249 Atlantic LLC
ADDRESS 16 Stone Meadow Way, Greenland NH 03840

TAX MAP 026-009-0000
NAME Elaine A. Mendzela Revocable Trust
ADDRESS 830 Radcliffe Ave, Pacific Palisades CA 90272

TAX MAP 019-016-0012
NAME Benjamin Thompson
ADDRESS 6 Wood Ridge Ln, Exeter NH 03833

TAX MAP 022-017-0000
NAME David Patrick Moore
ADDRESS 67 Newfields Rd, Exeter NH 03833

TAX MAP 028-004-0000
NAME Richard E. Croston
ADDRESS 22 Old Town Farm Rd, Exeter NH 03833

Please attach additional sheets if needed

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

TAX MAP 028-011-0000
NAME Bruce D. Michaud
ADDRESS 9A Old Town Farm Rd, Exeter NH 03833

TAX MAP 018-013-0000
NAME Shawn A. Roussin
ADDRESS 1 Oaklands Rd, Exeter NH 03833

TAX MAP 019-016-0013
NAME Greg Cochran
ADDRESS 8 Wood Ridge Ln, Exeter NH 03833

TAX MAP 020-003-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 028-002-0000
NAME Robert M. Noel
ADDRESS 18 Old Town Farm Rd, Exeter NH 03833

TAX MAP 027-009-0000
NAME Carl J. Korzeniewski
ADDRESS 56 Beech Hill Rd, Exeter NH 03833

TAX MAP 028-001-0000
NAME Frank J. Pickard
ADDRESS 14 Old Town Farm Rd, Exeter NH 03833

TAX MAP 019-016-0100
NAME Watson Woods Hmeown Assoc
ADDRESS 17 Commerce Dr, Bedford NH 03110

TAX MAP 027-007-0000
NAME John J. Casey III
ADDRESS 52 Beech Hill Rd, Exeter NH 03833

TAXMAP 027-010-0000
NAME Calkins Family Trust
ADDRESS 58 Beech Hill Rd, Exeter NH 03833

TAX MAP 026-011-0000
NAME William F. Hoyt
ADDRESS 82 Watson Rd, Exeter NH 03833

TAXMAP 024-032-0000
NAME Francis T. & Donna L. Harrington Rev Tr
ADDRESS 15 Ladyslipper Ln, Newmarket NH 03857

TAX MAP 031-011-0000
NAME Marshall J. Ramini
ADDRESS 261 Epping Rd, Exeter NH 03833

TAX MAP 028-012-0000
NAME Carol A. Eaton
ADDRESS 35 Old Town Farm Rd, Exeter NH 03833

TAX MAP 024-031-0000
NAME Trevor G. Roenick
ADDRESS 51 Newfields Rd, Exeter NH 03833

TAX MAP 027-008-0000
NAME Kenneth P. Swaine
ADDRESS 54 Beech Hill Rd, Exeter NH 03833

TAX MAP 024-002-0000
NAME Craig A. Maclean
ADDRESS 64 Newfields Rd, Exeter NH 03833

TAX MAP 019-016-0010
NAME Spencer E. Paulick
ADDRESS 2 Wood Ridge Ln, Exeter NH 03833

Please attach additional sheets if needed

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

TAX MAP 024-029-0000
NAME Benjamin C. Anderson
ADDRESS 66 Newfields Rd, Exeter NH 03833

TAX MAP 019-016-0005
NAME Jessica S. Johnson
ADDRESS 9 Wood Ridge Ln, Exeter NH 03833

TAX MAP 019-016-0006
NAME Eric R. Benson
ADDRESS 11 Wood Ridge Ln, Exeter NH 03833

TAX MAP 027-004-0000
NAME Matthew K. Greene
ADDRESS 44 Beech Hill Rd, Exeter NH 03833

TAX MAP 022-001-0000
NAME Julie L. Olson
ADDRESS 76 Newfields Rd, Exeter NH 03833

TAX MAP 019-016-0008
NAME Paul B. Satow
ADDRESS 15 Wood Ridge Ln, Exeter NH 03833

TAX MAP 027-002-0000
NAME Terrence Bickhardt
ADDRESS 30 Beech Hill Rd, Exeter NH 03833

TAX MAP 011-018-0024
NAME Christopher L. Walstad
ADDRESS 1 Terrys Way, Exeter NH 03833

TAX MAP 032-006-0000
NAME Paul R. Slemp
ADDRESS 5 Stella Way, Exeter NH 03833

TAXMAP 027-006-0000
NAME Gary Chamberlain Living Trust
ADDRESS 50 Beech Hill Rd, Exeter NH 03833

TAX MAP 027-005-0000
NAME Robert Mitrook
ADDRESS 46 Beech Hill Rd, Exeter NH 03833

TAXMAP 021-035-0000
NAME Bruce B. Norton Rev Tr
ADDRESS 74 Newfields Rd, Exeter NH 03833

TAX MAP 019-016-0007
NAME Sherry A. Merrifield
ADDRESS 13 Wood Ridge Ln, Exeter NH 03833

TAX MAP 027-003-0000
NAME Linda J. Haswell Rev Tr
ADDRESS 40 Beech Hill Rd, Exeter NH 03833

TAX MAP 021-036-0011
NAME Steber/Medanich 2006 Trust
ADDRESS 3 Sloans Brook Dr, Exeter NH 03833

TAX MAP 019-016-0009
NAME Ryan Cunningham
ADDRESS 17 Wood Ridge Ln, Exeter NH 03833

TAX MAP 021-036-0010
NAME Jonathan C. Everett
ADDRESS 5 Sloans Brook Dr, Exeter NH 03833

TAX MAP 019-016-0014
NAME Nicholas Devonshire
ADDRESS 10 Wood Ridge Ln, Exeter NH 03833

Please attach additional sheets if needed

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

TAX MAP 011-018-0023
NAME Heath R. Meattey
ADDRESS 3 Terry's Way, Exeter NH 03833

TAX MAP 019-016-0015
NAME Caitlin A. Desoye
ADDRESS 12 Wood Ridge Ln, Exeter NH 03833

TAX MAP 021-036-0008
NAME Stewart Family Trust
ADDRESS 9 Sloans Brook Dr, Exeter NH 03833

TAX MAP 019-016-0016
NAME Matthew A. Stough
ADDRESS 14 Wood Ridge Ln, Exeter NH 03833

TAX MAP 019-016-0056
NAME David P. Stewart
ADDRESS 16 Wood Ridge Ln, Exeter NH 03833

TAX MAP 019-016-0058
NAME Bradley A. Tumbleston
ADDRESS 20 Wood Ridge Ln, Exeter NH 03833

TAX MAP 011-018-0001
NAME Stephen Eugene Small
ADDRESS 19 Wood Ridge Ln, Exeter NH 03833

TAX MAP 011-018-0003
NAME Pemantell-Martel Family Rev Liv Tr
ADDRESS 23 Wood Ridge Ln, Exeter NH 03833

TAX MAP 011-018-0005
NAME Gabriel J. Klaff III
ADDRESS 27 Wood Ridge Ln, Exeter NH 03833

TAXMAP 021-036-0009
NAME James P. Despelteau
ADDRESS 7 Sloans Brook Dr, Exeter NH 03833

TAX MAP 011-018-0022
NAME Marc R. Bozenski
ADDRESS 5 Terry's Way, Exeter NH 03833

TAXMAP 027-011-0000
NAME Shawn P. Macdonald
ADDRESS 55 Beech Hill Rd, Exeter NH 03833

TAX MAP 011-018-0021
NAME Gordon Family Trust
ADDRESS 7 Terry's Way, Exeter NH 03833

TAX MAP 019-016-0057
NAME Messier Family Revocable Trust
ADDRESS 18 Wood Ridge Ln, Exeter NH 03833

TAX MAP 011-018-0012
NAME Melike B. Talay
ADDRESS 22 Wood Ridge Ln, Exeter NH 03833

TAX MAP 011-018-0002
NAME Jonathan C. Wilhelm
ADDRESS 21 Wood Ridge Ln, Exeter NH 03833

TAX MAP 011-018-0004
NAME Mark Severson
ADDRESS 25 Wood Ridge Ln, Exeter NH 03833

TAX MAP 011-018-0017
NAME Nutbrown Family Rev Trust
ADDRESS 4 Terry's Way, Exeter NH 03833

Please attach additional sheets if needed

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

TAX MAP 011-018-0007
NAME Robert L. Macomber
ADDRESS 31 Wood Ridge Ln, Exeter NH 03833

TAX MAP 011-018-0026
NAME David A. Oliver
ADDRESS 43 Oaklands Rd, Exeter NH 03833

TAX MAP 007-001-0000
NAME Davis Family Trust
ADDRESS 25 Oaklands Rd, Exeter NH 03833

TAX MAP 007-005-0000
NAME Avery True
ADDRESS 47 Oaklands Rd, Exeter NH 03833

TAX MAP 007-006-0000
NAME Thomas K. Bassett Living Trust
ADDRESS 41 Oaklands Rd, Newfields NH 03856

TAX MAP 010-001-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 010-009-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 010-008-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 020-006-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAXMAP 011-012-0000
NAME David A. Oliver
ADDRESS 43 Oaklands Rd, Exeter NH 03833

TAX MAP 011-013-0000
NAME Jack Stephen Jochums
ADDRESS 39 Oaklands Rd, Exeter NH 03833

TAXMAP 007-002-0000
NAME Davis Family Trust
ADDRESS 25 Oaklands Rd, Exeter NH 03833

TAX MAP 007-004-0000
NAME Christopher E. Soave
ADDRESS 55 Oaklands Rd, Newfields NH 03856

TAX MAP 011-011-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 010-007-0000
NAME Olive L. Rugg Tr
ADDRESS PO Box 1023, Newfields NH 03856

TAX MAP 010-010-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 020-005-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 020-007-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

Please attach additional sheets if needed

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

TAX MAP 035-002-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 011-018-0025
NAME Salvatore Renzulli
ADDRESS 2 Stone Ridge Ln, Exeter NH 03833

TAX MAP 019-016-0052
NAME Kristen L. Deshaies
ADDRESS 10 Stone Ridge Ln, Exeter NH 03833

TAX MAP 019-016-0050
NAME David N. Rasmussen Rev Tr
ADDRESS 11 Stone Ridge Ln, Exeter NH 03833

TAX MAP 019-016-0048
NAME Nichols Family Rev Tr
ADDRESS 7 Stone Ridge Ln, Exeter NH 03833

TAX MAP 019-016-0046
NAME Matthew Courchesne
ADDRESS 3 Stone Ridge Ln, Exeter NH 03833

TAX MAP 011-018-0020
NAME Daniel P. Mattson
ADDRESS 9 Terry's Way, Exeter NH 03833

TAX MAP 011-018-0016
NAME Michael P. Kumph
ADDRESS 6 Terry's Way, Exeter NH 03833

TAX MAP 011-018-0010
NAME Gregory R. Seaman
ADDRESS 37 Wood Ridge Ln, Exeter NH 03833

TAXMAP 026-015-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 019-016-0053
NAME Mohammd H. Golparvar
ADDRESS 8 Stone Ridge Ln, Exeter NH 03833

TAXMAP 019-016-0051
NAME Desjarlais Family Revocable Trust
ADDRESS 12 Stone Ridge Ln, Exeter NH 03833

TAX MAP 019-016-0049
NAME 9 Stone Ridge Ln
ADDRESS 9 Stone Ridge Ln, Exeter NH 03833

TAX MAP 019-016-0047
NAME Jean Marie McNamara
ADDRESS 5 Stone Ridge Ln, Exeter NH 03833

TAX MAP 019-016-0045
NAME Thomas M. Jelinek
ADDRESS 1 Stone Ridge Ln, Exeter NH 03833

TAX MAP 011-018-0019
NAME Brandee Cariddi
ADDRESS 8 Terry's Way, Exeter NH 03833

TAX MAP 011-018-0009
NAME Gregory Alan Lazar
ADDRESS 35 Wood Ridge Ln, Exeter NH 03833

TAX MAP 011-018-0011
NAME Sante Revocable Trust
ADDRESS 39 Wood Ridge Ln, Exeter NH 03833

Please attach additional sheets if needed

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

TAX MAP 011-018-0014
NAME Wood Ridge Revocable Trust
ADDRESS 26 Wood Ridge Ln, Exeter NH 03833

TAX MAP 011-001-0000
NAME Andre P. Baillargeon
ADDRESS 128 Watson Rd, Exeter NH 03833

TAX MAP 019-008-0000
NAME Glenn D, Cypher Jr.
ADDRESS 120 Watson Rd, Exeter NH 03833

TAX MAP 019-013-0000
NAME 107 Watson Road Realty Tr
ADDRESS 107 Watson Rd, Exeter NH 03833

TAX MAP 019-015-0000
NAME Philip R. Lyster
ADDRESS 101 Watson Rd, Exeter NH 03833

TAX MAP 020-004-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 021-003-0000
NAME Christian O. Smith
ADDRESS 20 Captains Way, Exeter NH 03833

TAX MAP 021-005-0000
NAME Jonathan P. Hall
ADDRESS 16 Captains Way, Exeter NH 03833

TAX MAP 021-007-0000
NAME Scott E. Jones
ADDRESS 3 Moore Ln, Exeter NH 03833

TAXMAP 011-018-0015
NAME David Scroggins
ADDRESS 28 Wood Ridge Ln, Exeter NH 03833

TAX MAP 019-011-0000
NAME John P. Lyons
ADDRESS 123 Watson Rd, Exeter NH 03833

TAXMAP 019-012-0000
NAME Taylor J. Smalley
ADDRESS 115 Watson Rd, Exeter NH 03833

TAX MAP 019-014-0000
NAME 107 Watson Road Realty Tr
ADDRESS 107 Watson Rd, Exeter NH 03833

TAX MAP 019-006-0000
NAME Margaret Caroline Blitzer
ADDRESS 112 Watson Rd, Exeter NH 03833

TAX MAP 021-002-0000
NAME Michael A. Mills
ADDRESS 22 Captains Way, Exeter NH 03833

TAX MAP 021-004-0000
NAME Justin D. Jumper
ADDRESS 18 Captains Way, Exeter NH 03833

TAX MAP 021-006-0000
NAME Eva H. Bleich 2006 Rev Tr
ADDRESS 1 Moore Ln, Exeter NH 03833

TAX MAP 021-008-0000
NAME Dorton Family Rev Trust
ADDRESS 5 Moore Ln, Exeter NH 03833

Please attach additional sheets if needed

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

TAX MAP 021-009-0000
NAME Sara Rogers Williamson
ADDRESS 6 Moore Ln, Exeter NH 03833

TAXMAP 021-010-0000
NAME Grossman Family Rev Tr
ADDRESS 4 Moore Ln, Exeter NH 03833

TAX MAP 021-011-0000
NAME Gutstein Family Rev Tr
ADDRESS 2 Moore Ln, Exeter NH 03833

TAX MAP 021-012-0000
NAME Anthony P. Theos
ADDRESS 14 Captains Way, Exeter NH 03833

TAX MAP 021-013-0000
NAME Murray Family Trust
ADDRESS 12 Captains Way, Exeter NH 03833

TAXMAP 021-014-0000
NAME Daniel P. Walsh
ADDRESS 1 Half Penny Ln, Exeter NH 03833

TAX MAP 021-015-0000
NAME Kevin S. Tobin
ADDRESS 3 Half Penny Ln, Exeter NH 03833

TAX MAP 021-016-0000
NAME Mark Brian Connelly
ADDRESS 5 Half Penny Ln, Exeter NH 03833

TAX MAP 021-017-0000
NAME Paula S. Walsh 1990 Trust
ADDRESS PO Box 9, Exeter NH 03833

TAX MAP 021-018-0000
NAME Deeptha Nair Sastry
ADDRESS 9 Half Penny Ln, Exeter NH 03833

TAX MAP 021-019-0000
NAME Travis Dion
ADDRESS 11 Half Penny Ln, Exeter NH 03833

TAX MAP 021-020-0000
NAME Jaye L. Carr Revocable Trust
ADDRESS 10 Half Penny Ln, Exeter NH 03833

TAX MAP 021-021-0000
NAME David Kaufman
ADDRESS 8 Half Penny Ln, Exeter NH 03833

TAX MAP 021-022-0000
NAME Larry Grubb Jr,
ADDRESS 6 Half Penny Ln, Exeter NH 03833

