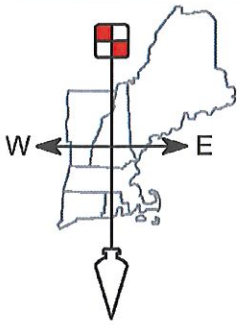
LETTER OF TRANSMITTAL



FIELDSTONE
LAND CONSULTANTS, PLLC

Surveying ⌖ Engineering
Land Planning ⌖ Septic Designs

206 Elm Street, Milford, NH 03055 - Phone: 603-672-5456 - Fax: 603-413-5456
www.FieldstoneLandConsultants.com

To: Mark J. Fougere, Planner
Town of Henniker Planning Board
18 Depot Hill Road
Henniker, NH 03242

Date: October 13, 2021

Re: Non-Residential Site Plan Application
MAC Milford Realty, LLC
Map 1, Lots 549-B & 549-E, Henniker, NH

WE ARE SENDING YOU ■ Attached ❒ Under separate cover via _____ the following items:

❒ Shop drawings ❒ Prints ■ Plans ❒ Samples ❒ Specifications

❒ Copy of letter ❒ Change order ❒ _____.

COPIES	DATE	NO.	DESCRIPTION
7	10/13/21		22"x34" Site Plans for Self-Storage Facility
1	10/13/21		Project Narrative
1	-		Property Tax Map
1	-		Property Assessment Card
1	10/13/21		Application Fee of $1,150
1			Abutters List w/ 3 Sets of Mailing Labels
1	8/25/21		Test Pit Logs
1	-		11x17 Building Elevation Example
2	10/13/21		Stormwater Management Report

THESE ARE TRANSMITTED as checked below:

■ For approval ❒ Approved as submitted ❒ Resubmit ____ copies for approvalps

❒ For your use ❒ Approved as noted ❒ Submit ____ copies for distribution

❒ As requested ❒ Returned for corrections ❒ Return ____ corrected copies

❒ For review and comment ❒ _____.

❒ FOR BIDS DUE: ❒ PRINTS RETURNED AFTER LOAN TO US

REMARKS:
Mr. Fougere, please find the items listed above attached herewith for the next Planning Board meeting. Let me know if you have any questions on this site plan application submittal.

Thank you.

John Noonan

Project No. 2392.01

Henniker Planning Board *November 10, 1768*

CASE # _____

SITE PLAN REVIEW APPLICATION

Property Address: 852 & 872 OLD CONCORD ROAD

Parcel Lot # : MAP 1, LOT 549-B & 549-E **Zoning District:** Heavy Commercial (CH)

Parcel Lot Size: 0.491 & 2.566 = 3.057 Ac **Road Frontage:** 706.76' Combined

Type of Application: (Circle Type)
Change of Use
Home Business Retail/Service
Multi-Family Residential
Commercial/Industrial Development
Telecommunication

PROPERTY OWNER(s)

Name:	MAC Milford Realty, LLC	**Name:**	MAC Milford Realty, LLC
Address:	5 Ciardelli Crossing	**Address:**	5 Ciardelli Crossing
	Milford, NH 03055		Milford, NH 03055
Tel #:	603-673-1336	**Tel #:**	
Fax #:		**Fax #:**	
Email:		**Email:**	
Signature:		**Signature:**	

APPLICANT(s)

Name:	MAC Milford Realty, LLC	**Name:**	
Address:	5 Ciardelli Crossing	**Address:**	
	Milford, NH 03055		
Tel #:	603-673-1336	**Tel #:**	
Fax #:		**Fax #:**	
Email:		**Email:**	
Signature:		**Signature:**	

If the property owner is not the applicant and/or wishes the applicant to act on their behalf, the property owner MUST provide a notarized letter (original) authorizing the applicant to file an application.

APPLICATION INSTRUCTIONS

DATA TO BE PROVIDED WITH SITE PLAN REVIEW APPLICATION

- Narrative description of proposed development
- Planning Board meeting minutes from Conceptual Consultation, which is optional (Copies may be researched and obtained at Town Hall)
- Copy of the property tax map showing subject parcel and abutting properties (Copies may be researched and obtained at Town Hall)
- Copy of Property assessment card (Copies may be researched and obtained at Town Hall)
- Copies of any ZBA Notices of Decision (Variance or Special Exception) for project
- Planning Board Application Fees
- Abutter Notification List
- Plan Sets
    - Initial Application:
        - Seven 22"x34" copies of the plans for review by Planning, Conservation, Assessing, Highway, Fire, Town Sewer (if applicable) and Town Water (if applicable)
    - Revised Application Deadline:
        - Seven 22"x34" copies of the plans for Planning Board meeting
        - Eleven 11" x 17" copies of the plans for the Planning Board packets
- Copies of any State or Federal permits
- Copies of any deeds or easements
- Copies of Condominium declaration, bylaws, and floor plan (condo conversion)
- All required material as outlined in 203-12 and 203-13, as applicable, in the Town of Henniker Site Plan Review Regulations
- Waiver requests for any of the required material under 203-12 or 203-13 of the Town of Henniker Site Plan Review Regulations. Request must be in writing and explain why conformity to the requirements would pose an unnecessary hardship and how granting the waiver would not be contrary to the spirit and intent of the Regulation.

FEES

Fees MUST be paid at the time the application is submitted or the application will not be accepted. Fees can be paid in cash or by check made out to the "Town of Henniker".

Site Plan Application	$375 application fee; $500 escrow
Residential	$100 per dwelling unit
Affordable Residential	$30 per dwelling unit (as defined by US HUD)
Change of Use	$190 application fee; $250 escrow
Telecommunications	$625 application fee; $500 escrow
Telecommunications co-location	$315 application fee; $500 escrow
Newspaper Notice Fee:	$125
Abutter Notification Fee:	$10 per abutter notification address
Recording Fee:	$30 per plan sheet, $25 per document, $25 LCHIP fee per plan set/document

Amount enclosed with application:

Application Fee	$ 375.00
Initial Escrow	$ 500.00
Newspaper Notice	$ 125.00
Abutters 15 x $10	$ 150.00
Recording Fee	$ 0
Total	$ 1,150.00

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PROJECT NARRATIVE
SELF-STORAGE FACILITY
MAP 1, LOTS 549-B AND E
HENNIKER, NEW HAMPSHIRE

Prepared for:
MAC Milford Realty, LLC

October 13, 2021

Project Narrative:

Fieldstone Land Consultants, on behalf of MAC Milford Realty, LLC, is submitting this Site Plan Review application for Planning Board approval. The proposal consists of merging two residential lots and constructing a self-storage facility. The total storage units proposed would be 30,300 square feet in size and have paved access around the buildings.

MAC Milford Realty, LLC purchased the two residential lots, located at 852 and 872 Old Concord Road, in order to develop a self-storage facility. The two existing parcels would be merged, to form a single lot that is 3.057 acres in size with 706.76 feet of frontage on Old Concord Road. The site is located in the Heavy Commercial Zone (CH), and on a Class-V road approximately a ¼ mile south of the intersection of Old West Hopkinton Road and US Route 202/NH Route 9. Due to the proximity of US Route 202, this is an ideal location for a self-storage business.

The development of the property would require the demolition of the existing buildings located on both residential lots. The demolition would include all building structures, existing asphalt, septic systems and wells. The only utility required for the storage buildings would be electricity for outlets and lighting. The electrical service would be overhead from Old Concord Road to the site. All electrical feeds on site would be underground to service each building.

Though not currently proposed, it is anticipated that there will be a free-standing business sign in the area indicated on the site plan. The future design of this sign will adhere to all applicable zoning requirements and the owner will apply for all necessary sign permits prior to installation.

The site is not within the 100-year flood plain. There are no wetlands present or wetland impacts associated with the project.

Additional site improvements include landscaping, building mounted downcast lighting, and the construction of a stormwater management system to mitigate increases to impervious cover.

Mac Milford Realty Self-Storage Facility
Tax Map Parcels 1-549-B & 1-549-E
Henniker, New Hampshire

Please see the attached plan set which depicts all of these improvements.

Erosion and sediment controls are specified on the Grading & Utility Plan and Erosion Control Details.

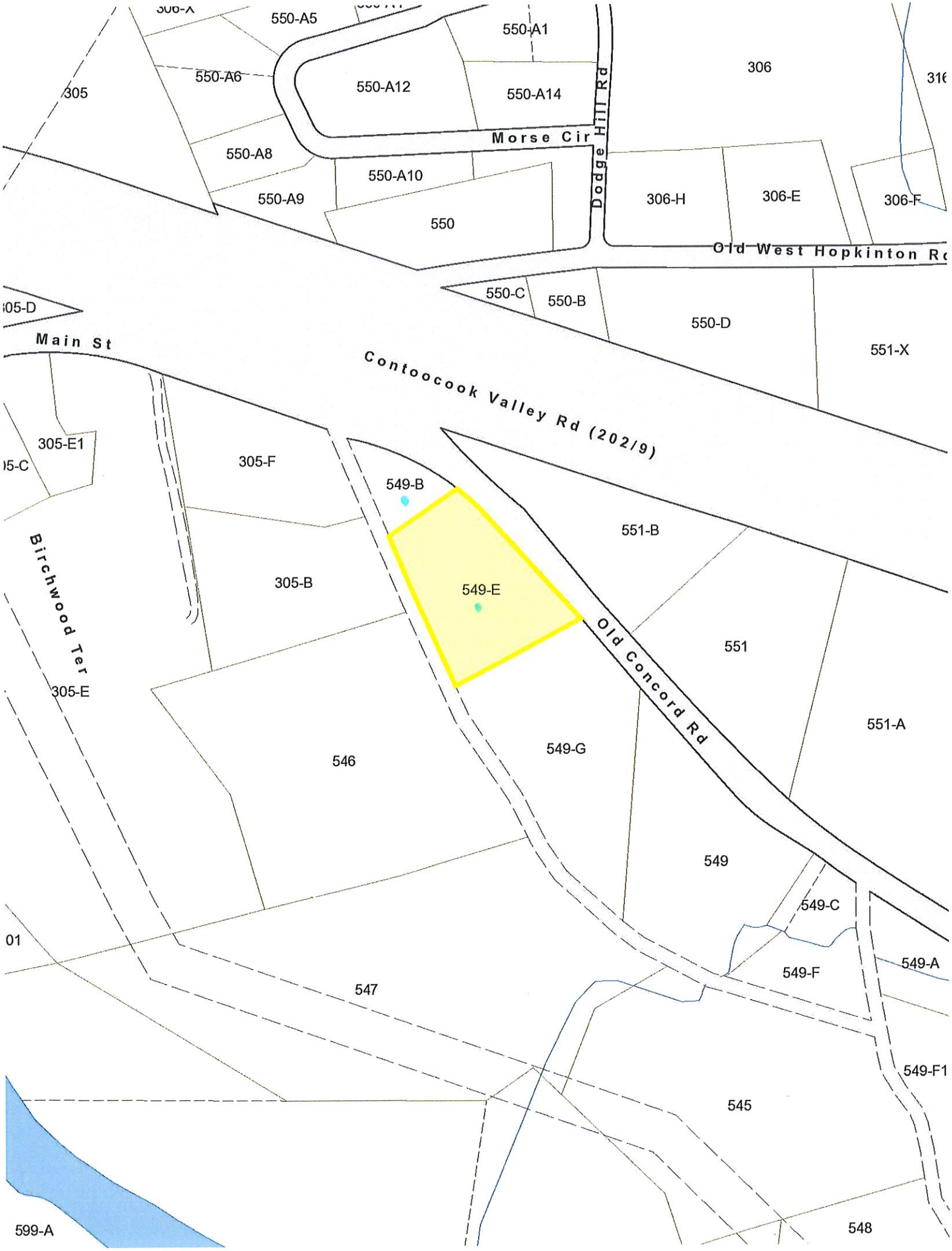
Demolition and construction debris will be managed by the general contractor with a temporary on-site dumpster. All demolition materials and potential household hazardous waste will be disposed of in accordance with state regulations.

Section 203-15 through 203-31 Development Standards Narrative:

15. **Excavation, grading, filling & landscaping** – The site has been designed to fit the shape and grades of the property. The overall area of impact is approximately 98,000 Sq.Ft. The erosion control notes specify best management practices for site excavation, stockpiling of materials, temporary and permanent seeding practices. A landscaping plan is included in the site plans. The site has been designed and engineered in accordance with NHDES Env-Wq 1500, Alteration of Terrain guidelines.
16. **Buffers** – The existing trees along the rear of the property and a proposed row of evergreens will screen the site from the residential properties on the other side of Stone Falls Road.
17. **Parking & Loading** – The storage unit buildings will have paved access around all sides to provide parking and loading/unloading areas for the units.
18. **Access** – A single access point to the site is proposed to minimize turning conflicts. The access drive is located in the same location as the home on Lot 549-B. The driveway will be 30' wide and have adequate sight distance in both directions. Internal drive aisles will all be 25' wide to accommodate vehicles and fire truck access.
19. **Sidewalks** – No sidewalks are proposed.
20. **Lighting & Signs** – Lighting will be provided to illuminate around the storage units. All sight lighting will be full cut off and downcast LED fixtures. A detailed photometric plan, illustrating that the lighting requirements contained in Section 203-20, have been met. A single, free-standing sign is proposed, although not designed at this point. The sign will be permitted and meet the Zoning requirements prior to installation.
21. **Screening** – The Landscaping Plan specifies screening to meet this requirement. There will not be any roof top mechanical equipment and a dense evergreen screen is proposed along Stone Falls Road. Existing vegetation will remain along the western boundary as much as possible, also providing screening to the residential properties adjacent to Stone Falls Road.
22. **Traffic** - This proposed use is a light traffic generator, as clients' trips to the storage units are not frequent and very spread out.
23. **Water and Sewage** – The storage facility will not require water or sewage utilities. The

existing residential wells and septic systems will be removed during demolition.

24. **Pedestrian and Bicycle Safety** – This site does not anticipate pedestrian or bicycle traffic. Most units will have a vehicle driven directly to the unit for access.
25. **Fire Safety** – The paved access around the buildings will provide access to the fire department, if needed. The buildings will be unoccupied storage units, not requiring fire suppression systems.
26. **Harmonious Development** – The site has been designed to minimize disturbance and is harmonious with the heavy commercial zone that the site is situated in.
27. **Control of noise and elements of pollution** - The proposed operation will allow access to the storage units 24/7, however, typically there is not a large amount of use during later hours. Noise will be very minor with the self-storage use and there will be no elements of pollution associated with the business.
28. **On and off-site improvements** – There are no off-site improvements proposed.
29. **Erosion and Sedimentation Control** – Silt fence will be installed along the down gradient perimeter of the development area to prevent sediment travel. The existing catch basin will have a silt sock installed to trap any sediment. Disturbed areas will be stabilized as shown on the site plan with loam and plantings, mulch or new pavement. The site has been designed with sedimentation and erosion controls. Please see the attached Site Plan Set.
30. **Flood hazard areas** – The site is not within the 100-year flood plain.
31. **Building Façade** – Please see the elevation drawings for building details. The self-storage units will have a gable pitched roof to drain water toward the drive aisles.


306-X
550-A5
550-A1
550-A6
550-A12
550-A14
305
306
Morse Cir
Dodge Hill Rd
550-A8
550-A10
550-A9
550
306-H
306-E
306-F
Old West Hopkinton Rd
550-C
550-B
550-D
551-X
305-D
Main St
Contoocook Valley Rd (202/9)
305-E1
305-C
305-F
549-B
551-B
305-B
549-E
Birchwood Ter
Old Concord Rd
551
305-E
551-A
546
549-G
549
549-C
01
549-F
549-A
547
549-F1
545
599-A
548

872 OLD CONCORD ROAD

Location	872 OLD CONCORD ROAD	**Mblu**	1/ / 549/E /
Acct#		**Owner**	BRUNNHOELZL ENTERPRISES LLC
Assessment	$166,700	**Appraisal**	$166,700
PID	270	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$86,500	$80,200	$166,700
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$86,500	$80,200	$166,700

Owner of Record

Owner	BRUNNHOELZL ENTERPRISES LLC
Co-Owner	
Address	4 HEMLOCK CORNER LOOP HENNIKER, NH 03242

Sale Price	$154,000
Certificate	
Book & Page	2609/0693
Sale Date	12/23/2003
Instrument	1A

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
BRUNNHOELZL ENTERPRISES LLC	$154,000		2609/0693	1A	12/23/2003
CONNOR HELEN S	$0		PROBATE/0		
CONNOR FREDERICK A	$0		/0		

Building Information

Building 1 : Section 1

Year Built:	1935
Living Area:	952
Replacement Cost:	$127,920

Usrfld 301	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	1010
Description	SINGLE FAMILY
Zone	CH
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	2.5
Frontage	0
Depth	0
Assessed Value	$80,200
Appraised Value	$80,200

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FGR3	Garage Poor			216.00 S.F.	$1,400	1
FCP	Carport			441.00 S.F.	$2,000	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$59,300	$85,300	$144,600
2018	$59,300	$85,300	$144,600
2017	$59,300	$85,300	$144,600

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$59,300	$85,300	$144,600
2018	$59,300	$85,300	$144,600
2017	$59,300	$85,300	$144,600

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852 OLD CONCORD ROAD

Location	852 OLD CONCORD ROAD	**Mblu**	1/ / 549/B /
Acct#		**Owner**	BRUNNHOELZL III FREDERICK C
Assessment	$92,200	**Appraisal**	$92,200
PID	336	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$18,100	$74,100	$92,200
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$18,100	$74,100	$92,200

Owner of Record

Owner	BRUNNHOELZL III FREDERICK C
Co-Owner	BRUNNHOELZL CAROL C
Address	4 HEMLOCK CORNER LOOP HENNIKER, NH 03242

Sale Price	$90,000
Certificate	
Book & Page	3448/1962
Sale Date	07/23/2014
Instrument	23

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
BRUNNHOELZL III FREDERICK C	$90,000		3448/1962	23	07/23/2014
SWEENEY SCOTT A	$0		3433/1953	99	03/20/2014
GOULD JR EARL E	$0		/0		

Building Information

Building 1 : Section 1

Year Built:	1950
Living Area:	636
Replacement Cost:	$82,742

Usrfld 301	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	1010
Description	SINGLE FAMILY
Zone	CH
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.8
Frontage	0
Depth	0
Assessed Value	$74,100
Appraised Value	$74,100

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
SHD1	Shed			348.00 S.F.	$400	1
SHD1	Shed			357.00 S.F.	$400	1
SHD1	Shed			210.00 S.F.	$800	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$13,600	$78,700	$92,300
2018	$13,000	$78,700	$91,700
2017	$13,000	$78,700	$91,700

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$13,600	$78,700	$92,300
2018	$13,000	$78,700	$91,700
2017	$13,000	$78,700	$91,700

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100 foot Abutters List Report

Henniker, NH
October 08, 2021

Subject Property:

Parcel Number:	549-E	Mailing Address:	BRUNNHOELZL ENTERPRISES LLC
CAMA Number:	1-549-E		4 HEMLOCK CORNER LOOP
Property Address:	872 OLD CONCORD ROAD		HENNIKER, NH 03242

Abutters:

Parcel Number:	305-B	Mailing Address:	SUNNY SIDE HILLS LLC
CAMA Number:	1-305-B		PO BOX 2497
Property Address:	36 STONE FALLS ROAD		ACTON, MA 01720
Parcel Number:	305-B	Mailing Address:	SUNNY SIDE HILLS LLC
CAMA Number:	1-305-B1		PO BOX 2497
Property Address:	47 BIRCHWOOD TERRACE		ACTON, MA 01720
Parcel Number:	305-B	Mailing Address:	SUNNY SIDE HILLS LLC
CAMA Number:	1-305-B47		PO BOX 2497
Property Address:	7 BIRCHWOOD TERRACE		ACTON, MA 01720
Parcel Number:	305-B	Mailing Address:	TRAMMELL KYLE
CAMA Number:	1-305-B48		10 BIRCHWOOD TERRACE
Property Address:	10 BIRCHWOOD TERRACE		HENNIKER, NH 03242
Parcel Number:	305-B	Mailing Address:	PECK GREGORY
CAMA Number:	1-305-B49		15 BIRCHWOOD TERRACE
Property Address:	15 BIRCHWOOD TERRACE		HENNIKER, NH 03242
Parcel Number:	305-B	Mailing Address:	SPALDING MEGAN
CAMA Number:	1-305-B50		16 BIRCHWOOD TER
Property Address:	16 BIRCHWOOD TERRACE		HENNIKER, NH 03242
Parcel Number:	305-B	Mailing Address:	SUNNY SIDE HILLS LLC
CAMA Number:	1-305-B51		PO BOX 2497
Property Address:	23 BIRCHWOOD TERRACE		ACTON, MA 01720
Parcel Number:	305-B	Mailing Address:	HENDERSON JILL E
CAMA Number:	1-305-B52		24 BIRCHWOOD TERRACE
Property Address:	24 BIRCHWOOD TERRACE		HENNIKER, NH 03242
Parcel Number:	305-B	Mailing Address:	DURGIN FRANKLIN M
CAMA Number:	1-305-B53		PO BOX 511
Property Address:	31 BIRCHWOOD TERRACE		HENNIKER, NH 03242
Parcel Number:	305-B	Mailing Address:	PROULX TIMOTHY
CAMA Number:	1-305-B54		36 BIRCHWOOD TERRACE
Property Address:	36 BIRCHWOOD TERRACE		HENNIKER, NH 03242

100 foot Abutters List Report

Henniker, NH
October 08, 2021

Parcel Number:	305-B	Mailing Address:	WELCH WILLIAM
CAMA Number:	1-305-B55		37 BIRCHWOOD TERRACE
Property Address:	37 BIRCHWOOD TERRACE		HENNIKER, NH 03242
Parcel Number:	305-B	Mailing Address:	EVANS TAMI E EVANS VICTOR L
CAMA Number:	1-305-B56		44 BIRCHWOOD TERRACE
Property Address:	44 BIRCHWOOD TERRACE		HENNIKER, NH 03242
Parcel Number:	305-B	Mailing Address:	BARR BRADLEY
CAMA Number:	1-305-B57		55 BROWNS WAY
Property Address:	41 BIRCHWOOD TERRACE		HENNIKER, NH 03242
Parcel Number:	305-F	Mailing Address:	783 FOREST ROAD PROPERTIES LLC
CAMA Number:	1-305-F		783 FOREST ROAD
Property Address:	804 OLD CONCORD ROAD		GREENFIELD, NH 03047
Parcel Number:	546	Mailing Address:	SUNNY SIDE HILLS LLC
CAMA Number:	1-546		PO BOX 2497
Property Address:	66 STONE FALLS ROAD		ACTON, MA 01720
Parcel Number:	549-B	Mailing Address:	BRUNNHOELZL III FREDERICK C
CAMA Number:	1-549-B		BRUNNHOELZL CAROL C
Property Address:	852 OLD CONCORD ROAD		4 HEMLOCK CORNER LOOP
			HENNIKER, NH 03242
Parcel Number:	549-G	Mailing Address:	MAC MILFORD LLC
CAMA Number:	1-549-G		5 CIARDELLI ROAD
Property Address:	912 OLD CONCORD ROAD		MILFORD, NH 03055
Parcel Number:	551-B	Mailing Address:	DRAKE PETROLEUM COMPANY LLC
CAMA Number:	1-551-B		15 NE INDUSTRIAL RD
Property Address:	887 OLD CONCORD ROAD REAR		BRANFORD, CT 06405

Engineer: Fieldstone Land Consultants, PLLC
206 Elm Street
Milford, NH 03055

783 FOREST ROAD PROPERTIE
783 FOREST ROAD
GREENFIELD, NH 03047

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55 BROWNS WAY
HENNIKER, NH 03242

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HENDERSON JILL E
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HENNIKER, NH 03242

MAC MILFORD LLC
5 CIARDELLI ROAD
MILFORD, NH 03055

PECK GREGORY
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HENNIKER, NH 03242

PROULX TIMOTHY
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HENNIKER, NH 03242

SPALDING MEGAN
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WELCH WILLIAM
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MILFORD, NH 03055

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MILFORD, NH 03055

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TRAMMELL KYLE
10 BIRCHWOOD TERRACE
HENNIKER, NH 03242

WELCH WILLIAM
37 BIRCHWOOD TERRACE
HENNIKER, NH 03242

FIELDSTONE LAND
CONSULTANTS, PLLC
206 ELM STREET
MILFORD, NH 03055

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LAND CONSULTANTS, PLLC
Surveying ◆ Engineering
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206 Elm Street, Milford, NH 03055 - Phone: 603-672-5456 - Fax: 603-413-5456
www.FieldstoneLandConsultants.com

NEW HAMPSHIRE
Designer
of
Subsurface Disposal
Systems
* * *
Kenneth M. Robinson
No. 1896
Department of Environmental Services

TEST PIT DATA
MAC MILFORD REALTY, LLC
852 AND 872 OLD CONCORD ROAD
HENNIKER, NH

8/25/21
Test Pit #1
0-16"- 10YR 3/3 Dark brown loam, granular, friable (fill)
16-24" - 10YR 5/6 Yellowish brown loamy fine-to-coarse sand, granular, friable (fill)
24-36"- 10YR 3/3 Dark brown loam, granular, friable
36-46" - 2.5Y 6/4 Light yellowish brown loamy fine sand, granular, friable
46-72"- 2.5Y 5.4 Light olive brown fine-to-medium sand, single grain, loose. Cobbles
ESHWT = None **Observed Water = None** **Ledge/Boulders = None** **Roots = 4"**

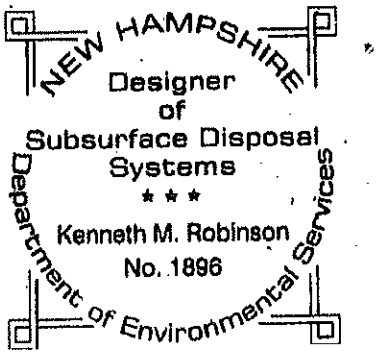
8/25/21
Test Pit #2
0-3"- 10YR 3/3 Dark brown loam, granular, friable
3-24" - 7.5YR 4/4 Brown fine sandy loam, granular, friable
24-36"- 6/3 Pale brown fine sand, granular, friable
ESHWT = None **Observed Water = None** **Ledge/Boulders = 36"** **Roots = 36"**

8/25/21
Test Pit #3
0-16"- 10YR 3/3 Dark brown loam, granular, friable
16-20" - 7.5YR 4/4 Brown fine sandy loam, granular, friable
20-24"- 2.5 Y 6/4 Light yellowish brown fine sand, granular, friable
24-30" - 2.5 Y 5/4 Light olive brown gravelly fine-to-coarse sand, granular, friable. Stony
30-84"- 6/3 Pale brown fine sand, massive-to-platy, friable
ESHWT = 40" **Observed Water = None** **Ledge/Boulders = 36"** **Roots = 36"**

8/25/21
Test Pit #4
0-20"- 10YR 3/3 Dark brown loam, granular, friable
20-30" -2.5 Y 6/6 Olive yellow fine sandy loam, granular, friable
30-84"- 2.5 Y 5/4 Light olive brown loamy fine sand, granular, friable
ESHWT = 36" **Observed Water = 68"** **Ledge/Boulders = None** **Roots = 24"**

2392.01

Mac Milford Realty, LLC
852 and 872 Old Concord Road Henniker, NH



8/25/21
Test Pit #5
0-16"- 10YR 3/3 Dark brown loam, granular, friable
16-28" - 2.5 Y 6/6 Olive yellow fine sandy loam, granular, friable
28-68"- 2.5 Y 5/4 Light olive brown loamy fine sand, granular, friable
ESHWT = 29" **Observed Water = 64"** **Ledge/Boulders = None** **Roots = 4"**

8/25/21
Test Pit #6
0-8"- 10YR 3/3 Dark brown loam, granular, friable
8-24" - 2.5 Y 6/6 Olive yellow fine sandy loam, granular, friable
24-70"- 2.5 Y 5/4 Light olive brown loamy fine sand, granular, friable
ESHWT = 30" **Observed Water = 64"** **Ledge/Boulders = None** **Roots = 2"**

8/25/21
Test Pit #7
0-11"- 10YR 3/3 Dark brown loam, granular, friable
11-20" - 2.5 Y 6/6 Olive yellow fine sandy loam, granular, friable
20-48"- 2.5 Y 5/4 Light olive brown loamy fine sand, granular, friable
ESHWT = None **Observed Water = None** **Ledge/Boulders = 48"** **Roots = 24"**

8/25/21
Test Pit #8
0-15"- 10YR 3/3 Dark brown loam, granular, friable
15-28" - 10 YR 5/8 Yellowish brown fine sandy loam, granular, friable (fill – bricks/concrete)
28-50"- 2.5 Y 5/4 Light olive brown loamy fine sand, granular, friable. Very stony
ESHWT = 34" **Observed Water = None** **Ledge/Boulders = 50"** **Roots = 26"**

8/25/21
Test Pit #9
0-9"- 10YR 3/3 Dark brown loam, granular, friable
9-22" - 10 YR 5/8 Yellowish brown fine sandy loam, granular, friable
22-60"- 2.5 Y 5/4 Light olive brown loamy fine sand, granular, friable. Very stony
ESHWT = 42" **Observed Water = None** **Ledge/Boulders = None** **Roots = 6"**

Mac Milford Realty, LLC
852 and 872 Old Concord Road Henniker, NH

NEW HAMPSHIRE
Designer
of
Subsurface Disposal
Systems
* * *
Kenneth M. Robinson
No. 1896
Department of Environmental Services

8/25/21
Test Pit #10
0-20"- 10YR 3/3 Dark brown loam, granular, friable
20-28" -2.5 Y 6/6 Olive yellow fine sandy loam, granular, friable
28-80"- 2.5 Y 5/4 Light olive brown loamy fine sand, granular, friable
ESHWT = 36" **Observed Water = 75"** **Ledge/Boulders = None** **Roots = 3"**

Test Pits were logged by:

Kenneth Robinson
NH Licensed Designer #1896

FIELDSTONE LAND CONSULTANTS PLLC.
206 ELM ST.
MILFORD, NH 03055
PH. 603-672-5456

7718

54-7/114
72

DATE 10/11/2021

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FOR Town of Hennikor Planning Board App Fee
(2392.01)

⑈007718⑈ ⑆011400071⑆ 9243560681⑈

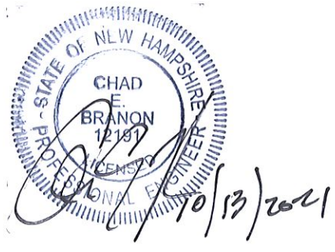
Storm Water Management Report

SELF STORAGE FACILITY

Project Location:
Tax Map 1, Lots 549B & 549E
852 & 872 Old Concord Road
Henniker, NH 03242

Prepared for:
MAC Milford Realty, LLC
5 Ciardelli Crossing
Milford, NH 03055

Date: October 13, 2021



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STORMWATER MANAGEMENT NARRATIVE
SELF-STORAGE FACILITY
HENNIKER, NEW HAMPSHIRE

Prepared for:
MAC Milford Realty, LLC

October 13, 2021

I) INTRODUCTION

This stormwater management report outlines the drainage systems for a self-storage facility on Old Concord Road in Henniker, NH. The proposed project consists of merging two residential lots (1-549-B & 549-E) and constructing a self-storage facility. The total storage units proposed would be 30,300 square feet in size and have paved access around the buildings. The two existing parcels would be merged, to form a single lot that is 3.057 acres in size with 706.76 feet of frontage on Old Concord Road. The overall area of impact is 98,000 square feet with 79,000 square of impervious surfaces (59% of parcel). The site is located in the Heavy Commercial Zone (CH), and on a Class-V road approximately a ¼ mile south of the intersection of Old West Hopkinton Road and US Route 202/NH Route 9. Due to the proximity of US Route 202, this is an ideal location for a self-storage business.