TAX MAP 021-023-0000
NAME Jonathan D. Berenson
ADDRESS 4 Half Penny Ln, Exeter NH 03833

TAX MAP 021-024-0000
NAME Stephen Lachance
ADDRESS 2 Half Penny Ln, Exeter NH 03833

TAX MAP 021-025-0000
NAME Mary L. Joseph R
ADDRESS 10 Captains Way, Exeter NH 03833

TAX MAP 021-026-0000
NAME James D. Mcewen
ADDRESS 9 Captains Way, Exeter NH 03833

Please attach additional sheets if needed

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

TAX MAP 021-027-0000
NAME Amy Sullivan
ADDRESS 11 Captains Way, Exeter NH 03833

TAX MAP 021-029-0000
NAME Gary Mulkigian Jr.
ADDRESS 15 Captains Way, Exeter NH 03833

TAX MAP 021-032-0000
NAME Richard J. Bertani
ADDRESS 21 Captains Way, Exeter NH 03833

TAX MAP 021-033-0000
NAME Stephen E. Bernacki
ADDRESS 7 Captains Way, Exeter NH 03833

TAX MAP 024-020-0000
NAME Raymond L. Southworth Jr. Rev Tr
ADDRESS 3 Captains Way, Exeter NH 03833

TAX MAP 024-017-0000
NAME Gregory S. Dishart Rev Tr
ADDRESS 25 Captains Way, Exeter NH 03833

TAX MAP 024-019-0000
NAME Scott J. Bly Rev Tr
ADDRESS 1 Captains Way, Exeter NH 03833

TAX MAP 024-014-0000
NAME Scott Dustin Powell
ADDRESS 26 Captains Way, Exeter NH 03833

TAX MAP 024-012-0000
NAME Kristina C. Seid
ADDRESS 30 Captains Way, Exeter NH 03833

TAXMAP 021-028-0000
NAME Kimmarie Mclean
ADDRESS 13 Captains Way, Exeter NH 03833

TAX MAP 021-030-0000
NAME Francis and Richard Nolan
ADDRESS 17 Captains Way, Exeter NH 03833

TAXMAP 021-031-0000
NAME Elizabeth C. Andrada Revocable Trust
ADDRESS 19 Captains Way, Exeter NH 03833

TAX MAP 024-016-0000
NAME Marlene J. Kaplan Rev Living Tr
ADDRESS 23 Captains Way, Exeter NH 03833

TAX MAP 024-021-0000
NAME Salvatore Mazzola III
ADDRESS 5 Captains Way, Exeter NH 03833

TAX MAP 024-018-0000
NAME Richard A. Kruppa
ADDRESS 27 Captains Way, Exeter NH 03833

TAX MAP 024-015-0000
NAME Ashley Mitchell
ADDRESS 24 Captains Way, Exeter NH 03833

TAX MAP 024-013-0000
NAME Luanne S. Rogers
ADDRESS 28 Captains Way, Exeter NH 03833

TAX MAP 024-011-0000
NAME Christopher K. Surrette
ADDRESS 32 Captains Way, Exeter NH 03833

Please attach additional sheets if needed

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TAX MAP 024-010-0000
NAME Joseph Nathan Llames Bautista
ADDRESS 34 Captains Way, Exeter NH 03833

TAX MAP 024-008-0000
NAME Brian Bailey
ADDRESS 38 Captains Way, Exeter NH 03833

TAX MAP 024-006-0000
NAME Matthew A. Gailing
ADDRESS 40 Captains Way, Exeter NH 03833

TAX MAP 024-004-0000
NAME Lisa S. Hopper
ADDRESS 46 Captains Way, Exeter NH 03833

TAX MAP 024-023-0000
NAME Edward V. Gerety
ADDRESS 4 Captains Way, Exeter NH 03833

TAX MAP 024-025-0000
NAME Hammond Family Revocable Trust
ADDRESS 1 Senyar Farm Ln, Exeter NH 03833

TAX MAP 021-034-0000
NAME Trevor Nagle
ADDRESS 8 Captains Way, Exeter NH 03833

TAX MAP 024-028-0000
NAME Daniel J. Ahern IV
ADDRESS 2 Senyar Farm Ln, Exeter NH 03833

TAX MAP 030-008-0000
NAME Silver Granada Realty LLC.
ADDRESS 131 Pine Rd, Brentwood NH 03833

TAXMAP 024-009-0000
NAME Jeffrey S. Koroski
ADDRESS 36 Captains Way, Exeter NH 03833

TAX MAP 024-007-0000
NAME Matthew A. Gailing
ADDRESS 40 Captains Way, Exeter NH 03833

TAXMAP 024-005-0000
NAME Steven D. Fullwood
ADDRESS 44 Captains Way, Exeter NH 03833

TAX MAP 024-024-0000
NAME Patrick A. Bosa
ADDRESS 2 Captains Way, Exeter NH 03833

TAX MAP 024-022-0000
NAME Jaclyn Bouchard
ADDRESS 6 Captains Way, Exeter NH 03833

TAX MAP 024-026-0000
NAME Marcus Niemi
ADDRESS 3 Senyar Farm Ln, Exeter NH 03833

TAX MAP 024-027-0000
NAME Dewitt Family Revocable Trust
ADDRESS 4 Senyar Farm Ln, Exeter NH 03833

TAX MAP 035-009-000D
NAME ZV Investments LLC.
ADDRESS PO Box 10711, Bedford NH 03110

TAX MAP 030-009-0000
NAME PROPERTIES INC.
ADDRESS PO Box 270, Hartford CT 06141-0270

Please attach additional sheets if needed

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TAX MAP 029-031-0000
NAME Michelle Lebor
ADDRESS 289 Epping Rd, Exeter NH 03833

TAX MAP 028-003-0000
NAME Robert M. Noel
ADDRESS 18 Old Town Farm Rd, Exeter NH 03833

TAX MAP 028-013-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 018-003-0000
NAME Kenneth P. Barker II.
ADDRESS 62 Beech Hill Rd, Exeter NH 03833

TAX MAP 019-002-0000
NAME Joshua E. Bauer
ADDRESS 102 Watson Rd, Exeter NH 03833

TAX MAP 019-016-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 024-001-0000
NAME Keith Randall Limberg II
ADDRESS 54 Newfields Rd, Exeter NH 03833

TAX MAP 020-008-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 024-030-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAXMAP 029-032-0000
NAME Carl E. Bouchard
ADDRESS PO Box 219, Exeter NH 03833

TAX MAP 028-006-0000
NAME Marie M. Bolster
ADDRESS 36 Old Town Farm Rd, Exeter NH 03833

TAXMAP 028-018-0000
NAME Michael D. Wissler
ADDRESS 27 Old Town Farm Rd, Exeter NH 03833

TAX MAP 019-003-0000
NAME St. Laurent Irrevocable Trust
ADDRESS 104 Watson Rd, Exeter NH 03833

TAX MAP 019-001-0000
NAME Matthew N. Ross
ADDRESS 90 Watson Rd, Exeter NH 03833

TAX MAP 019-016-0001
NAME Oaklands Forest Ridge
ADDRESS 8 Newmarket Rd, Suite 2, Durham NH 03824

TAX MAP 025-001-0000
NAME Town of Exeter
ADDRESS 10 Front St, Exeter NH 03833

TAX MAP 024-003-0000
NAME Captains Meadow Homeowners
ADDRESS PO Box 544, Exeter NH 03833

TAX MAP 017-009-0000
NAME State of New Hampshire
ADDRESS 11 Hazen Drive Concord, NH 03301

Please attach additional sheets if needed

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TAX MAP 017-005-0000
NAME Christopher B. Johnson
ADDRESS 63 Old Town Farm Road
Exeter, NH 03833

TAX MAP 017-004-0000
NAME Bryce W. Pynn
ADDRESS 67 Old Town Farm Road
Exeter, NH 03833

TAX MAP 017-003-0000
NAME Tristan & Katelyn Nowak
ADDRESS 71 Old Town Farm Road
Exeter, NH 03833

TAX MAP 017-002-0001
NAME Margaret Rose Carlman
ADDRESS 73 Old Town Farm Road
Exeter, NH 03833

TAX MAP 017-002-0000
NAME William Stiner Revocable Trust
ADDRESS 79 Old Town Farm Road
Exeter, NH 03833

TAX MAP 013-001-0000
NAME Judith Nichols
ADDRESS 100 Beech Hill Road
Exeter, NH 03833

TAX MAP 017-009-0005
NAME Nicholas Gustav Nordin
ADDRESS 90 Beech Hill Road
Exeter, NH 03833

TAX MAP 017-009-0004
NAME Drew Taggart
ADDRESS 88 Beech Hill Road
Exeter, NH 03833

TAX MAP 017-009-0003
NAME Kristin M. Bennett
ADDRESS 86 Beech Hill Road
Exeter, NH 03833

TAXMAP 017-009-0002
NAME Kevin Karwaski
ADDRESS 84 Beech Hill Road
Exeter, NH 03833

TAX MAP 017-009-0001
NAME Michael S. Shairs
ADDRESS 82 Beech Hill Road
Exeter, NH 03833

TAXMAP 018-016-0000
NAME Todd W. McAvey
ADDRESS 80 Beech Hill Road
Exeter, NH 03833

TAX MAP 018-014-0000
NAME Anthony J. Carter
ADDRESS 81 Beech Hill Road
Exeter, NH 03833

TAX MAP
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ADDRESS

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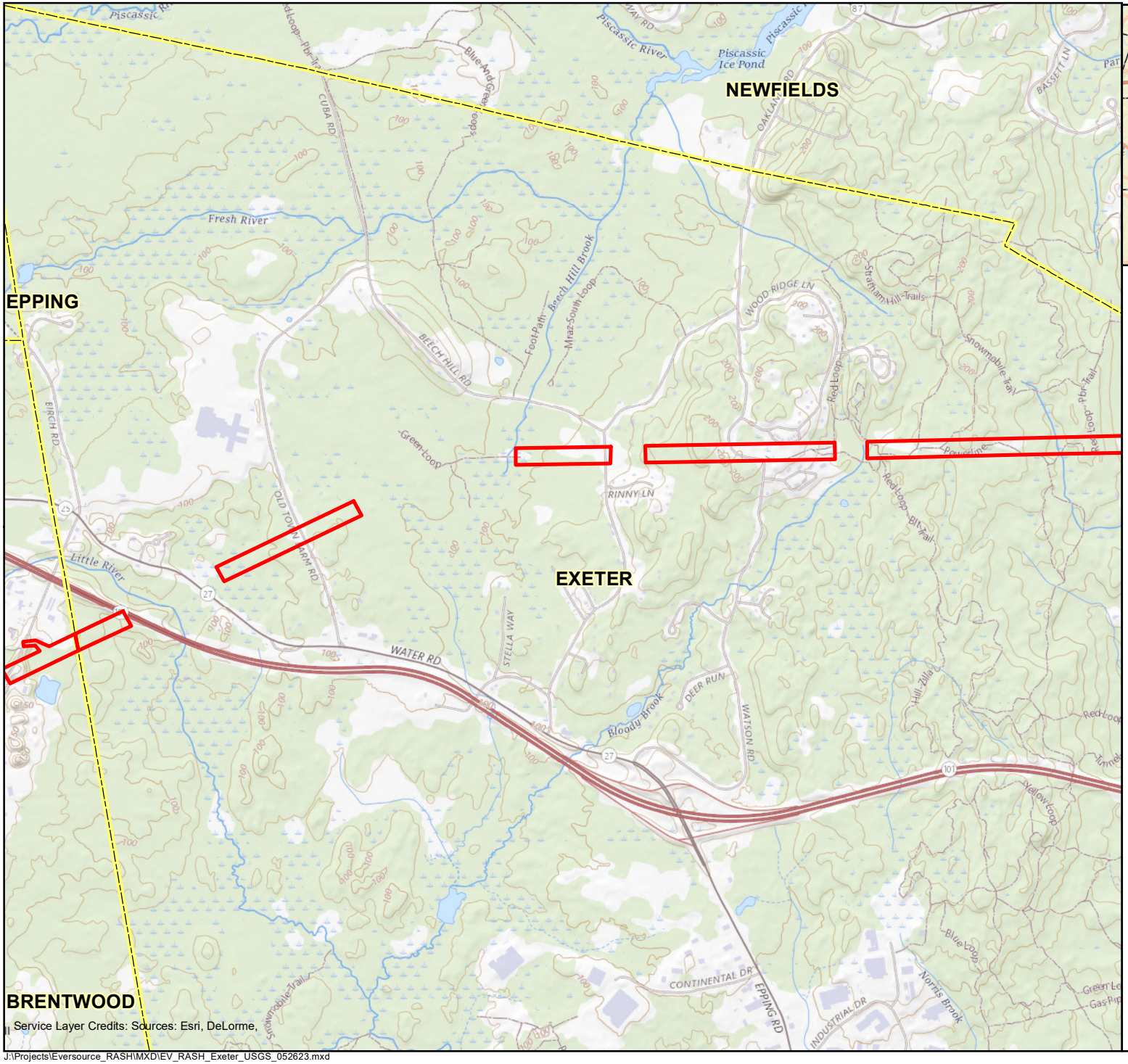
NAME
ADDRESS

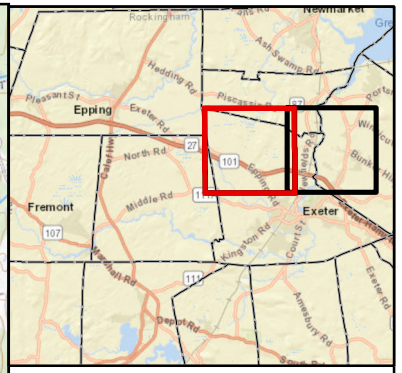
Please attach additional sheets if needed

9.1.6. B: Conditions: Prior to issuance of a conditional use permit, the Planning Board shall conclude and make a part of the record, compliance with the following criteria:

1. That the proposed use is permitted in the underlying zoning district;
2. No alternative design which does not impact a wetland or wetland buffer or which has less detrimental impact on the wetland or wetland buffer is feasible;
3. A wetland scientist has provided an impact evaluation that includes the "functions and values" of the wetland(s), an assessment of the potential project-related impacts and concluded to the extent feasible, the proposed impact is not detrimental to the value and function of the wetland(s) or the greater hydrologic system.
4. That the design, construction and maintenance of the proposed use will, to the extent feasible, minimize detrimental impact on the wetland or wetland buffer;
5. That the proposed use will not create a hazard to individual or public health, safety and welfare due to the loss of wetland, the contamination of groundwater, or other reasons;
6. The applicant may propose an increase in wetland buffers elsewhere on the site that surround a wetland of equal or greater size, and of equal or greater functional value than the impacted wetland
7. In cases where the proposed use is temporary or where construction activity disturbs areas adjacent to the immediate use, the applicant has included a restoration proposal revegetating any disturbed area within the buffer with the goal to restore the site as nearly as possible to its original grade and condition following construction.
8. That all required permits shall be obtained from the New Hampshire Department of Environmental Services Water Supply and Pollution Control Division under NH RSA §485-A: 17, the New Hampshire Wetlands Board under NH RSA §483-A, and the United States Army Corps of Engineers under Section 404 of the Clean Water Act.;

ATTACHMENT B – USGS Topographic Map and Construction Plan Set





Orthophoto Map
Eversource RASH Project
2023 Structure Replacement Maintenance Project
in Exeter, NH

Map 1 of 2

Date: 5/26/2023

RASH Project Areas

Town Border

N
W E
S

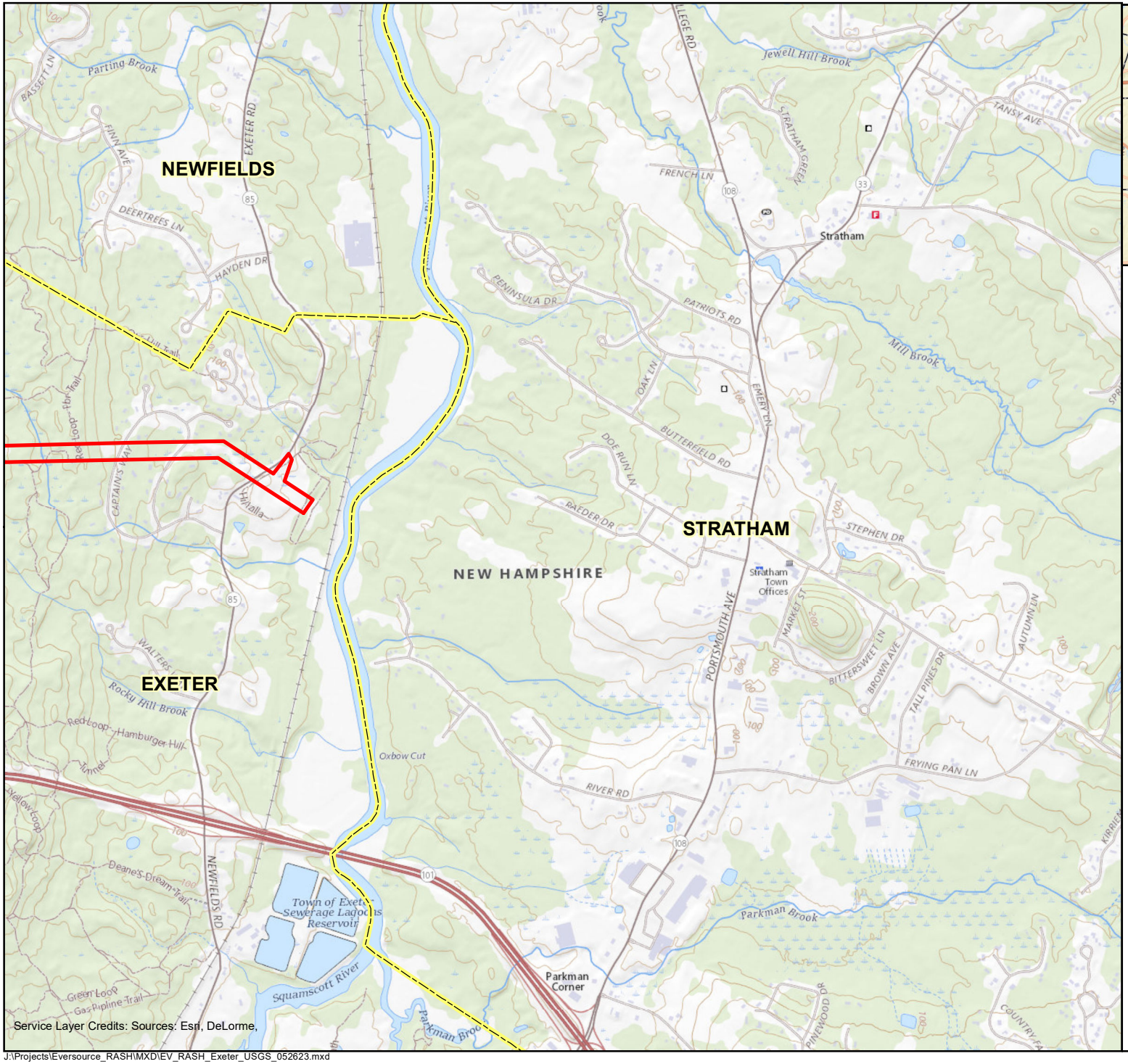
0 0.19 0.38
Miles

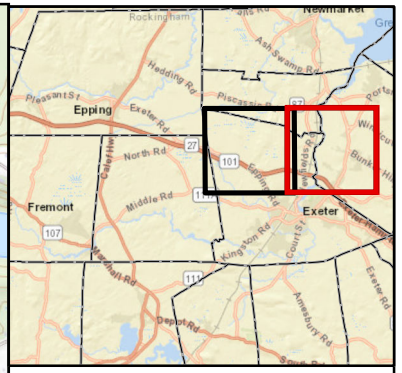
1 in equals 0.38 miles

1:24,000

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

J:\Projects\Eversource_RASH\MXD\EV_RASH_Exeter_USGS_052623.mxd





Orthophoto Map
Eversource RASH Project
2023 Structure Replacement Maintenance Project
in Exeter, NH

Map 2 of 2

Date: 5/26/2023

RASH Project Areas

Town Border

N
W E
S

0 0.19 0.38
Miles

1 in equals 0.38 miles

1:24,000

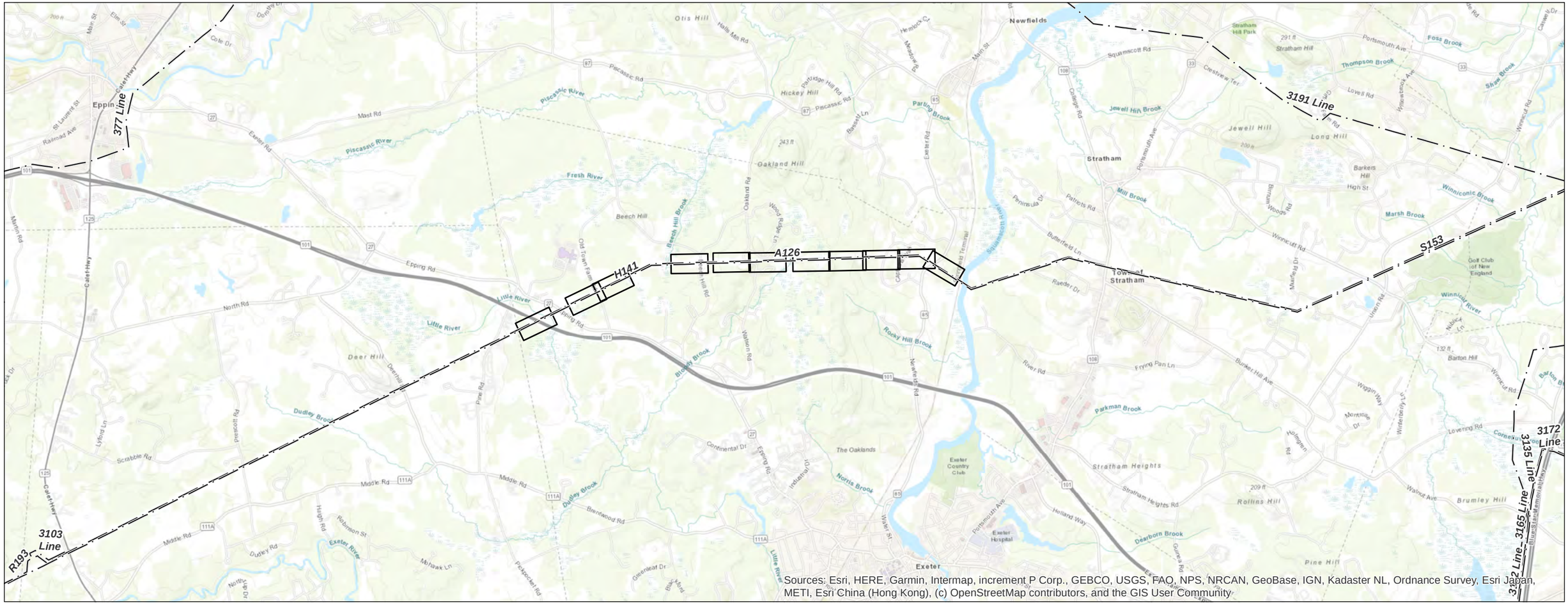
NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

J:\Projects\Eversource_RASH\MXD\EV_RASH_Exeter_USGS_052623.mxd

RASH - Structure Replacement Project

EXETER, NEW HAMPSHIRE

Date: May 25, 2023



N

— · — Transmission Lines

0 0.25 0.5 1 Miles

PREPARED FOR:

EVERSOURCE

107 Selden Street
Berlin, CT 06037

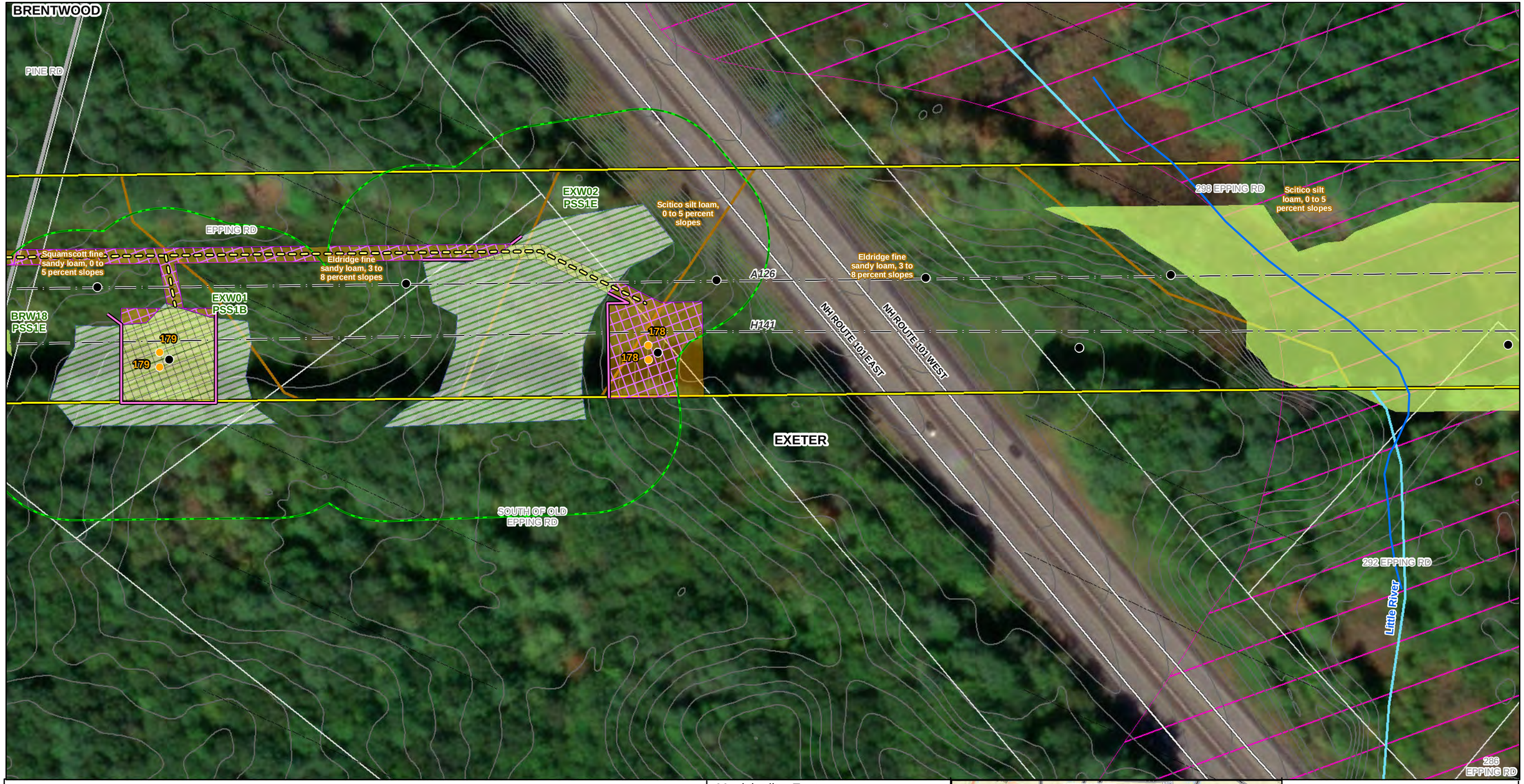
INDEX OF FIGURES

Title Sheet / Index Map
Map Sheets 1-11

NO.	DATE	REVISIONS

PREPARED BY:

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS



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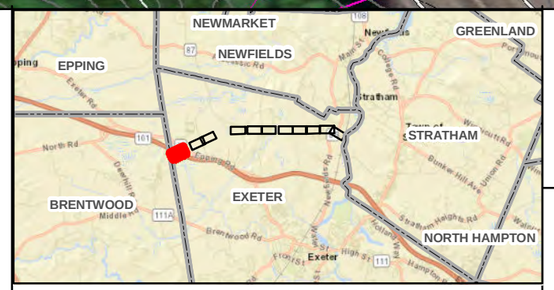
- Stream Channel

* Existing Structures have two poles, like Replacement Structure; Replacements are in-kind

Municipality: Exeter

N W E S

0 50 100 200 Feet



Index Map - 1" = 16,000'

Eversource - RASH

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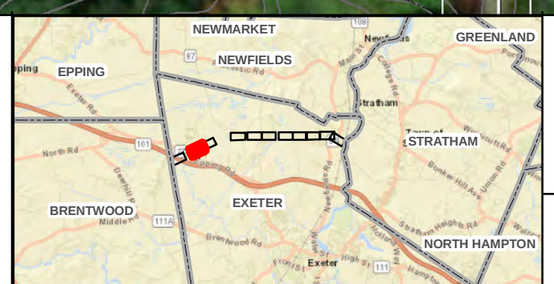

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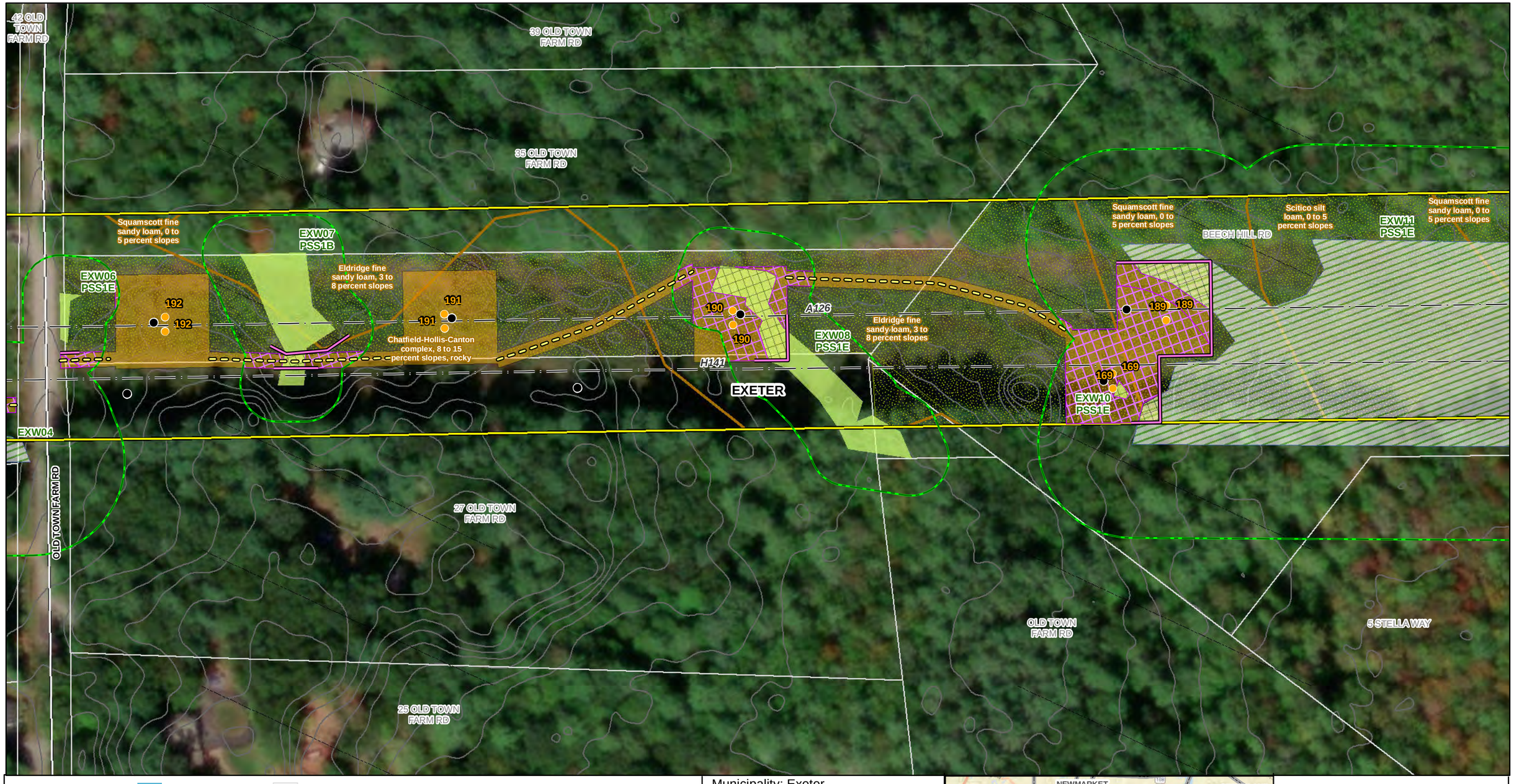