The purpose of this report is to analyze the qualitative and quantitative impacts of the proposed development on stormwater runoff. The objective of the proposed stormwater management system for this project is to mitigate any increases resulting from the proposed development and to meet the drainage guidelines set forth in the Town of Henniker's Development Standards and the New Hampshire Department of Environmental Services (NHDES) Alteration of Terrain standards.

II) SITE DESCRIPTION (EXISTING)

The existing site consists of two residential house lots, located at 852 and 872 Old Concord Road. Both residences have houses, detached garages, and paved driveways. The two existing parcels will be merged, to form a single lot that is 3.057 acres in size with 706.76 feet of frontage on the Old Concord Road. The NRCS soil survey maps indicate that the entire property consists of Millsite-Woodstock-Henniker complex soils, that are very stony. This is a Hydrologic Group (HSG) "C" soil with a listed Saturated Hydraulic Conductivity (Ksat) value of 2.75 inches/hour. The presence of this soil type has been confirmed by field examination. The site is not located in the 100-year flood zone and there are not wetlands present.

III) METHODOLOGY

The quantity of runoff and the conveyance of that flow through the site are determined using the software package HydroCAD r 10.10-6a by HydroCAD Software Solutions, LLC. HydroCAD is a

computer aided design program for modeling storm water hydrology based on the Soil Conservation Service (SCS) TR-20 method combined with standard hydraulics calculations used to model stormwater management devices.

Stormwater management systems and erosion control have been designed in accordance with the methodology for the "Best Management Practices" (BMP's), as outlined in the New Hampshire Storm Water Manual, Volume 2.

IV) DRAINAGE DESIGN

In accordance with the NHDES Alteration of Terrain requirements, the two (2), ten (10) and fifty (50) year frequency storm events have been evaluated. These design storms have been analyzed to compare the Pre and Post-development peak flow rates for the site (see attached comparison tables).

Pre-Development Drainage Conditions:
As depicted on the Pre-Development Drainage Plan (DP-1), the analysis area consists of three subcatchment areas that flow toward three different areas off the property. The subcatchments each contain the corresponding amount of existing ground covers to model the houses, garages, paved driveways, grass lawns, and woodland areas.

Subcatchment E1S flows to the roadside ditch and ultimately north along Old Concord Road. Subcatchment E2S is modeled to determine the flow to the existing catch basin in the right-of-way of Old Concord Road, shown as E1P. The third subcatchment, E3S, is flow that runs off site to the south of the property via the roadside ditch of Old Concord Road. These locations were each evaluated by comparing the Observation Points OP1 – OP3 to the post-development condition. To compare the overall velocity and volume of stormwater offsite, a Summary Node, SUM, is modeled in both the Pre and Post Development models.

Post-Development Drainage Conditions:

The Post-Development Drainage Area Plan (DP-2), outlines the proposed conditions where the study area is broken into 6 subcatchments, Subcatchments 1S – 6S. The objective was to collect as much of the runoff from the impervious surfaces and direct that flow into a detention basin. This was done by diverting water via a grass swale (1R), stone-lined ditch (2R), and a grass conveyance swale (3R). There is a sediment forebay (2P) to collect sediment and provide treatment during small rain events, which then outlets to a detention basin (3P). The detention basin (3P) reduces the velocity and volume of water leaving the site during the 2, 10, and 50 year storm events. The reduction is feasible by utilizing an outlet structure with orifices at various elevations to slowly release water. The detention basin will outlet to an existing swale that runs along the front of the adjacent property (also the same owner). The flow out of the detention basin will be less than the existing condition, and will not have detrimental impact on the downstream stormwater management system on lot 1-549-G.

V) SUMMARY

The intent of the stormwater management system for this project is to address the qualitative and quantitative aspects of the stormwater runoff so that there are no downstream adverse impacts created by the project. To mitigate the resulting increases in stormwater runoff due to the development of Lots 549-B & E this project proposes that a new stormwater management area be constructed. The stormwater management areas consist of a grass swale, stone lined swale, conveyance swale, sediment forebay, and detention basin as described above.

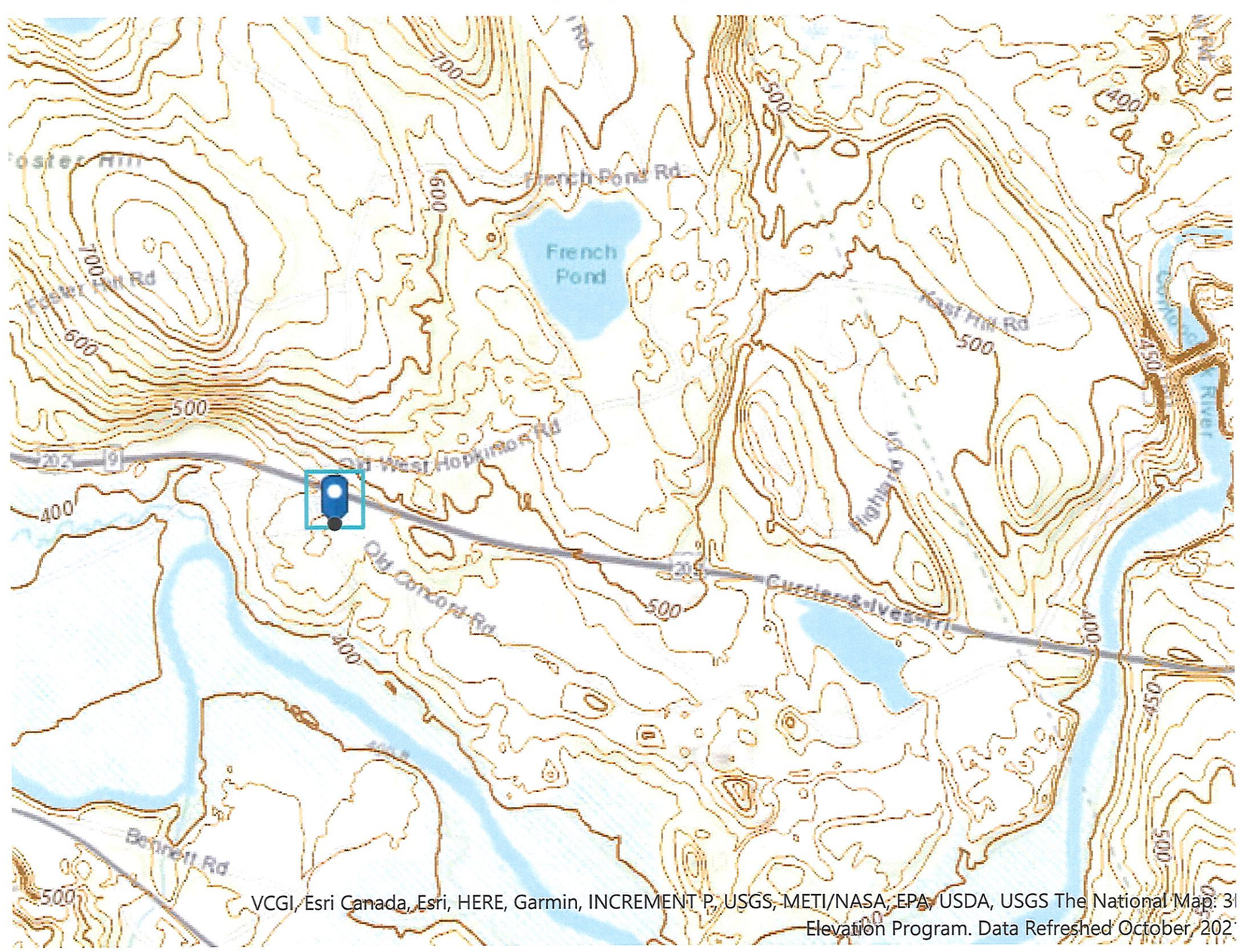
The net result is that proposed pavement and building areas will receive qualitative treatment and that due to the detention capabilities of the basin there will be no increase in the peak rates of runoff leaving the site. In designing for the 50 year storm, the system is oversized for the 2 and 10 year storm events.

The stormwater management design for this project therefore complies with the stormwater standards set forth in the Town of Henniker's Development Standards.

The following table is a summary of the attached calculations and show a comparison of the peak flow rates at the outlet point for the site. The values presented are based on pre- and post-development conditions.

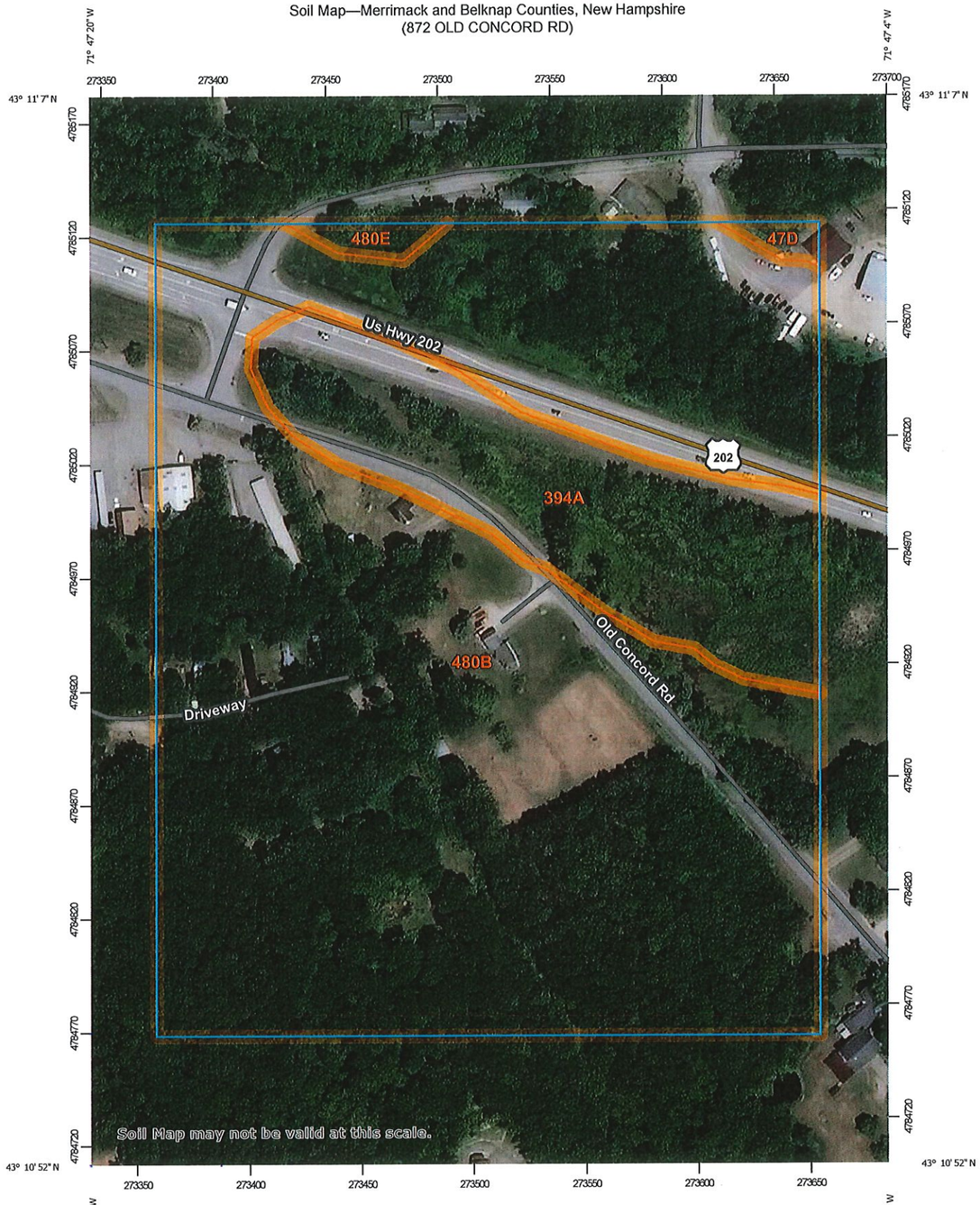
Table 1: Peak Flow Rates (CFS) to SUM – with Post-Development Detention

STORM FREQUENCY	PRE-DEV. RUNOFF (CFS)	POST-DEV. RUNOFF (CFS)	CHANGE (CFS)
2-YEAR	3.25	0.72	-2.53
10-YEAR	6.98	1.99	-4.99
50-YEAR	13.06	12.25	-0.81



VCGI, Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA, USGS The National Map: 3
Elevation Program. Data Refreshed October, 202

Soil Map—Merrimack and Belknap Counties, New Hampshire
(872 OLD CONCORD RD)



Map Scale: 1:2,290 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Merrimack and Belknap Counties, New Hampshire
Survey Area Data: Version 27, 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: May 31, 2019—Aug 29, 2019

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
47D	Henniker fine sandy loam, 15 to 25 percent slopes, very stony	0.1	0.5%
394A	Chocorua mucky peat, 0 to 1 percent slopes	4.4	16.7%
480B	Millsite-Woodstock-Henniker complex, 3 to 8 percent slopes, very stony	21.5	82.1%
480E	Millsite-Woodstock-Henniker complex, 25 to 60 percent slopes, very stony	0.2	0.7%
Totals for Area of Interest		**26.2**	**100.0%**

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
47D	Henniker fine sandy loam, 15 to 25 percent slopes, very stony	C	0.1	0.5%
394A	Chocorua mucky peat, 0 to 1 percent slopes	A/D	4.4	16.7%
480B	Millsite-Woodstock-Henniker complex, 3 to 8 percent slopes, very stony	C	21.5	82.1%
480E	Millsite-Woodstock-Henniker complex, 25 to 60 percent slopes, very stony	B	0.2	0.7%
Totals for Area of Interest			**26.2**	**100.0%**

Saturated Hydraulic Conductivity (Ksat)

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
47D	Henniker fine sandy loam, 15 to 25 percent slopes, very stony	5.6115	0.1	0.5%
394A	Chocorua mucky peat, 0 to 1 percent slopes	57.0403	4.4	16.7%
480B	Millsite-Woodstock-Henniker complex, 3 to 8 percent slopes, very stony	19.1640	21.5	82.1%
480E	Millsite-Woodstock-Henniker complex, 25 to 60 percent slopes, very stony	19.1640	0.2	0.7%
Totals for Area of Interest			**26.2**	**100.0%**

Description

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

Rating Options

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Section 1.1

Existing Conditions
2 and 50 Year Storm Node List

Time span=1.00-23.00 hrs, dt=0.05 hrs, 441 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 E1S: FLOW TO NORTH Runoff Area=30,557 sf 13.30% Impervious Runoff Depth>0.92"
Flow Length=205' Tc=11.1 min CN=77 Runoff=0.66 cfs 0.054 af

Subcatchment E2S: FLOW TO CB Runoff Area=24,920 sf 14.55% Impervious Runoff Depth>0.92"
Flow Length=230' Tc=11.1 min CN=77 Runoff=0.54 cfs 0.044 af

Subcatchment E3S: FLOW TO SOUTH Runoff Area=96,071 sf 5.77% Impervious Runoff Depth>0.82"
Flow Length=350' Tc=6.4 min CN=75 Runoff=2.18 cfs 0.151 af

Pond E1P: EXIST CATCH BASIN Peak Elev=0.42' Inflow=0.54 cfs 0.044 af
12.0" Round Culvert n=0.013 L=56.0' S=0.0100 '/' Outflow=0.54 cfs 0.044 af

Link OP1: OBSERVATION POINT Inflow=0.66 cfs 0.054 af
Primary=0.66 cfs 0.054 af

Link OP2: OBSERVATION POINT Inflow=0.54 cfs 0.044 af
Primary=0.54 cfs 0.044 af

Link OP3: OBSERVATION POINT Inflow=2.18 cfs 0.151 af
Primary=2.18 cfs 0.151 af

Link SUM: SUMMARY Inflow=3.25 cfs 0.249 af
Primary=3.25 cfs 0.249 af

Time span=1.00-23.00 hrs, dt=0.05 hrs, 441 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 E1S: FLOW TO NORTH Runoff Area=30,557 sf 13.30% Impervious Runoff Depth>3.45"
Flow Length=205' Tc=11.1 min CN=77 Runoff=2.52 cfs 0.202 af

Subcatchment E2S: FLOW TO CB Runoff Area=24,920 sf 14.55% Impervious Runoff Depth>3.45"
Flow Length=230' Tc=11.1 min CN=77 Runoff=2.05 cfs 0.165 af

Subcatchment E3S: FLOW TO SOUTH Runoff Area=96,071 sf 5.77% Impervious Runoff Depth>3.26"
Flow Length=350' Tc=6.4 min CN=75 Runoff=8.89 cfs 0.599 af

Pond E1P: EXIST CATCH BASIN Peak Elev=0.96' Inflow=2.05 cfs 0.165 af
12.0" Round Culvert n=0.013 L=56.0' S=0.0100 '/' Outflow=2.05 cfs 0.165 af

Link OP1: OBSERVATION POINT Inflow=2.52 cfs 0.202 af
Primary=2.52 cfs 0.202 af

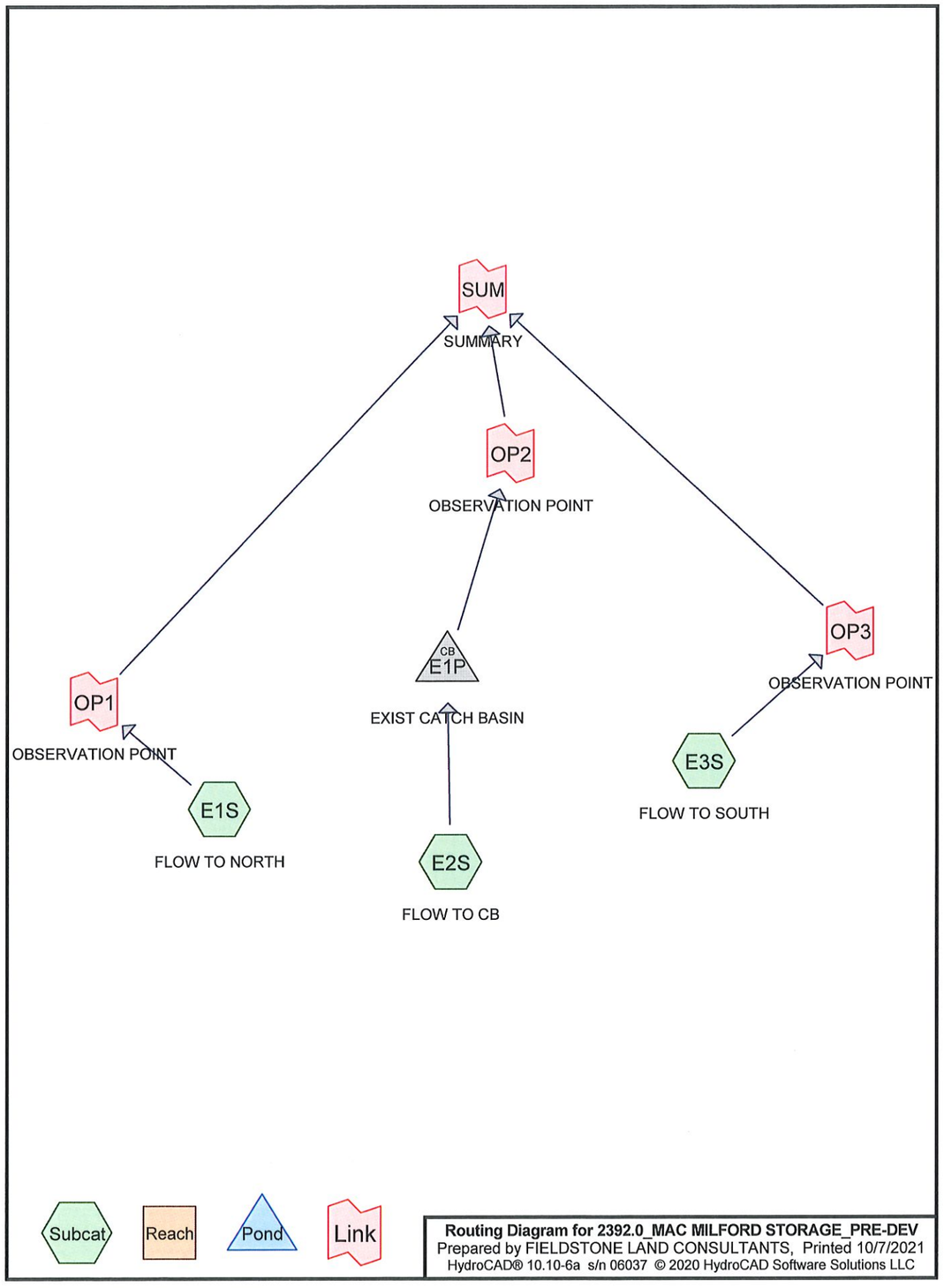
Link OP2: OBSERVATION POINT Inflow=2.05 cfs 0.165 af
Primary=2.05 cfs 0.165 af

Link OP3: OBSERVATION POINT Inflow=8.89 cfs 0.599 af
Primary=8.89 cfs 0.599 af

Link SUM: SUMMARY Inflow=13.06 cfs 0.966 af
Primary=13.06 cfs 0.966 af

Section 1.2

Existing Conditions
10 Year Storm Full Summary


SUM
SUMMARY
OP2
OBSERVATION POINT
CB
E1P
EXIST CATCH BASIN
OP1
OBSERVATION POINT
E1S
FLOW TO NORTH
E2S
FLOW TO CB
OP3
OBSERVATION POINT
E3S
FLOW TO SOUTH
Subcat
Reach
Pond
Link
Routing Diagram for 2392.0_MAC MILFORD STORAGE_PRE-DEV
Prepared by FIELDSTONE LAND CONSULTANTS, Printed 10/7/2021
HydroCAD® 10.10-6a s/n 06037 © 2020 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	10-Year	NRCC 24-hr	C	Default	24.00	1	4.13	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.538	74	>75% Grass cover, Good, HSG C (E1S, E2S, E3S)
0.304	98	Paved parking & BLDG, HSG C (E1S, E2S, E3S)
0.637	72	Woods/grass comb., Good, HSG C (E1S, E2S, E3S)
3.479	**76**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
3.479	HSG C	E1S, E2S, E3S
0.000	HSG D	
0.000	Other	
3.479		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	2.538	0.000	0.000	2.538	>75% Grass cover, Good	E1S, E2S, E3S
0.000	0.000	0.304	0.000	0.000	0.304	Paved parking & BLDG	E1S, E2S, E3S
0.000	0.000	0.637	0.000	0.000	0.637	Woods/grass comb., Good	E1S, E2S, E3S
0.000	**0.000**	**3.479**	**0.000**	**0.000**	**3.479**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	E1P	0.00	-0.56	56.0	0.0100	0.013	0.0	12.0	0.0

Time span=1.00-23.00 hrs, dt=0.05 hrs, 441 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 E1S: FLOW TO NORTH Runoff Area=30,557 sf 13.30% Impervious Runoff Depth>1.87"
Flow Length=205' Tc=11.1 min CN=77 Runoff=1.37 cfs 0.109 af

Subcatchment E2S: FLOW TO CB Runoff Area=24,920 sf 14.55% Impervious Runoff Depth>1.87"
Flow Length=230' Tc=11.1 min CN=77 Runoff=1.12 cfs 0.089 af

Subcatchment E3S: FLOW TO SOUTH Runoff Area=96,071 sf 5.77% Impervious Runoff Depth>1.73"
Flow Length=350' Tc=6.4 min CN=75 Runoff=4.72 cfs 0.317 af

Pond E1P: EXIST CATCH BASIN Peak Elev=0.63' Inflow=1.12 cfs 0.089 af
12.0" Round Culvert n=0.013 L=56.0' S=0.0100 '/' Outflow=1.12 cfs 0.089 af

Link OP1: OBSERVATION POINT Inflow=1.37 cfs 0.109 af
Primary=1.37 cfs 0.109 af

Link OP2: OBSERVATION POINT Inflow=1.12 cfs 0.089 af
Primary=1.12 cfs 0.089 af

Link OP3: OBSERVATION POINT Inflow=4.72 cfs 0.317 af
Primary=4.72 cfs 0.317 af

Link SUM: SUMMARY Inflow=6.98 cfs 0.516 af
Primary=6.98 cfs 0.516 af

Total Runoff Area = 3.479 ac Runoff Volume = 0.516 af Average Runoff Depth = 1.78"
91.27% Pervious = 3.175 ac 8.73% Impervious = 0.304 ac

Summary for Subcatchment E1S: FLOW TO NORTH

Runoff = 1.37 cfs @ 12.19 hrs, Volume= 0.109 af, Depth> 1.87"
Routed to Link OP1 : OBSERVATION POINT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.13"

	Area (sf)	CN	Description
*	4,065	98	Paved parking & BLDG, HSG C
	8,600	72	Woods/grass comb., Good, HSG C
	17,892	74	>75% Grass cover, Good, HSG C
	30,557	77	Weighted Average
	26,492		86.70% Pervious Area
	4,065		13.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	100	0.0200	0.16		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.82"
0.7	105	0.0300	2.60		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
11.1	205	Total			

Summary for Subcatchment E2S: FLOW TO CB

Runoff = 1.12 cfs @ 12.19 hrs, Volume= 0.089 af, Depth> 1.87"
Routed to Pond E1P : EXIST CATCH BASIN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.13"

	Area (sf)	CN	Description
	7,835	72	Woods/grass comb., Good, HSG C
*	3,625	98	Paved parking & BLDG, HSG C
	13,460	74	>75% Grass cover, Good, HSG C
	24,920	77	Weighted Average
	21,295		85.45% Pervious Area
	3,625		14.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.1400	0.16		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 2.82"
0.6	130	0.0600	3.67		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
11.1	230	Total			

Summary for Subcatchment E3S: FLOW TO SOUTH

Runoff = 4.72 cfs @ 12.14 hrs, Volume= 0.317 af, Depth> 1.73"
Routed to Link OP3 : OBSERVATION POINT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.13"

	Area (sf)	CN	Description
	11,320	72	Woods/grass comb., Good, HSG C
*	5,540	98	Paved parking & BLDG, HSG C
	79,211	74	>75% Grass cover, Good, HSG C
	96,071	75	Weighted Average
	90,531		94.23% Pervious Area
	5,540		5.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.1100	0.32		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.82"
1.1	250	0.0600	3.67		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
6.4	350	Total			

Summary for Pond E1P: EXIST CATCH BASIN

Inflow Area = 0.572 ac, 14.55% Impervious, Inflow Depth > 1.87" for 10-Year event
Inflow = 1.12 cfs @ 12.19 hrs, Volume= 0.089 af
Outflow = 1.12 cfs @ 12.19 hrs, Volume= 0.089 af, Atten= 0%, Lag= 0.0 min
Primary = 1.12 cfs @ 12.19 hrs, Volume= 0.089 af
Routed to Link OP2 : OBSERVATION POINT

Routing by Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs
Peak Elev= 0.63' @ 12.19 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**12.0" Round Culvert** L= 56.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.56' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.10 cfs @ 12.19 hrs HW=0.63' (Free Discharge)
↑**1=Culvert** (Inlet Controls 1.10 cfs @ 2.13 fps)

Summary for Link OP1: OBSERVATION POINT

Inflow Area = 0.701 ac, 13.30% Impervious, Inflow Depth > 1.87" for 10-Year event
Inflow = 1.37 cfs @ 12.19 hrs, Volume= 0.109 af
Primary = 1.37 cfs @ 12.19 hrs, Volume= 0.109 af, Atten= 0%, Lag= 0.0 min
Routed to Link SUM : SUMMARY

Primary outflow = Inflow, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Summary for Link OP2: OBSERVATION POINT

Inflow Area = 0.572 ac, 14.55% Impervious, Inflow Depth > 1.87" for 10-Year event
Inflow = 1.12 cfs @ 12.19 hrs, Volume= 0.089 af
Primary = 1.12 cfs @ 12.19 hrs, Volume= 0.089 af, Atten= 0%, Lag= 0.0 min
Routed to Link SUM : SUMMARY

Primary outflow = Inflow, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Summary for Link OP3: OBSERVATION POINT

Inflow Area = 2.205 ac, 5.77% Impervious, Inflow Depth > 1.73" for 10-Year event
Inflow = 4.72 cfs @ 12.14 hrs, Volume= 0.317 af
Primary = 4.72 cfs @ 12.14 hrs, Volume= 0.317 af, Atten= 0%, Lag= 0.0 min
Routed to Link SUM : SUMMARY

Primary outflow = Inflow, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Summary for Link SUM: SUMMARY

Inflow Area = 3.479 ac, 8.73% Impervious, Inflow Depth > 1.78" for 10-Year event
Inflow = 6.98 cfs @ 12.15 hrs, Volume= 0.516 af
Primary = 6.98 cfs @ 12.15 hrs, Volume= 0.516 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Section 2.1

Proposed Conditions
2 and 50 Year Storm Node List

Time span=1.00-23.00 hrs, dt=0.05 hrs, 441 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: FLOW TO NORTH Runoff Area=18,580 sf 16.04% Impervious Runoff Depth>0.98"
Flow Length=165' Tc=11.3 min CN=78 Runoff=0.43 cfs 0.035 af