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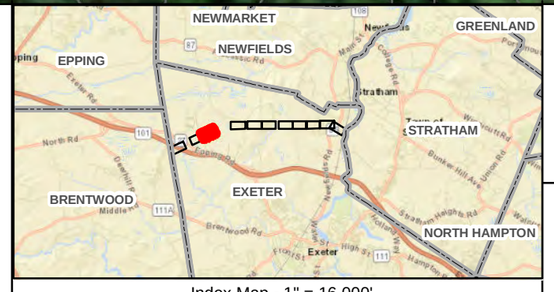

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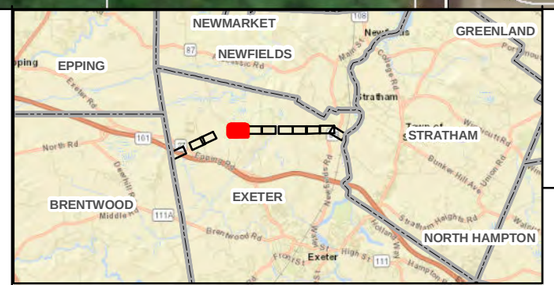

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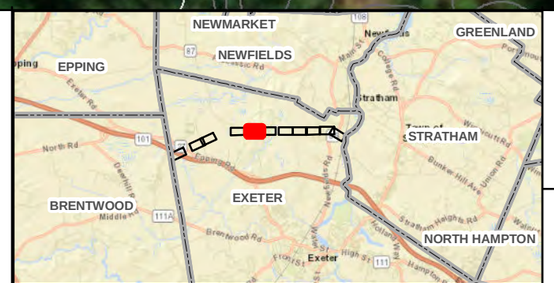

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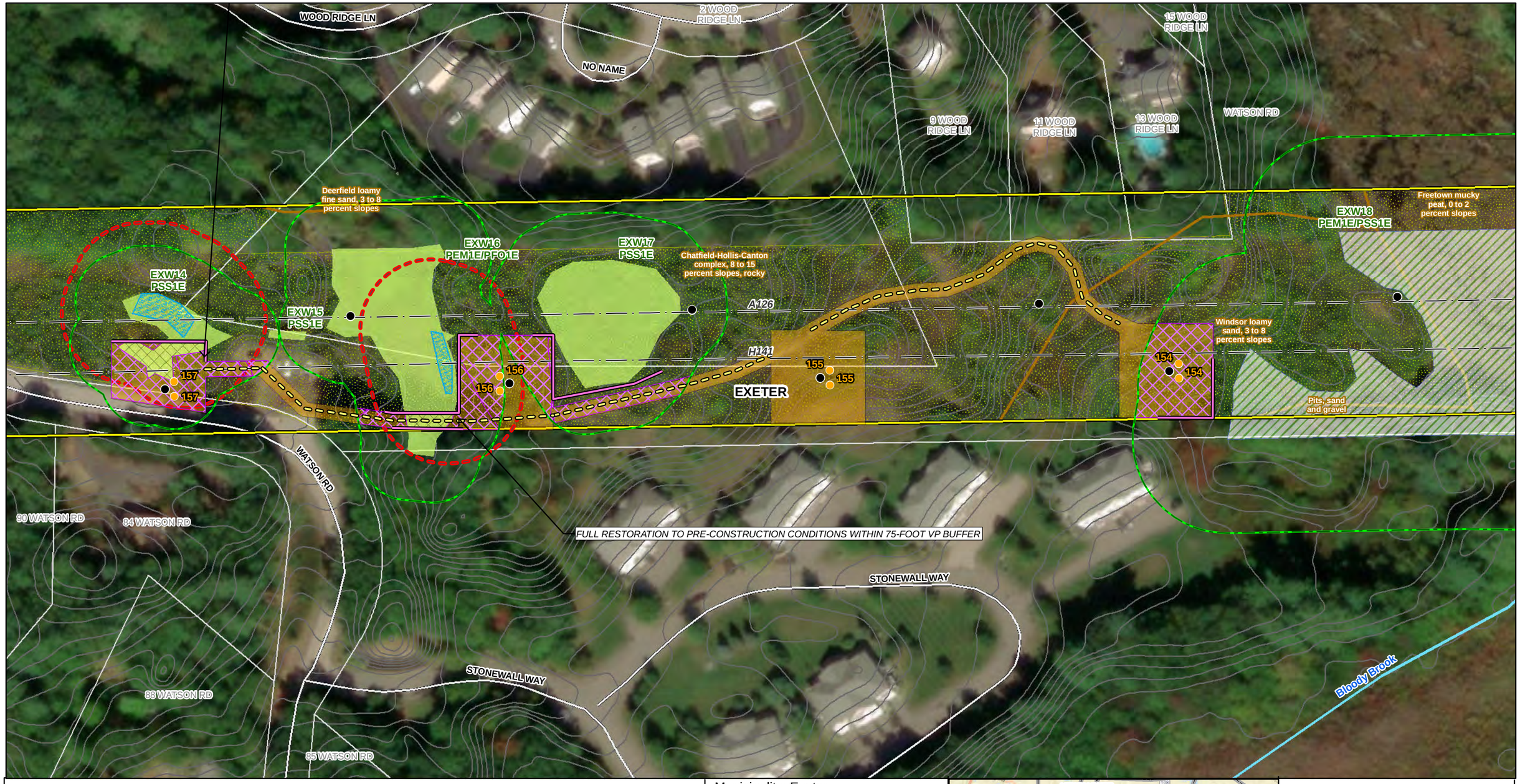

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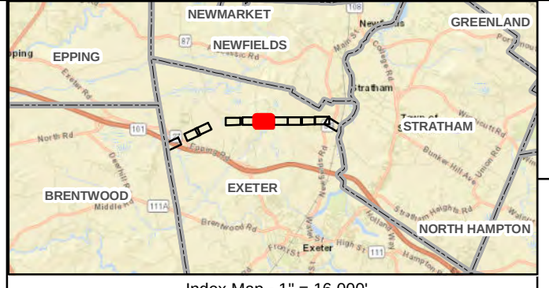

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Exeter Plan Set

Date: 5/25/2023

NORMANDEAU ASSOCIATES
Environmental Consultants

- Replacement Structure
- Guy Wire
- Existing Structure *
- Proposed Access Road
- Existing Access Road
- Delineated Stream
- Erosion Control
- Transmission Lines
- NHD Streams
- 2 Foot Contours
- Vernal Pool Buffer
- Stream/River
- Delineated Vernal Pool
- Right of Way
- Delineated Wetland
- Delineated Prime Wetland
- Existing Access
- Proposed Gravel Access
- Upland Matting
- Wetland Matting
- NRCS Soils
- Municipal Boundary
- Parcel Boundaries (Provided by Eversource)
- FEMA Flood Zone
- Conservation Land
- Exeter Wetland Buffer
- Gravel/Improved Access Road/Work Pad in Exeter Wetland Buffer
- Upland Matting in Exeter Wetland Buffer
- Stream Channel Buffer Impact
- Stream Channel 25' Buffer
- Stream Channel

* Existing Structures have two poles, like Replacement Structure; Replacements are in-kind

Municipality: Exeter

N W E S

0 50 100 200 Feet

Index Map - 1" = 16,000'

Eversource - RASH

Exeter Plan Set

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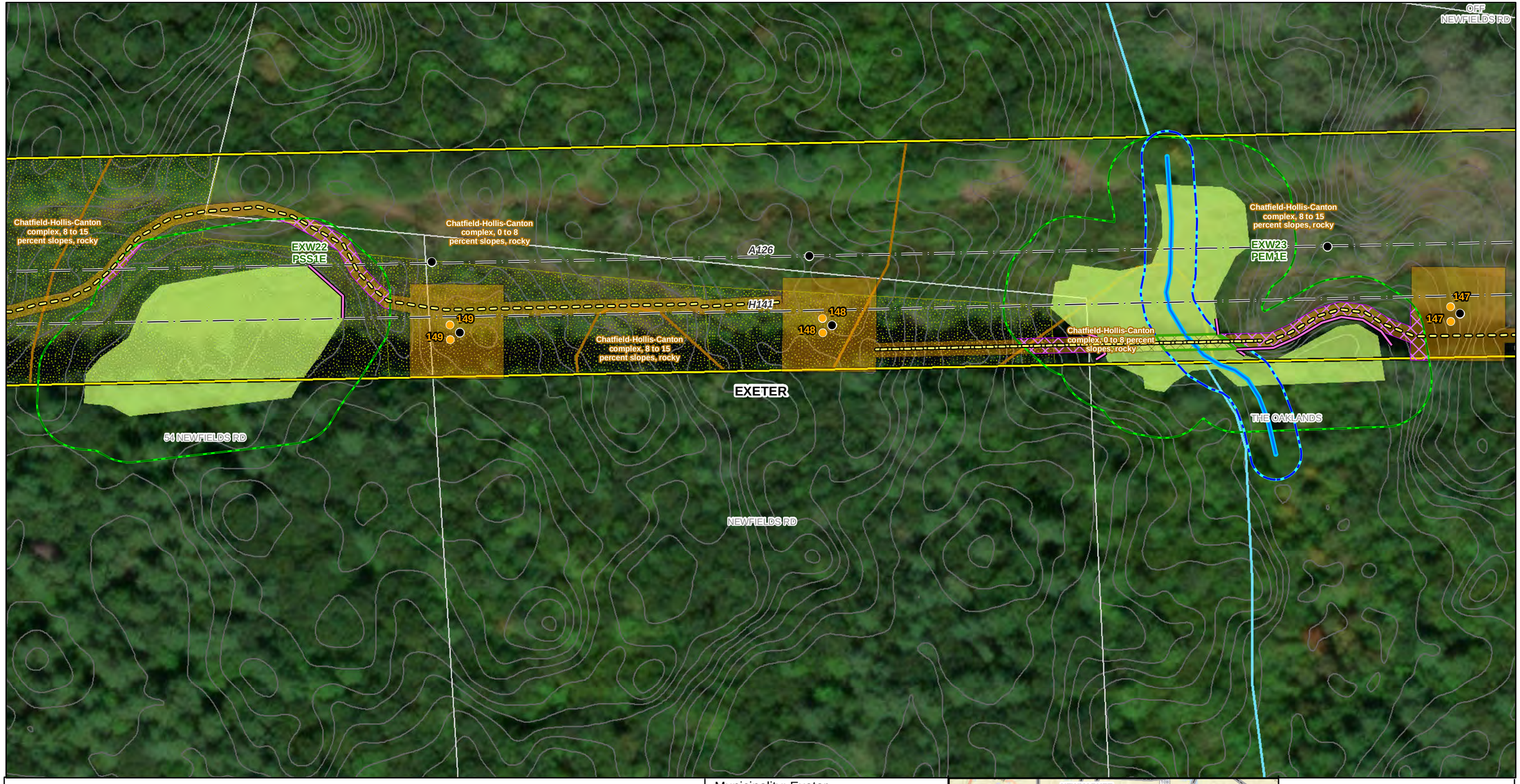
Date: 5/25/2023

NORMANDEAU ASSOCIATES
Environmental Consultants



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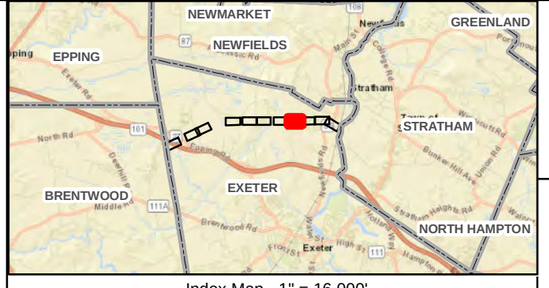

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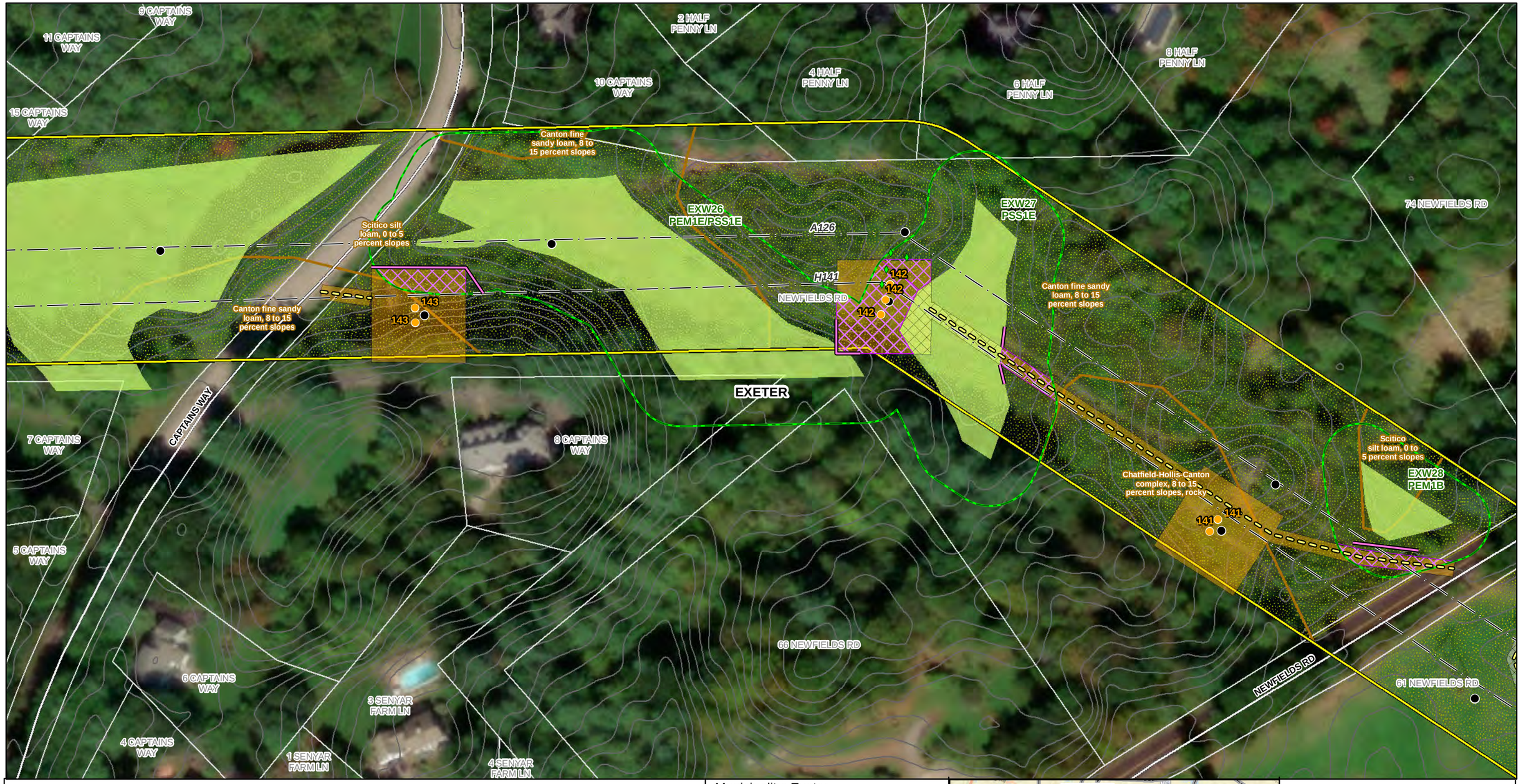

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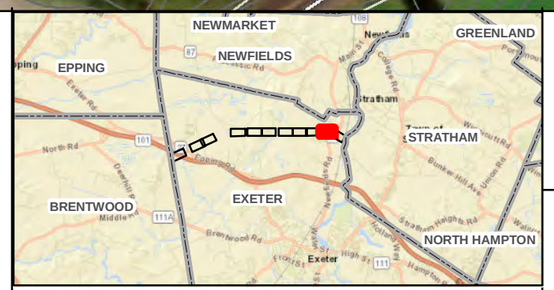

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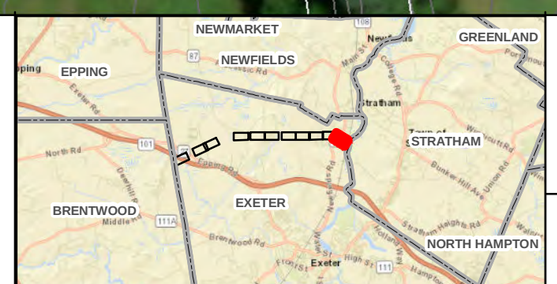