Subcatchment 2S: TO GRASS SWALE Runoff Area=25,845 sf 53.05% Impervious Runoff Depth>1.55"
Tc=2.0 min CN=87 Runoff=1.35 cfs 0.077 af

Subcatchment 3S: TO STONE DITCH Runoff Area=34,337 sf 48.42% Impervious Runoff Depth>1.48"
Flow Length=50' Slope=0.2400 '/' Tc=0.1 min CN=86 Runoff=1.67 cfs 0.097 af

Subcatchment 4S: TO CONV. SWALE Runoff Area=41,325 sf 100.00% Impervious Runoff Depth>2.56"
Tc=2.0 min CN=98 Runoff=3.05 cfs 0.202 af

Subcatchment 5S: TO BASIN Runoff Area=27,990 sf 32.76% Impervious Runoff Depth>1.21"
Tc=2.0 min CN=82 Runoff=1.15 cfs 0.065 af

Subcatchment 6S: TO CB Runoff Area=3,450 sf 38.70% Impervious Runoff Depth>1.28"
Flow Length=25' Tc=0.2 min CN=83 Runoff=0.15 cfs 0.008 af

Reach 1R: GRASS SWALE Avg. Flow Depth=0.32' Max Vel=1.68 fps Inflow=1.35 cfs 0.077 af
n=0.030 L=215.0' S=0.0098 '/' Capacity=16.25 cfs Outflow=1.16 cfs 0.077 af

Reach 2R: STONE DITCH Avg. Flow Depth=0.35' Max Vel=1.66 fps Inflow=1.67 cfs 0.097 af
n=0.041 L=430.0' S=0.0117 '/' Capacity=8.58 cfs Outflow=1.32 cfs 0.097 af

Reach 3R: CONV. SWALE Avg. Flow Depth=0.50' Max Vel=2.25 fps Inflow=4.03 cfs 0.299 af
n=0.022 L=160.0' S=0.0047 '/' Capacity=16.46 cfs Outflow=3.66 cfs 0.298 af

Pond 2P: SEDIMENT FOREBAY Peak Elev=466.30' Storage=1,317 cf Inflow=3.66 cfs 0.298 af
Outflow=3.51 cfs 0.276 af

Pond 3P: DETENTION BASIN Peak Elev=465.32' Storage=9,531 cf Inflow=5.49 cfs 0.418 af
Primary=0.50 cfs 0.305 af Secondary=0.00 cfs 0.000 af Outflow=0.50 cfs 0.305 af

Pond E1P: EXIST CATCH BASIN Peak Elev=0.33' Inflow=0.15 cfs 0.008 af
12.0" Round Culvert n=0.013 L=56.0' S=0.0000 '/' Outflow=0.15 cfs 0.008 af

Link OP1: OBSERVATION POINT Inflow=0.43 cfs 0.035 af
Primary=0.43 cfs 0.035 af

Link OP2: OBSERVATION POINT Inflow=0.15 cfs 0.008 af
Primary=0.15 cfs 0.008 af

Link OP3: OBSERVATION POINT Inflow=0.50 cfs 0.305 af
Primary=0.50 cfs 0.305 af

Link SUM: SUMMARY Inflow=0.72 cfs 0.348 af
Primary=0.72 cfs 0.348 af

Time span=1.00-23.00 hrs, dt=0.05 hrs, 441 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: FLOW TO NORTH Runoff Area=18,580 sf 16.04% Impervious Runoff Depth>3.55"
Flow Length=165' Tc=11.3 min CN=78 Runoff=1.57 cfs 0.126 af

Subcatchment 2S: TO GRASS SWALE Runoff Area=25,845 sf 53.05% Impervious Runoff Depth>4.50"
Tc=2.0 min CN=87 Runoff=3.68 cfs 0.222 af

Subcatchment 3S: TO STONE DITCH Runoff Area=34,337 sf 48.42% Impervious Runoff Depth>4.39"
Flow Length=50' Slope=0.2400 '/' Tc=0.1 min CN=86 Runoff=4.73 cfs 0.289 af

Subcatchment 4S: TO CONV. SWALE Runoff Area=41,325 sf 100.00% Impervious Runoff Depth>5.74"
Tc=2.0 min CN=98 Runoff=6.62 cfs 0.454 af

Subcatchment 5S: TO BASIN Runoff Area=27,990 sf 32.76% Impervious Runoff Depth>3.97"
Tc=2.0 min CN=82 Runoff=3.63 cfs 0.212 af

Subcatchment 6S: TO CB Runoff Area=3,450 sf 38.70% Impervious Runoff Depth>4.07"
Flow Length=25' Tc=0.2 min CN=83 Runoff=0.45 cfs 0.027 af

Reach 1R: GRASS SWALE Avg. Flow Depth=0.52' Max Vel=2.20 fps Inflow=3.68 cfs 0.222 af
n=0.030 L=215.0' S=0.0098 '/' Capacity=16.25 cfs Outflow=3.16 cfs 0.222 af

Reach 2R: STONE DITCH Avg. Flow Depth=0.66' Max Vel=2.30 fps Inflow=4.73 cfs 0.289 af
n=0.041 L=430.0' S=0.0117 '/' Capacity=8.58 cfs Outflow=4.08 cfs 0.287 af

Reach 3R: CONV. SWALE Avg. Flow Depth=0.79' Max Vel=2.89 fps Inflow=10.22 cfs 0.741 af
n=0.022 L=160.0' S=0.0047 '/' Capacity=16.46 cfs Outflow=9.47 cfs 0.740 af

Pond 2P: SEDIMENT FOREBAY Peak Elev=466.52' Storage=1,617 cf Inflow=9.47 cfs 0.740 af
Outflow=9.08 cfs 0.717 af

Pond 3P: DETENTION BASIN Peak Elev=466.51' Storage=17,780 cf Inflow=15.42 cfs 1.152 af
Primary=10.50 cfs 0.970 af Secondary=0.05 cfs 0.000 af Outflow=10.55 cfs 0.970 af

Pond E1P: EXIST CATCH BASIN Peak Elev=0.55' Inflow=0.45 cfs 0.027 af
12.0" Round Culvert n=0.013 L=56.0' S=0.0000 '/' Outflow=0.45 cfs 0.027 af

Link OP1: OBSERVATION POINT Inflow=1.57 cfs 0.126 af
Primary=1.57 cfs 0.126 af

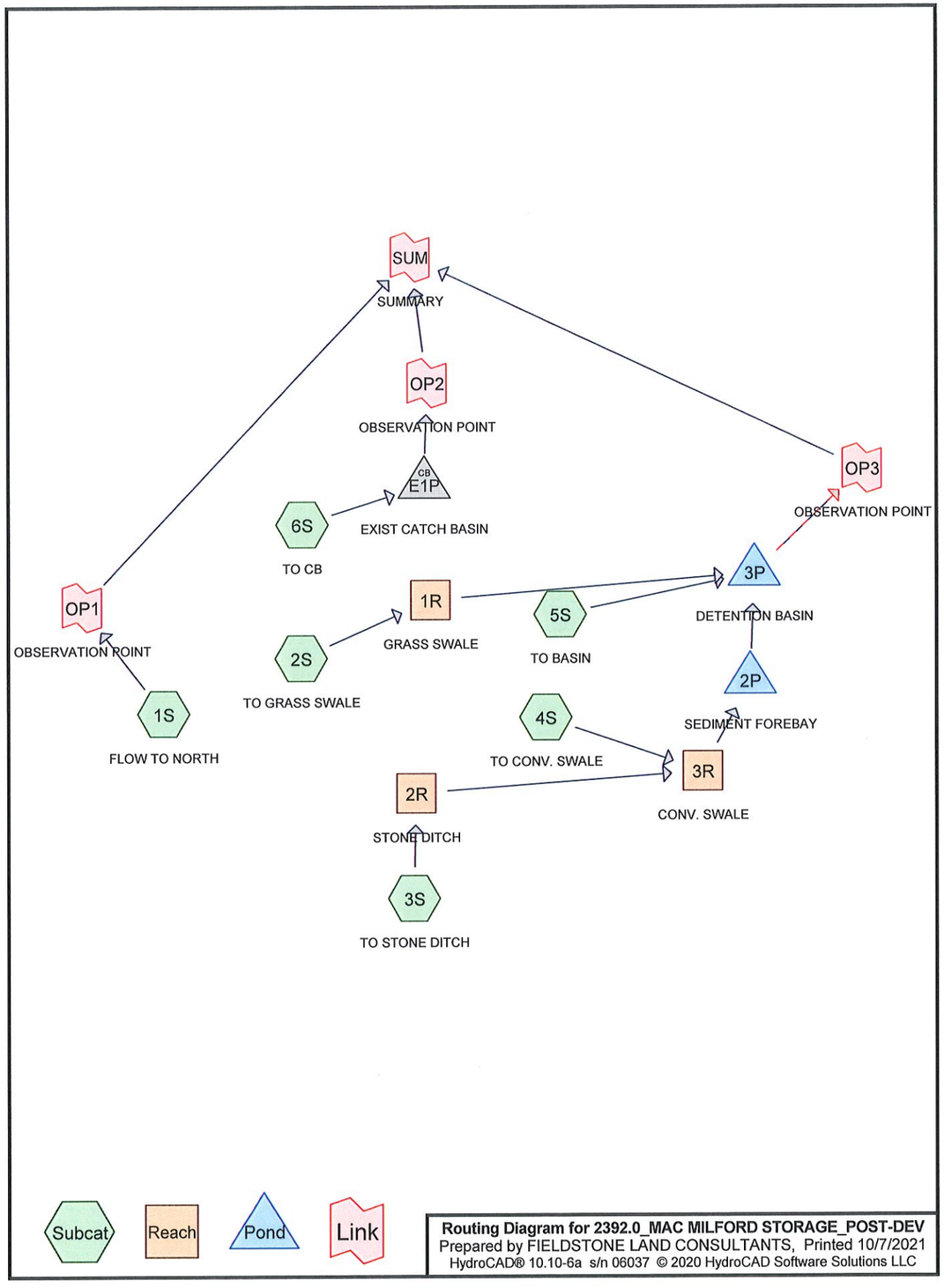
Link OP2: OBSERVATION POINT Inflow=0.45 cfs 0.027 af
Primary=0.45 cfs 0.027 af

Link OP3: OBSERVATION POINT Inflow=10.55 cfs 0.970 af
Primary=10.55 cfs 0.970 af

Link SUM: SUMMARY Inflow=12.25 cfs 1.124 af
Primary=12.25 cfs 1.124 af

Section 2.2

Proposed Conditions
10 Year Storm Full Summary


SUM
SUMMARY
OP2
OBSERVATION POINT
CB
E1P
EXIST CATCH BASIN
6S
TO CB
OP3
OBSERVATION POINT
3P
DETENTION BASIN
OP1
OBSERVATION POINT
1R
GRASS SWALE
2S
TO GRASS SWALE
5S
TO BASIN
2P
SEDIMENT FOREBAY
1S
FLOW TO NORTH
4S
TO CONV. SWALE
3R
CONV. SWALE
2R
STONE DITCH
3S
TO STONE DITCH
Subcat
Reach
Pond
Link
Routing Diagram for 2392.0_MAC MILFORD STORAGE_POST-DEV
Prepared by FIELDSTONE LAND CONSULTANTS, Printed 10/7/2021
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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	10-Year	NRCC 24-hr	C	Default	24.00	1	4.13	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.524	74	>75% Grass cover, Good, HSG C (1S, 2S, 3S, 5S, 6S)
0.315	98	Paved parking & bldg, HSG C (2S)
1.572	98	Paved parking, HSG C (3S, 4S, 5S, 6S)
0.068	98	Pavement, HSG C (1S)
3.479	**87**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
3.479	HSG C	1S, 2S, 3S, 4S, 5S, 6S
0.000	HSG D	
0.000	Other	
3.479		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	1.524	0.000	0.000	1.524	>75% Grass cover, Good	1S, 2S, 3S, 5S, 6S
0.000	0.000	1.572	0.000	0.000	1.572	Paved parking	3S, 4S, 5S, 6S
0.000	0.000	0.315	0.000	0.000	0.315	Paved parking & bldg	2S
0.000	0.000	0.068	0.000	0.000	0.068	Pavement	1S
0.000	**0.000**	**3.479**	**0.000**	**0.000**	**3.479**	**TOTAL AREA**	

Time span=1.00-23.00 hrs, dt=0.05 hrs, 441 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: FLOW TO NORTH Runoff Area=18,580 sf 16.04% Impervious Runoff Depth>1.95"
Flow Length=165' Tc=11.3 min CN=78 Runoff=0.87 cfs 0.069 af

Subcatchment 2S: TO GRASS SWALE Runoff Area=25,845 sf 53.05% Impervious Runoff Depth>2.71"
Tc=2.0 min CN=87 Runoff=2.29 cfs 0.134 af

Subcatchment 3S: TO STONE DITCH Runoff Area=34,337 sf 48.42% Impervious Runoff Depth>2.62"
Flow Length=50' Slope=0.2400 '/' Tc=0.1 min CN=86 Runoff=2.90 cfs 0.172 af

Subcatchment 4S: TO CONV. SWALE Runoff Area=41,325 sf 100.00% Impervious Runoff Depth>3.85"
Tc=2.0 min CN=98 Runoff=4.50 cfs 0.304 af

Subcatchment 5S: TO BASIN Runoff Area=27,990 sf 32.76% Impervious Runoff Depth>2.27"
Tc=2.0 min CN=82 Runoff=2.13 cfs 0.122 af

Subcatchment 6S: TO CB Runoff Area=3,450 sf 38.70% Impervious Runoff Depth>2.36"
Flow Length=25' Tc=0.2 min CN=83 Runoff=0.27 cfs 0.016 af

Reach 1R: GRASS SWALE Avg. Flow Depth=0.41' Max Vel=1.94 fps Inflow=2.29 cfs 0.134 af
n=0.030 L=215.0' S=0.0098 '/' Capacity=16.25 cfs Outflow=1.97 cfs 0.134 af

Reach 2R: STONE DITCH Avg. Flow Depth=0.50' Max Vel=1.99 fps Inflow=2.90 cfs 0.172 af
n=0.041 L=430.0' S=0.0117 '/' Capacity=8.58 cfs Outflow=2.41 cfs 0.171 af

Reach 3R: CONV. SWALE Avg. Flow Depth=0.64' Max Vel=2.56 fps Inflow=6.50 cfs 0.475 af
n=0.022 L=160.0' S=0.0047 '/' Capacity=16.46 cfs Outflow=5.97 cfs 0.475 af

Pond 2P: SEDIMENT FOREBAY Peak Elev=466.40' Storage=1,449 cf Inflow=5.97 cfs 0.475 af
Outflow=5.72 cfs 0.452 af

Pond 3P: DETENTION BASIN Peak Elev=466.11' Storage=14,762 cf Inflow=9.41 cfs 0.708 af
Primary=1.73 cfs 0.551 af Secondary=0.00 cfs 0.000 af Outflow=1.73 cfs 0.551 af

Pond E1P: EXIST CATCH BASIN Peak Elev=0.43' Inflow=0.27 cfs 0.016 af
12.0" Round Culvert n=0.013 L=56.0' S=0.0000 '/' Outflow=0.27 cfs 0.016 af

Link OP1: OBSERVATION POINT Inflow=0.87 cfs 0.069 af
Primary=0.87 cfs 0.069 af

Link OP2: OBSERVATION POINT Inflow=0.27 cfs 0.016 af
Primary=0.27 cfs 0.016 af

Link OP3: OBSERVATION POINT Inflow=1.73 cfs 0.551 af
Primary=1.73 cfs 0.551 af

Link SUM: SUMMARY Inflow=1.99 cfs 0.636 af
Primary=1.99 cfs 0.636 af

Total Runoff Area = 3.479 ac Runoff Volume = 0.817 af Average Runoff Depth = 2.82"
43.81% Pervious = 1.524 ac 56.19% Impervious = 1.955 ac

Summary for Subcatchment 1S: FLOW TO NORTH

Runoff = 0.87 cfs @ 12.19 hrs, Volume= 0.069 af, Depth> 1.95"
Routed to Link OP1 : OBSERVATION POINT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.13"

	Area (sf)	CN	Description
*	2,980	98	Pavement, HSG C
	15,600	74	>75% Grass cover, Good, HSG C
	18,580	78	Weighted Average
	15,600		83.96% Pervious Area
	2,980		16.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0500	0.16		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.82"
0.8	65	0.0400	1.40		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
11.3	165	Total			

Summary for Subcatchment 2S: TO GRASS SWALE

Runoff = 2.29 cfs @ 12.08 hrs, Volume= 0.134 af, Depth> 2.71"
Routed to Reach 1R : GRASS SWALE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.13"

	Area (sf)	CN	Description
	12,135	74	>75% Grass cover, Good, HSG C
*	13,710	98	Paved parking & bldg, HSG C
	25,845	87	Weighted Average
	12,135		46.95% Pervious Area
	13,710		53.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0					**Direct Entry, DIRECT**

Summary for Subcatchment 3S: TO STONE DITCH

Runoff = 2.90 cfs @ 12.05 hrs, Volume= 0.172 af, Depth> 2.62"
Routed to Reach 2R : STONE DITCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.13"

Area (sf)	CN	Description
17,712	74	>75% Grass cover, Good, HSG C
16,625	98	Paved parking, HSG C
34,337	86	Weighted Average
17,712		51.58% Pervious Area
16,625		48.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	50	0.2400	7.35		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps

Summary for Subcatchment 4S: TO CONV. SWALE

Runoff = 4.50 cfs @ 12.08 hrs, Volume= 0.304 af, Depth> 3.85"
Routed to Reach 3R : CONV. SWALE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.13"

Area (sf)	CN	Description
41,325	98	Paved parking, HSG C
41,325		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0					**Direct Entry, direct**

Summary for Subcatchment 5S: TO BASIN

Runoff = 2.13 cfs @ 12.08 hrs, Volume= 0.122 af, Depth> 2.27"
Routed to Pond 3P : DETENTION BASIN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.13"

Area (sf)	CN	Description
18,820	74	>75% Grass cover, Good, HSG C
9,170	98	Paved parking, HSG C
27,990	82	Weighted Average
18,820		67.24% Pervious Area
9,170		32.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0					**Direct Entry, DIRECT**

Summary for Subcatchment 6S: TO CB

Runoff = 0.27 cfs @ 12.05 hrs, Volume= 0.016 af, Depth> 2.36"
Routed to Pond E1P : EXIST CATCH BASIN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.13"

Area (sf)	CN	Description
2,115	74	>75% Grass cover, Good, HSG C
1,335	98	Paved parking, HSG C
3,450	83	Weighted Average
2,115		61.30% Pervious Area
1,335		38.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	25		2.08		**Direct Entry, DIRECT**

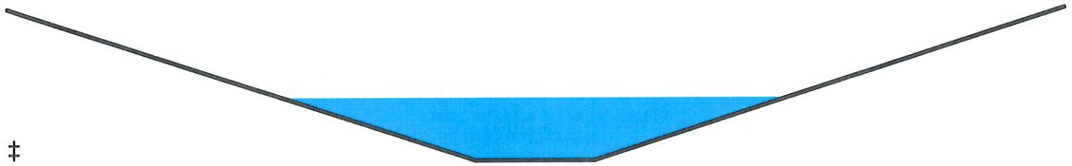
Summary for Reach 1R: GRASS SWALE

Inflow Area = 0.593 ac, 53.05% Impervious, Inflow Depth > 2.71" for 10-Year event
Inflow = 2.29 cfs @ 12.08 hrs, Volume= 0.134 af
Outflow = 1.97 cfs @ 12.13 hrs, Volume= 0.134 af, Atten= 14%, Lag= 3.0 min
Routed to Pond 3P : DETENTION BASIN

Routing by Stor-Ind+Trans method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.94 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 0.66 fps, Avg. Travel Time= 5.4 min

Peak Storage= 237 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.41' , Surface Width= 4.31'
Bank-Full Depth= 1.00' Flow Area= 5.0 sf, Capacity= 16.25 cfs

1.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 4.0 '/' Top Width= 9.00'
Length= 215.0' Slope= 0.0098 '/'
Inlet Invert= 469.10', Outlet Invert= 467.00'



Summary for Reach 2R: STONE DITCH

Inflow Area = 0.788 ac, 48.42% Impervious, Inflow Depth > 2.62" for 10-Year event
Inflow = 2.90 cfs @ 12.05 hrs, Volume= 0.172 af
Outflow = 2.41 cfs @ 12.14 hrs, Volume= 0.171 af, Atten= 17%, Lag= 5.6 min
Routed to Reach 3R : CONV. SWALE

Routing by Stor-Ind+Trans method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.99 fps, Min. Travel Time= 3.6 min
Avg. Velocity = 0.58 fps, Avg. Travel Time= 12.4 min

Peak Storage= 531 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.50' , Surface Width= 2.99'
Bank-Full Depth= 1.00' Flow Area= 3.0 sf, Capacity= 8.58 cfs

2.00' x 1.00' deep channel, n= 0.041 Riprap, 2-inch
Side Slope Z-value= 1.0 '/' Top Width= 4.00'
Length= 430.0' Slope= 0.0117 '/'
Inlet Invert= 472.30', Outlet Invert= 467.25'

Summary for Reach 3R: CONV. SWALE

Inflow Area = 1.737 ac, 76.59% Impervious, Inflow Depth > 3.28" for 10-Year event
Inflow = 6.50 cfs @ 12.09 hrs, Volume= 0.475 af
Outflow = 5.97 cfs @ 12.11 hrs, Volume= 0.475 af, Atten= 8%, Lag= 1.5 min
Routed to Pond 2P : SEDIMENT FOREBAY

Routing by Stor-Ind+Trans method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.56 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 0.81 fps, Avg. Travel Time= 3.3 min

Peak Storage= 397 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.64' , Surface Width= 5.81'
Bank-Full Depth= 1.00' Flow Area= 5.0 sf, Capacity= 16.46 cfs

2.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 8.00'
Length= 160.0' Slope= 0.0047 '/'
Inlet Invert= 467.25', Outlet Invert= 466.50'

‡

Summary for Pond 2P: SEDIMENT FOREBAY

Inflow Area = 1.737 ac, 76.59% Impervious, Inflow Depth > 3.28" for 10-Year event
Inflow = 5.97 cfs @ 12.11 hrs, Volume= 0.475 af
Outflow = 5.72 cfs @ 12.13 hrs, Volume= 0.452 af, Atten= 4%, Lag= 1.0 min
Primary = 5.72 cfs @ 12.13 hrs, Volume= 0.452 af
Routed to Pond 3P : DETENTION BASIN

Routing by Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 466.40' @ 12.13 hrs Surf.Area= 1,362 sf Storage= 1,449 cf

Plug-Flow detention time= 50.5 min calculated for 0.452 af (95% of inflow)
Center-of-Mass det. time= 24.9 min (794.5 - 769.7)

Volume	Invert	Avail.Storage	Storage Description
#1	465.00'	2,363 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
465.00	740	0	0
466.00	1,155	948	948
467.00	1,675	1,415	2,363

Device	Routing	Invert	Outlet Devices
#1	Primary	466.00'	**8.0' long + 3.0 '/' SideZ x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=5.57 cfs @ 12.13 hrs HW=466.39' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 5.57 cfs @ 1.55 fps)

Summary for Pond 3P: DETENTION BASIN

Inflow Area = 2.973 ac, 62.42% Impervious, Inflow Depth > 2.86" for 10-Year event
Inflow = 9.41 cfs @ 12.11 hrs, Volume= 0.708 af
Outflow = 1.73 cfs @ 12.59 hrs, Volume= 0.551 af, Atten= 82%, Lag= 28.7 min
Primary = 1.73 cfs @ 12.59 hrs, Volume= 0.551 af
Routed to Link OP3 : OBSERVATION POINT
Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af
Routed to Link OP3 : OBSERVATION POINT

Routing by Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs
Peak Elev= 466.11' @ 12.59 hrs Surf.Area= 7,164 sf Storage= 14,762 cf

Plug-Flow detention time= 215.9 min calculated for 0.550 af (78% of inflow)
Center-of-Mass det. time= 136.9 min (938.1 - 801.2)

Volume	Invert	Avail.Storage	Storage Description
#1	463.25'	21,738 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
463.25	3,000	0	0
464.00	4,300	2,738	2,738
465.00	5,600	4,950	7,688
466.00	7,000	6,300	13,988
467.00	8,500	7,750	21,738

Device	Routing	Invert	Outlet Devices
#1	Secondary	466.50'	**12.0' long + 3.0 '/' SideZ x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Primary	463.25'	**2.0" Vert. Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	466.00'	**24.0" x 24.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	465.00'	**2.0" Vert. Orifice X 4.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.72 cfs @ 12.59 hrs HW=466.11' (Free Discharge)
- **2=Orifice** (Orifice Controls 0.35 cfs @ 8.02 fps)
- **3=Grate** (Weir Controls 0.94 cfs @ 1.08 fps)
- **4=Orifice** (Orifice Controls 0.43 cfs @ 4.88 fps)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=463.25' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond E1P: EXIST CATCH BASIN

Inflow Area = 0.079 ac, 38.70% Impervious, Inflow Depth > 2.36" for 10-Year event
Inflow = 0.27 cfs @ 12.05 hrs, Volume= 0.016 af
Outflow = 0.27 cfs @ 12.05 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min
Primary = 0.27 cfs @ 12.05 hrs, Volume= 0.016 af
Routed to Link OP2 : OBSERVATION POINT

Routing by Stor-Ind method, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs
Peak Elev= 0.43' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**12.0" Round Culvert** L= 56.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / 0.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.27 cfs @ 12.05 hrs HW=0.43' (Free Discharge)
1=Culvert (Barrel Controls 0.27 cfs @ 1.22 fps)

Summary for Link OP1: OBSERVATION POINT

Inflow Area = 0.427 ac, 16.04% Impervious, Inflow Depth > 1.95" for 10-Year event
Inflow = 0.87 cfs @ 12.19 hrs, Volume= 0.069 af
Primary = 0.87 cfs @ 12.19 hrs, Volume= 0.069 af, Atten= 0%, Lag= 0.0 min
Routed to Link SUM : SUMMARY

Primary outflow = Inflow, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Summary for Link OP2: OBSERVATION POINT

Inflow Area = 0.079 ac, 38.70% Impervious, Inflow Depth > 2.36" for 10-Year event
Inflow = 0.27 cfs @ 12.05 hrs, Volume= 0.016 af
Primary = 0.27 cfs @ 12.05 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min
Routed to Link SUM : SUMMARY

Primary outflow = Inflow, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Summary for Link OP3: OBSERVATION POINT

Inflow Area = 2.973 ac, 62.42% Impervious, Inflow Depth > 2.23" for 10-Year event
Inflow = 1.73 cfs @ 12.59 hrs, Volume= 0.551 af
Primary = 1.73 cfs @ 12.59 hrs, Volume= 0.551 af, Atten= 0%, Lag= 0.0 min
Routed to Link SUM : SUMMARY

Primary outflow = Inflow, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Summary for Link SUM: SUMMARY

Inflow Area = 3.479 ac, 56.19% Impervious, Inflow Depth > 2.19" for 10-Year event
Inflow = 1.99 cfs @ 12.57 hrs, Volume= 0.636 af
Primary = 1.99 cfs @ 12.57 hrs, Volume= 0.636 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-23.00 hrs, dt= 0.05 hrs

Section 3.1

Riprap Apron Design

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

Map 1, Lots 549-B & 549-E

RIPRAP APRON DESIGN

Project: 2392.01
File: 2392.01_Riprap.xls
Date: 10/13/21
Design Eng: JEN
Revised:
Revised By:

This spreadsheet is based on the Dec. 2008 "New Hampshire Stormwater Management Manual, Volume 2, Post-Construction Best Management Practices: Selection And Design"

Nomenclature:
L = length of the apron (ft)
D_0 = max. inside width of outlet pipe or channel (ft)
Q = outlet discharge (cfs)
TW = tailwater depth (ft)
W_{in} = width of the apron at culvert outlet (ft)
W_{out} = width of the apron at the end of apron (ft)
D_{50} = median stone diameter (inches)

DESIGN CRITERIA

Design Storm: 10 Year

Riprap Apron Length:
$L=1.8Q/D_0^{1.5}+7D_0$ (when $TW<D_0/2$)
$L=3.0Q/D_0^{1.5}+7D_0$ (when $TW>D_0/2$)

Riprap Apron Width @ Culvert Outlet:
$W_{in}=3D_0$
Riprap Apron Width @ End of Apron (no defined channel):
$W_{out}=3D_0+L_a$ (when $TW<D_0/2$)
$W_{out}=3D_0+0.4L_a$ (when $TW>D_0/2$)
Riprap Apron Width @ End of Apron (defined channel):
$W_{out}>D_0$, Structural lining shall extend a min. of 1Ft. above the TW elevation but no lower than 2/3 the vertical conduit dimension above the conduit.

Riprap Diameter:
$D_{50}=[0.02Q^{1.3}/(TW*D_0)]*12$
50% of stone by weight should be smaller than D_{50}. The largest stone size in the mixture shall be 1.5 times D_{50}.