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Exeter Plan Set

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Date: 5/25/2023

NORMANDEAU ASSOCIATES
Environmental Consultants

Transmission Line RASH Structure Replacement (2023)

Rev. May 4, 2023

Construction Notes

Construction Sequence:

1. Wetland boundaries to be clearly marked prior to the start of construction; Wetlands were reviewed/delineated by Normandeau Associates, Inc. April/May 2023. The wetland delineations were completed in accordance with the criteria described in the U.S. Army Corps of Engineers Wetland Delineation Manual Technical Report Y-87-1 (January,1987) and the Regional Supplement for the Northcentral and Northeast Region (January, 2012) and meet the criteria for wetland delineation in accordance with the NH DES administrative rules Env-W t 301.01.
2. MODIFICATIONS IN ACCESS ROUTES, WORK PAD LOCATIONS OR OTHER WETLANDS IMPACT AREAS MUST BE APPROVED BY EVERSOURCE AND IN COMPLIANCE WITH NHDES WETLANDS RULES FOR MINIMUM IMPACT:
   ENV-WT 307 - GENERAL REQUIREMENTS
   ENV-WT 313.03 - AVOIDANCE AND MINIMIZATION
   ENV-WT 521 - UTILITY PROJECT SPECIFIC CONDITIONS
3. Sediment and erosion control measures shall be installed in accordance with the plans and detail provided, as necessary.
4. Wetland impacts associated with wetland crossings are required for access between structures within the right of way. Construction activities shall occur during periods of low flow.
5. Adequate precaution shall be exercised to avoid spillage of fuel oils, chemicals, or similar substances; no fuels, lubricants, chemicals or similar substances shall be stored beneath trees or in the vicinity of any wetlands, river, stream or other body of water; or in the vicinity of natural or man-made channels leading thereto. No power equipment shall be stored, maintained, or fueled in any area adjacent to a wetland, river, stream or other body of water.
6. Remove completely all contamination from any spillage of chemicals or petroleum product with complete rehabilitation of the affected area.
7. Access routes have been selected to prevent degradation of the right-of-way and minimize environmental impact. Operations shall be confined to the specified access routes within the proposed wetland impact area. Access routes shall not exceed a 16 foot-width.
8. Impact to vegetation within wetlands will be limited to the extent necessary to place the timber mats where required.
9. Low growing varieties of vegetation adjacent to wetlands shall be preserved to the extent possible. Stumps and rocks shall not be removed, and there shall be no excavations, fills or grading done adjacent to wetlands, unless minor excavations is needed for access.
10. Timber mats will be used along access routes within and adjacent to wetland areas. These mats are constructed of heavy timbers or composite material, bolted together, and are placed end-to-end in the wetland to support heavy equipment. All timber mats shall be placed and removed so as not to cause any ruts, channels or depressions, or otherwise cause any undue disturbance to wetlands.
11. If timber mat BMP is not sufficient due to high water, additional bmp's may include the placement of geotextile fabric, 3"-4" stone, and gravel to provide a suitable road bed. A temporary culvert may be required in areas of high flow to maintain hydrologic connectivity. All material will be removed from jurisdictional areas after construction completion.
12. No material shall be placed in any location or in any manner so as to impair surface water flow into, through or out of any wetland area. No installation shall create an impoundment that will impede the flow of water or cause flooding.
13. No material shall be taken from the wetlands area except that which must necessarily be removed for the structure or foundation placement or stabilization. All excess material taken from the wetland will be removed from the site.
14. Any proposed support fills shall be clean gravel and stone, free of waste metal products, organic materials and similar debris and shall not exceed the amount permitted. This allowable fill is the only fill that may remain in the wetland after construction. All cut and fills slopes shall be seeded/loamed within 72 hours of achieving finished grade; sooner if heavy rains forecasted.
15. Install new poles in the locations designated on the permitting plans.
16. Cable installation will be performed in a manner so as to avoid, or limit to the maximum extent possible, traversing wetlands with heavy equipment. In some cases, a helicopter may be used during the installation to minimize impacts.
17. Removal of the old pole will occur once the cable has been installed on the new structure. The old structures will be removed from the site. Poles will be cut at the ground surface. Footings will be abandoned in place to minimize impacts.
18. All swamp mats, material, and debris will be removed from the work area upon the completion of construction.
19. Upland disturbed areas shall be restored and stabilized upon completion of construction. Work pad restoration should include reducing the work pad to a 30 by 60 foot area, and reducing slopes to a maximum of 25%. Stockpiled material should be spread to reduce any unnecessary slopes. Gravel work pads and slopes should be scarified to a minimum of 3" before spreading topsoil/loam.
20. All temporary wetland impacts will be re-graded to original contours following construction. New England erosion control/ restoration mix, available through New England wetland plants, Inc., 820 West Street, Amherst, MA 01002, 413-548-8000, or equivalent seed mix shall be applied in wetland areas that are not inundated, as necessary.
21. Sediment and erosion control measures will be evaluated and removed if necessary upon the completion of construction.

Winter Construction Notes:

1. Proposed vegetated areas which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th, shall be stabilized. Stabilization methods shall include seeding and mulch, and installation of erosion control blankets on slopes greater than 3:1, and seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting, elsewhere. The installation of erosion control blankets or mulch and netting shall not occur over accumulated snow or frozen ground and shall be completed in advance of thaw or spring melt events.
2. Ditches or swales which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th, shall be temporarily stabilized with stone or erosion control blankets appropriate for the design flow conditions.
3. After November 15th, incomplete road or parking surfaces, where work has stopped for the winter season, shall be protected with a minimum of 3 inches of crushed gravel (NH DOT 304.3).

Erosion Control Notes:

1. Installation of erosion control grindings and/or silt fences shall be complete prior to the start of work in any given area. Erosion controls shall be used during construction and removed when all slopes have a healthy stand of vegetation cover.
2. All areas shall be stabilized within 45 days of initial disturbance
3. An area shall be considered stable if one of the following has occurred: 1) Base course gravels have been installed in areas to be paved, 2) A minimum of 85 percent vegetated growth has been established, 3) A minimum of 3 inches of non-erosive material such stone or riprap has been installed, or 4) erosion control blankets have been properly installed
4. Note that all cut and fill slopes shall be seeded/loamed within 72 hours of achieving finished grade
5. As required, construct temporary berms, siltation fences, sediment traps, etc. to prevent erosion & sedimentation of wetlands.
6. The work area shall be graded and otherwise shaped in such a manner as to minimize soil erosion, siltation of drainage channels, damage to existing vegetation, and damage to property outside limits of the work area. Erosion control grindings will be necessary to accomplish this end.
7. Any stripped topsoil shall be stockpiled, without compaction, and stabilized with BMPs.
8. Permanent or temporary cover must be in place before the growing season ends. When seeded areas are not mulched, plantings should be made from early spring to May 20 or from August 15 to September 15. No disturbed area shall be left exposed during winter months, plant annual ryegrass prior to October 15th.
9. Erosion controls shall be inspected weekly with the timing of weekly visits adjusted if heavy rains/snow melt are forecasted or have occurred.
10. Timber mats must be removed after one growing season.
11. Any erosion control matting used shall be wildlife friendly. No welded plastic webbing, netting, or other similar form shall be used in erosion/siltation controls to avoid entrapment of snakes and other wildlife within the project area.
12. Unless otherwise authorized by NHDES, the Applicant shall keep a sufficient quantity of erosion control supplies on the site at all times during construction to facilitate an expeditious (i.e., within 24 hour) response to any construction related erosion issues on the site.
13. Discharge from dewatering of work areas shall be to sediment basins that are: a) located in uplands; b) lined with hay bales or other acceptable sediment trapping liners; and c) set back as far as possible from wetlands and surface waters.
14. Mulch used within any wetland/stream bank restoration areas shall be natural straw or equivalent non-toxic, non-seed-bearing organic material.
15. When using an erosion control mix berm, the berm must be a minimum of 12” high, as measured on the uphill side of the barrier, and a minimum of two feet wide at the base.

Plant Protection – General Avoidance and Minimization Measures

1. Limit removal of vegetation to that necessary for construction of the project. Limit tree clearing to the minimum required width to meet safety clearances, leave root systems in place, except over underground installations or where other earthwork must be conducted. Leave herbaceous and shrub vegetation intact wherever practicable.
2. Precautions shall be taken to prevent import or transport of soil or seed stock containing nuisance or invasive species such as Purple Loosestrife, Knotweed, or *Phragmites*. The contractor responsible for work shall appropriately address invasive species in accordance with the NH DOT "Best Management Practices for Roadside Invasive Plants (2008)".
3. To prevent the introduction of invasive plant species to the site, the Applicant's contractor(s) shall clean all soils and vegetation from construction equipment and matting before such equipment is moved to the site.

Wildlife Protection – General Avoidance and Minimization Measures

1. Limit the removal of vegetation to that necessary for construction of the project; this will leave associated wildlife habitat as intact as possible.
2. *All erosion control materials used will be wildlife-friendly*. No welded plastic webbing, netting, or other similar form with openings greater than 1/8-inch shall be used in erosion/siltation controls to avoid entrapment of snakes and other wildlife within the project area.
3. Timber matting will be used in all wetland areas and will remain in place for the shortest duration possible; if possible, passageways will remain open at the wetland crossing to allow for reptiles to cross under the mat-bridge/pathway; matting will remain up to several weeks
4. Timber matting will be used in upland areas at the far eastern portion of the work area near the best habitat for the listed turtles and where NHB22-1136 indicates the most observations of these species; this will limit ground disturbance
5. Daily sweeps by contractors for all turtle and snake species will be performed when work will occur;

6. Any observations of listed species will be reported and no wildlife will be harmed; contact numbers and fliers will be included on the environmental plans
7. Wildlife friendly erosion controls will be used; no welded plastic netting will be used;
8. Erosion controls will be installed, monitored and maintained to protect adjacent upland and wetland areas from sedimentation and degradation; disturbed areas will be temporarily and permanently stabilized and seeded with a native seed mix; the applicable utility maintenance BMPs will be followed

SPECIFIC WILDLIFE BMPS

New Hampshire Fish and Game AoT Permit Conditions in Accordance with Env-Wq 1504.18 – Wildlife Protection Notes

NOTE – FINAL RECOMMENDATIONS FROM NHFG WILL BE PROVIDED WHEN CONSULTATION AND COORDINATION ARE COMPLETE – THEY ARE ONGOING AT THIS TIME

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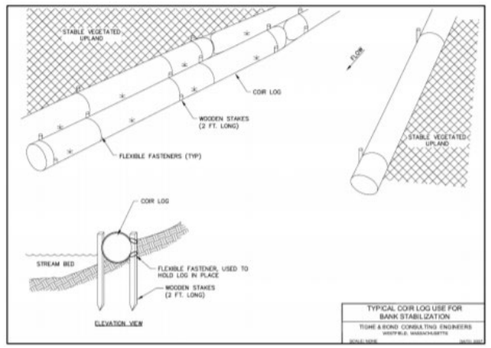
Best Management Practice 4: Coir Logs



Description:
Coir logs, straw wattles, fiber rolls, or SiltSoxx™ consist of compressed weed-free straw fiber or other natural material, placed within a photodegradable mesh cylindrical sock.

Applications:

- Streambank, wetland, and slope protection
  - Check dam applications
  - Perimeter and stockpile containment
  - Slope stabilization by shortening slope length, reducing runoff velocity, and trapping mobile soil particles
  - Provides substrate for plant growth upon decay of fiber roll and protects new vegetation growth

Installation:

- For slope stabilization, it is critical that coir logs are installed perpendicular to soil movement and parallel to the slope contour.
- If additional length is needed for application, ends should be overlapping at least 6 inches.
- If used in slope stabilization, construct trenches half the diameter of the log in which to place the roll. Lay the coir log along the trench, snugly fitting it against the soil. Ensure no gaps exist between the soil and the fiber roll.
- Install stakes at least every three feet apart along the length of the roll. Additional stakes may be driven on the downslope side of the trenches on highly erosive or very steep slopes.

Best Management Practice 5: Silt Fence

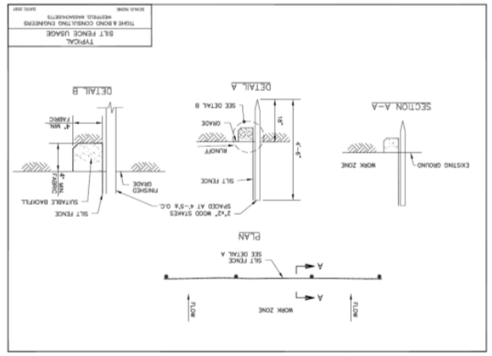
Description:
Silt fence is a temporary sediment barrier consisting of filter fabric attached to supporting posts and entrenched into the soil. This barrier is installed across or at the toe of a slope to intercept and retain small amounts of sediment from disturbed or unprotected areas.

Applications:
Consider using silt fence barriers where:

- Flow to the silt fence from a distributed area occurs as overland sheet flow
- Sedimentation can pollute or degrade adjacent wetlands or watercourses
- Sedimentation will reduce the capacity of storm drainage systems or adversely affect adjacent areas.
- **Silt fence should not be used in areas of concentrated flows or across streams, channels, swales, ditches or other drainage ways.**

Installation:

- Install silt fence following the contour of the land as closely as possible.
- The height of the barrier shall not exceed 36 inches.
- Posts shall be placed at a maximum of 10 feet apart at the barrier location and driven securely into the ground (minimum of 12 inches).
- A trench shall be excavated approximately 6 inches wide and 6 inches deep along the line of posts and upslope of the barrier in accordance with recommendations
- The filter fabric will extend a minimum of 8 inches into the trench which shall be backfilled and the soil compacted over the filter fabric.
- Fabric barriers shall be removed after the upslope area has been permanently stabilized.
- Filter barriers shall be inspected immediately after each rainfall and at least once daily during prolonged rainfall and any required repairs shall be made immediately.
- Sediment deposits should be removed when they reach approximately one—half the height of the barrier.



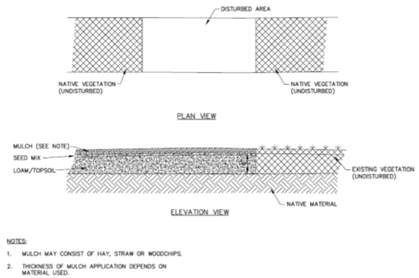
Best Management Practice 16: Temporary or Permanent Mulch

Description:
Temporary mulching is the application of plant residues or other suitable materials to the soil surface. Permanent mulching consists of the application of long-term surface cover such as bark, woodchips or erosion control mix. Permanent mulch can be used as a permanent ground cover, an overwinter stabilization mulch or left to naturalize.

Mulching reduces erosion potential by protecting the exposed soil surface from direct impact by rainfall.

Considerations:

- Apply temporary mulch within 100 feet of streams, wetlands and in lake watersheds within seven days of exposing soil or prior to any storm event.
- Immediately mulch areas that have been temporarily or permanently seeded, following seeding.
- For areas that cannot be seeded within the growing season, mulch for over-winter protection. Seed the area at the beginning of the next growing season.
- Mulch anchoring should be used on slopes with gradients greater than 5% in fall (past September 15), and over-winter (October 15 – May 1).



Installation:

Hay or Straw Mulches:

- Use air-dried organic mulches including weed-free hay and straw free of undesirable seeds and coarse materials.
- Application rate should be two bales (70-90 pounds) per 1,000 square feet or 1.5-2 tons (90-100 bales) per acre to cover 75-90% of the ground surface.
- Anchor hay or straw mulch to prevent displacement by wind or flowing water using jute or biodegradable plastic netting or in some cases, organic tackifier.
- When mulch is applied to provide protection over winter (past the growing season), apply it to a depth of four inches (150-200 pounds of hay or straw per 1,000 square feet, or double standard application rate). Seeding cannot generally be expected to grow up through this depth of mulch and will be smothered. If vegetation is desired, remove mulch in the springtime and seed and re-mulch the area.

Northern Black Racer

(New Hampshire state threatened species)

Emerge from hibernacula in April, Basking April - August,
Hatchlings emerge August - September, Return to hibernacula mid-September - mid-October

- Solid black with a white throat and chin
- Slender with glossy scales, 3-6 ft. long
- Hatchlings are very small and patterned

Immediately report sightings to NH Fish and Game
Melissa Winters (603-479-1129) or
Brendan Clifford (603-944-0885)
Please report promptly, noting specific location and date
Photographs strongly encouraged

Fis 1401.03 (a) No person shall take or possess a black racer (*Coluber constrictor*)...or any egg or part thereof.