				OUTLET APRON DESIGN				
Location (STRUCT.)	Q (CFS)	D_0 (FT.)	TW (FT.)	L_a (FT.)	Width (FT) W_{in}	Width (FT) W_{out}	D_{50} (Dia. - INCHES)	Thickness (INCHES)
HW 1	1.8	1.0	0.5	12	3	8	4	12

Section 3.2

Test Pit Data

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

TEST PIT DATA
MAC MILFORD REALTY, LLC
852 AND 872 OLD CONCORD ROAD
HENNIKER, NH

8/25/21
Test Pit #1
0-16"- 10YR 3/3 Dark brown loam, granular, friable (fill)
16-24" - 10YR 5/6 Yellowish brown loamy fine-to-coarse sand, granular, friable (fill)
24-36"- 10YR 3/3 Dark brown loam, granular, friable
36-46" - 2.5Y 6/4 Light yellowish brown loamy fine sand, granular, friable
46-72"- 2.5Y 5.4 Light olive brown fine-to-medium sand, single grain, loose. Cobbles
ESHWT = None **Observed Water = None** **Ledge/Boulders = None** **Roots = 4"**

8/25/21
Test Pit #2
0-3"- 10YR 3/3 Dark brown loam, granular, friable
3-24" - 7.5YR 4/4 Brown fine sandy loam, granular, friable
24-36"- 6/3 Pale brown fine sand, granular, friable
ESHWT = None **Observed Water = None** **Ledge/Boulders = 36"** **Roots = 36"**

8/25/21
Test Pit #3
0-16"- 10YR 3/3 Dark brown loam, granular, friable
16-20" - 7.5YR 4/4 Brown fine sandy loam, granular, friable
20-24"- 2.5 Y 6/4 Light yellowish brown fine sand, granular, friable
24-30" - 2.5 Y 5/4 Light olive brown gravelly fine-to-coarse sand, granular, friable. Stony
30-84"- 6/3 Pale brown fine sand, massive-to-platy, friable
ESHWT = 40" **Observed Water = None** **Ledge/Boulders = 36"** **Roots = 36"**

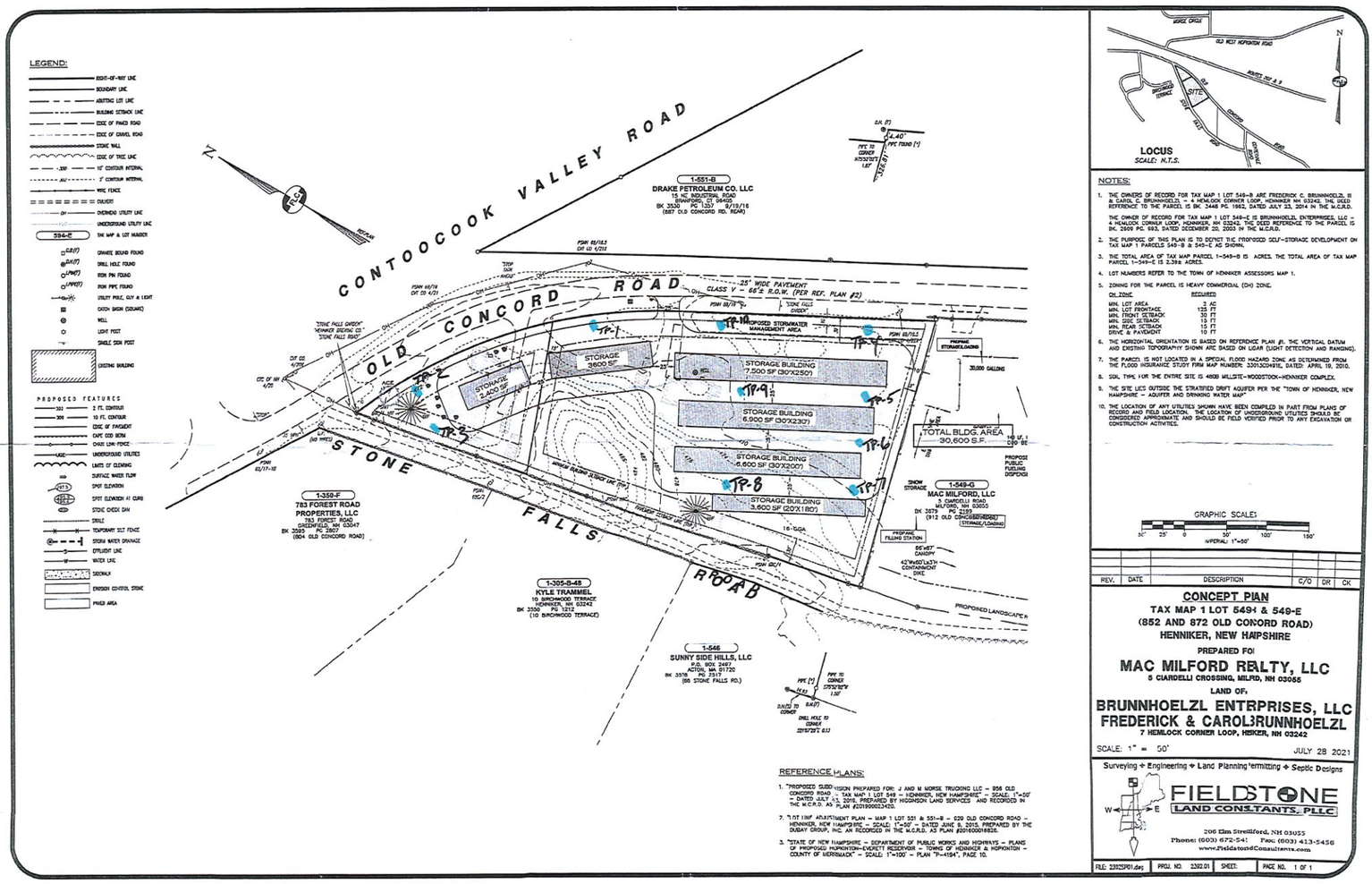
8/25/21
Test Pit #4
0-20"- 10YR 3/3 Dark brown loam, granular, friable
20-30" -2.5 Y 6/6 Olive yellow fine sandy loam, granular, friable
30-84"- 2.5 Y 5/4 Light olive brown loamy fine sand, granular, friable
ESHWT = 36" **Observed Water = 68"** **Ledge/Boulders = None** **Roots = 24"**

Mac Milford Realty, LLC
852 and 872 Old Concord Road Henniker, NH

8/25/21
Test Pit #10
0-20"- 10YR 3/3 Dark brown loam, granular, friable
20-28" -2.5 Y 6/6 Olive yellow fine sandy loam, granular, friable
28-80"- 2.5 Y 5/4 Light olive brown loamy fine sand, granular, friable
ESHWT = 36" Observed Water = 75" Ledge/Boulders = None Roots = 3"

Test Pits were logged by:

Kenneth Robinson
NH Licensed Designer #1896



LOCUS
SCALE: N.T.S.

LEGEND:

- RIGHT-OF-WAY LINE
- BOUNDARY LINE
- ABUTTING LOT LINE
- BUILDING SETBACK LINE
- EDGE OF PAVED ROAD
- EDGE OF GRAVEL ROAD
- STONE WALL
- EDGE OF TREE LINE
- 100 — 10' CONTOUR INTERVAL
- 97 — 2' CONTOUR INTERVAL
- WIRE FENCE
- DELINEATOR
- OHW — OVERHEAD UTILITY LINE
- UGW — UNDERGROUND UTILITY LINE
- 594-E — TAX MAP & LOT NUMBER
- CBF — CHARLES BOUND FOUND
- SHF — SMALL HOLE FOUND
- IPF — IRON PIN FOUND
- IPF(P) — IRON PIPE FOUND
- UTILITY POLE, GUY & LIGHT
- CHSN — CHISEL SIGN (SQUARE)
- WELL
- LIGHT POST
- SMALL SIGN POST
- EXISTING BUILDING

PROPOSED FEATURES

- 310 — 2 FT. CONTOUR
- 305 — 10 FT. CONTOUR
- EDGE OF PAVEMENT
- CAPE COD BERM
- CHAIN LINK FENCE
- UNDERGROUND UTILITIES
- LIMITS OF CLEARING
- SURFACE WATER FLOW
- 473.5 — SPOT ELEVATION
- SPOT ELEVATION AT CURB
- STONE CHECK DAM
- DRILL
- TEMPORARY SILT FENCE
- STORM WATER DRAINAGE
- UTILITY LINE
- WATER LINE
- SEDIMA
- EROSION CONTROL STONE
- PAVED AREA

NOTES:

1. THE OWNERS OF RECORD FOR TAX MAP 1 LOT 549-B ARE FREDERICK C. BRUNNHOELZL III & CAROL C. BRUNNHOELZL – 4 HEMLOCK CORNER LOOP, HENNIKER NH 03242. THE DEED REFERENCE TO THE PARCEL IS BK. 3448 PG. 1982, DATED JULY 23, 2014 IN THE M.C.R.D.

   THE OWNER OF RECORD FOR TAX MAP 1 LOT 549-E IS BRUNNHOELZL ENTERPRISES, LLC – 4 HEMLOCK CORNER LOOP, HENNIKER, NH 03242. THE DEED REFERENCE TO THE PARCEL IS BK. 2699 PG. 693, DATED DECEMBER 20, 2003 IN THE M.C.R.D.
2. THE PURPOSE OF THIS PLAN IS TO DEPICT THE PROPOSED SELF-STORAGE DEVELOPMENT ON TAX MAP 1 PARCELS 549-B & 549-E AS SHOWN.
3. THE TOTAL AREA OF TAX MAP PARCEL 1-549-B IS ACRES. THE TOTAL AREA OF TAX MAP PARCEL 1-549-E IS 2.36± ACRES.
4. LOT NUMBERS REFER TO THE TOWN OF HENNIKER ASSESSORS MAP 1.
5. ZONING FOR THE PARCEL IS HEAVY COMMERCIAL (CH) ZONE.

CH ZONE	REQUIRED
MIN. LOT AREA	2 AC
MIN. LOT FRONTAGE	150 FT
MIN. FRONT SETBACK	30 FT
MIN. SIDE SETBACK	15 FT
MIN. REAR SETBACK	15 FT
DRIVE & PAVEMENT	10 FT

6. THE HORIZONTAL ORIENTATION IS BASED ON REFERENCE PLAN #1. THE VERTICAL DATUM AND EXISTING TOPOGRAPHY SHOWN ARE BASED ON LIDAR (LIGHT DETECTION AND RANGING).
7. THE PARCEL IS NOT LOCATED IN A SPECIAL FLOOD HAZARD ZONE AS DETERMINED FROM THE FLOOD INSURANCE STUDY FIRM MAP NUMBER: 33013C0491E, DATED APRIL 19, 2010.
8. SOIL TYPE FOR THE ENTIRE SITE IS 465B WILLISTE–WOODSTOCK–HENNIKER COMPLEX.
9. THE SITE LIES OUTSIDE THE STRATIFIED DRIFT AQUIFER PER THE "TOWN OF HENNIKER, NEW HAMPSHIRE – AQUIFER AND DRINKING WATER MAP"
10. THE LOCATION OF ANY UTILITIES SHOWN HAVE BEEN COMPILED IN PART FROM PLANS OF RECORD AND FIELD LOCATION. THE LOCATION OF UNDERGROUND UTILITIES SHALL BE CONSIDERED APPROXIMATE AND SHOULD BE FIELD VERIFIED PRIOR TO ANY EXCAVATION OR CONSTRUCTION ACTIVITIES.

GRAPHIC SCALE:
50' 25' 0 50' 100' 150'
IMPERIAL 1"=50'

REV.	DATE	DESCRIPTION	C/O	DR	CK

CONCEPT PLAN
TAX MAP 1 LOT 549-E & 549-B
(852 AND 872 OLD CONCORD ROAD)
HENNIKER, NEW HAMPSHIRE

PREPARED FOR:
MAC MILFORD REALTY, LLC
5 CIARDELLI CROSSING, MILFD, NH 03055

LAND OF:
BRUNNHOELZL ENTERPRISES, LLC
FREDERICK & CAROL BRUNNHOELZL
7 HEMLOCK CORNER LOOP, HENKER, NH 03242

SCALE: 1" = 50' JULY 28 2021

Surveying ❖ Engineering ❖ Land Planning ❖ Permitting ❖ Septic Designs

FIELDSTONE LAND CONSULTANTS, PLLC
206 Elm Street Milford, NH 03055
Phone: (603) 672-5456 Fax: (603) 413-5456
www.FieldstoneConsultants.com

FILE: 23125P01.dwg	PROJ. NO. 2312.01	SHEET:	PAGE NO. 1 OF 1

REFERENCE PLANS:

1. "PROPOSED SUBDIVISION PREPARED FOR: J AND M MORSE TRUCKING LLC – 956 OLD CONCORD ROAD – TAX MAP 1 LOT 549 – HENNIKER, NEW HAMPSHIRE" – SCALE: 1"=50' – DATED JULY 11, 2016, PREPARED BY HIGHPOINT LAND SERVICES AND RECORDED IN THE M.C.R.D. AS PLAN #2016000021405.
2. "LOT LINE ADJUSTMENT PLAN – MAP 1 LOT 551 & 551-B – 839 OLD CONCORD ROAD – HENNIKER, NEW HAMPSHIRE – SCALE: 1"=50' – DATED JUNE 8, 2015, PREPARED BY THE DUBAY GROUP, INC. AS RECORDED IN THE M.C.R.D. AS PLAN #2015000014826.
3. "STATE OF NEW HAMPSHIRE – DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS – PLANS OF PROPOSED HUNGTON–ENDERLY RECEIVER – TOWNS OF HENNIKER & HOPKINTON – COUNTY OF MERRIMACK" – SCALE: 1"=100' – PLAN "P-4194", PAGE 10.

Section 3.3

Inspection & Maintenance Manual

Self-Storage Facility
852 & 872 Old Concord Road, Henniker, New Hampshire
Storm Water Management System
Inspection and Maintenance Manual

Introduction

The operation and maintenance of a storm water management system and its individual components is as critical to system performance as the design. Without proper maintenance, best management practices (BMPs) are likely to become functionally impaired or to fail, providing reduced or no treatment of storm water. Proper operation and maintenance will ensure that the storm water system and individual BMPs will remain effective at removing pollutants as designed and meeting New Hampshire's water quality objectives. Proper maintenance will:

- Maintain the volume of storm water treated over the long term;
- Sustain the pollutant removal efficiency of the BMP;
- Reduce the risk of re-suspending sediment and other pollutants captured by the BMP;
- Prevent structural deterioration of the BMP and minimize the need for expensive repairs;
- Decrease the potential for failure of the BMP.

The NH Department of Environmental Services Alteration of Terrain (AoT) regulations (Env-Wq 1500) require the long term maintenance of storm water practices, and stipulate the establishment of a mechanism to provide for ongoing inspections and maintenance.

In accordance with Env-Wq 1507.08 Long-Term Maintenance the mechanism for providing long-term maintenance practices for this development are as follows:

Responsible Maintenance Party:

Applicant: MAC Milford Realty, LLC
5 Ciardelli Crossing, Milford, NH
603-673-1336

Report Information:

- Mathew Ciardelli of the MAC Milford Realty, LLC will be the individual responsible for implementing the required reporting, inspection, and maintenance activities identified in the I & M manual.
- Mathew Ciardelli of the MAC Milford Realty, LLC will maintain all record keeping required by the I & M manual. Any transfer of responsibility for I & M activities or transfer in ownership shall be documented to the DES in writing.
- Inspection and maintenance reports shall be completed after each inspection. Copies of the report forms to be completed by the inspector are attached at the end of this manual, including:
    - Inspection checklist to be used during each inspection;

- Inspection and maintenance logs to document each inspection and maintenance activity;

- A plan showing the locations of all the storm water practices described in the I&M manual is attached at the end of this manual.

Maintenance Recommendations for Best Management Practices:

The following recommendations are to be used as a guide for the inspection and maintenance of the permanent erosion and sediment control measures.

Stormwater Management Basin

- Basins should be inspected at least twice annually, and following any rainfall event exceeding 2.5 inches in a 24 hour period, with maintenance or rehabilitation conducted as warranted by such inspection.
- Inspect, repair and remove debris from headwalls, end sections and riprap aprons.
- Remove woody vegetation from the Stormwater Management Basin.
- Remove accumulated sediment from basin bottom and crushed stone as necessary.
- Inspect Outlet Structures and remove any accumulated trash and sediments.
- Dispose of sediments and other wastes in conformance with applicable local, state and federal regulations.
- If an infiltration system does not drain within 72-hours following a rainfall event, then a qualified professional should assess the condition of the facility to determine measures required to restore infiltration function, including but not limited to removal of accumulated sediments or reconstruction of the infiltration basin floor.

Drainage Catch Basins

- Inspect basins at least semi-annually.
- Vacuum the sediment basins when the sediment reaches one-half the depth from the bottom of the catch basin to the invert of the outlet pipe.
- Repair damaged basin grates immediately after the inspection.
- Repair pavement damage around the basins immediately after the inspection to prevent further damage to the structure or paved area.
- Dispose of sediments and other wastes in conformance with applicable local, state and federal regulations.

Conveyance Swales

- Inspect conveyance swales annually.
- Remove accumulated sediment from swales when the sediment restricts flow in the swale.

- Repair any damage in the swales as a result of erosion shortly after the inspection to prevent further damage to the swales.
- Dispose of sediments and other wastes in conformance with applicable local, state and federal regulations.

Treatment Swales

- Inspect annually for accumulation of sediment and debris and for signs of erosion vegetation loss, and presence of invasive species.
- Perform periodic mowing; frequency depends on location and type of grass. Grass shall not be cut less than four (4) inches to maintain water quality flow depth.
- Remove debris and accumulated sediment whenever observed during inspection.
- Repair any eroded areas, remove invasive species and dead vegetation, and reseed with applicable grass mix as warranted by inspection.

Outlet Protection - Riprap Spillway

- Inspect the outlet protection annually for damage and deterioration. Repair damages immediately.
- Remove debris from apron area.

Inspection Checklist /Maintenance Logs

The inspection checklist and maintenance logs following this report shall be used as a guide for the inspection reporting for this project.

Invasive Species Response

Description:

With respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem.

Maintenance:

1. Remove invasive plant species from the storm water management practices by pulling, either by hand for small plants or by hand shovel for shrubs and bushes.
2. Refer to the fact sheet prepared by the University of New Hampshire Cooperative Extension entitled Methods for Disposing Non-Native Invasive Plants for recommended methods to dispose of invasive plant species. (Attached to the back of this report)

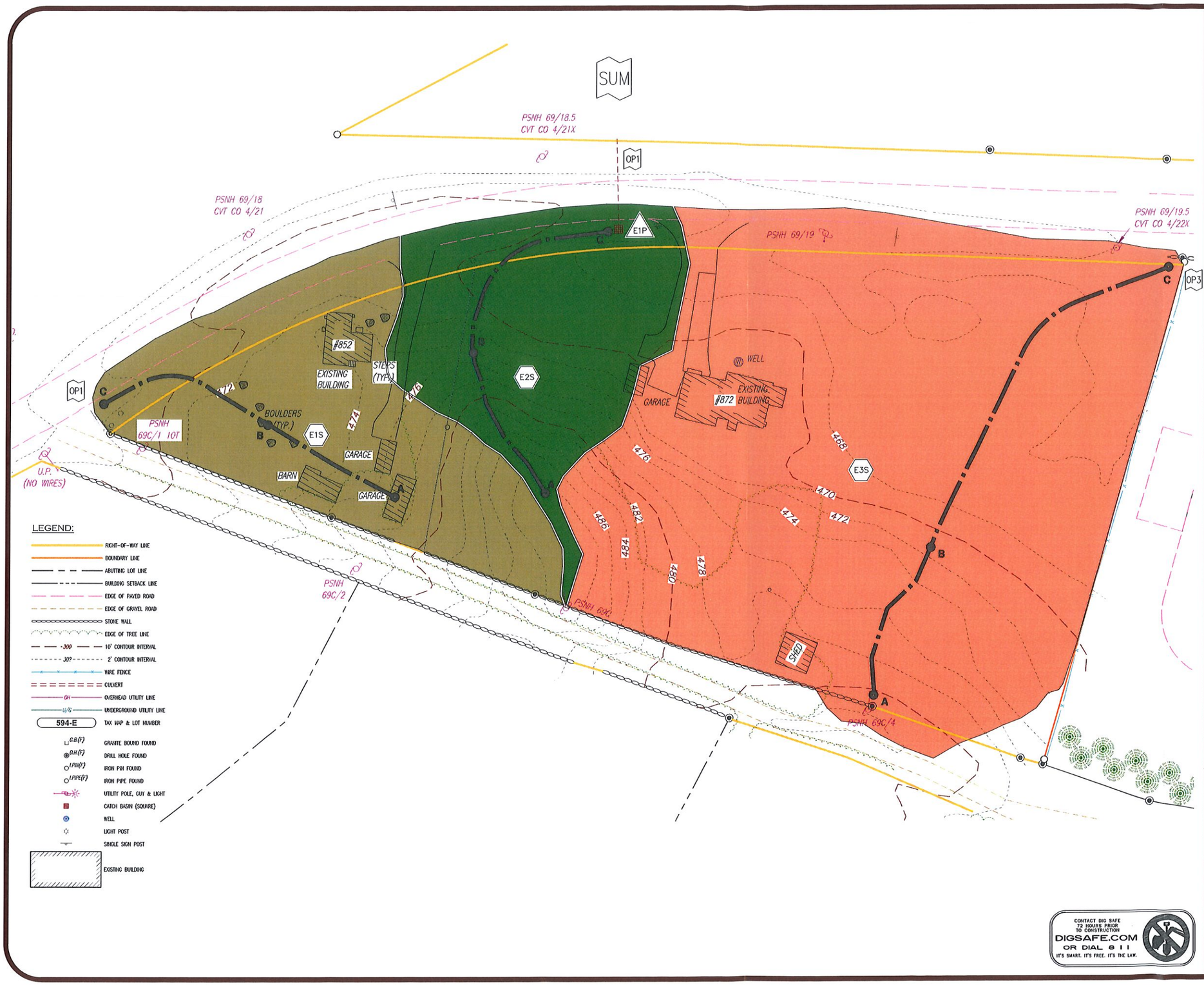
Inspection Checklist

- ☐ Surface at Each Drainage Catch Basin
- ☐ Drainage Catch Basin Sumps
- ☐ Drainage Ditches
- ☐ Riprap Aprons at Headwall Outlets
- ☐ Treatment Swales
- ☐ Outlet Structures
- ☐ Riprap Spillways
- ☐ Detention Basin
- ☐ Sediment Forebay

Inspection and Maintenance Log					
	BMP	Inspection Date	Inspected By	Maintenance Required?	Maintenance Performed
1				❑Yes ❑No	
2				❑Yes ❑No	
3				❑Yes ❑No	
4				❑Yes ❑No	
5				❑Yes ❑No	
6				❑Yes ❑No	
7				❑Yes ❑No	
8				❑Yes ❑No	
9				❑Yes ❑No	

Section 3.4

Drainage Area Plans

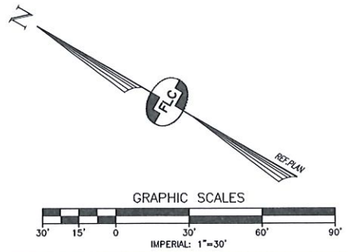


DRAINAGE SYMBOLS:

- 1P — POND (PIPE OR BASIN)
- 1S — SUBCATCHMENT
- 1R — REACH
- OP1 — OBSERVATION POINT
- WATERSHED BOUNDARY
- TIME OF CONCENTRATION
- SURFACE WATER FLOW

NRCS SOILS LEGEND:
SOURCE: USDA NRCS WEB SOIL SURVEY
SOIL BOUNDARY

480B	MILLSITE-WOODSTOCK-HENNIKER COMPLEX 3-8% SLOPES, VERY STONY, HSG C
394A	PAPOMAN FINE SANDY LOAM 0 TO 5% SLOPES (HSG A/D)



REV.	DATE	DESCRIPTION	C/O	DR	CK

PRE-DEVELOPMENT DRAINAGE PLAN

TAX MAP 1 LOT 549-B & 549-E
(852 AND 872 OLD CONCORD ROAD)
HENNIKER, NEW HAMPSHIRE

PREPARED FOR:

MAC MILFORD REALTY, LLC

5 CIARDELLI CROSSING, MILFORD, NH 03055

LAND OF:

BRUNNHOELZL ENTERPRISES, LLC
FREDERICK & CAROL BRUNNHOELZL

4 HEMLOCK CORNER LOOP, HENNIKER, NH 03242

SCALE: 1" = 30' OCTOBER 13, 2021

Surveying ◆ Engineering ◆ Land Planning ◆ Permitting ◆ Septic Designs

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LAND CONSULTANTS, PLLC

206 Elm Street, Milford, NH 03055
Phone: (603) 672-5456 Fax: (603) 413-5456
www.FieldstoneLandConsultants.com

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OR DIAL 811
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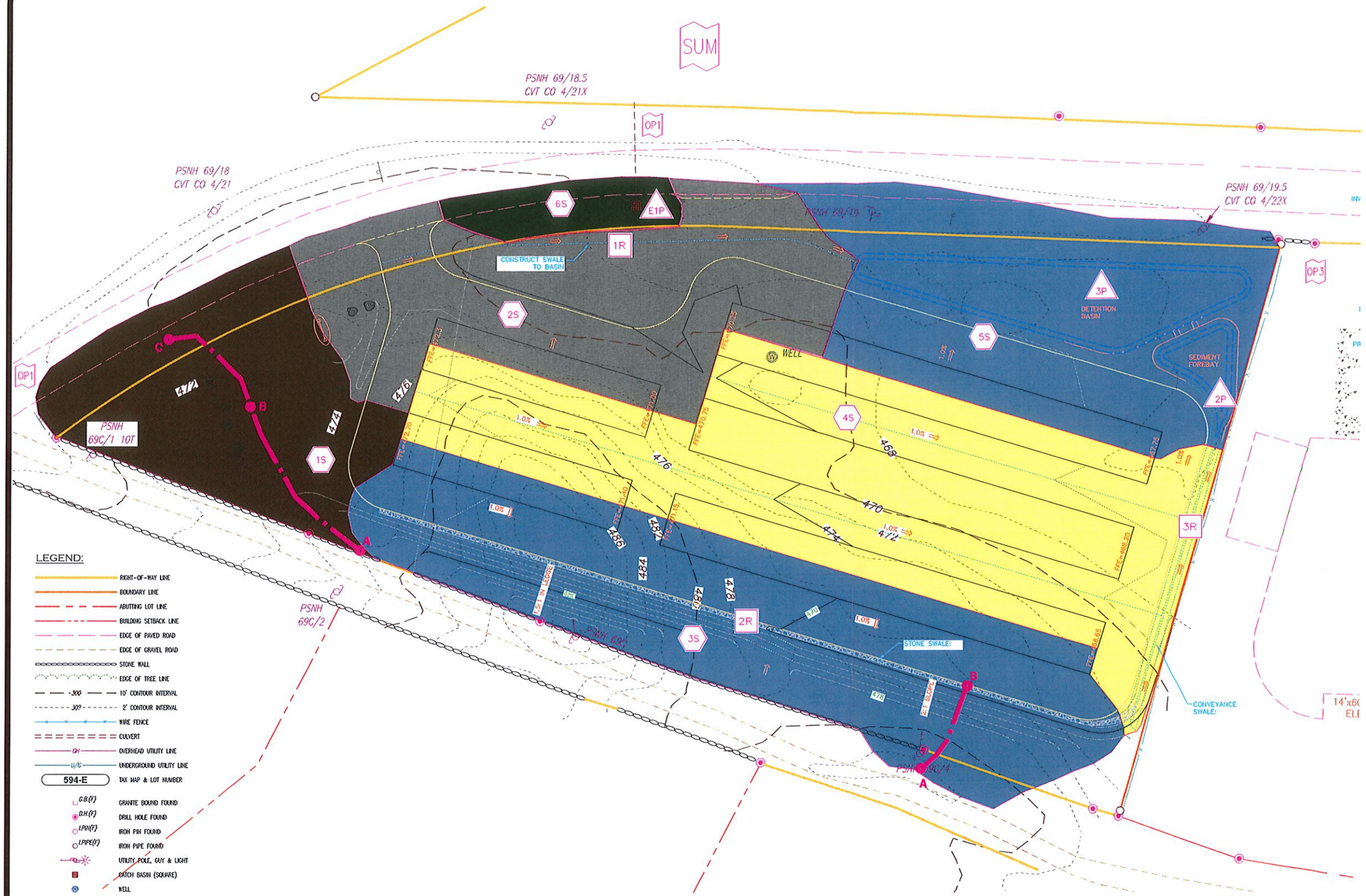
FILE: 2392DP01.dwg	PROJ. NO. 2392.01	SHEET: DP-1	PAGE NO. 1 OF 2



LEGEND:

- RIGHT-OF-WAY LINE
- BOUNDARY LINE
- ABUTTING LOT LINE
- BUILDING SETBACK LINE
- EDGE OF PAVED ROAD
- EDGE OF GRAVEL ROAD
- STONE WALL
- EDGE OF TREE LINE
- 100 — 100 — 10' CONTOUR INTERVAL
- 102 — 102 — 2' CONTOUR INTERVAL
- WIRE FENCE
- CULVERT
- OH — OVERHEAD UTILITY LINE
- U/G — UNDERGROUND UTILITY LINE
- 594-E — TAX MAP & LOT NUMBER
- C.B.(F) — GRANITE BOUND FOUND
- D.H.(F) — DRILL HOLE FOUND
- I.PIN(F) — IRON PIN FOUND
- I.PIPE(F) — IRON PIPE FOUND
- UTILITY POLE, GUY & LIGHT
- CATCH BASIN (SQUARE)
- WELL
- LIGHT POST
- SINGLE SIGN POST
- EXISTING BUILDING

DRAINAGE SYMBOLS:

- 1P — POND (PIPE OR BASIN)
- 1S — SUBCATCHMENT
- 1R — REACH
- OP1 — OBSERVATION POINT
- WATERSHED BOUNDARY
- TIME OF CONCENTRATION
- SURFACE WATER FLOW

NRCS SOILS LEGEND:
SOURCE: USDA NRCS WEB SOIL SURVEY

- BOIL BOUNDARY
- 480B — HOLLIS-CHESHIRE-HOUSATONIC COMPLEX, 3-8% SLOPES, EXTREMELY STONY, HSG C
- 394A — RIDGEBURY FINE SANDY LOAM, 0 TO 3% SLOPES (HSG A/D)

GRAPHIC SCALES
30' 15' 0 30' 60' 90'
IMPERIAL: 1"=30'

REV.	DATE	DESCRIPTION	C/O	DR	CK

POST-DEVELOPMENT DRAINAGE PLAN

TAX MAP 1 LOT 549-B & 549-E
(852 AND 872 OLD CONCORD ROAD)
HENNIKER, NEW HAMPSHIRE

PREPARED FOR:

MAC MILFORD REALTY, LLC
5 CIARDELLI CROSSING, MILFORD, NH 03055

LAND OF:

BRUNNHOELZL ENTERPRISES, LLC
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4 HEMLOCK CORNER LOOP, HENNIKER, NH 03242

SCALE: 1" = 30' OCTOBER 13, 2021

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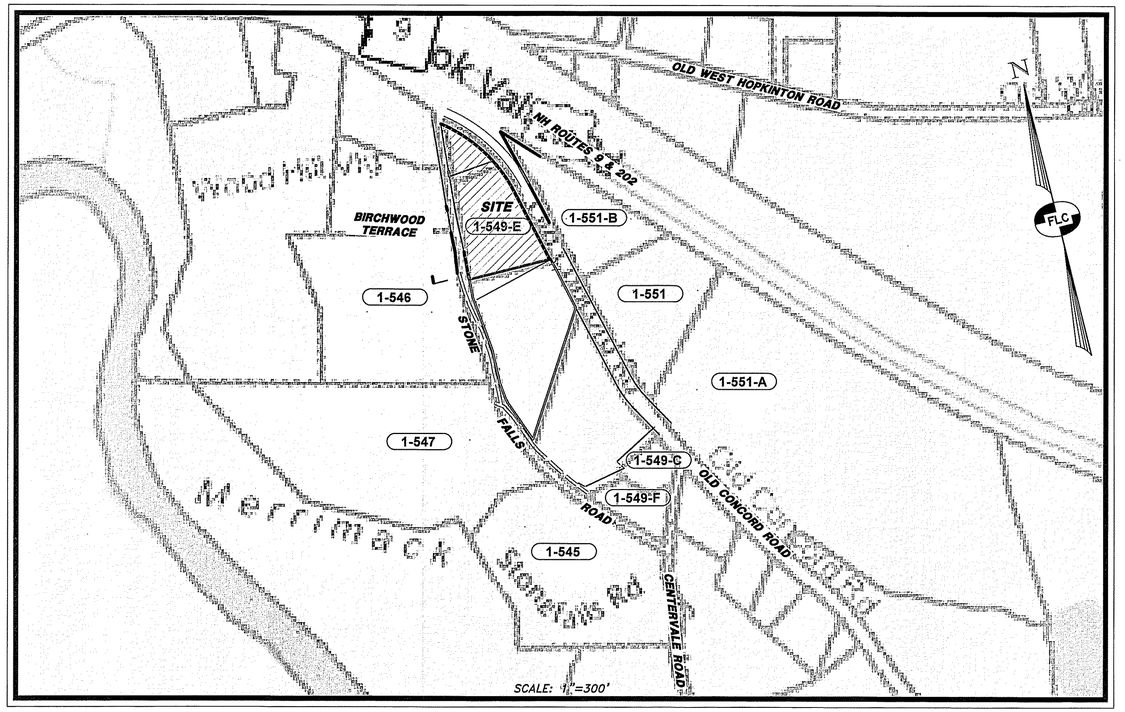
SITE PLAN SET

SELF STORAGE FACILITY

TAX MAP PARCEL 1-549-B AND 1-549-E - OLD CONCORD ROAD
HENNIKER, NEW HAMPSHIRE

OCTOBER 13, 2021



SHEET INDEX

PAGE	SHEET	TITLE
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2	EX-1	EXISTING CONDITIONS PLAN
3	SP-1	SITE PLAN
4	GR-1	GRADING & UTILITY PLAN
5	LT-1	LIGHTING PLAN
6	LS-1	LANDSCAPING PLAN
7	DT-1	CONSTRUCTION DETAILS
8	DT-2	CONSTRUCTION DETAILS
9	DT-3	CONSTRUCTION DETAILS

PREPARED FOR & LAND OF:

MAC MILFORD REALTY, LLC
5 CIARDELLI CROSSING
MILFORD, NH 03055

1. THE LOCATION OF THE UTILITIES SHOWN ARE APPROXIMATE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND PRESERVE ALL UTILITY SERVICES.
2. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING AND COORDINATING WITH ALL JURISDICTIONAL AGENCIES AND UTILITY COMPANIES PRIOR TO AND DURING CONSTRUCTION.
3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND PROPOSED WORK PRIOR TO CONSTRUCTION.

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www.FieldstoneLandConsultants.com

STATE OF NEW HAMPSHIRE
CHAD E. BRONON
12191
LICENSED
PROFESSIONAL ENGINEER
10/13/2021

#	xxxx	xxxx	x	xxx	xxx
REV.	DATE	DESCRIPTION	C/O	DR	CK

FILE: 2392CV01.dwg | PROJ. NO. 2392.01 | SHEET: CV-1 | PAGE NO. 1 OF 9

LEGEND:

- RIGHT-OF-WAY LINE
- BOUNDARY LINE
- ABUTTING LOT LINE
- BUILDING SETBACK LINE
- EDGE OF PAVED ROAD
- EDGE OF GRAVEL ROAD
- STONE WALL
- EDGE OF TREE LINE
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- 302 2' CONTOUR INTERVAL
- WIRE FENCE
- CULVERT
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- U/G UNDERGROUND UTILITY LINE
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- D.H.(f) DRILL HOLE FOUND
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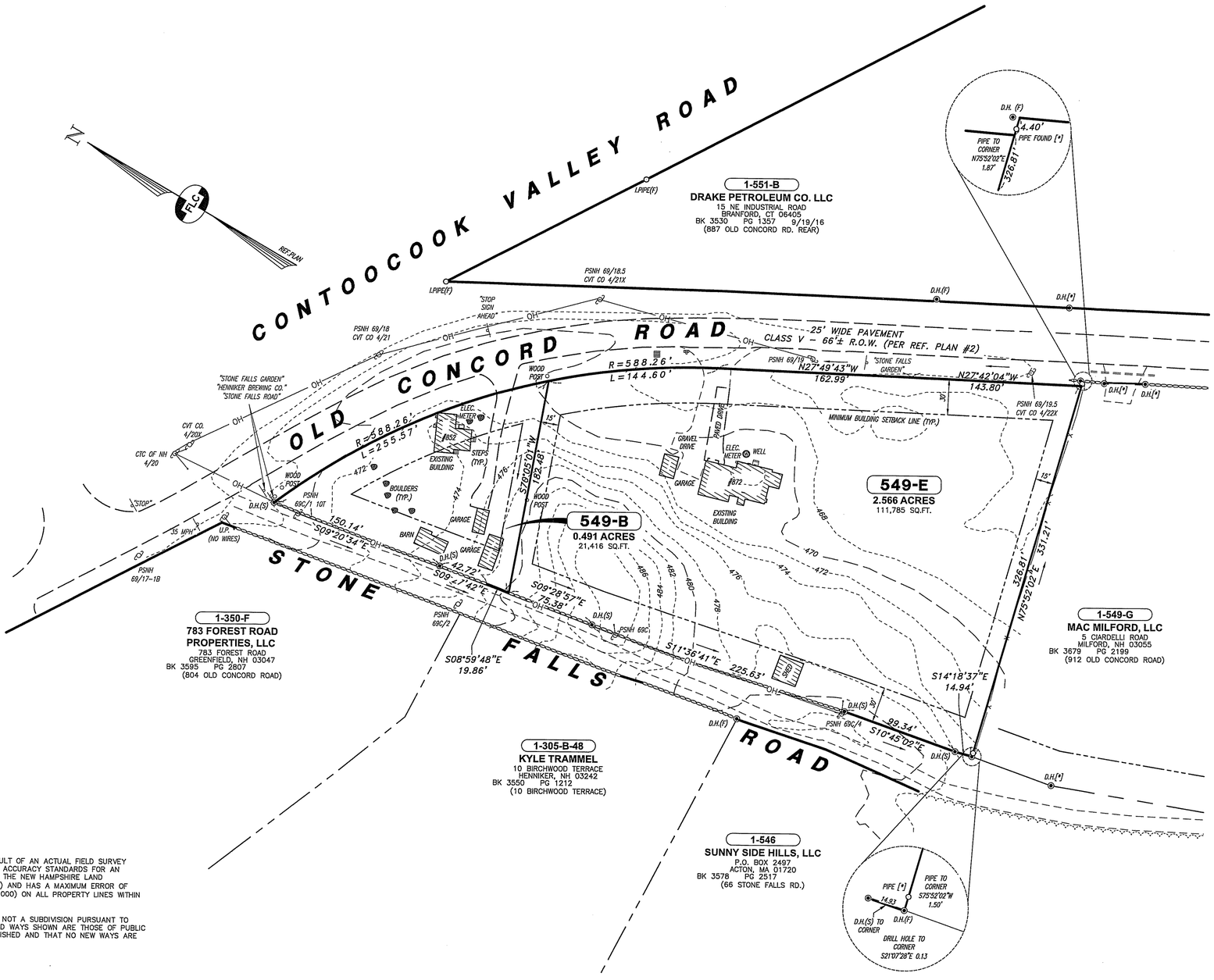
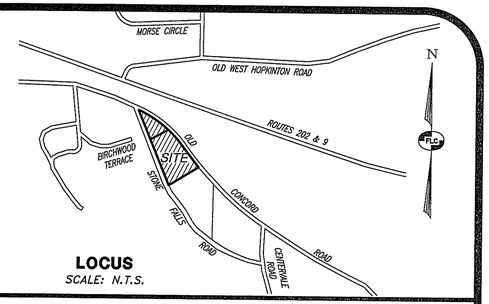
- CATCH BASIN (SQUARE)
- W WELL
- LIGHT POST
- SINGLE SIGN POST
- EXISTING BUILDING





LOCUS
SCALE: N.T.S.

NOTES:

1. THE OWNER OF RECORD FOR TAX MAP 1 LOT 549-B IS MAC MILFORD REALTY, LLC, 5 CIARDELLI CROSSING, MILFORD, NH 03055. THE DEED REFERENCE TO THE PARCEL IS BK. 3753 PG. 2703, DATED AUGUST 16, 2021 IN THE M.C.R.D.

   THE OWNER OF RECORD FOR TAX MAP 1 LOT 549-E IS MAC MILFORD REALTY, LLC, 5 CIARDELLI CROSSING, MILFORD, NH 03055. THE DEED REFERENCE TO THE PARCEL IS BK. 3753 PG. 2705, DATED AUGUST 16, 2021 IN THE M.C.R.D..
2. THE PURPOSE OF THIS PLAN IS TO DEPICT THE EXISTING CONDITIONS & BOUNDARY INFORMATION FOR TAX MAP 1 PARCELS 549-B & 549-E AS SHOWN.
3. THE TOTAL AREA OF TAX MAP PARCEL 1-549-B IS 0.491 ACRES. THE TOTAL AREA OF TAX MAP PARCEL 1-549-E IS 2.566 ACRES.
4. LOT NUMBERS REFER TO THE TOWN OF HENNIKER ASSESSORS MAP 1.
5. ZONING FOR THE PARCEL IS HEAVY COMMERCIAL (CH) ZONE.

CH ZONE	REQUIRED
MIN. LOT AREA	2 AC
MIN. LOT FRONTAGE	125 FT
MIN. FRONT SETBACK	30 FT
MIN. SIDE SETBACK	15 FT
MIN. REAR SETBACK	15 FT

6. THE HORIZONTAL ORIENTATION IS BASED ON REFERENCE PLAN #1. THE VERTICAL DATUM AND EXISTING TOPOGRAPHY SHOWN ARE BASED ON LIDAR (LIGHT DETECTION AND RANGING).
7. THE PARCEL IS NOT LOCATED IN A SPECIAL FLOOD HAZARD ZONE AS DETERMINED FROM THE FLOOD INSURANCE STUDY FIRM MAP NUMBER: 33013C0491E, DATED: APRIL 19, 2010.
8. SOIL TYPE FOR THE ENTIRE SITE IS 480B MILLSITE-WOODSTOCK-HENNIKER COMPLEX.
9. THE SITE LIES OUTSIDE THE STRATIFIED DRIFT AQUIFER PER THE "TOWN OF HENNIKER, NEW HAMPSHIRE - AQUIFER AND DRINKING WATER MAP"
10. THE LOCATION OF ANY UTILITIES SHOWN HAVE BEEN COMPILED IN PART FROM PLANS OF RECORD AND FIELD LOCATION. THE LOCATION OF UNDERGROUND UTILITIES SHOULD BE CONSIDERED APPROXIMATE AND SHOULD BE FIELD VERIFIED PRIOR TO ANY EXCAVATION OR CONSTRUCTION ACTIVITIES.

GRAPHIC SCALES
50' 25' 0 50' 100' 150'
IMPERIAL: 1"=50'

REV.	DATE	DESCRIPTION	C/O	DR	CK

EXISTING CONDITIONS PLAN
TAX MAP 1 LOT 549-B & 549-E
(852 AND 872 OLD CONCORD ROAD)
HENNIKER, NEW HAMPSHIRE

PREPARED FOR:
MAC MILFORD REALTY, LLC
5 CIARDELLI CROSSING, MILFORD, NH 03055

LAND OF:
MAC MILFORD REALTY, LLC
5 CIARDELLI CROSSING, MILFORD, NH 03055

SCALE: 1" = 50' OCTOBER 13, 2021

CERTIFICATION:

"I HEREBY CERTIFY THAT THIS PLAN IS THE RESULT OF AN ACTUAL FIELD SURVEY MADE ON THE GROUND PER THE PRECISION AND ACCURACY STANDARDS FOR AN URBAN CLASSIFICATION SURVEY AS SPECIFIED IN THE NEW HAMPSHIRE LAND SURVEYOR'S ADMINISTRATIVE RULES (LAN 503.04) AND HAS A MAXIMUM ERROR OF CLOSURE OF ONE PART IN TEN THOUSAND (1:10,000) ON ALL PROPERTY LINES WITHIN AND BORDERING THE SUBJECT PROPERTY."

"I FURTHER CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN (RSA 676:18,III)."

STATE OF NEW HAMPSHIRE No. 946 LICENSED LAND SURVEYOR
MICHAEL D. PLOOF
SIGNATURE
10/13/21

REFERENCE PLANS:

1. "PROPOSED SUBDIVISION PREPARED FOR: J AND M MORSE TRUCKING LLC - 956 OLD CONCORD ROAD - TAX MAP 1 LOT 549 - HENNIKER, NEW HAMPSHIRE" - SCALE: 1"=50' - DATED JULY 23, 2019, PREPARED BY HIGGINSON LAND SERVICES AND RECORDED IN THE M.C.R.D. AS PLAN #201900023420.
2. "LOT LINE ADJUSTMENT PLAN - MAP 1 LOT 551 & 551-B - 929 OLD CONCORD ROAD - HENNIKER, NEW HAMPSHIRE - SCALE: 1"=50' - DATED JUNE 9, 2015, PREPARED BY THE DUBAY GROUP, INC. AN RECORDED IN THE M.C.R.D. AS PLAN #201600016826.
3. "STATE OF NEW HAMPSHIRE - DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS - PLANS OF PROPOSED HOPKINTON-EVERETT RESERVOIR - TOWNS OF HENNIKER & HOPKINTON - COUNTY OF MERRIMACK" - SCALE: 1"=100' - PLAN "P-4194", PAGE 10.

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206 Elm Street, Milford, NH 03055
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www.FieldstoneLandConsultants.com

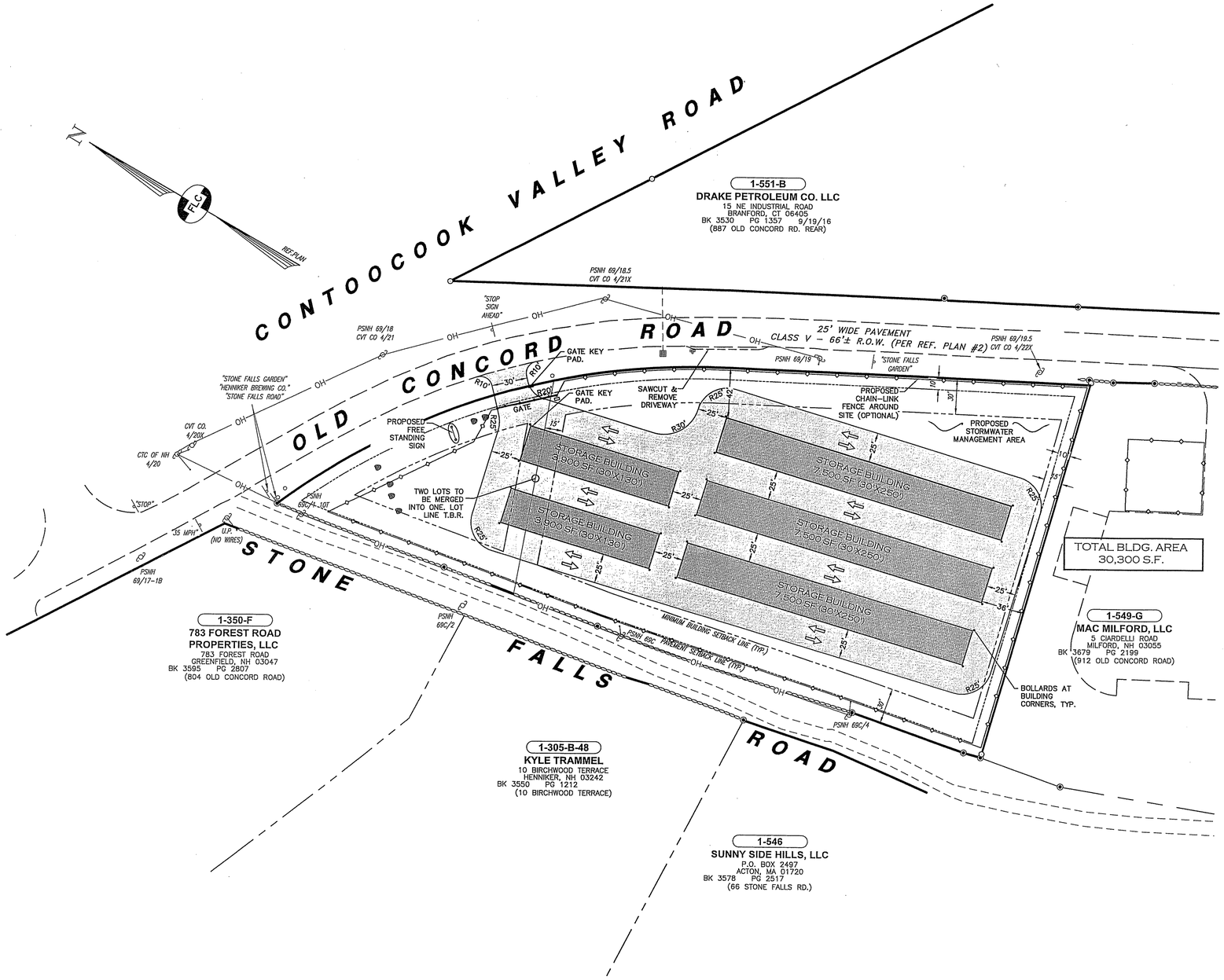
LEGEND:

EXISTING FEATURES

- RIGHT-OF-WAY LINE
- BOUNDARY LINE
- ABUTTING LOT LINE
- BUILDING SETBACK LINE
- EDGE OF PAVED ROAD
- EDGE OF GRAVEL ROAD
- STONE WALL
- EDGE OF TREE LINE
- 300 10' CONTOUR INTERVAL
- 302 2' CONTOUR INTERVAL
- WIRE FENCE
- CULVERT
- OH OVERHEAD UTILITY LINE
- U/G UNDERGROUND UTILITY LINE
- 594-E TAX MAP & LOT NUMBER
- G.B.(F) GRANITE BOUND FOUND
- D.H.(F) DRILL HOLE FOUND
- I.PIN(F) IRON PIN FOUND
- I.PIPE(F) IRON PIPE FOUND
- UTILITY POLE, GUY & LIGHT
- CATCH BASIN (SQUARE)
- WELL
- LIGHT POST
- SINGLE SIGN POST
- EXISTING BUILDING
- MAIL BOX

PROPOSED FEATURES

- 481 2 FT. CONTOUR
- 480 10 FT. CONTOUR
- EDGE OF PAVEMENT
- CAPE COD BERM
- CHAIN LINK FENCE
- UGE UNDERGROUND UTILITIES
- LIMITS OF CLEARING
- SURFACE WATER FLOW
- 297.5 SPOT ELEVATION
- 295.5 / 295.5 SPOT ELEVATION AT CURB
- STONE CHECK DAM
- SWALE
- TEMPORARY SILT FENCE
- STORM WATER DRAINAGE
- S EFFLUENT LINE
- W WATER LINE
- SIDEWALK
- EROSION CONTROL STONE
- PAVED AREA
- T.B.R. TO BE REMOVED
- SOIL BERM
- BOLLARD
- DIRECTION OF TRAVEL (NOT PAINTED)



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REFERENCE PLANS:

1. "PROPOSED SUBDIVISION PREPARED FOR: J AND M MORSE TRUCKING LLC – 956 OLD CONCORD ROAD – TAX MAP 1 LOT 549 – HENNIKER, NEW HAMPSHIRE" – SCALE: 1"=50' – DATED JULY 23, 2019, PREPARED BY HIGGINSON LAND SERVICES AND RECORDED IN THE M.C.R.D. AS PLAN #201900023420.
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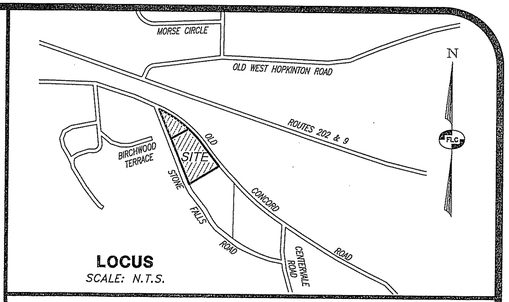

LOCUS
SCALE: N.T.S.

NOTES:

1. THE OWNERS OF RECORD FOR TAX MAP 1 LOT 549-B AND 549-E IS MAC MILFORD REALTY, LLC OF 5 CIARDELLI CROSSING, MILFORD, NH 03055.
2. THE PURPOSE OF THIS PLAN IS TO DEPICT THE PROPOSED SELF-STORAGE DEVELOPMENT ON TAX MAP 1 PARCELS 549-B & 549-E AS SHOWN. THE TWO PARCELS WILL BE MERGED CONTINGENT ON SITE PLAN APPROVAL.
3. THE TOTAL AREA OF TAX MAP PARCEL 1-549-B IS 0.491 ACRES. THE TOTAL AREA OF TAX MAP PARCEL 1-549-E IS 2.566± ACRES. AFTER MERGER = 3.057± ACRES.
4. LOT NUMBERS REFER TO THE TOWN OF HENNIKER ASSESSORS MAP 1.
5. ZONING FOR THE PARCEL IS HEAVY COMMERCIAL (CH) ZONE.

CH ZONE	REQUIRED
MIN. LOT AREA	2 AC
MIN. LOT FRONTAGE	125 FT
MIN. FRONT SETBACK	30 FT
MIN. SIDE SETBACK	15 FT
MIN. REAR SETBACK	15 FT
DRIVE & PAVEMENT	10 FT

6. THE HORIZONTAL ORIENTATION IS BASED ON REFERENCE PLAN #1. THE VERTICAL DATUM AND EXISTING TOPOGRAPHY SHOWN ARE BASED ON LIDAR (LIGHT DETECTION AND RANGING).
7. THE PARCEL IS NOT LOCATED IN A SPECIAL FLOOD HAZARD ZONE AS DETERMINED FROM THE FLOOD INSURANCE STUDY FIRM MAP NUMBER: 33013C0491E, DATED: APRIL 19, 2010.
8. SOIL TYPE FOR THE ENTIRE SITE IS 480B MILLSITE-WOODSTOCK-HENNIKER COMPLEX.
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STATE OF NEW HAMPSHIRE
CHAD E. BRANCH
12961
LICENSED PROFESSIONAL ENGINEER
10/13/2021

GRAPHIC SCALES

50' 25' 0 50' 100' 150'
IMPERIAL: 1"=50'

REV.	DATE	DESCRIPTION	C/O	DR	CK

SITE PLAN

TAX MAP 1 LOT 549-B & 549-E
(852 AND 872 OLD CONCORD ROAD)
HENNIKER, NEW HAMPSHIRE

PREPARED FOR:
MAC MILFORD REALTY, LLC
5 CIARDELLI CROSSING, MILFORD, NH 03055

LAND OF:
MAC MILFORD REALTY, LLC
5 CIARDELLI CROSSING, MILFORD, NH 03055

SCALE: 1" = 50'
OCTOBER 13, 2021

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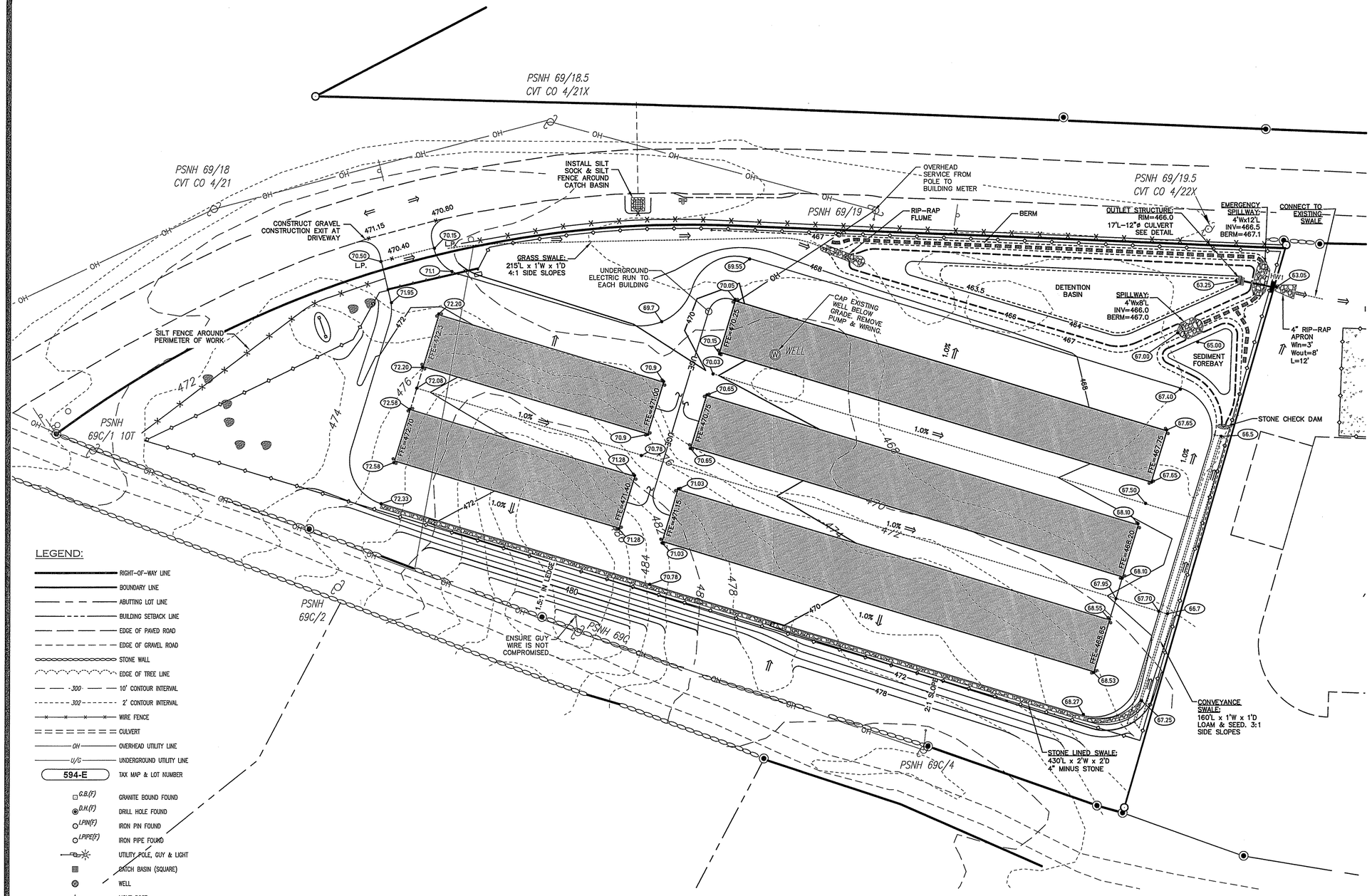

LEGEND:

- RIGHT-OF-WAY LINE
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- I.PIPE(F) IRON PIPE FOUND
- UTILITY POLE, GUY & LIGHT
- CATCH BASIN (SQUARE)
- WELL
- LIGHT POST
- SINGLE SIGN POST
- EXISTING BUILDING

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DIGSAFE.COM
OR DIAL 811
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GENERAL CONSTRUCTION NOTES:

1. ALL WORK SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS OF THE TOWN OF HENNIKER AND SHALL BE BUILT IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE TOWN OF HENNIKER DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS FOR ROAD CONSTRUCTION AND SEWERS AND DRAINS AND THE NHDOT STANDARDS FOR ROAD AND BRIDGE CONSTRUCTION APPROVED AND ADOPTED 2016 ARE HEREBY INCORPORATED BY REFERENCE.
2. SITE AND DRAINAGE CONSTRUCTION SHALL CONFORM TO THE TYPICAL SECTIONS AND DETAILS SHOWN ON THE PLANS AND THE SPECIFICATIONS NOTED ABOVE. ANY ALTERATION OF THIS DESIGN OR CHANGE DURING CONSTRUCTION MAY REQUIRE APPROVAL OF VARIOUS TOWN/CITY BOARDS OR AGENCIES AND SHALL BE DISCUSSED WITH THE OWNER AND ENGINEER PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, SIZE, AND ELEVATION OF ALL EXISTING UTILITIES SHOWN OR NOT SHOWN ON THESE PLANS AND SHALL VERIFY THAT ALL THE INFORMATION SHOWN HEREON IS CONSISTENT, COMPLETE, ACCURATE, AND CAN BE CONSTRUCTED PRIOR TO AND/OR DURING CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES, ERRORS, OMISSIONS, OR EXISTING UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION SO THAT REMEDIAL ACTION MAY BE TAKEN BEFORE PROCEEDING WITH THE WORK.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING "DIGSAFE" AT LEAST 72 HOURS PRIOR TO THE START OF CONSTRUCTION (DIGSAFE.COM OR DIAL 811).
5. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE APPROPRIATE CITY DEPARTMENTS PRIOR TO CONSTRUCTION TO ARRANGE FOR NECESSARY INSPECTIONS.
6. STUMPS, DEBRIS AND OTHER UNSUITABLE MATERIALS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PROPERLY. STUMPS MAY BE GROUND AND USED FOR EROSIOIN CONTROL ON-SITE IF DESIRED.
7. ALL DISTURBED NON-PAVED AREAS SHALL BE LOAMED AND SEEDED IMMEDIATELY UPON BEING CONSTRUCTED.