PLEASE REPORT RARE TURTLES

The NH Fish & Game Department is requesting observations of three turtle species that could be encountered onsite.

Report sightings immediately to NHFG Wildlife Division at 603-271-2461 (M-F 8-4) or to NHFG Wildlife Biologist Melissa Winters 603-479-1129 (cell) anytime.
Please report promptly, noting specific location and date – Photographs strongly encouraged

Blanding's turtle (state endangered)

- Large, dark/black domed shell with lighter speckles
- Distinct yellow throat/chin
- Aquatic but often moves on land

Wood turtle (special concern)

- Sculpted, pyramidal brownish shell
- Orange around neck and limbs
- River/stream turtle spending many months on land

Spotted turtle (state threatened)

- Small, mostly aquatic with black or dark brown with yellow spots.
- Fairly flat shell compared to Blanding's turtle

REPORT OBSERVATIONS

EASTERN BOX TURTLE (state endangered)

Report sightings immediately to NHFG Wildlife Division to New Hampshire Fish and Game:

Wildlife Biologist Melissa Winters 603-479-1129 (call or text) anytime
Wildlife Biologist Josh Megyesy at 978-578-0802 (call or text), or
If you are unable to reach a biologist you may also contact the Wildlife Administrator at: 603-271-2461 (M-F 8-4)

Please report promptly, noting specific location and date – Photographs strongly encouraged

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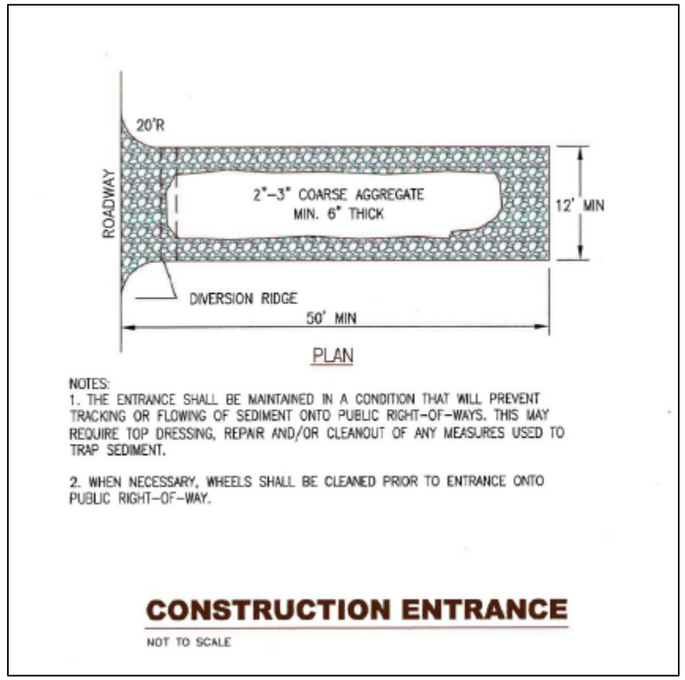
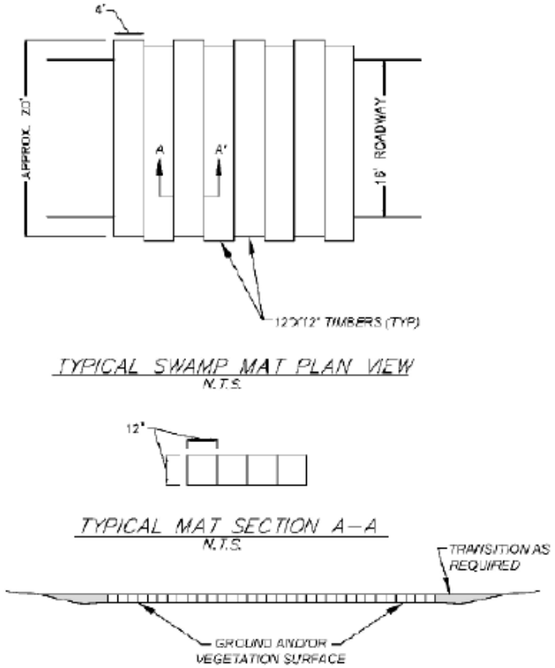
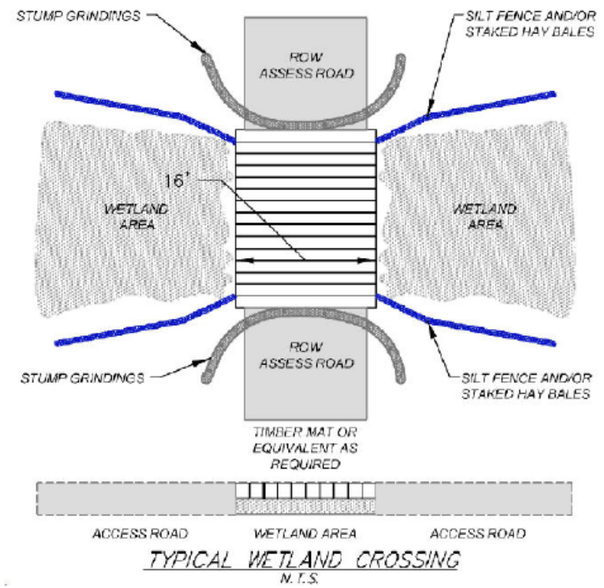
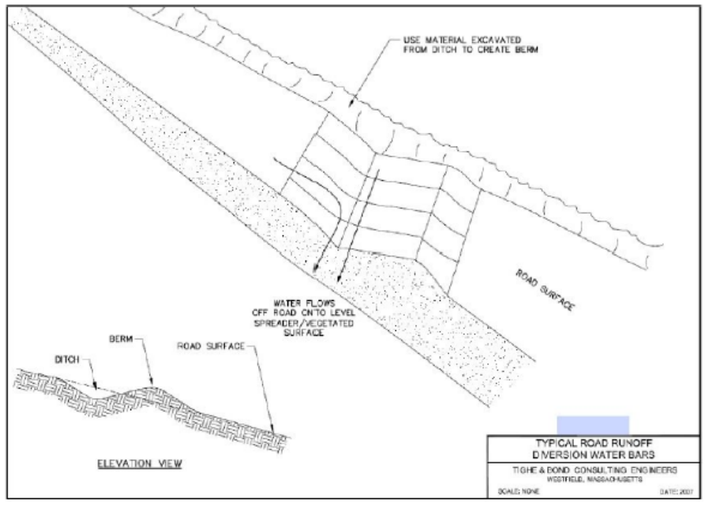
- Smaller turtle about 4.5-7 inches long (adult ones).
- Highly domed shell with variable patterning.
- Shell color patterns vary greatly from irregular yellow or orange markings with dark brown or black base.
- Skin is uniformly dark with yellow or orange markings.
- During warm months (May – June) nests in loose, sandy or loamy soil
- Eastern box turtles nests are protected under state law.









Best Management Practices (BMP's) for Straw wattles

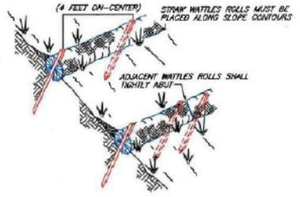
Definition and purpose:
Straw wattles are burlap rolls filled with straw that trap sediment and interrupt water flow by reducing slope lengths.

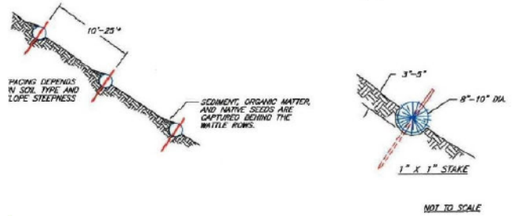
Applications:
- Along erodible or unstablizied slopes
- Spread overland waterflow
- Trap sediment
- Around storm drain inlets to slow water and settle out sediment
- Overlap ends approximately 6 inches

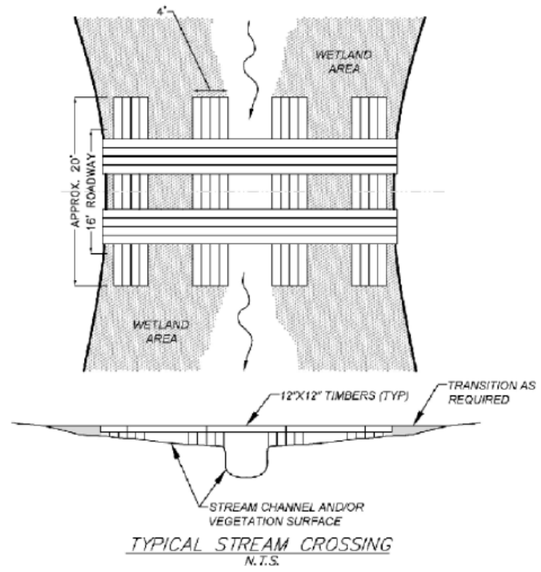
Installation:
Straw wattles are installed parallel to slope contours and perpendicular to sheet flow.

Spacing* - Dependent on slope length, soil steepness and soil type (general range 10 - 25').

Trenching - 2"-5" inch trench
Stacking - at each end and four foot on center (i.c. 25 foot wattle uses 6 stacks)







ATTACHMENT C – Properties in the Project Impact Footprint, Relevant Easement Numbers, and Notification Letter

Properties in the Project Impact Footprint

Tax map #	Easement #/Deed Book and Page Number
30-8, 30-9, 29-31, 29-32, 28-3, 28-6, **28-13**, 28-18, 18-3, 19-3, 19-2, 19-1, **19-16**, 19-16-1, 24-1, **25-1**, **20-8**, 24-3, **24-30**	EAA-1454, EAA-1451, EAA-1446, EAA-1450, EAA-1539, EAA-1444, EAA-1442, EAA-1541, EAA-1440, EAA-1439, EAA-1438, EAA-1540, EAA-1386
Owned by local municipality (Town)	

May 25, 2022

Re: Town of Exeter Conditional Use Permit Application RASH Structure Replacement Project – Exeter, New Hampshire

Dear Sir/Ma'am:

Eversource Energy proposes to replace thirty-six (36) structures, as well as maintain existing access roads and establish new access roads as necessary in upland areas along the A126 and H141 Transmission Lines right-of-way (ROW) in Exeter, New Hampshire. The proposed project involves maintenance work within an existing and maintained utility ROW and does not propose expansion of the ROW. Additionally, no vegetation maintenance is scheduled for inclusion with this project.

The proposed project is scheduled to commence in August 2023 and construction is expected to continue through January 2024. Restoration work may be required in Spring 2024.

A copy of the site plan and permit application was submitted to the Town of Exeter. If you would like to obtain a copy, please contact the Town of Exeter at (603) 778-0591 ext 403. Please contact the Town at the number above for information on how to obtain a copy of the documents.

Sincerely,

William McCloy, NH CWS, PWS

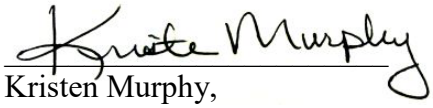
Project Manager

TOWN OF EXETER
CONSERVATION COMMISSION MEMORANDUM

Date: June 27, 2023
To: Exeter Planning Board
From: Kristen Murphy, Conservation and Sustainability Planner
Subject: Conditional Use Permit

Project Information:
Project Location: Unitil RASH Project, Exeter, NH
Map/Lot: various
CC Review Date: 6/13/23
PB CASE: #23-09

Following a presentation and review of the conditional use permit criteria, the Exeter Conservation Commission voted with no objection to the proposal as presented. The team from UNITIL has agreed to coordinate with the Conservation and Sustainability Planner and a member off the Conservation Commission on a trail closure schedule, signage and public communication



Kristen Murphy,
on behalf of the Exeter Conservation Commission

Exeter Conservation Commission
June 13, 2023
Nowak Room
10 Front Street
7:00 PM
Draft Minutes

Call to Order

1. Introduction of Members Present (by Roll Call)

Present at tonight's meeting were by roll call, Chair Andrew Koff, Vice-Chair Trevor Mattera, Treasurer Dave Short, , Kyle Welch, Connor Madison, Alternate Bill Campbell (remotely), and Alternate Valorie Fanger

Staff Present: Kristen Murphy, Conservation and Sustainability Planner

Mr. Koff called the meeting to order at 7:00 PM and activated Alternates Campbell and Fanger.

2. Public Comment

Mr. Koff asked if there was any public comment and there was none.

Action Items

1. Election of Officers

Chair Koff asked if anyone was interested in serving as an officer for the next term. Mr. Short recommended the same officers fill the same positions.

MOTION: Mr. Short motioned that the same people serve as officers in the same positions as last year for the coming year. Mr. Welch seconded the motion. A vote was taken, all were in favor, the motion passed 7-0-0.

2. Wetland Conditional Use Permit Application for proposed utility maintenance work on the existing A126 and H141 115-kV transmission lines for the Eversource RASH project

William McCloy of Normandeau Associates presented the proposal on behalf of Eversource.

Mr. McCloy indicated the project was for maintenance of existing A126 and H141 lines to replace 36 structures between the two. There is impact in the wetland overlay, work areas in the crossings and temporary and permanent access areas in the wetland buffer. There will be NHDES and other permits, Army Corp and AoT. There will be state permit by notification.

Matt Cardin welcomed questions. He indicated the locations from 101 to Town Forest, Raynes Farm, across the river into Stratham. Mr. Koff noted Watson and Raynes were done in the past. Mr. Cardin explained how the inspection process drives the replacement of structures from wood to steel. Last year work was done on Captain's Way for a separate line. Mr. Short asked about filling gaps. Mr. Cardin noted there is a justification process for replacement including cost and value.

Mr. Koff recommended a better way to communicate where work has already been done on the plan.

Mr. Campbell asked if it were more efficient to do them all at once. Mr. Cardin discussed timber matting and coordinating with the farmer who was doing the haying.

Mr. Welch asked about a start date, which will be the middle to end of August, but some work can't start until after October 15th per recommendation from Fish & Game.

Mr. Short asked about use of the parking lot while the work is done in the ROW. Mr. Cardin indicated there will be no staging or storage of equipment in the parking lot, but it is in the ROW where they will be working.

Ms. Murphy asked about nesting turtles and Mr. Cardin indicated Fish & Game only recommended time of year restrictions. Ms. Murphy advised that the gravel changes the substrate, and the turtles will need sandy soil or nesting.

Mr. Madison indicated he would be recusing himself as he works on the project.

Mr. Koff asked if work at Raynes Farm would be impacted, and Ms. Murphy noted the contractor works up near the barn.

Mr. Koff reviewed the criteria. He noted the work is permitted in the district, there was no alternate design heard, the functions and values were not discussed but provided, best management practices are in place, safety was addressed with regard to the parking lot and popular areas. Mr. Cardin noted there would be signs redirecting trail users as needed. Mr. Short will notify Fort Rock Riders. Mr. Welch asked if there would be temporary trail closures and Mr. Cardin indicated there would. Mr. Koff recommended notifying the Raynes Stewardship Committee. Ms. Murphy will notify them.

Mr. Koff noted #6 was not applicable and #7 temporary disturbances will be restored and #8 other permits were discussed.

MOTION: Mr. Koff motioned that the Commission has no objection to the CUP as proposed. Mr. Mattera seconded the motion. A vote was taken, all were in favor, the motion passed 6-0-1 with Mr. Madison recusing and abstaining.

Mr. Koff noted a memo would be drafted to the Planning Board before their July meeting.

TOWN OF EXETER

Planning and Building Department

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

www.exeternh.gov

Date: **June 29, 2023**

To: **Planning Board**

From: **Dave Sharples, Town Planner**

Re: **Douglas and Christine Rupp** **PB Case #23-11**

The Applicant is seeking approval for a Wetlands Conditional Use Permit for the proposed construction of a driveway for a single-family residence within the wetlands and wetland buffers. This application is in conjunction with the conditional approval granted by the Board on May 25th, 2023 for a minor subdivision of the property at 24 Powder Mill Road (Richard and Debbi Schaefer, PB Case #23- 3). The subject property is located in the R-1, Low Density Residential zoning district and is identified as Tax Map Parcel #102-4.

The Applicant has submitted a Wetlands CUP application, plans and supporting documents, dated June 20, 2023, which are enclosed for your review. The Applicant is proposing to relocate the driveway access, therefore eliminating the need for an easement for a shared driveway as previously depicted on the subdivision plan. I have also included a copy of the subdivision plan (approved in May), the PB conditional approval letter and minutes from the May 25th, 2023 meeting for your review.