STATE OF NEW HAMPSHIRE
CHAD E. BRAKON
12197
LICENSED PROFESSIONAL ENGINEER
10/13/2021

GRAPHIC SCALES
30' 15' 0 30' 60' 90'
IMPERIAL: 1"=30'

REV.	DATE	DESCRIPTION	C/O	DR	CK

GRADING & UTILITY PLAN

TAX MAP 1 LOT 549-B & 549-E
(852 AND 872 OLD CONCORD ROAD)
HENNIKER, NEW HAMPSHIRE

PREPARED FOR:
MAC MILFORD REALTY, LLC
5 CIARDELLI CROSSING, MILFORD, NH 03055

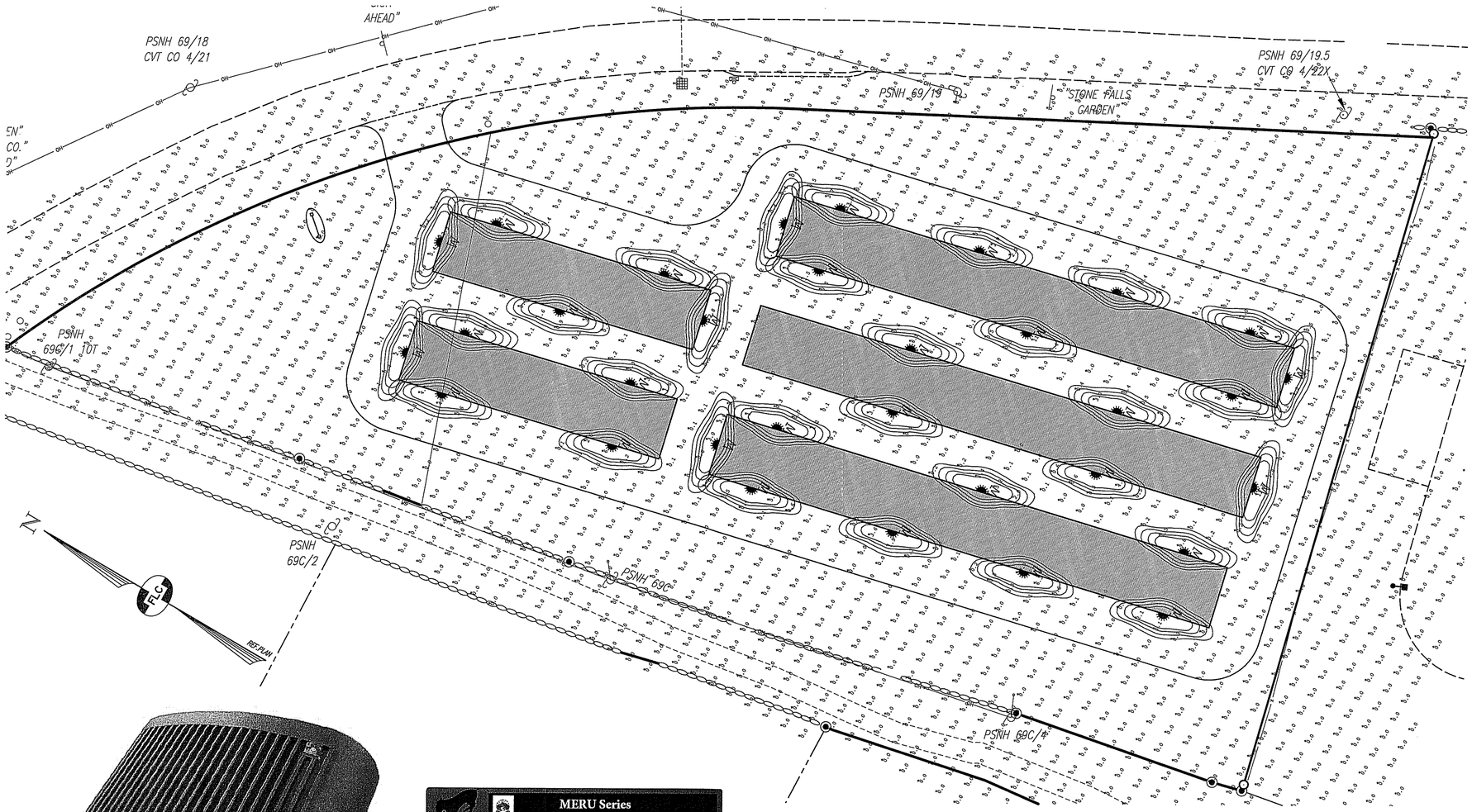
LAND OF:
MAC MILFORD REALTY, LLC
5 CIARDELLI CROSSING, MILFORD, NH 03055

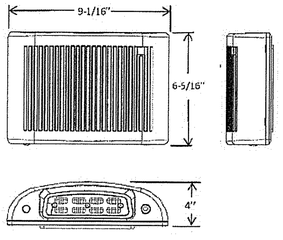
SCALE: 1" = 30' OCTOBER 13, 2021

Surveying ⌖ Engineering ⌖ Land Planning ⌖ Permitting ⌖ Septic Designs

FIELDSTONE LAND CONSULTANTS, PLLC

206 Elm Street, Milford, NH 03055
Phone: (603) 672-5456 Fax: (603) 413-5456
www.FieldstoneLandConsultants.com





W - LED WALL - PACK LIGHT

MERU Series

LED GENERAL & EMERGENCY LIGHTING

PRODUCT DESCRIPTION

The MERU Series is an architectural, low-profile outdoor light, offering "normally On" AC and emergency lighting with powerful LED illumination. The housing is fully sealed and gasketed, and has an IP65 rating. Designed for wall mounting with universal K/O pattern in back-plate for easy installation to most standard size junction boxes. Includes a single ½" NPT conduit entry in the top, center of the housing. Illumination provided by 8 high power LEDs which achieve 1,600 lumens in AC and 600 lumens in emergency. LED color at 4000K.

PRODUCT SPECIFICATIONS

CONSTRUCTION

Die cast aluminum housing with superior heat sink • Scratch resistant Polyester powder coat finish • UV resistant polycarbonate lens • Snap-fit housing and mounting plate are held together by four stainless steel clips • Universal mounting pattern molded into the back plate • 1/2" threaded top access for surface conduit installation • Silicone rubber seal with hollow center, shape adaptive design protects the electrical components • Junction box neoprene seal is attached to the back plate for a weather proof installation • Dark Bronze or White textured finish.

ELECTRICAL

Dual voltage 120/277VAC 60Hz input • Solid state charging and switching • Battery low voltage disconnect • AC power indicator and test switch at the bottom of the unit • Standard with Self Diagnostics to monitor proper operation.

LAMPS

Supplied with eight (8) LG SMD 4000K LED'S • L70 > 72,000hours • 17 Watts total (32 Watts with IH option) • 1600 Lumens in AC mode, 600 Lumens in Emergency mode • Full cut-off optics for Dark Sky compliance

DESIGN NOTES:

1. ALL LIGHTING SHALL BE ARRANGED TO DEFLECT LIGHT AWAY FROM ANY ADJOINING PROPERTIES OR PUBLIC STREETS.
2. ALL LIGHTING SHALL BE FULL CUTOFF FIXTURES AT AN ANGLE OF 75° FROM HORIZONTAL.
3. LIGHT SHALL NOT EXCEED 1.0 Fc INTO THE PUBLIC STREET, AS MEASURED AT THE CENTERLINE OF THE STREET.
4. LIGHT SHALL NOT EXCEED 0.1 Fc INTO ABUTTING, RESIDENTIAL LOTS WHEN MEASURED AT THE PROPERTY LINE.
5. THE PROPOSED WALL-PACK LIGHTS ARE ALL ON INDIVIDUAL MOTION SENSORS TO REDUCE LIGHTING TIMES AND CONSERVE ENERGY. BUILT IN PHOTOCELS WILL ENSURE LIGHTS TURN OFF DURING DAYLIGHT HOURS.
6. FIXTURES ARE TO BE MOUNTED 8 FEET HIGH ON SIDE OF BUILDINGS.

StatArea_1

Illuminance (Fc)
Average = 0.77
Maximum = 14.3
Minimum = 0.0
Avg/Min Ratio = N.A.
Max/Min Ratio = N.A.

Luminaire Schedule

Symbol	Qty	Label	Arrangement	Description
	32	W	Single	MERU-LED-AC-DB-PIR / WALL MTD 8' AFG

STATE OF NEW HAMPSHIRE
CHAD E. BRANON
12187
LICENSED PROFESSIONAL ENGINEER
10/13/2021

GRAPHIC SCALES

30' 15' 0 30' 60' 90'

IMPERIAL: 1"=30'

REV.	DATE	DESCRIPTION	C/O	DR	CK

LIGHTING PLAN

TAX MAP 1 LOT 549-B & 549-E
(852 AND 872 OLD CONCORD ROAD)
HENNIKER, NEW HAMPSHIRE

PREPARED FOR:

MAC MILFORD REALTY, LLC
5 CIARDELLI CROSSING, MILFORD, NH 03055

LAND OF:

MAC MILFORD REALTY, LLC
5 CIARDELLI CROSSING, MILFORD, NH 03055

SCALE: 1" = 30'

OCTOBER 13, 2021

CONTACT DIG SAFE
72 HOURS PRIOR
TO CONSTRUCTION
DIGSAFE.COM
OR DIAL 811
IT'S SMART, IT'S FREE, IT'S THE LAW

811 DigSafe MA-ME-NH-RI-VT

Surveying ⌖ Engineering ⌖ Land Planning ⌖ Permitting ⌖ Septic Designs

W E

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LAND CONSULTANTS, PLLC

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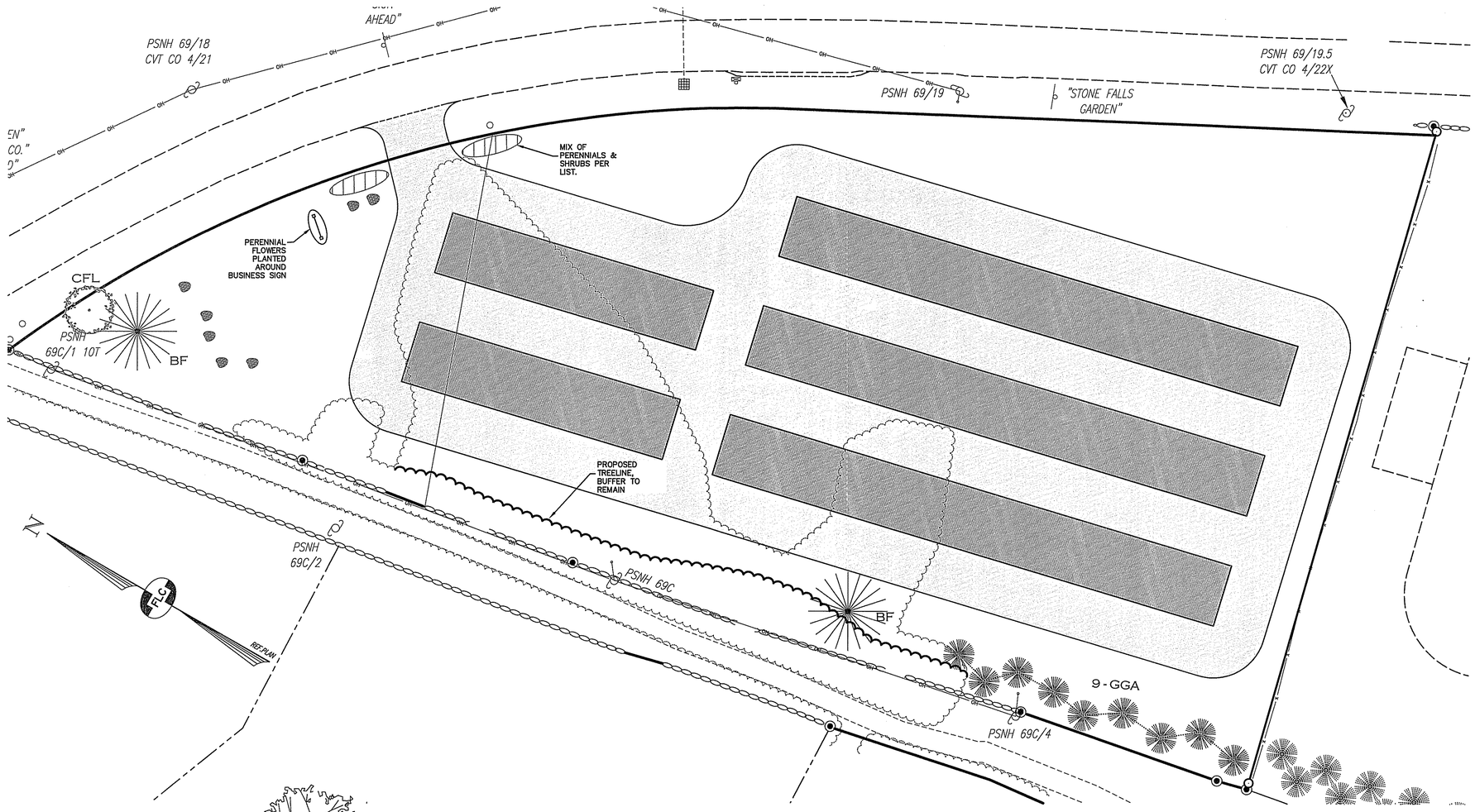
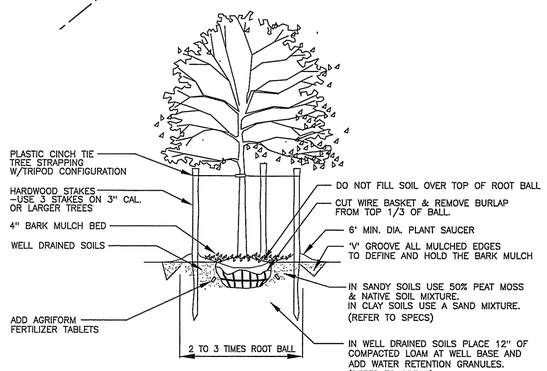
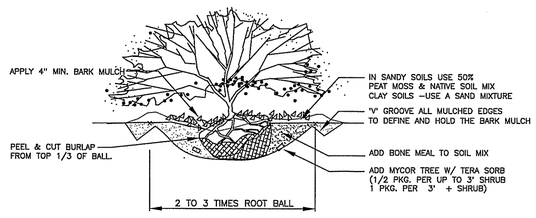


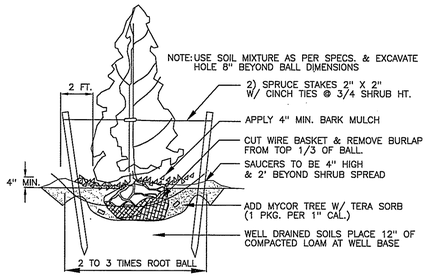


NOTES:
ALL PYRAMIDAL EVERGREENS & DECIDUOUS TREES SHALL BE PLANTED W/ ROOTS HORMONE ENHANCER.
DO NOT INSTALL BEEHIVE MULCH BEDS AROUND ANY OF THE PLANT MATERIAL.

DECIDUOUS TREE PLANTING DETAIL
SCALE: N.T.S.



B & B SHRUB PLANTING DETAIL
SCALE: N.T.S.



NOTE: ALL PYRAMIDAL EVERGREENS & DECIDUOUS TREES SHALL BE PLANTED W/ MYCOR TREE TRANSPLANT.

EVERGREEN TREE PLANTING DETAIL
SCALE: N.T.S.

CONTACT DIG SAFE
72 HOURS PRIOR
TO CONSTRUCTION
DIGSAFE.COM
OR DIAL 8 1 1
IT'S SMART, IT'S FREE, IT'S THE LAW
811 Dig Safe MA ME NH RI VT

LANDSCAPING LEGEND:

CFL	CORNUS FLORIDA PINK DOGWOOD TREE 2-1/2" CAL / 6 FEET WHEN PLANTED	QTY. 1
GGA	GREEN GIANT ARBORVITAE / 6' HT.	QTY. 9
BF	BALSAM FIR	QTY. 2
	AREA TO BE LANDSCAPED WITH A BLEND OF NATIVE SPECIES CONSISTING OF THE FOLLOWING: – PJM RHODODENRON (OR EQUAL) – TAXUS (DENSE YEW – 'DENSIFORMUS') OR EQUAL – JUNIPERUS CHINESIS, 3 GAL. (GREY OWL JUNIPER) – VIBURNUM P.T.; 18"–24" B&B (SUMMER SNOWFLAKE VIBERNUM) OR EQUAL – SYRINGA PATIULA.; 18"–24" B&B (MISS KIM LILAC) OR EQUAL – PERENNIALS: DAYLILY'S, YARROW, CONEFLOWER, SAGE, COREOPSIS AND SEDUM. (AS AVAILABLE)	

LANDSCAPING NOTES:

1. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR CONTACTING DIG–SAFE AND FOR VERIFICATION OF ALL UTILITIES AND SHALL NOTIFY THE OWNERS REPRESENTATIVE OF ANY CONFLICTS PRIOR TO COMMENCING.
2. EXISTING TREES TO REMAIN SHALL BE PRESERVED AND PROTECTED DURING CONSTRUCTION.
3. UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED WITHIN THE IMMEDIATE AREA NO PLANT MATERIAL SHALL BE INSTALLED.
4. UNLESS OTHERWISE NOTED OR APPROVED, ALL TREES MUST BE BALLED AND BURLAPPED.
5. ALL PLANT MATERIALS INSTALLED SHALL MEET OR EXCEED THE SPECIFICATIONS OF "THE AMERICAN STANDARDS FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
6. ANY PROPOSED PLANT MATERIAL SUBSTITUTIONS MUST BE APPROVED BY THE OWNER'S REPRESENTATIVE.
7. ALL PLANT MATERIAL SHALL BE GUARANTEED BY THE INSTALLER FOR ONE YEAR FOLLOWING DATE OF ACCEPTANCE.
8. IN AREAS OF STONE MULCH LAY 6 MIL SHEETS OF "VISQUEEN" TYPE POLYETHYLENE ON COMPACTED SUBGRADE BEFORE PLACING STONE, MINIMUM 6" OVERLAP. PERFORATE SHEETING IN PLANTING BEDS BEFORE PLACING STONE.
9. UNLESS OTHERWISE NOTED LOAM AND SEED ALL DISTURBED ARES WITH A MINIMUM 6" OF SUITABLE LOAM. SLOPES GREATER THAN 3:1 SHALL BE PROTECTED WITH AN EROSION CONTROL BLANKET. SEE SITE PLAN.
10. WHERE APPLICABLE, THE CONTRACTOR SHALL HAVE ALL FALL TRANSPLANTING HAZARD PLANTS DUG IN THE SPRING AND STORED FOR FALL PLANTING.
11. PLANTS SHALL BE INSTALLED WITHIN ONE YEAR OF COMMENCEMENT OF CONSTRUCTION
12. ALL LANDSCAPING SHALL BE LOCATED AND MAINTAINED SO AS NOT TO IMPACT THE LINES OF SIGHT AT ENTRANCE.
13. ALL LANDSCAPED AREAS WILL BE MAINTAINED TO HAVE A SUFFICIENT AMOUNT OF WATER TO MAINTAIN VIABILITY EITHER BY IRRIGATION OR BY OTHER MEANS.

GRAPHIC SCALES
30' 15' 0 30' 60' 90'
IMPERIAL: 1"=30'

REV.	DATE	DESCRIPTION	C/O	DR	CK

LANDSCAPING PLAN
TAX MAP 1 LOT 549-B & 549-E
(852 AND 872 OLD CONCORD ROAD)
HENNIKER, NEW HAMPSHIRE

PREPARED FOR:
MAC MILFORD REALTY, LLC
5 CIARDELLI CROSSING, MILFORD, NH 03055
LAND OF:
MAC MILFORD REALTY, LLC
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SCALE: 1" = 30' OCTOBER 13, 2021

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LAND CONSULTANTS, PLLC
206 Elm Street, Milford, NH 03055
Phone: (603) 672-5456 Fax: (603) 413-5456
www.FieldstoneLandConsultants.com

1. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE REQUIREMENTS AND SPECIFICATIONS OF THE TOWN OF HENNIKER

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, SIZE, AND ELEVATION OF ALL EXISTING UTILITIES SHOWN OR NOT SHOWN ON THESE PLANS AND SHALL VERIFY THAT ALL THE INFORMATION SHOWN HEREON IS CONSISTENT, COMPLETE, ACCURATE, AND CAN BE CONSTRUCTED PRIOR TO AND/OR DURING CONSTRUCTION. FIELDSTONE LAND CONSULTANTS, PLLC, AS THE DESIGN ENGINEER, SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES, ERRORS, OMISSIONS, OR EXISTING UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION SO THAT REMEDIAL ACTION MAY BE TAKEN BEFORE PROCEEDING WITH THE WORK.

3. THE CONTRACTOR SHALL CONTACT "DIGSAFE" 72 HOURS PRIOR TO THE START OF CONSTRUCTION (811).

4. COMPLIANCE WITH ALL APPLICABLE REGULATIONS AND SPECIAL CONDITIONS OF TOWN/CITY AGENCIES, SUCH AS THE PLANNING BOARD, ZONING BOARD, CONSERVATION COMMISSION, AND OTHERS, IS MANDATORY AND IS THE RESPONSIBILITY OF THE OWNER.

5. ANY ALTERATION OF THIS DESIGN OR CHANGE DURING CONSTRUCTION MAY REQUIRE APPROVAL OF VARIOUS TOWN/CITY BOARDS OR AGENCIES AND SHALL BE DISCUSSED WITH THE OWNER AND FIELDSTONE LAND CONSULTANTS, PLLC PRIOR TO CONSTRUCTION.

6. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE APPROPRIATE TOWN DEPARTMENTS PRIOR TO CONSTRUCTION TO ARRANGE FOR NECESSARY INSPECTIONS.

7. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCURATE AS-BUILT INFORMATION OF ALL WORK, ESPECIALLY UNDERGROUND CONSTRUCTION OF UTILITY LINES, SERVICES, CONNECTIONS, ETC. AND APPROPRIATE TIES TO ABOVE GROUND PERMANENT STRUCTURES, FIELD SURVEY COORDINATES, OR SOME OTHER METHOD OF ESTABLISHING THE AS-BUILT CONDITION OF ALL CONSTRUCTION.

GENERAL CONSTRUCTION NOTES — 1 / DT - 1

1. [IF MORE THAN 5000 CUBIC YARDS ARE BLASTED] IDENTIFY DRINKING WATER WELLS LOCATED WITHIN 2000 FEET OF THE PROPOSED BLASTING ACTIVITIES. DEVELOP A GROUNDWATER QUALITY SAMPLING PROGRAM TO MONITOR FOR NITRATE AND NITRITE EITHER IN THE DRINKING WATER SUPPLY WELLS OR IN OTHER WELLS THAT ARE REPRESENTATIVE OF THE DRINKING WATER SUPPLY WELLS IN THE AREA. THE PLAN MUST INCLUDE PRE AND POST BLAST WATER QUALITY MONITORING AND BE APPROVED BY NHDES PRIOR TO INITIATING BLASTING. THE GROUNDWATER SAMPLING PROGRAM MUST BE IMPLEMENTED ONCE APPROVED BY NHDES.

2. [APPLIES TO ALL BLASTING] THE FOLLOWING BEST MANAGEMENT PROCEDURES FOR BLASTING SHALL BE COMPLIED WITH:

(1) LOADING PRACTICES. THE FOLLOWING BLASTHOLE LOADING PRACTICES TO MINIMIZE ENVIRONMENTAL EFFECTS SHALL BE FOLLOWED:

(A) DRILLING LOGS SHALL BE MAINTAINED BY THE DRILLER AND COMMUNICATED DIRECTLY TO THE BLASTER. THE LOGS SHALL INDICATE DEPTHS AND LENGTHS OF VOIDS, CAVITIES, AND FAULT ZONES OR OTHER WEAK ZONES ENCOUNTERED AS WELL AS GROUNDWATER CONDITIONS.

(B) EXPLOSIVE PRODUCTS SHALL BE MANAGED ON-SITE SO THAT THEY ARE EITHER USED IN THE BOREHOLE, RETURNED TO THE DELIVERY VEHICLE, OR PLACED IN SECURE CONTAINERS FOR OFF-SITE DISPOSAL.

(C) SPILLAGE AROUND THE BOREHOLE SHALL EITHER BE PLACED IN THE BOREHOLE OR CLEANED UP AND RETURNED TO AN APPROPRIATE VEHICLE FOR HANDLING OR PLACEMENT IN SECURED CONTAINERS FOR OFF-SITE DISPOSAL.

(D) LOADED EXPLOSIVES SHALL BE DETONATED AS SOON AS POSSIBLE AND SHALL NOT BE LEFT IN THE BLASTHOLES OVERNIGHT, UNLESS WEATHER OR OTHER SAFETY CONCERNS REASONABLY DICTATE THAT DETONATION SHOULD BE POSTPONED.

(E) LOADING EQUIPMENT SHALL BE CLEANED IN AN AREA WHERE WASTEWATER CAN BE PROPERLY CONTAINED AND HANDLED IN A MANNER THAT PREVENTS RELEASE OF CONTAMINANTS TO THE ENVIRONMENT.

(F) EXPLOSIVES SHALL BE LOADED TO MAINTAIN GOOD CONTINUITY IN THE COLUMN LOAD TO PROMOTE COMPLETE DETONATION. INDUSTRY ACCEPTED LOADING PRACTICES FOR PRIMING, STEMMING, DECKING AND COLUMN RISE NEED TO BE ATTENDED TO.

(2) EXPLOSIVE SELECTION. THE FOLLOWING BMPS SHALL BE FOLLOWED TO REDUCE THE POTENTIAL FOR GROUNDWATER CONTAMINATION WHEN EXPLOSIVES ARE USED:

(A) EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT ARE APPROPRIATE FOR SITE CONDITIONS AND SAFE BLAST EXECUTION.

(B) EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT HAVE THE APPROPRIATE WATER RESISTANCE FOR THE SITE CONDITIONS PRESENT TO MINIMIZE THE POTENTIAL FOR HAZARDOUS EFFECT OF THE PRODUCT UPON GROUNDWATER.

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

(4) MUCK PILE MANAGEMENT. MUCK PILES (THE BLASTED PIECES OF ROCK) AND ROCK PILES SHALL BE MANAGED IN A MANNER TO REDUCE THE POTENTIAL FOR CONTAMINATION BY IMPLEMENTING THE FOLLOWING MEASURES:

(A) REMOVE THE MUCK PILE FROM THE BLAST AREA AS SOON AS REASONABLY POSSIBLE.

(B) MANAGE THE INTERACTION OF BLASTED ROCK PILES AND STORMWATER TO PREVENT CONTAMINATION OF WATER SUPPLY WELLS OR SURFACE WATER.

(5) SPILL PREVENTION MEASURES AND SPILL MITIGATION. SPILL PREVENTION AND SPILL MITIGATION MEASURES SHALL BE IMPLEMENTED TO PREVENT THE RELEASE OF FUEL AND OTHER RELATED SUBSTANCES TO THE ENVIRONMENT. THE MEASURES SHALL INCLUDE AT A MINIMUM:

(A) THE FUEL STORAGE REQUIREMENTS SHALL INCLUDE:

1. STORAGE OF REGULATED SUBSTANCES ON AN IMPERVIOUS SURFACE;
2. SECURE STORAGE AREAS AGAINST UNAUTHORIZED ENTRY;
3. LABEL REGULATED CONTAINERS CLEARLY AND VISIBLY;
4. INSPECT STORAGE AREAS WEEKLY;
5. COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS;
6. WHEREVER POSSIBLE, KEEP REGULATED CONTAINERS THAT ARE STORED OUTSIDE MORE THAN 50 FEET FROM SURFACE WATER AND STORM DRAINS, 75 FEET FROM PRIVATE WELLS, AND 400 FEET FROM PUBLIC WELLS; AND
7. SECONDARY CONTAINMENT IS REQUIRED FOR CONTAINERS CONTAINING REGULATED SUBSTANCES STORED OUTSIDE, EXCEPT FOR ON PREMISE USE HEATING FUEL TANKS, OR ABOVEGROUND OR UNDERGROUND STORAGE TANKS OTHERWISE REGULATED.

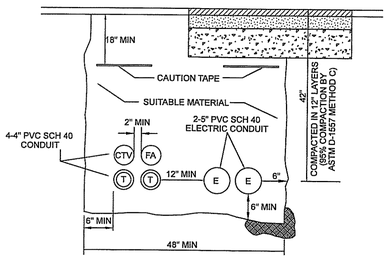
(B) THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:

1. EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED;
2. PLACE DRIP PANS UNDER SPIGOTS, VALVES, AND PUMPS;
3. HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK AREAS;
4. USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES; AND
5. PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.

(C) THE TRAINING OF ON-SITE EMPLOYEES AND THE ON-SITE POSTING OF RELEASE RESPONSE INFORMATION DESCRIBING WHAT TO DO IN THE EVENT OF A SPILL OF REGULATED SUBSTANCES.

(D) FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT WILL COMPLY WITH THE REGULATIONS OF THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NOTE THESE REQUIREMENTS ARE SUMMARIZED IN WD-DWGB-22-6 BEST MANAGEMENT PRACTICES FOR FUELING AND MAINTENANCE OF EXCAVATION AND EARTHMOVING EQUIPMENT" OR ITS SUCCESSOR DOCUMENT. (SEE HTTP://DES.NH.GOV/ORGANIZATION/COMMISSIONER/PIP/FACTSHEETS/DWGB/DOCUMENTS/DWGB-22-6.PDF

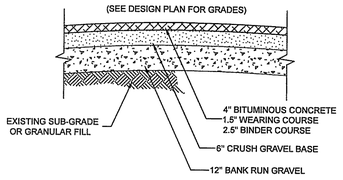
BLASTING NOTES — 2 / DT - 1



NOTE:
ALL CONDUIT AND TRENCH WORK SHALL CONFORM TO THEIR RESPECTIVE UTILITY COMPANY REQUIREMENTS

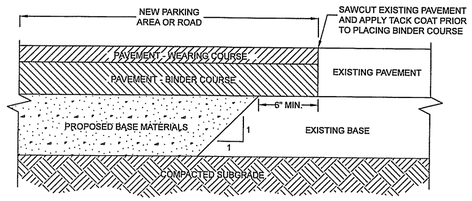
SCALE: N.T.S.