This requires a new subdivision application due to the fact the previous approved plan relied upon an easement and no wetland or buffer impact. Subsequently, a wetland was discovered in the area of the proposed easement so the applicant is seeking to have access to the property directly from Powder Mill Road. This application has only been noticed as a CUP so I'm not comfortable having the board act upon the subdivision at this meeting. That said, I will seek legal review prior to the meeting and brief the board at that time.

The applicant did submit a Mylar of the prior subdivision but I cannot recommend the Chair sign it and have it recorded. The plans show a new wetland that was never presented to the board and the access easement goes right through it which, at a minimum, would've changed the discussion on the application and required a CUP.

The Applicant is scheduled to appear before the Conservation Commission at their July 11th, 2023 meeting to present their proposal. I will update the Board at the meeting as to their recommendations.

There are no waivers being requested in conjunction with this application.

Thank You.

Enclosures

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:	Douglas and Christine Rupp
	Address:	69 Newburyport Turnpike, Newbury, MA 01951
	Email Address:	christine.l.rupp@gmail.com
	Phone:	978-476-1351
PROPOSAL	Address:	24 Powdermill Road
	Tax Map #102 Lot#004 Zoning District:	
	Owner of Record:	Douglas & Christine Rupp
Person/Business performing work outlined in proposal	Name:	Douglas and Christine Rupp
	Address:	69 Newburyport Turnpike, Newbury, MA 01951
	Phone:	978-476-1351
Professional that delineated wetlands	Name:	Daniel Coons, dba Ilex Wetlands Consultants
	Address:	PO Box 2185, Wolfeboro, NH 03894
	Phone:	603-520-8533

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)

The proposed project is the construction of a driveway to access a building and septic envelope found in an upland area. As wetlands span the entire frontage of the parcel, a dredge and fill application has been submitted to NHDES. No other alternative exists which would allow driveway access without wetland impacts. The proposed location is the location on the parcel which provides the most minimal impacts to both the wetland and the wetland buffer.

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	40 sf	☒ PD	80 sf
	☐ 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	771 sf	☒ PD	3473 sf
	☐ Inland Stream	_____	☐ Inland Stream	_____

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

No variance for the contstruction or the driveway have been requested of the ZBA

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

Residential construction is allowed in this zone. NHDES allows for driveways to cross a wetland for construction of a building within the upland. This lot has no frontage which allows for the driveway to avoid wetlands. The location chosen for the driveway minimizes as much as possible wetland and buffer impacts. Any loss of wetland function or value has been minimized as much as possible. The design will minimize any detrimental wetland or buffer impacts from the driveway construction. No temporary impacts are anticipated except for the toeing in of the silt fence. The area will be restored following construction. We anticipate no hazard or impact to the public health or safety from the approval of this project. Permit application has been submitted to NHDES, and notification provided to the Army Corps of Engineers.

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

TAX MAP 102 - 004
NAME Schaeffer Family Trust
ADDRESS 24 Powder Mill Rd
Exeter, NH 03833

TAXMAP 97 - 007 et al
NAME Riverwoods at Exeter
ADDRESS 7 Riverwoods Drive
Exeter, NH 03833

TAX MAP 23-004 et al
NAME Boston and Maine Railroad
ADDRESS 1700 Ironhorse Park
North Billerica, MA 01862

TAX MAP 102 - 005
NAME Town of Exeter
ADDRESS 10 Front Street, Exeter, NH 03833

TAX MAP _____
NAME _____
ADDRESS _____

TAXMAP _____
NAME _____
ADDRESS _____

TAX MAP _____
NAME _____
ADDRESS _____

TAX MAP _____
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TAX MAP _____
NAME _____
ADDRESS _____

TAX MAP _____
NAME _____
ADDRESS _____

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;

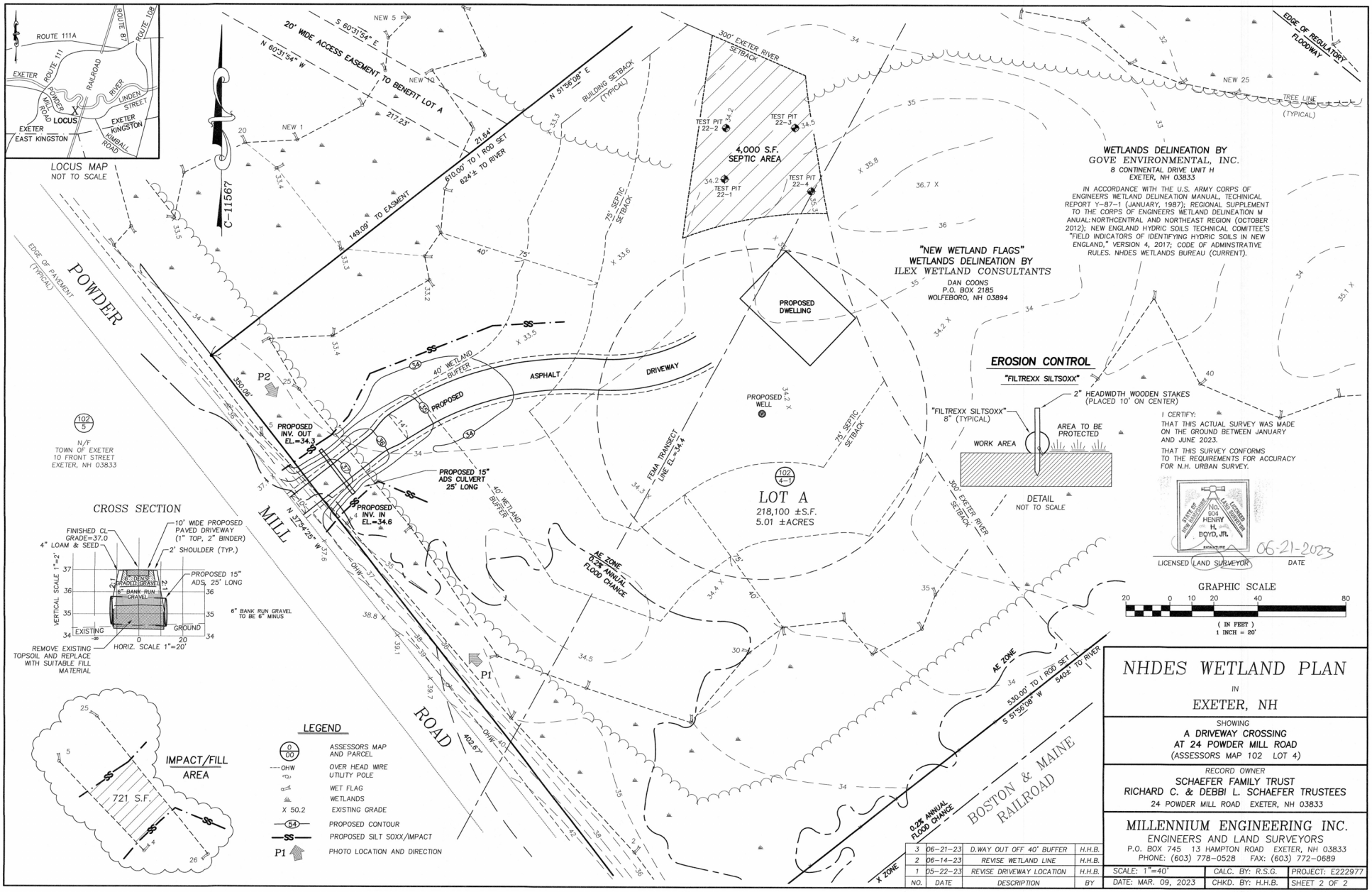
3. The proposed impact has been evaluated in the context of the relative "value" of the wetland, including its ecological sensitivity, as well as its function within the greater hydrologic system. To the extent feasible, the proposed impact is not detrimental to the value and function of the wetland(s).

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.



NHDES WETLAND PLAN

IN

EXETER, NH

SHOWING

A DRIVEWAY CROSSING AT 24 POWDER MILL ROAD

(ASSESSORS MAP 102 LOT 4)

RECORD OWNER

SCHAEFER FAMILY TRUST

RICHARD C. & DEBBI L. SCHAEFER TRUSTEES

24 POWDER MILL ROAD EXETER, NH 03833

MILLENNIUM ENGINEERING INC.

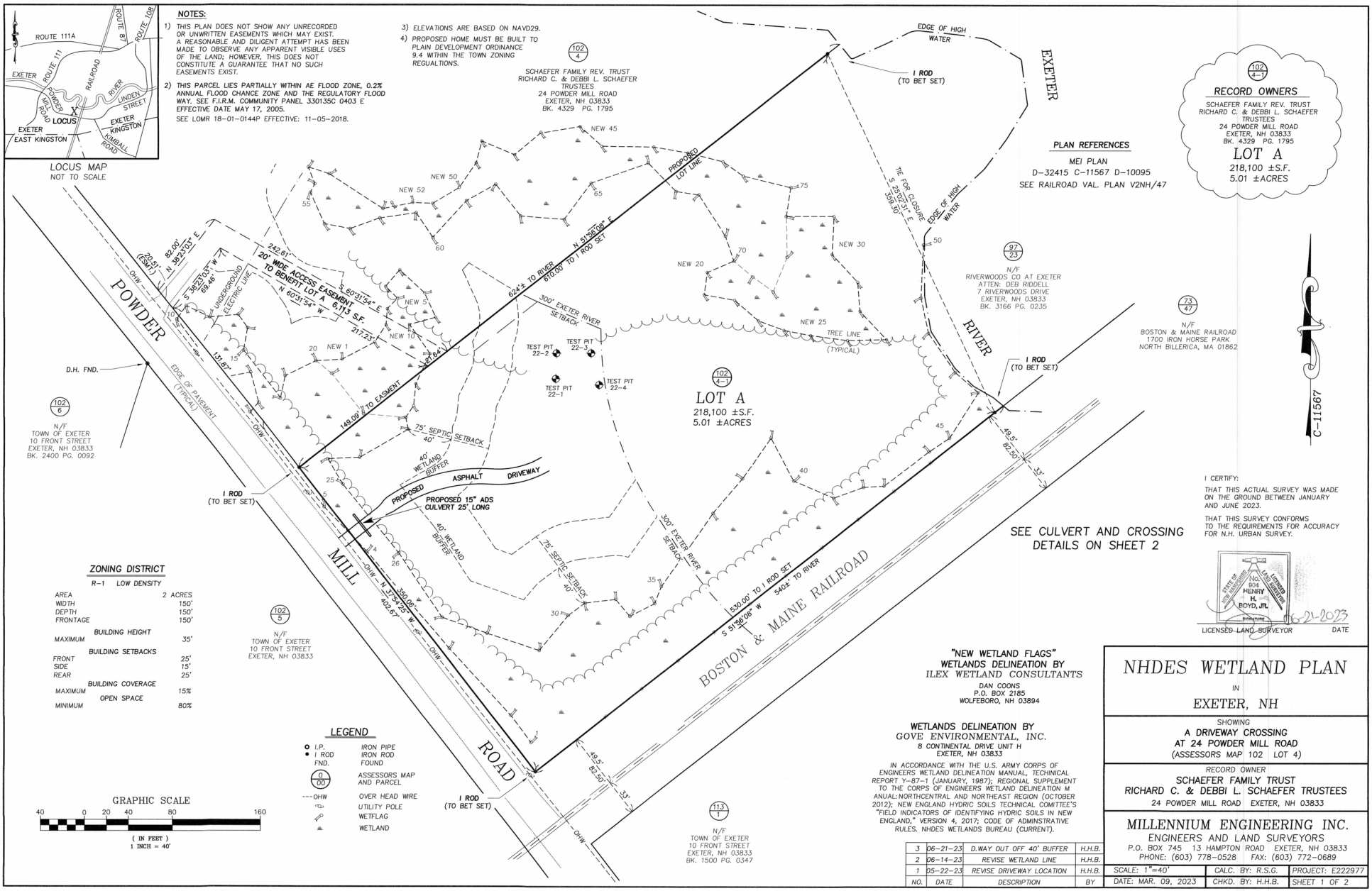
ENGINEERS AND LAND SURVEYORS

P.O. BOX 745 13 HAMPTON ROAD EXETER, NH 03833

PHONE: (603) 778-0528 FAX: (603) 772-0689

NO.	DATE	DESCRIPTION	BY
3	06-21-23	D.WAY OUT OFF 40' BUFFER	H.H.B.
2	06-14-23	REVISE WETLAND LINE	H.H.B.
1	05-22-23	REVISE DRIVEWAY LOCATION	H.H.B.