TYPICAL UTILITY TRENCH — 3 / DT - 1



NOTE: PAVEMENT SECTION MATERIALS SHALL CONFORM TO CURRENT N.H.D.O.T. SPECIFICATIONS FOR BITUMINOUS CONCRETE PAVEMENT AND SUBGRADE.

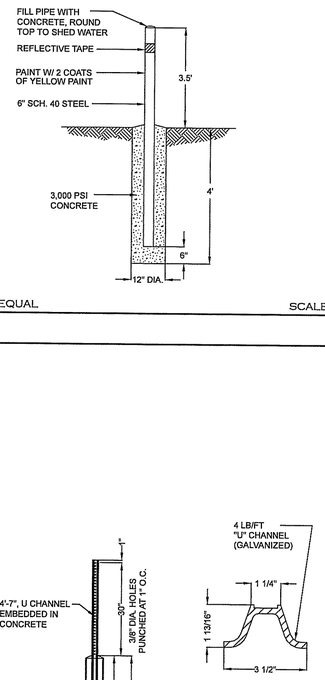
PAVED AREAS/INTERIOR AISLE SECTION — 4 / DT - 1



NOTE:
1. SEE ROADWAY OR PARKING LOT SECTION FOR MATERIALS AND ASSOCIATED DEPTHS.
2. INFRARED JOINT AFTER PLACING PAVEMENT.

SCALE: N.T.S.

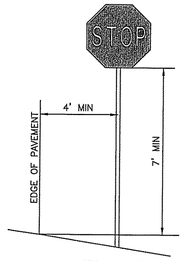
PAVEMENT MATCH - AT ROADWAY — 5 / DT - 1



OR APPROVED EQUAL

SCALE: N.T.S.

BOLLARD — 6 / DT - 1



STOP SIGN LOCATION

R1—1
30" X 30"

NOTES:

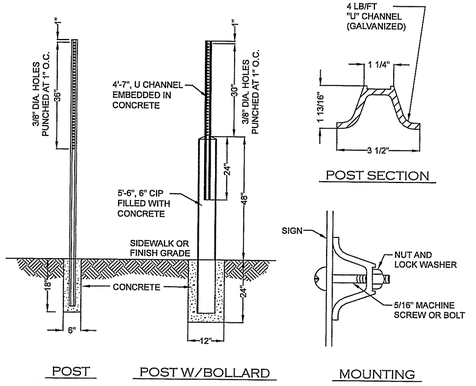
1. ALL SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE LATEST "NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD).

2. THE CONTRACTOR IS RESPONSIBLE FOR THE LAYOUT OF ALL SIGNAGE AND PAVEMENT MARKINGS.

3. ALL APPROPRIATE SIGNAGE SHALL BE INSTALLED PRIOR TO ROAD ACCEPTANCE.

SCALE: N.T.S.

TRAFFIC SIGNS - ON SITE — 8 / DT - 1



POST | POST W/BOLLARD | POST SECTION | MOUNTING

SIGN POST - STANDARD & W/BOLLARD — 7 / DT - 1

REV.	DATE	DESCRIPTION	C/O	DR	CK
–	–	–	–	–	–

CONSTRUCTION DETAILS
TAX MAP 115 LOT 549-B & 549-E
(852 & 872 OLD CONCORD ROAD)
HENNIKER, NEW HAMPSHIRE
PREPARED FOR:
MAC MILFORD REALTY, LLC
5 CIARDELLI CROSSING, MILFORD, NH 03055

SCALE: N.T.S. OCTOBER 13, 2021

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1. [IF MORE THAN 5000 CUBIC YARDS ARE BLASTED] IDENTIFY DRINKING WATER WELLS LOCATED WITHIN 2000 FEET OF THE PROPOSED BLASTING ACTIVITIES. DEVELOP A GROUNDWATER QUALITY SAMPLING PROGRAM TO MONITOR FOR NITRATE AND NITRITE EITHER IN THE DRINKING WATER SUPPLY WELLS OR IN OTHER WELLS THAT ARE REPRESENTATIVE OF THE DRINKING WATER SUPPLY WELLS IN THE AREA. THE PLAN MUST INCLUDE PRE AND POST BLAST WATER QUALITY MONITORING AND BE APPROVED BY NHDES PRIOR TO INITIATING BLASTING. THE GROUNDWATER SAMPLING PROGRAM MUST BE IMPLEMENTED ONCE APPROVED BY NHDES.

2. [APPLIES TO ALL BLASTING] THE FOLLOWING BEST MANAGEMENT PROCEDURES FOR BLASTING SHALL BE COMPLIED WITH:

(1) LOADING PRACTICES. THE FOLLOWING BLASTHOLE LOADING PRACTICES TO MINIMIZE ENVIRONMENTAL EFFECTS SHALL BE FOLLOWED:

(A) DRILLING LOGS SHALL BE MAINTAINED BY THE DRILLER AND COMMUNICATED DIRECTLY TO THE BLASTER. THE LOGS SHALL INDICATE DEPTHS AND LENGTHS OF VOIDS, CAVITIES, AND FAULT ZONES OR OTHER WEAK ZONES ENCOUNTERED AS WELL AS GROUNDWATER CONDITIONS.

(B) EXPLOSIVE PRODUCTS SHALL BE MANAGED ON-SITE SO THAT THEY ARE EITHER USED IN THE BOREHOLE, RETURNED TO THE DELIVERY VEHICLE, OR PLACED IN SECURE CONTAINERS FOR OFF-SITE DISPOSAL.

(C) SPILLAGE AROUND THE BOREHOLE SHALL EITHER BE PLACED IN THE BOREHOLE OR CLEANED UP AND RETURNED TO AN APPROPRIATE VEHICLE FOR HANDLING OR PLACEMENT IN SECURED CONTAINERS FOR OFF-SITE DISPOSAL.

(D) LOADED EXPLOSIVES SHALL BE DETONATED AS SOON AS POSSIBLE AND SHALL NOT BE LEFT IN THE BLASTHOLES OVERNIGHT, UNLESS WEATHER OR OTHER SAFETY CONCERNS REASONABLY DICTATE THAT DETONATION SHOULD BE POSTPONED.

(E) LOADING EQUIPMENT SHALL BE CLEANED IN AN AREA WHERE WASTEWATER CAN BE PROPERLY CONTAINED AND HANDLED IN A MANNER THAT PREVENTS RELEASE OF CONTAMINANTS TO THE ENVIRONMENT.

(F) EXPLOSIVES SHALL BE LOADED TO MAINTAIN GOOD CONTINUITY IN THE COLUMN LOAD TO PROMOTE COMPLETE DETONATION. INDUSTRY ACCEPTED LOADING PRACTICES FOR PRIMING, STEMMING, DECKING AND COLUMN RISE NEED TO BE ATTENDED TO.

(2) EXPLOSIVE SELECTION. THE FOLLOWING BMPS SHALL BE FOLLOWED TO REDUCE THE POTENTIAL FOR GROUNDWATER CONTAMINATION WHEN EXPLOSIVES ARE USED:

(A) EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT ARE APPROPRIATE FOR SITE CONDITIONS AND SAFE BLAST EXECUTION.

(B) EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT HAVE THE APPROPRIATE WATER RESISTANCE FOR THE SITE CONDITIONS PRESENT TO MINIMIZE THE POTENTIAL FOR HAZARDOUS EFFECT OF THE PRODUCT UPON GROUNDWATER.

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

(4) MUCK PILE MANAGEMENT. MUCK PILES (THE BLASTED PIECES OF ROCK) AND ROCK PILES SHALL BE MANAGED IN A MANNER TO REDUCE THE POTENTIAL FOR CONTAMINATION BY IMPLEMENTING THE FOLLOWING MEASURES:

(A) REMOVE THE MUCK PILE FROM THE BLAST AREA AS SOON AS REASONABLY POSSIBLE.

(B) MANAGE THE INTERACTION OF BLASTED ROCK PILES AND STORMWATER TO PREVENT CONTAMINATION OF WATER SUPPLY WELLS OR SURFACE WATER.

(5) SPILL PREVENTION MEASURES AND SPILL MITIGATION. SPILL PREVENTION AND SPILL MITIGATION MEASURES SHALL BE IMPLEMENTED TO PREVENT THE RELEASE OF FUEL AND OTHER RELATED SUBSTANCES TO THE ENVIRONMENT. THE MEASURES SHALL INCLUDE AT A MINIMUM:

(A) THE FUEL STORAGE REQUIREMENTS SHALL INCLUDE:

1. STORAGE OF REGULATED SUBSTANCES ON AN IMPERVIOUS SURFACE;
2. SECURE STORAGE AREAS AGAINST UNAUTHORIZED ENTRY;
3. LABEL REGULATED CONTAINERS CLEARLY AND VISIBLY;
4. INSPECT STORAGE AREAS WEEKLY;
5. COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS;
6. WHEREVER POSSIBLE, KEEP REGULATED CONTAINERS THAT ARE STORED OUTSIDE MORE THAN 50 FEET FROM SURFACE WATER AND STORM DRAINS, 75 FEET FROM PRIVATE WELLS, AND 400 FEET FROM PUBLIC WELLS; AND
7. SECONDARY CONTAINMENT IS REQUIRED FOR CONTAINERS CONTAINING REGULATED SUBSTANCES STORED OUTSIDE, EXCEPT FOR ON PREMISE USE HEATING FUEL TANKS, OR ABOVEGROUND OR UNDERGROUND STORAGE TANKS OTHERWISE REGULATED.

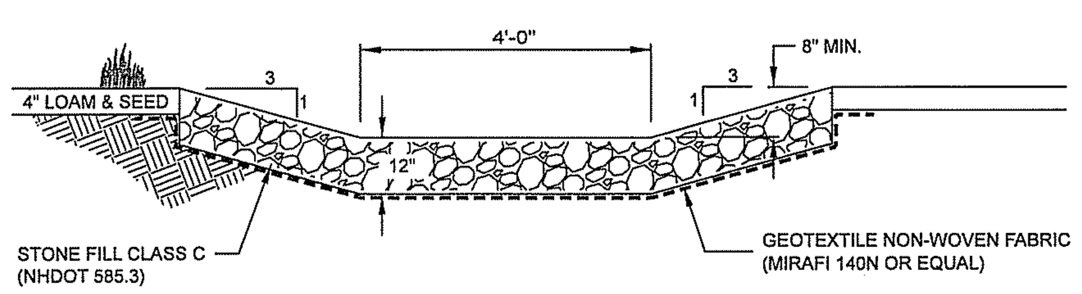
(B) THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:

1. EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED;
2. PLACE DRIP PANS UNDER SPIGOTS, VALVES, AND PUMPS;
3. HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK AREAS;
4. USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES; AND
5. PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.

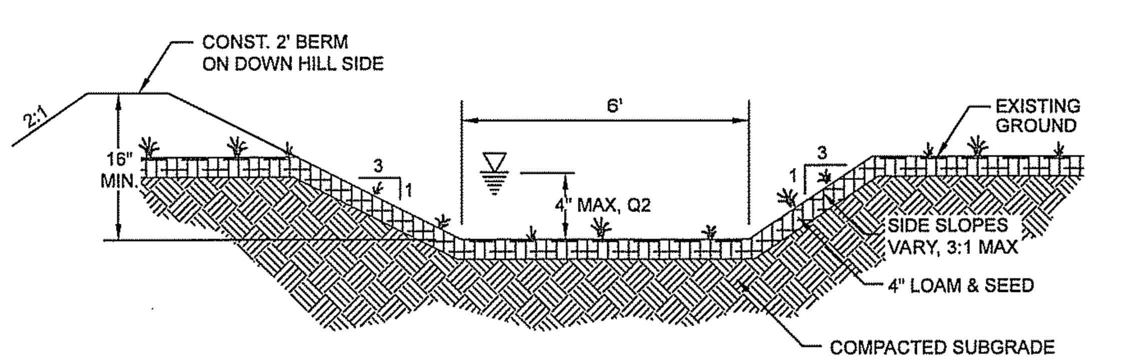
(C) THE TRAINING OF ON-SITE EMPLOYEES AND THE ON-SITE POSTING OF RELEASE RESPONSE INFORMATION DESCRIBING WHAT TO DO IN THE EVENT OF A SPILL OF REGULATED SUBSTANCES.

(D) FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT WILL COMPLY WITH THE REGULATIONS OF THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES [NOTE THESE REQUIREMENTS ARE SUMMARIZED IN WD-DWGB-22-6 BEST MANAGEMENT PRACTICES FOR FUELING AND MAINTENANCE OF EXCAVATION AND EARTHMOVING EQUIPMENT" OR ITS SUCCESSOR DOCUMENT. (SEE HTTP://DES.NH.GOV/ORGANIZATION/COMMISSIONER/PIP/FACTSHEETS/DWGB/DOCUMENTS/DWGB-22-6.PDF

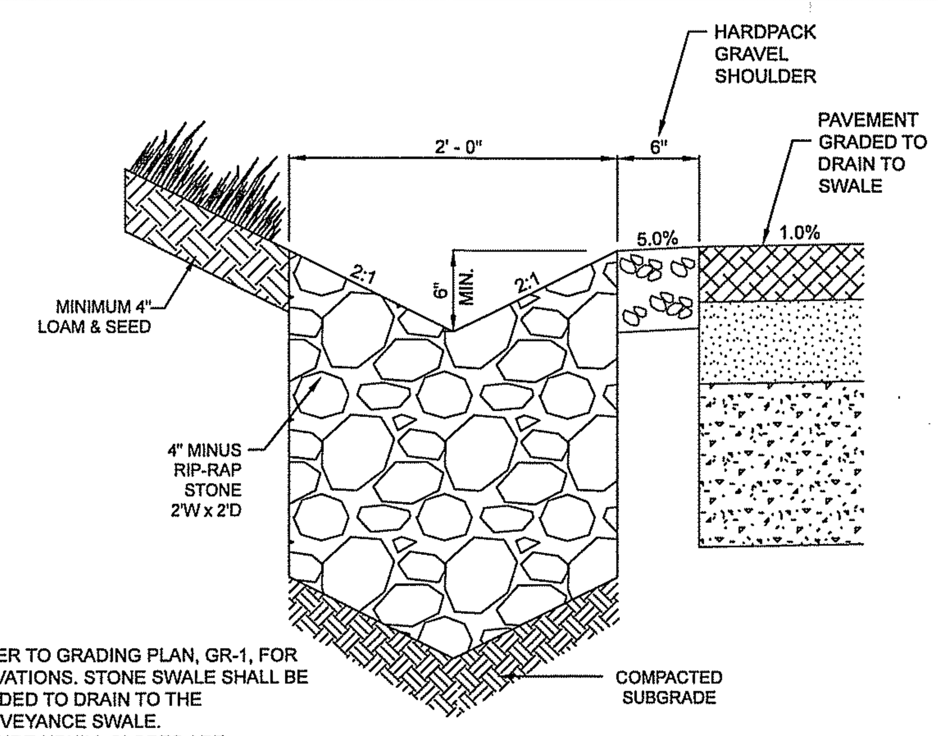
BLASTING NOTES — 1 / DT-2



RIP RAP SPILLWAY - SEDIMENT FOREBAY — 2 / DT-2

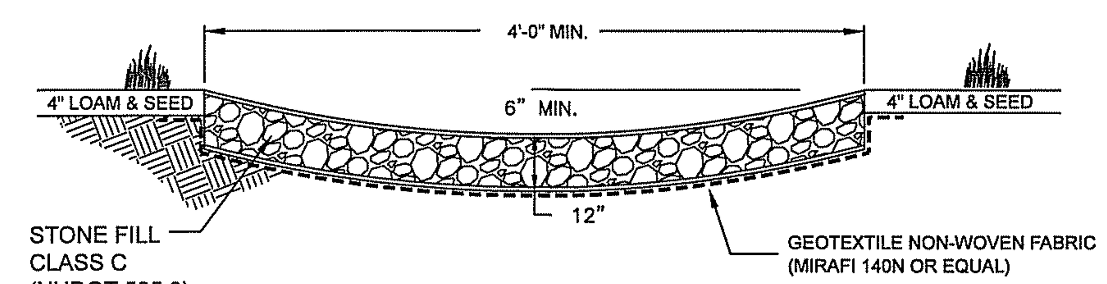


GRASS TREATMENT SWALE — 3 / DT-2

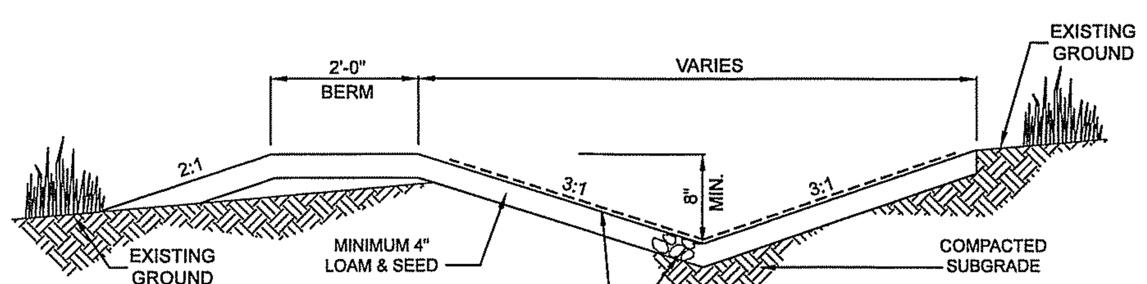


NOTES:
1. REFER TO GRADING PLAN, GR-1, FOR ELEVATIONS. STONE SWALE SHALL BE GRADED TO DRAIN TO THE CONVEYANCE SWALE.
2. ENSURE UPHILL SLOPES ARE STABILIZED PRIOR TO DIRECTING FLOW INTO THE STONE SWALE TO ENSURE STONE DOES NOT CLOG.

TYPICAL STONE SWALE DETAIL — 4 / DT-2

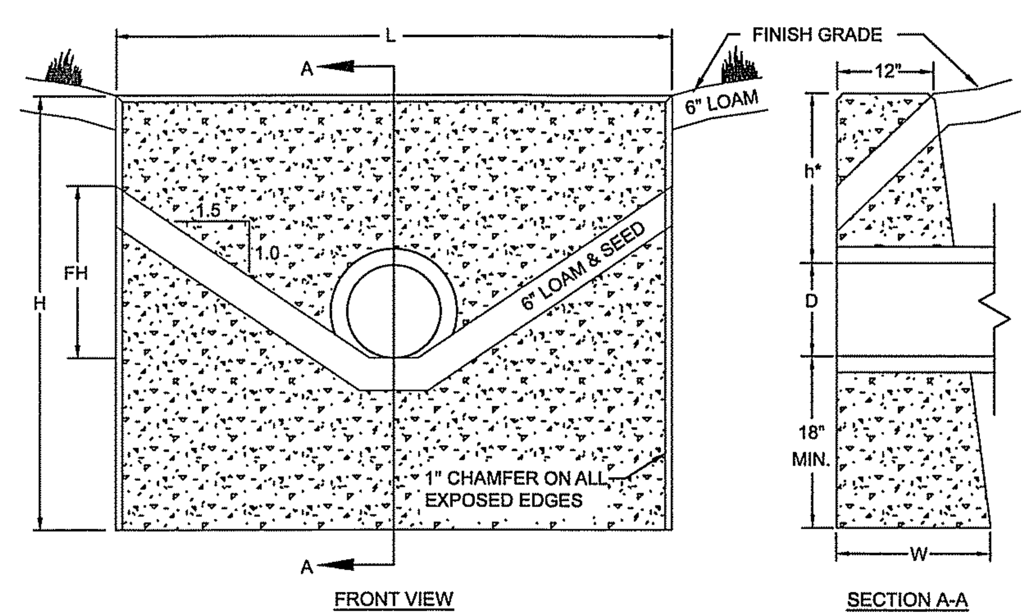


RIP RAP FLUME - INLET TO DETENTION BASIN — 5 / DT-2



ANY SWALE WITH A SLOPE GREATER THAN 5% TO BE LINED WITH EROSION CONTROL MAT (NORTH AMERICAN GREEN SCI50 OR EQUAL) OR 4" RIP-RAP STONE 12" THICK

TYPICAL CONVEYANCE SWALE DETAIL — 6 / DT-2



CULVERT DIAM.	HEADWALL LENGTH	HEADWALL HEIGHT	FILL HEIGHT	TOP HEIGHT	HEADWALL BOTTOM
D	L	H	FH	h	WIDTH W
INCHES	FEET & INCHES				
12	4'-3"	3'-9"	1'-1"	1'-3"	1'-11.25"
15	6'-0"	4'-3"	1'-7"	1'-6"	2'-0.75"
18	7'-0"	4'-6"	1'-10"	1'-6"	2'-1.50"

HEADWALL SHALL BE STEEL REINFORCED AND CONFORM TO NHDOT STANDARD PLAN HW-2, LAST REVISED JUNE 16, 2010.

SCALE: N.T.S.

HEADWALL - PRECAST CONCRETE — 7 / DT-2

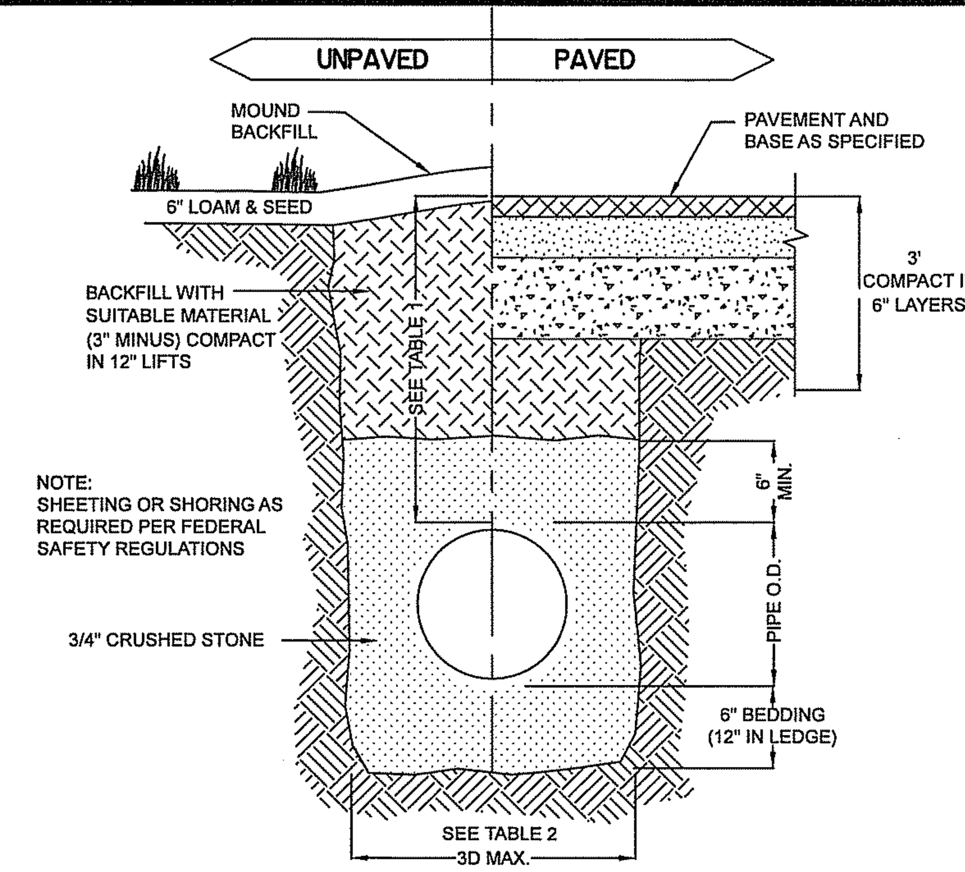
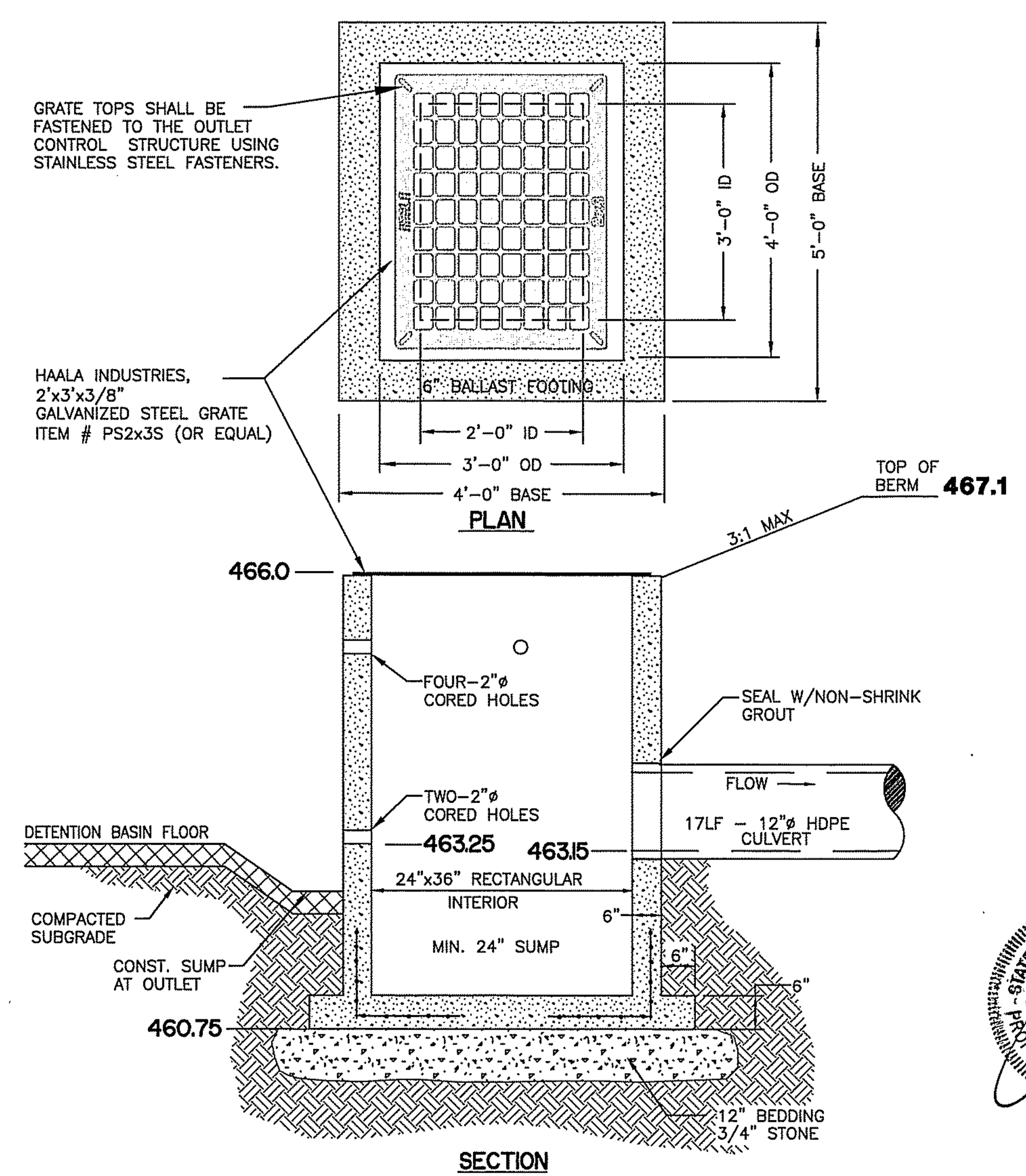


TABLE 1 (RECOMMENDED COVER)		
LOCATION	PIPE MATERIAL	MINIMUM COVER
PAVED ROADS	ALL	3 FT.
UNPAVED ROADS	ALL	2 FT.
DRIVEWAYS	ALL	1 FT.
UNPAVED AREAS	ALL	2 FT.

TABLE 2 (RECOMMENDED TRENCH WIDTH)	
INSIDE DIAMETER	TOTAL WIDTH
12" TO 24"	I.D. + 24"
OVER 24"	2 x I.D.

SCALE: N.T.S.

DRAINAGE TRENCH (TYPICAL) — 8 / DT-2



SCALE: N.T.S.

STORMWATER BASIN OUTLET STRUCTURE — 9 / DT-2

CONTACT DIG SAFE 72 HOURS PRIOR TO CONSTRUCTION
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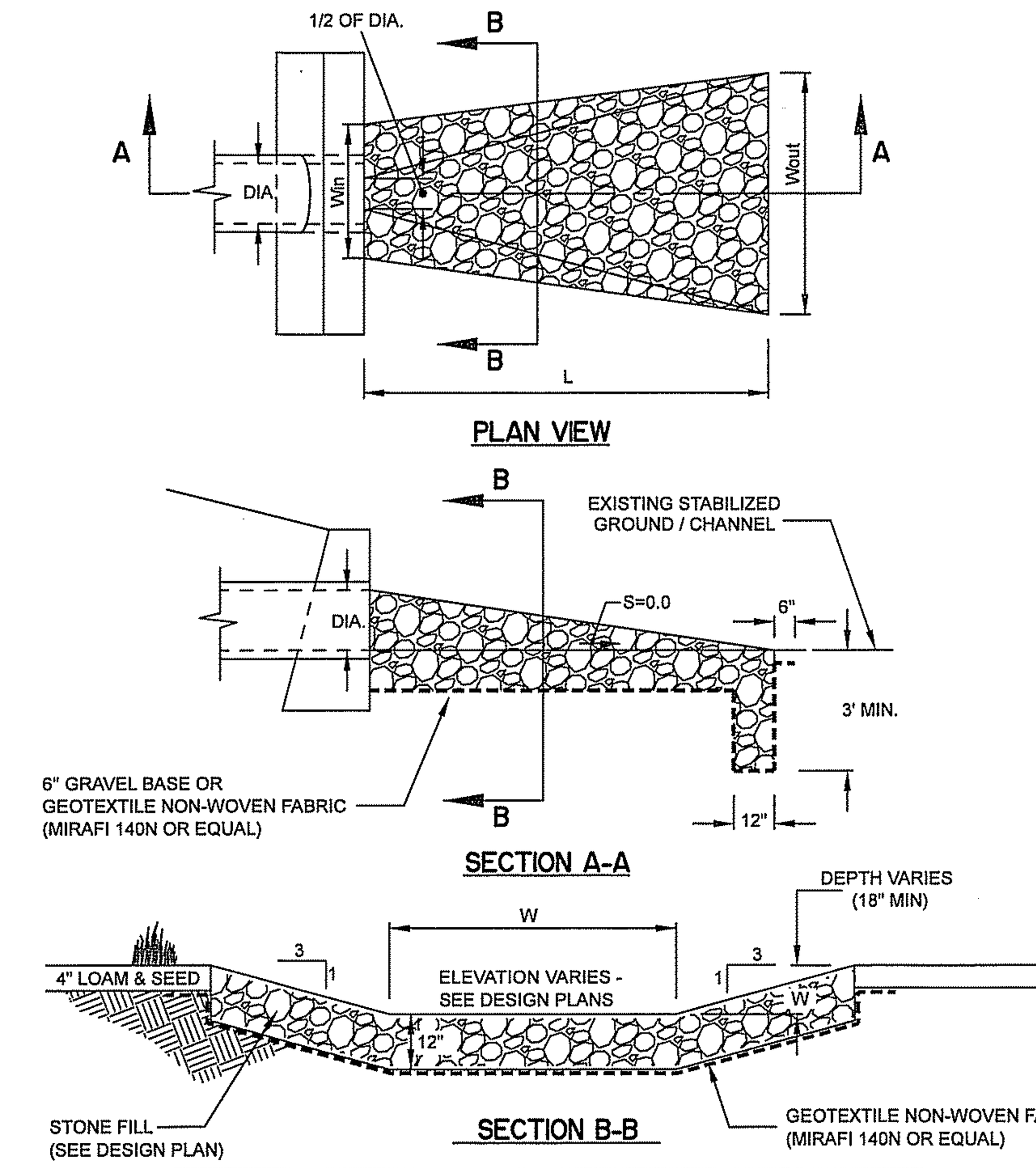
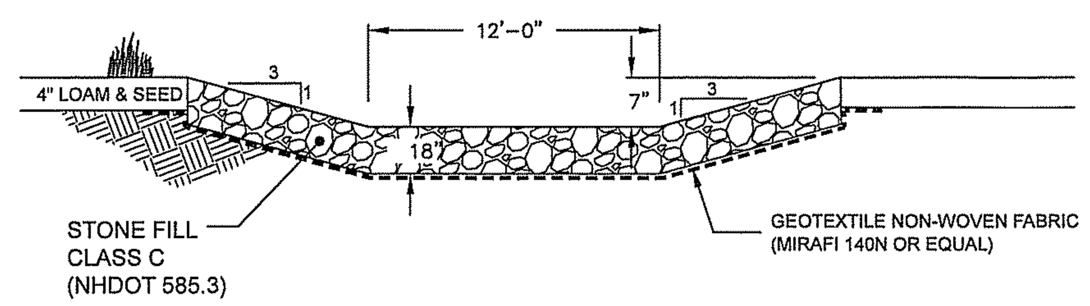


STRUCTURE	LENGTH	WIDTH (IN)	WIDTH (OUT)	d50	THICKNESS
	FT.	FT.	FT.	DIA IN.	IN.
HW1	12	3	8	4"	12"

SCALE: N.T.S.

RIP-RAP OUTLET PROTECTION — 10 / DT-2



EMERGENCY SPILLWAY DETAIL — 11 / DT-2

REV.	DATE	DESCRIPTION	C/O	DR	CK
–	–	–	–	–	–

STATE OF NEW HAMPSHIRE — CHAD E. BRANON 12191 — LICENSED PROFESSIONAL ENGINEER — 10/13/2021

CONSTRUCTION DETAILS
TAX MAP 115 LOT 549-B & 549-E
(852 & 872 OLD CONCORD ROAD)
HENNIKER, NEW HAMPSHIRE
PREPARED FOR:
MAC MILFORD REALTY, LLC
5 CIARDELLI CROSSING, MILFORD, NH 03055

SCALE: N.T.S. OCTOBER 13, 2021

Surveying ✦ Engineering ✦ Land Planning ✦ Permitting ✦ Septic Designs

FIELDSTONE LAND CONSULTANTS, PLLC
206 Elm Street, Milford, NH 03055
Phone: (603) 672-5456 Fax: (603) 413-5456
www.FieldstoneLandConsultants.com

FILE: 2392DT001.dwg | PROJ. NO. 2392.01 | SHEET: DT-2 | PAGE NO. 8 OF 9

1. INSTALL STONE CHECK DAMS AND SILTATION CONTROL FENCES IN LOCATIONS SHOWN ON PLANS. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATION.
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE(S).
3. CUT AND CLEAR TREES; DISPOSE OF DEBRIS. STUMPS ARE TO BE BURIED ON SITE AT THE LOCATIONS SHOWN. STUMPS SHALL BE COMPACTED AND ALL VOIDS FILLED WITH SUITABLE MATERIAL. COVER WITH 4" OF LOAM AND SEED PER THE EROSION CONTROL NOTES.
4. REMOVE TOPSOIL AND STOCKPILE AWAY FROM ANY WETLAND. STABILIZE STOCKPILE IMMEDIATELY BY SEEDING. PLACE SILT FENCE AROUND THE DOWN SLOPE SIDE OF EARTH STOCKPILES.
5. ROUGH GRADE SITE - CONSTRUCT DRAINAGE BASINS AND DRAINAGE SWALES DURING INITIAL PORTION OF CONSTRUCTION. STABILIZE IMMEDIATELY PER THE CONSTRUCTION AND EROSION CONTROL DETAILS. DO NOT DIRECT STORM WATER RUNOFF TO THESE STRUCTURES UNTIL A HEALTHY VEGETATIVE COVER IS ESTABLISHED.
6. CONSTRUCT STORAGE BUILDINGS, PAVED AREAS AND ASSOCIATED SITE IMPROVEMENTS AS SHOWN. ALL CUT AND FILL SLOPES SHALL BE STABILIZED UPON COMPLETION OF ROUGH GRADING PER THE THE EROSION CONTROL NOTES.
7. PLACE STONE CHECK DAMS AROUND INLETS AROUND ALL STRUCTURES UNTIL AREAS ARE STABLE AND ALL NON-PAVED DISTURBED AREAS HAVE A HEALTHY VEGETATIVE COVER. SILT SACKS MAY BE UTILIZED IN PLACE OF STONE CHECK DAMS ON CATCH BASINS.
8. INSPECT AND MAINTAIN EROSION CONTROL MEASURES ON A WEEKLY BASIS AND AFTER EVERY 0.25" OR GREATER RAINFALL.
9. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, CULVERTS, DITCHES, SILTATION FENCES, SEDIMENT TRAPS, ETC. MULCH AND SEED AS REQUIRED.
10. FINISH GRADING AND PREPARE FOR LOAMING. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 72 HOURS AFTER FINAL GRADING.
11. FINISH CONSTRUCTING STORAGE BUILDINGS AND PAVED AREAS. PERMANENT SEEDING SHALL BE PERFORMED UPON COMPLETION OF DRIVE AND PARKING AREA PAVING (SEE EROSION CONTROL NOTES).
12. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
13. TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED WHEN ALL DISTURBED AREAS HAVE BEEN STABILIZED.
14. STORMWATER FLOWS ARE NOT TO BE DIRECTED INTO THE STORMWATER BASINS UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
15. ALL STRUCTURES SHALL BE CLEANED OF SEDIMENTS ONCE CONSTRUCTION IS COMPLETE.

CONSTRUCTION SEQUENCE NOTES — 1 / DT-3

EROSION CONTROL (GENERAL CONSTRUCTION)

1. PRIOR TO STARTING ANY WORK ON THE SITE THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES.
2. EROSION CONTROL MEASURES SHALL BE INSTALLED PER PLANS AND DETAILS. PERIMETER CONTROLS SHALL BE IN PLACE PRIOR TO COMMENCEMENT OF EARTH DISTURBING ACTIVITIES.
3. EXISTING VEGETATION IS TO REMAIN UNDISTURBED WHEN POSSIBLE.
4. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE KEPT CLEAN DURING CONSTRUCTION. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK AND AFTER EVERY 0.25-INCH OR GREATER RAINFALL. SEDIMENTS SHALL BE DISPOSED OF IN AN UPLAND AREA THAT WILL NOT CONTRIBUTE TO SEDIMENT OFF-SITE AND BE PERMANENTLY STABILIZED.
5. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION.
6. THE LAND AREA EXPOSED SHALL BE KEPT TO THE SHORTEST PRACTICAL PERIOD OF TIME. ALL NON-ACTIVE DISTURBED AREAS SHALL BE STABILIZED WITHIN 30 DAYS OF THE DISTURBANCE. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF FINAL GRADING.
7. DITCHES, SWALES AND DRAINAGE BASINS SHALL BE CONSTRUCTED DURING THE INITIAL PHASE OF CONSTRUCTION AND STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
8. AN AREA SHALL BE CONSIDERED STABILIZED IF ONE OF THE FOLLOWING HAS OCCURRED:
   A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
   B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
   C. A MINIMUM OF 3-INCHES OF NON-EROSIVE MATERIAL, SUCH AS STONE OR RIPRAP, HAS BEEN INSTALLED; OR
   D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
9. EROSION CONTROL BLANKETS SHALL BE INSTALLED ON ALL SLOPES THAT ARE STEEPER THAN 3:1 (HORIZONTAL / VERTICAL). UNLESS OTHERWISE SPECIFIED THE CONTRACTOR SHALL USE NORTH AMERICAN GREEN SC150, OR APPROVED EQUAL.
10. ALL AREAS RECEIVING EROSION CONTROL STONE OR RIPRAP SHALL HAVE A GEOTEXTILE MATERIAL INSTALLED BELOW THE STONE (SEE APPROPRIATE DETAILS).
11. ALL DISTURBED AREAS TO TURF FINISHED SHALL BE COVERED WITH A MINIMUM THICKNESS OF 4 INCHES OF COMPACTED LOAM. LOAM SHALL BE COVERED WITH THE APPROPRIATE SEED MIXTURE AS INDICATED BELOW:

PERMANENT SEED (LAWN AREAS)	POUNDS / 1,000 SQUARE FEET
CREEPING RED FESCUE	0.92 LBS
PERENNIAL RYEGRASS	1.15 LBS
KENTUCKY BLUEGRASS	0.58 LBS
REDTOP	0.12 LBS

APPLICATION RATE TOTALS 2.8 LBS PER 1,000 SF

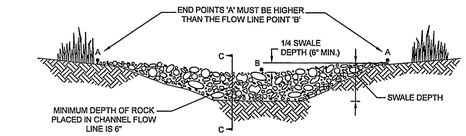
12. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS. IF SOIL TESTING IS NOT FEASIBLE (CRITICAL TIME FRAMES OR VARIABLE SITES) THEN APPLY FERTILIZER AT A RATE OF 11 POUNDS PER 1,000 SF AND LIMESTONE AT A RATE OF 90 POUNDS PER 1,000 SF. FERTILIZER SHALL BE LOW PHOSPHATE (LESS THAN 2% PHOSPHORUS).

    CAUTION SHOULD BE TAKE WHEN THE PROPERTY IS LOCATED WITHIN 250 FEET OF A WATER BODY. IN THIS CASE ALL FERTILIZERS SHALL BE RESTRICTED TO A LOW PHOSPHATE, SLOW RELEASE NITROGEN FERTILIZER. SLOW RELEASE FERTILIZERS MUST BE AT LEAST 50% SLOW RELEASE NITROGEN COMPONENT. NO FERTILIZER EXCEPT LIMESTONE SHALL BE APPLIED WITHIN 25 FEET OF THE SURFACE WATER. THESE ARE REGULATED LIMITATIONS.
13. PERMANENT OR TEMPORARY COVER MUST BE IN PLACE BEFORE THE GROWING SEASON ENDS (SEE WINTER CONSTRUCTION NOTES). NO DISTURBED AREAS SHALL BE LEFT EXPOSED DURING THE WINTER MONTHS.
14. A VIGOROUS DUST CONTROL PROGRAM SHALL BE APPLIED BY THE SITE CONTRACTOR. DUST SHALL BE MANAGED THROUGH THE USE OF WATER.
15. IN NO WAY ARE THE MEASURES INDICATED ON THE PLANS OR IN THESE NOTES TO BE CONSIDERED ALL INCLUSIVE. THE CONTRACTOR SHALL USE JUDGMENT TO INSTALL ADDITIONAL EROSION CONTROL MEASURES AS SITE CONDITIONS, WEATHER OR CONSTRUCTION METHODS WARRANT.
16. FOLLOWING PERMANENT STABILIZATION, TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED AND ACCUMULATED SEDIMENTATION IS TO BE DISPOSED OF IN AN APPROVED LOCATION, OUTSIDE OF JURISDICTIONAL WETLANDS.

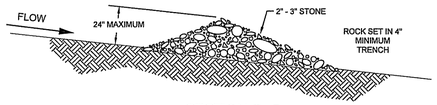
EROSION CONTROL (WINTER CONSTRUCTION)

1. ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATED GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED. STABILIZATION METHODS SHALL INCLUDE 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 FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
2. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATED GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
3. AFTER 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 OR PROPERLY INSTALLED EROSION CONTROL BLANKETS COVERED WITH HAY. OTHER STABILIZATION OPTIONS ARE TO BE APPROVED BY THE APPROPRIATE AGENCIES AND THE DESIGN ENGINEER. IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER MONTHS THEN THE ROAD SHOULD BE CLEARED OF ACCUMULATED SNOW AFTER EACH STORM EVENT.

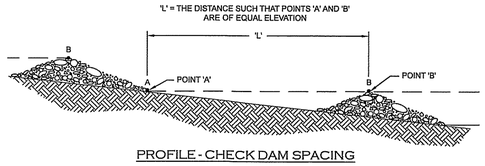
EROSION CONTROL NOTES — 2 / DT-3



VIEW LOOKING UPSTREAM



SECTION C - C

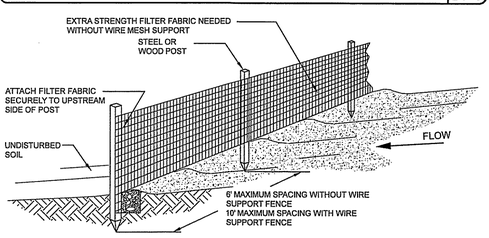


PROFILE - CHECK DAM SPACING

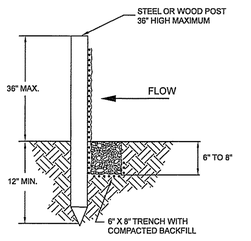
NOTES:

1. STONE CHECK DAMS SHOULD BE INSTALLED BEFORE RUNOFF IS DIRECTED TO THE SWALE OR DRAINAGE DITCH.
2. THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE CHECK DAM SHOULD BE LESS THAN ONE ACRE.
3. STONE CHECK DAMS SHOULD NOT BE USED IN A FLOWING STREAM.
4. STONE CHECK DAMS SHOULD BE CONSTRUCTED OF WELL-GRADED ANGULAR 2 TO 3 INCH STONE. THE INSTALLATION OF 3/4-INCH STONE ON THE UPGRADIENT FACE IS RECOMMENDED FOR BETTER FILTERING.
5. WHEN INSTALLING STONE CHECK DAMS THE CONTRACTOR SHALL KEY THE STONE INTO THE CHANNEL BANKS AND EXTEND THE STONE BEYOND THE ABUTMENTS A MINIMUM OF 18-INCHES TO PREVENT FLOW AROUND THE DAM.
6. STONE CHECK DAMS SHOULD BE REMOVED ONCE THE SWALE OR DITCH HAS BEEN STABILIZED UNLESS OTHERWISE SPECIFIED.

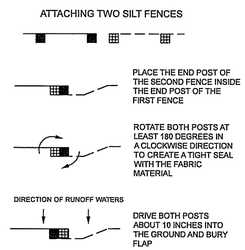
STONE CHECK DAM — 3 / DT-3



PERSPECTIVE VIEW



SECTION VIEW

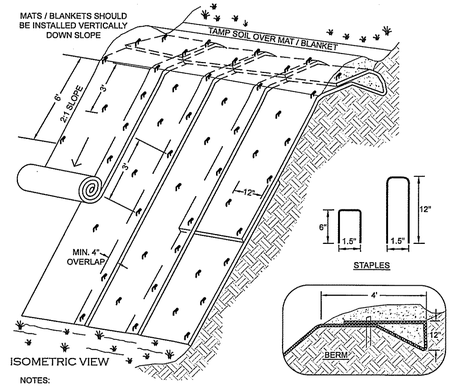


ATTACHING TWO SILT FENCES

NOTES:

1. SILT FENCES SHOULD NOT BE USED ACROSS STREAMS, CHANNELS, SWALES, DITCHES OR OTHER DRAINAGE WAYS.
2. SILT FENCE SHOULD BE INSTALLED FOLLOWING THE CONTOUR OF THE LAND AS CLOSELY AS POSSIBLE AND THE ENDS OF THE SILT FENCE SHOULD BE FLARED UPSLOPE.
3. IF THE SITE CONDITIONS INCLUDE FROZEN GROUND, LEDGE OR THE PRESENCE OF HEAVY ROOTS THE BASE OF THE FABRIC SHOULD BE EMBEDDED WITH A MINIMUM THICKNESS OF 8 INCHES OF 3/4-INCH STONE.
4. SILT FENCES PLACED AT THE TOE OF SLOPES SHOULD BE INSTALLED AT LEAST 6 FEET FROM THE TOE TO ALLOW SPACE FOR SHALLOW PONDING AND ACCESS FOR MAINTENANCE.
5. THE MAXIMUM SLOPE ABOVE THE FENCE SHOULD BE 2:1 AND THE MAXIMUM LENGTH OF SLOPE ABOVE THE FENCE SHOULD BE 100 FEET.
6. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE TO SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
7. SILT FENCES SHOULD BE REMOVED WHEN THE UPSLOPE AREAS HAVE BEEN PERMANENTLY STABILIZED.

SILT FENCE — 4 / DT-3



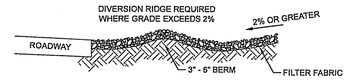
ISOMETRIC VIEW

NOTES:

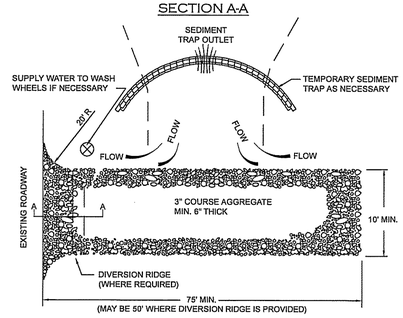
1. DIMENSIONS GIVEN IN THIS DETAIL ARE EXAMPLES: DEVICE SHOULD BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
2. INSTALL STRAW/COCONUT FIBER EROSION CONTROL MAT SUCH AS NORTH AMERICAN GREEN SC150 OR EQUAL ON ALL SLOPES EXCEEDING 3' HORZ : 1' VERT.
3. THE EROSION CONTROL MATERIAL(S) SHALL BE ANCHORED WITH "U" SHAPED 11 GAUGE WIRE STAPLES OR WOODEN STAKES WITH A MINIMUM TOP WIDTH OF 1 INCH AND LENGTH OF 7 INCH.
4. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS / BLANKETS SHALL HAVE GOOD SOIL CONTACT.
5. APPLY LIME, FERTILIZER AND PERMANENT SEEDING BEFORE PLACING BLANKETS.
6. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET AS SHOWN. ROLL THE BLANKETS DOWN THE SLOPE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES OR STAKES IN APPROPRIATE LOCATIONS. REFER TO MANUFACTURERS STAPLE GUIDE FOR CORRECT STAPLE PATTERN.
7. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
8. IN LOOSE SOIL CONDITIONS THE USE OF STAPLES OR STAKE LENGTHS GREATER THAN 6 INCHES MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.
9. THE CONTRACTOR SHALL MAINTAIN THE BLANKET UNTIL ALL WORK ON THE CONTRACT HAS BEEN COMPLETED AND ACCEPTED. MAINTENANCE SHALL CONSIST OF THE REPAIR OF AREAS WHERE DAMAGED BY ANY CAUSE. ALL DAMAGED AREAS SHALL BE REPAIRED TO REESTABLISH THE CONDITIONS AND GRADE OF THE SOIL PRIOR TO APPLICATION OF THE COVERING AND SHALL BE REFERTILIZED, RESEEDED AND REMULCHED AS DIRECTED.

SCALE: N.T.S.

EROSION BLANKETS - SLOPE INSTALLATION — 5 / DT-3



SECTION A-A



PLAN VIEW

NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. THE MINIMUM STONE USED SHOULD BE 3-INCH CRUSHED STONE.
3. THE MINIMUM LENGTH OF THE PAD SHOULD BE 75 FEET, EXCEPT THAT THE MINIMUM LENGTH MAY BE REDUCED TO 50 FEET IF A 3-INCH TO 6-INCH HIGH BERM IS INSTALLED AT THE ENTRANCE OF THE PROJECT SITE.
4. THE PAD SHOULD EXTEND THE FULL WIDTH OF THE CONSTRUCTION ACCESS ROAD OR 10 FEET, WHICHEVER IS GREATER.
5. THE PAD SHOULD SLOPE AWAY FROM THE EXISTING ROADWAY.
6. THE PAD SHOULD BE AT LEAST 6-INCHES THICK.
7. THE GEOTEXTILE FILTER FABRIC SHOULD BE PLACED BETWEEN THE STONE PAD AND THE EARTH SURFACE BELOW THE PAD.
8. THE PAD SHALL BE MAINTAINED OR REPLACED WHEN MUD AND SOIL PARTICLES CLOG THE VOIDS IN THE STONE SUCH THAT MUD AND SOIL PARTICLES ARE TRACKED OFF-SITE.
9. NATURAL DRAINAGE THAT CROSSES THE LOCATION OF THE STONE PAD SHOULD BE INTERCEPTED AND PIPED BENEATH THE PAD, AS NECESSARY, WITH SUITABLE OUTLET PROTECTION.
10. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
11. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

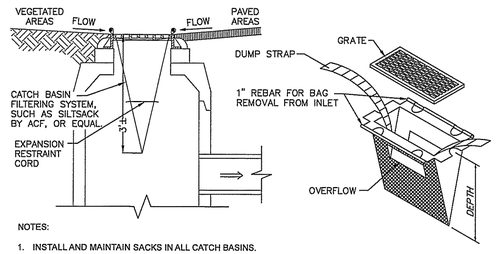
SCALE: N.T.S.

GRAVEL CONSTRUCTION EXIT — 6 / DT-3

1. TEMPORARY PROTECTION OF DISTURBED AREAS SHALL BE IMPLEMENTED WHERE A TEMPRORARY STAND OF GRASS OR SMALL GRAINS WILL NORMALLY PRODUCE SUFFICIENT COVER TO RETARD EROSION AND REDUCE SEDIMENT.
2. USE OF TEMPORARY SEEDING SHALL BE IMPLEMENTED WHEN A DISTURBED AREA OR MATERIAL STOCKPILE WILL BE INACTIVE FOR A PROLONGED PERIOD OF TIME.
3. ALL ESSENTIAL GRADING SUCH AS DIVERSIONS, DAMS, DITCHES AND DRAINS NEEDED TO PREVENT GULLYING AND REDUCE SILTATION SHALL BE COMPLETED PRIOR TO SEEDING.
4. PREPARE SEEDBED BY REMOVEING ALL STONES, TRASH AND STUMPING DEBRIS THAT WILL INTERFERE WITH SEEDING AREA. WHERE FEASIBLE, TILL THE SOIL TO A DEPTH OF ABOUT 3 INCHES TO PREPARE SEEDBED AND MIX FERTILIZER INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATIONS SHOULD BE PERFORMED ACROSS THE SLOPE.
5. A MINIMUM OF 300 POUNDS PER ACRE (7 LBS. PER 1,000 SQ.FT.) OF 10-10-10 FERTILIZER, OR ITS EQUIVALENT, SHALL BE UNIFORMLY SPREAD OVER THE AREA PRIOR TO BEING INCORPORATED INTO THE SOIL.
6. THE SEED SHALL BE SPREAD UNIFORMLY OVER THE AREA. AFTER SEEDING, THE SOIL SHOULD BE FIRMED BY ROLLING OR PACKING. WHERE ROLLING OR PACKING IS NOT FEASIBLE, THE SEED SHALL BE COVERED LIGHTLY BY RAKING, DISKING, OR DRAGGING.
7. HAY OR STRAW MULCH MAY BE NECCESSARY TO PROMOTE SEED GERMINATION IN DRY AND/OR INFERTILE CONDITIONS.
8. PLANT SELECTION AND APPLICATION RATES:

SPECIES	RATE 1 (LBS/AC.)	RATE 2 (LBS/1,000 S.F.)	REMARKS
WINTER RYE	112	2.5	FALL, 8/15 TO 9/15 PLANT 1.0 INCH DEEP
OATS	80	2.0	SPRING PRIOR TO 5/15 PLANT 1.0 INCH DEEP
ANNUAL RYEGRASS	40	1.0	QUICK, SHORT DURATION; GOOD APPEARANCE EARLY SPRING & FALL, PLANT 0.25 INCH DEEP
PERENNIAL RYEGRASS	30	0.7	LASTS LONGER THAN ANNUAL; LATE SPRING & FALL MULCHING WILL ALLOW USE ALL SEASON. PLANT 0.5 INCH DEEP

SEEDING FOR TEMPORARY PROTECTION OF DISTURBED AREAS — 7 / DT-3



NOTES:

1. INSTALL AND MAINTAIN SACKS IN ALL CATCH BASINS.
2. TO INSTALL SACK, REMOVE CATCH BASIN GRATE AND PLACE SACK IN OPENING. HOLD OUT APPROXIMATELY SIX INCHES OF THE SACK OUTSIDE THE FRAME FOR THE LIFTING STRAPS. REPLACE THE GRATE TO HOLD THE SACK IN PLACE.
3. THE SACK SHOULD BE INSPECTED AFTER EVERY STORM, OR ONCE EVERY TWO WEEKS, WHICH EVER OCCURS FIRST.
4. THE RESTRAINT CORD SHOULD BE VISIBLE AT ALL TIMES. IF THE CORD IS COVERED WITH SEDIMENT, THE SACK SHOULD BE EMPTIED. EMPTY THE SACK AWAY FROM THE CATCH BASIN TO PREVENT SEDIMENT FROM RE-ENTERING THE CATCH BASIN. EMPTY THE SACK PER THE MANUFACTURES RECOMMENDATIONS.
5. REPLACE THE SACK IN THE CATCH BASIN AFTER THE SACK HAS BEEN EMPTIED. ONCE CONSTRUCTION IS COMPLETE AND ALL DISTURBED AREAS HAVE BEEN STABILIZED BY PAVING OR A HEALTHY VEGETATIVE COVER, REMOVE THE SACK FROM THE CATCH BASINS.

SILT SACK SEDIMENT FILTER — 8 / DT-3

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10/15/2021

REV.	DATE	DESCRIPTION	C/O	DR	CK
–	–	–	–	–	–

CONSTRUCTION DETAILS

TAX MAP 115 LOT 549-B & 549-E

(852 & 872 OLD CONCORD ROAD)

HENNIKER, NEW HAMPSHIRE

PREPARED FOR:

MAC MILFORD REALTY, LLC

5 CIARDELLI CROSSING, MILFORD, NH 03055

SCALE: N.T.S. OCTOBER 13, 2021

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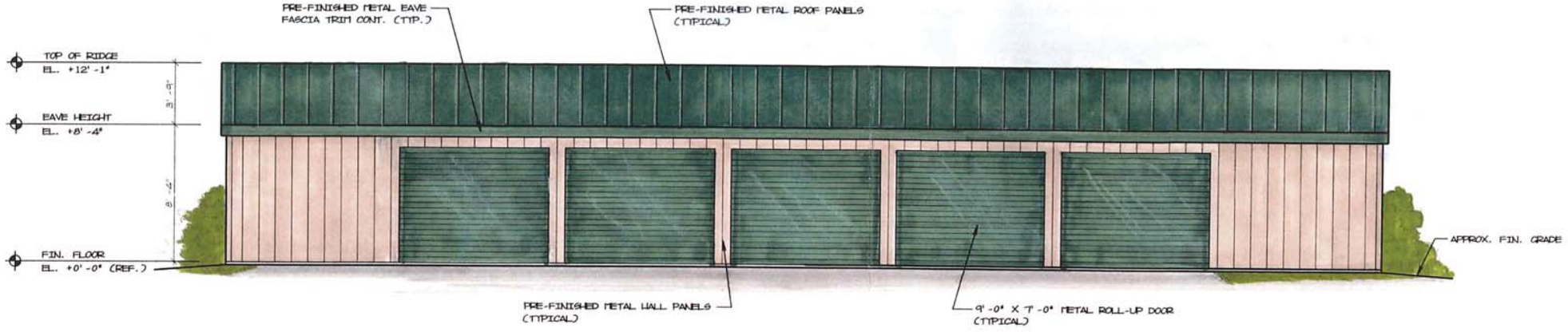
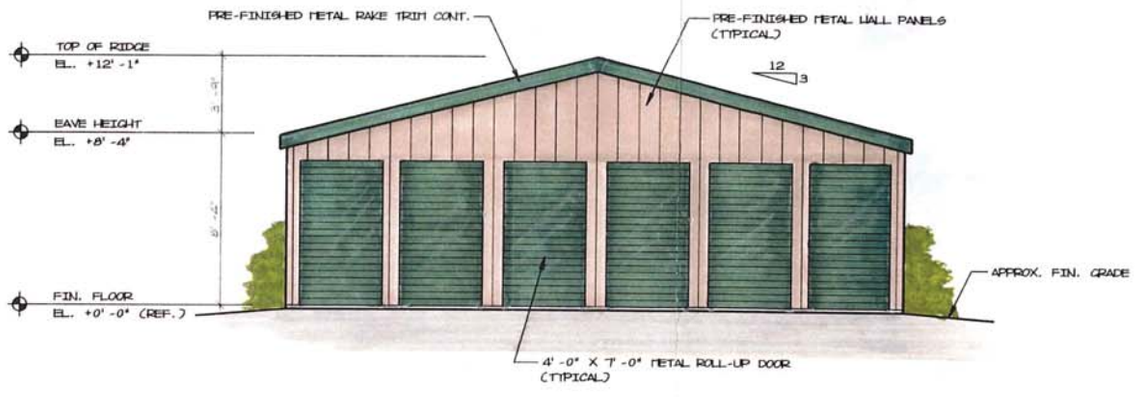


TYPICAL ELEVATION - LENGTH VARIES

WEST ELEVATION- UNIT 5

SCALE 1/4" = 1'-0"



TYPICAL ELEVATION - GABLE ENDS

SOUTH ELEVATION- UNIT 5

SCALE 1/4" = 1'-0"