SCALE: 1"=40'	CALC. BY: R.S.G.	PROJECT: E222977
DATE: MAR. 09, 2023	CHKD. BY: H.H.B.	SHEET 2 OF 2


LOCUS MAP
NOT TO SCALE
ROUTE 111A
ROUTE 87
ROUTE 108
ROUTE 111
RAILROAD
EXETER
RIVER
LINDEN STREET
POWDER MILL ROAD
LOCUS
EXETER
KINGSTON
EXETER
EAST KINGSTON
KIMBALL ROAD
NOTES:
1) THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST. A REASONABLE AND DILIGENT ATTEMPT HAS BEEN MADE TO OBSERVE ANY APPARENT VISIBLE USES OF THE LAND; HOWEVER, THIS DOES NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.
2) THIS PARCEL LIES PARTIALLY WITHIN AE FLOOD ZONE, 0.2% ANNUAL FLOOD CHANCE ZONE AND THE REGULATORY FLOOD WAY. SEE F.I.R.M. COMMUNITY PANEL 330135C 0403 E EFFECTIVE DATE MAY 17, 2005.
SEE LOMR 18-01-0144P EFFECTIVE: 11-05-2018.
3) ELEVATIONS ARE BASED ON NAVD29.
4) PROPOSED HOME MUST BE BUILT TO PLAIN DEVELOPMENT ORDINANCE 9.4 WITHIN THE TOWN ZONING REGUALTIONS.
102/4
SCHAEFER FAMILY REV. TRUST
RICHARD C. & DEBBI L. SCHAEFER TRUSTEES
24 POWDER MILL ROAD
EXETER, NH 03833
BK. 4329 PG. 1795
EDGE OF HIGH WATER
I ROD (TO BET SET)
EXETER
TIE FOR CLOSURE
S 25°27'31" E
558.30'
EDGE OF HIGH WATER
PLAN REFERENCES
MEI PLAN
D-32415 C-11567 D-10095
SEE RAILROAD VAL. PLAN V2NH/47
102/4-1
RECORD OWNERS
SCHAEFER FAMILY REV. TRUST
RICHARD C. & DEBBI L. SCHAEFER TRUSTEES
24 POWDER MILL ROAD
EXETER, NH 03833
BK. 4329 PG. 1795
LOT A
218,100 ±S.F.
5.01 ±ACRES
NEW 45
NEW 50
NEW 52
NEW 30
NEW 20
NEW 25
NEW 5
NEW 10
NEW 1
PROPOSED LOT LINE
N 51°56'06" E
624.4' TO RIVER
610.00' TO I ROD SET
97/23
N/F
RIVERWOODS CO AT EXETER
ATTEN: DEB RIDDELL
7 RIVERWOODS DRIVE
EXETER, NH 03833
BK. 3166 PG. 0235
73/47
N/F
BOSTON & MAINE RAILROAD
1700 IRON HORSE PARK
NORTH BILLERICA, MA 01862
C-11567
242.61'
20' WIDE ACCESS EASEMENT TO BENEFIT LOT A
6,113 S.F.
217.23'
S 60°31'54" E
N 60°31'54" W
127.64'
TO EASEMENT
149.09'
TO EASEMENT
S 36°27'03" W
169.46'
N 36°27'03" E
82.00'
(ESMT.)
20.51'
(ESMT.)
UNDERGROUND ELECTRIC LINE
OHW
POWDER MILL ROAD
EDGE OF PAVEMENT (TYPICAL)
131.87'
D.H. FND.
102/6
N/F
TOWN OF EXETER
10 FRONT STREET
EXETER, NH 03833
BK. 2400 PG. 0092
I ROD (TO BET SET)
300' EXETER RIVER SETBACK
TREE LINE (TYPICAL)
TEST PIT 22-1
TEST PIT 22-2
TEST PIT 22-3
TEST PIT 22-4
102/4-1
LOT A
218,100 ±S.F.
5.01 ±ACRES
I ROD (TO BET SET)
75' SEPTIC SETBACK
40'
40' WETLAND BUFFER
PROPOSED ASPHALT DRIVEWAY
PROPOSED 15" ADS CULVERT 25' LONG
40' WETLAND BUFFER
75' SEPTIC SETBACK
40'
300' EXETER RIVER SETBACK
530.00' TO I ROD SET
540± TO RIVER
S 51°56'06" W
49.5'
82.50'
33'
SEE CULVERT AND CROSSING DETAILS ON SHEET 2
I ROD (TO BET SET)
N 37°44'23" W
402.67'
380.00'
OHW
102/5
N/F
TOWN OF EXETER
10 FRONT STREET
EXETER, NH 03833
I ROD (TO BET SET)
113/1
N/F
TOWN OF EXETER
10 FRONT STREET
EXETER, NH 03833
BK. 1500 PG. 0347
BOSTON & MAINE RAILROAD
POWDER MILL ROAD
ZONING DISTRICT
R-1 LOW DENSITY
AREA 2 ACRES
WIDTH 150'
DEPTH 150'
FRONTAGE 150'
BUILDING HEIGHT
MAXIMUM 35'
BUILDING SETBACKS
FRONT 25'
SIDE 15'
REAR 25'
BUILDING COVERAGE
MAXIMUM 15%
OPEN SPACE
MINIMUM 80%
LEGEND
I.P. IRON PIPE
I ROD IRON ROD FOUND
FND.
0/00 ASSESSORS MAP AND PARCEL
OHW OVER HEAD WIRE
UTILITY POLE
WETFLAG
WETLAND
GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 INCH = 40'
"NEW WETLAND FLAGS"
WETLANDS DELINEATION BY
ILEX WETLAND CONSULTANTS
DAN COONS
P.O. BOX 2185
WOLFEBORO, NH 03894
WETLANDS DELINEATION BY
GOVE ENVIRONMENTAL, INC.
8 CONTINENTAL DRIVE UNIT H
EXETER, NH 03833
IN ACCORDANCE WITH THE U.S. ARMY CORPS OF ENGINEERS WETLAND DELINEATION MANUAL, TECHINICAL REPORT Y-87-1 (JANUARY, 1987); REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION M ANUAL: NORTHCENTRAL AND NORTHEAST REGION (OCTOBER 2012); NEW ENGLAND HYDRIC SOILS TECHNICAL COMITTEE'S "FIELD INDICATORS OF IDENTIFYING HYDRIC SOILS IN NEW ENGLAND," VERSION 4, 2017; CODE OF ADMINSTRATIVE RULES. NHDES WETLANDS BUREAU (CURRENT).
I CERTIFY:
THAT THIS ACTUAL SURVEY WAS MADE ON THE GROUND BETWEEN JANUARY AND JUNE 2023.
THAT THIS SURVEY CONFORMS TO THE REQUIREMENTS FOR ACCURACY FOR N.H. URBAN SURVEY.
STATE OF NEW HAMPSHIRE
No. 804
HENRY H. BOYD, JR.
LICENSED LAND SURVEYOR
6-21-2023
LICENSED LAND SURVEYOR
DATE
NHDES WETLAND PLAN
IN
EXETER, NH
SHOWING
A DRIVEWAY CROSSING
AT 24 POWDER MILL ROAD
(ASSESSORS MAP 102 LOT 4)
RECORD OWNER
SCHAEFER FAMILY TRUST
RICHARD C. & DEBBI L. SCHAEFER TRUSTEES
24 POWDER MILL ROAD EXETER, NH 03833
MILLENNIUM ENGINEERING INC.
ENGINEERS AND LAND SURVEYORS
P.O. BOX 745 13 HAMPTON ROAD EXETER, NH 03833
PHONE: (603) 778-0528 FAX: (603) 772-0689
NO. DATE DESCRIPTION BY
3 06-21-23 D.WAY OUT OFF 40' BUFFER H.H.B.
2 06-14-23 REVISE WETLAND LINE H.H.B.
1 05-22-23 REVISE DRIVEWAY LOCATION H.H.B.
SCALE: 1"=40' CALC. BY: R.S.G. PROJECT: E222977
DATE: MAR. 09, 2023 CHKD. BY: H.H.B. SHEET 1 OF 2

TOWN OF EXETER, NEW HAMPSHIRE

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

May 31, 2023

Henry H. Boyd, Jr., LLS
Millennium Engineering, Inc.
13 Hampton Road
P.O. Box 745
Exeter, New Hampshire 03833

Re: PB Case #23-3 Richard & Debbi Schaefer
Minor Subdivision
24 Powder Mill Road, Exeter, N.H.
Tax Map Parcel #102-4

Dear Mr. Boyd:

Please be advised that at the meeting of May 25th, 2023, the Exeter Planning Board voted to **APPROVE** the above-captioned application for a minor subdivision of the existing 21-acre parcel located at 24 Powder Mill Road into two residential building lots, as presented. This approval was granted subject to the following conditions:

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;

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 plans; and

3. As proposed by the Applicant, the bottom of the effluent disposal area on Lot A shall be a minimum of 2.8' above the base flood elevation.

Please feel free to contact the Planning Department at 773-6114 with any questions.

Sincerely,

Dave Sharples
Town Planner
(on behalf of the Planning Board Chairman)

cc: Richard and Debbi Schaefer, property owners
Doug & Christine Rupp
Douglas Eastman, Building Inspector/Code Enforcement Officer
Janet Whitten, Town Assessor

DS:bsm

TOWN OF EXETER
PLANNING BOARD
NOWAK ROOM – TOWN OFFICE BUILDING
10 FRONT STREET
MAY 25, 2023
APPROVED MINUTES
7:00 PM

I. PRELIMINARIES:

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

STAFF PRESENT: Town Planner Dave Sharples

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

III. OLD BUSINESS

APPROVAL OF MINUTES

April 13, 2023

Ms. English recommended edits.

Ms. Belanger motioned to approve the April 13, 2023 meeting minutes, as amended. Ms. English seconded the motion. A vote was taken, all were in favor, the motion passed 5-0-0.

May 11, 2023

Mr. Grueter recommended edits.

Ms. Belanger motioned to approve the May 11, 2023 meeting minutes, as amended. Mr. Grueter seconded the motion. A vote was taken, all were in favor, the motion passed 5-0-0.

IV. NEW BUSINESS:

The application of Richard Schaefer and Debbi Schaefer for a minor subdivision of the existing 21 +/- acre parcel located at 24 Power Mill Road. The Applicant is proposing to subdivide off a 5.01 +/- acre parcel with frontage on Powder Mill Road for a new residence.
R-1, Low Density Residential zoning district
Tax Map Parcel #102-4

Planning Board Case #23-3

Chair Plumer read out loud the Pubic Hearing Notice.

Mr. Sharples indicated the Applicants went before the Zoning Board of Adjustment at their May 16, 2023 meeting and the ZBA determined the common law standard applied and a variance was not necessary. The applicant is not requesting any waivers.

Ms. English asked Mr. Sharples if he could explain how the common law doctrine applies in this case and Mr. Sharples indicated the ZBA determined a variance was not needed and the zoning is fine.

Henry Boyd of Millennium Engineering reviewed the septic design which he noted is an Enviroseptic design 2.8' above the base flood elevation.

Mr. Grueter asked about the sand below where the effluent goes and Mr. Sharples indicated there was 4' from the bottom to the seasonal high water table.

Chair Plumer opened the hearing to the public for comments and questions at 7:27 PM and being none closed the hearing to public comment.

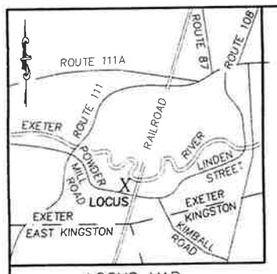
Mr. Sharples read out loud the proposed conditions of approval:

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;
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; and
3. As proposed by the applicant the bottom of the effluent disposal area on Lot A shall be a minimum of 2.8' above base flood elevation.

Ms. Belanger motioned that the request of Richard Schaefer and Debbi Schaefer, Planning Board Case #23-3 for a minor subdivision approval, be approved with the three conditions stated by the Town Planner. Ms. English seconded the motion. A vote was taken, all were in favor, the motion passed 5-0-0.

VI. OTHER BUSINESS

- Master Plan Discussion
- Field Modifications



LOCUS MAP
NOT TO SCALE

NOTES:

1) THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST. A REASONABLE AND DILIGENT ATTEMPT HAS BEEN MADE TO OBSERVE ANY APPARENT VISIBLE USES OF THE LAND; HOWEVER, THIS DOES NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.
2) THIS PARCEL LIES PARTIALLY WITHIN AE FLOOD ZONE, 0.2% ANNUAL FLOOD CHANCE ZONE AND THE REGULATORY FLOOD WAY. SEE F.I.R.M. COMMUNITY PANEL 33013SC 0403 E EFFECTIVE DATE MAY 17, 2005.
SEE LOMR 18-01-0144P EFFECTIVE: 11-05-2018.
3) "THE LANDOWNER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLANDS REGULATIONS, INCLUDING ANY PERMITTING AND SETBACKS REQUIRED UNDER THESE REGULATIONS."
4) ELEVATIONS ARE BASED ON NAVD29.
5) PROPOSED HOME MUST BE BUILT TO PLAIN DEVELOPMENT ORDINANCE 9.4 WITHIN THE TOWN ZONING REGULATIONS.

TOWN OF EXETER PLANNING BOARD

CHAIRMAN DATE

(102/4) REMAINING AREA
16 ±ACRES

#24 EXISTING DWELLING
EXISTING SEPTIC AREA
EXISTING GARAGE
EXISTING WELL
SEE LOMR 18-01-0144P EFFECTIVE: 11-05-2018.

EDGE OF HIGH WATER
I ROD (TO BET SET)
EXETER
RIVER
EDGE OF HIGH WATER
TIE FOR CLOSURE S 25°02'21" E 359.30'

PLAN NOTE

THE PURPOSE OF THIS PLAN IS TO SHOW THE DIVISION OF THIS PARCEL INTO 2 LOTS FOR SINGLE FAMILY RESIDENTIAL PURPOSES.

VARIANCE NOTE

SEE VARIANCE CASE #22-18 NOVEMBER 15, 2022 TO PERMIT THE USE OF TEST PITS FOR INDIVIDUAL SEPTIC DISPOSAL SYSTEM WITH LESS THAN 24" TO SEASONAL HIGH WATER TABLE. SUBJECT TO ENVIRO-SEPTIC OR SIMILAR SYSTEM TO BE INSTALLED.

(102/4) RECORD OWNERS
SCHAEFER FAMILY REV. TRUST
RICHARD C. & DEBBI L. SCHAEFER TRUSTEES
24 POWDER MILL ROAD
EXETER, NH 03833
BK 4329 PG. 1795
21± ACRES
PER DEED

PLAN REFERENCES

D-32415 C-11567 D-10095
SEE RAILROAD VAL. PLAN V2NH/47

(97/23) N/F RIVERWOODS CO. AT EXETER ATTN: DEB ANDREW 7 RIVERWOODS DRIVE EXETER, NH 03833 BK. 3166 PG. 2035

(73/47) N/F BOSTON & MAINE RAILROAD 1700 IRON HORSE PARK NORTH BILLERICA, MA 01862

FLOODWAY ZONE AE
EDGE OF REGULATORY FLOODWAY
PROPOSED 1 LOT LINE
N 51°56'08" E 670.00' TO I ROD SET
624'± TO RIVER
20' WIDE ACCESS EASEMENT TO BENEFIT LOT A 6,113 S.F.
S 36°27'03" W 69.46'
N 38°27'03" W 82.00'
(20.51' (ESM.))
N 60°31'54" W 217.23'
S 60°31'54" E 21.64'
149.09' TO EASEMENT
N 38°45'24" W 131.87'
52.61'
D.H. FND.
UNDERGROUND ELECTRIC LINE
OHW
POWDER MILL ROAD
Field Of Boulders (Typical)

300' EXETER RIVER SETBACK
TEST PIT 22-2
TEST PIT 22-3
4,000 S.F. SEPTIC AREA
TEST PIT 22-1
TEST PIT 22-4
75' SEPTIC SETBACK
40'
75' WELL RADIUS
PROPOSED WELL
LOT A
218,100 ±S.F.
5.01 ±ACRES
FEMA TRANSECT LINE EL.=34.4
AE ZONE 0.2% ANNUAL FLOOD CHANCE
X ZONE
FEMA TRANSECT LINE EL.=34.3
AE ZONE
FEMA TRANSECT LINE EL.=33.7
AE ZONE
X ZONE
530.00' TO I ROD SET
S 51°56'08" W 540±' TO RIVER
TREE LINE (TYPICAL)
I ROD (TO BET SET)
I ROD (TO BET SET)
I ROD (TO BET SET)
N 37°34'45" W 402.67'
350.06'
MILL ROAD
BOSTON & MAINE RAILROAD
49.5' 82.50'
33'

(102/6) N/F TOWN OF EXETER 10 FRONT STREET EXETER, NH 03833 BK. 2400 PG. 3092

(102/5) N/F "TOWN OF EXETER 10 FRONT STREET EXETER, NH 03833

(113/1) N/F TOWN OF EXETER 10 FRONT STREET EXETER, NH 03833 BK. 1500 PG. 0347

C-11567

ZONING DISTRICT

R-1 LOW DENSITY

AREA	2 ACRES
WIDTH	150'
DEPTH	150'
FRONTAGE	150'
BUILDING HEIGHT	
MAXIMUM	35'
BUILDING SETBACKS	
FRONT	25'
SIDE	15'
REAR	25'
BUILDING COVERAGE	
MAXIMUM	15%
OPEN SPACE	
MINIMUM	80%

LEGEND

I.P.	IRON PIPE
I ROD FND.	IRON ROD FOUND
(C/00)	ASSESSORS MAP AND PARCEL
OHW	OVER HEAD WIRE
	UTILITY POLE
	WETFLAG
	WETLAND

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 INCH = 40'

WETLANDS DELINEATION BY

GOVE ENVIRONMENTAL, INC.
8 CONTINENTAL DRIVE UNIT H
EXETER, NH 03833

IN ACCORDANCE WITH THE U.S. ARMY CORPS OF ENGINEERS WETLAND DELINEATION MANUAL. TECHINICAL REPORT Y-87-1 (JANUARY, 1987); REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION (OCTOBER 2012); NEW ENGLAND HYDRIC SOILS TECHNICAL COMITTEE'S "FIELD INDICATORS OF IDENTIFYING HYDRIC SOILS IN NEW ENGLAND," VERSION 4, 2017; CODE OF ADMINSTRATIVE RULES. NHDES WETLANDS BUREAU (CURRENT).

THE CERTIFICATIONS SHOWN HEREON ARE INTENDED TO MEET REGISTRY OF DEEDS REQUIREMENTS AND ARE NOT A CERTIFICATION TO TITLE OR OWNERSHIP OF PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE ACCORDING TO CURRENT TOWN/CITY ASSESSORS' RECORDS

I CERTIFY:

THAT THIS ACTUAL SURVEY WAS MADE ON THE GROUND IN JANUARY 2023

THAT THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF REGISTER OF DEEDS.

THAT THIS SURVEY CONFORMS TO THE REQUIREMENTS FOR ACCURACY FOR N.H. URBAN SURVEY.

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR
No. 604
HENRY H. BOYD, JR.

LICENSED LAND SURVEYOR 03-07-2023 DATE

NO.	DATE	DESCRIPTION	BY
1	03-09-23	REVISE 4K AREA	H.H.B.

PLANNING BOARD CASE NUMBER 23-XX

PLAT OF LAND
IN
EXETER, NH

SHOWING
A MINOR SUBDIVISION
AT 24 POWDER MILL ROAD
(ASSESSORS MAP 102 LOT 4)

RECORD OWNER
SCHAEFER FAMILY TRUST
RICHARD C. & DEBBI L. SCHAEFER TRUSTEES
24 POWDER MILL ROAD EXETER, NH 03833

MILLENNIUM ENGINEERING INC.
ENGINEERS AND LAND SURVEYORS
P.O. BOX 745 13 HAMPTON ROAD EXETER, NH 03833
PHONE: (603) 778-0528 FAX: (603) 772-0689

SCALE: 1"=40' | CALC. BY: R.S.G. | PROJECT: E222977
DATE: FEB. 23, 2023 | CHKD. BY: H.H.B.