"THE SITE PLAN REGULATIONS OF THE TOWN OF BARRINGTON, N.H. ARE A PART OF THIS PLAT, AND APPROVAL OF THIS PLAT IS CONTINGENT ON COMPLETION OF ALL THE REQUIREMENTS OF SAID SITE PLAN REGULATIONS, EXCEPTING ONLY ANY VARIANCES OR MODIFICATIONS MADE IN WRITING BY THE PLANNING BOARD AND ATTACHED HERETO".

**WAIVER REQUEST:**
PER SECTION 4.9.9 OF THE TOWN OF BARRINGTON SITE PLAN REGULATIONS, WE REQUEST THAT THE CONSTRUCTION OF 12 ADDITIONAL PARKING SPACES BE WAIVED. DUE TO THE NATURE OF THE BUSINESS IN OPERATION ON THE SITE, THE EXISTING PARKING SPACES ARE ADEQUATE, AND AN AREA FOR THE EXPANSION OF PARKING ON SITE HAS BEEN RESERVED IN THE EVENT THAT EXISTING PARKING BECOMES INSUFFICIENT IN THE FUTURE.

ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO THE TOWN OF BARRINGTON SUBDIVISION REGULATIONS AND THE LATEST EDITION OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION.

IF DURING CONSTRUCTION, IT BECOMES APPARENT THAT DEFICIENCIES EXIST IN THE APPROVED DESIGN DRAWINGS, THE CONTRACTOR SHALL BE REQUIRED TO CORRECT THE DEFICIENCIES TO MEET THE REQUIREMENTS OF THE REGULATIONS AT NO EXPENSE TO THE TOWN OF BARRINGTON.

REQUIRED EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE DISTURBANCE OF THE SITE'S SURFACE AREA AND SHALL BE MAINTAINED THROUGH THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES. IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT ADDITIONAL EROSION CONTROL MEASURES ARE REQUIRED TO STOP ANY EROSION ON THE CONSTRUCTION SITE DUE TO ACTUAL SITE CONDITIONS, THE OWNER SHALL BE REQUIRED TO INSTALL THE NECESSARY EROSION PROTECTION AT NO EXPENSE TO THE TOWN OF BARRINGTON.

STATE OF NEW HAMPSHIRE
RANDY R. ORVIS
No. 034
CERTIFIED WETLAND SCIENTIST

NOTE: WETLAND AREAS WERE FIELD DELINEATED BY ASHLEY ROWE, UNDER THE DIRECT SUPERVISION OF RANDY R. ORVIS, C.W.S. #34 OF GEOMETRES BLUE HILLS, LLC, P.O. BOX 277 , FARMINGTON, N.H. (TEL. 603-749-4000), ON NOVEMBER 19TH 2013. DELINEATION OF THE WETLAND BOUNDARIES WERE CONDUCTED IN ACCORDANCE WITH THE TECHNIQUES OUTLINED IN THE CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, AND THE REGIONAL SUPPLEMENT TO THE MANUAL TITLED "NORTH-CENTRAL AND NORTHEAST REGIONS, U.S. ARMY CORPS OF ENGINEERS, OCTOBER, 2009"

**PLAN INTENT:**
**THE INTENT OF THIS PLAN IS TO ILLUSTRATE EXISTING AND PROPOSED CONDITIONS RELEVANT TO THE CONSTRUCTION OF AN NEW WAREHOUSE / STORAGE BUILDING.**

IN ACCORDANCE WITH TOWN REGULATIONS AND RSA 676:13, ALL IMPROVEMENTS SPECIFIED ON THESE SITE PLANS SHALL BE CONSTRUCTED, COMPLETED, INSPECTED AND APPROVED BY THE TOWN OF BARRINGTON PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY."

**NOTE TO EXCAVATOR**

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GEOMETRES BLUE HILLS, LLC MAKES NO REPRESENTATION AS TO THE EXISTENCE OR NON-EXISTENCE OF ANY UTILITIES AT THE CONSTRUCTION SITE, SHOWN ON THESE CONSTRUCTION DRAWINGS ARE THOSE UTILITIES THAT HAVE BEEN IDENTIFIED. IT IS THE RESPONSIBILITY OF THE LANDOWNERS OR OPERATORS AND CONTRACTORS TO ASSURE THEMSELVES THAT NO HAZARD EXISTS OR DAMAGE WILL OCCUR TO UTILITIES. IT IS SUGGESTED THAT DIG SAFE BE CONTACTED 72 HOURS BEFORE CONSTRUCTION AT: 1-888-344-7233, OR BY DIALING 811.

## SIGN DETAIL

MOVING SINCE 1908 WILLIAM C. HUFF STORAGE

EXISTING 4' X 6' CARVED GRANITE SIGN

## SITE PLAN NOTES

1. BUILDING COLOR: BEIGE & GREEN.
2. BUILDING MATERIAL: STEEL
3. SIGN: SEE SIGN DETAIL
4. DRIVEWAY AND PARKING SURFACES: PAVEMENT.
5. NUMBER OF EXISTING PARKING SPACES: (14) 9'X18' , (1) 14'x18', & (5) 12'X30'
6. EXTERIOR LIGHTING: DOWNCAST FLOODS.
7. TRASH REMOVAL: DUMPSTER
8. BUSINESS HOURS: 9am - 5pm MONDAY THRU FRIDAY
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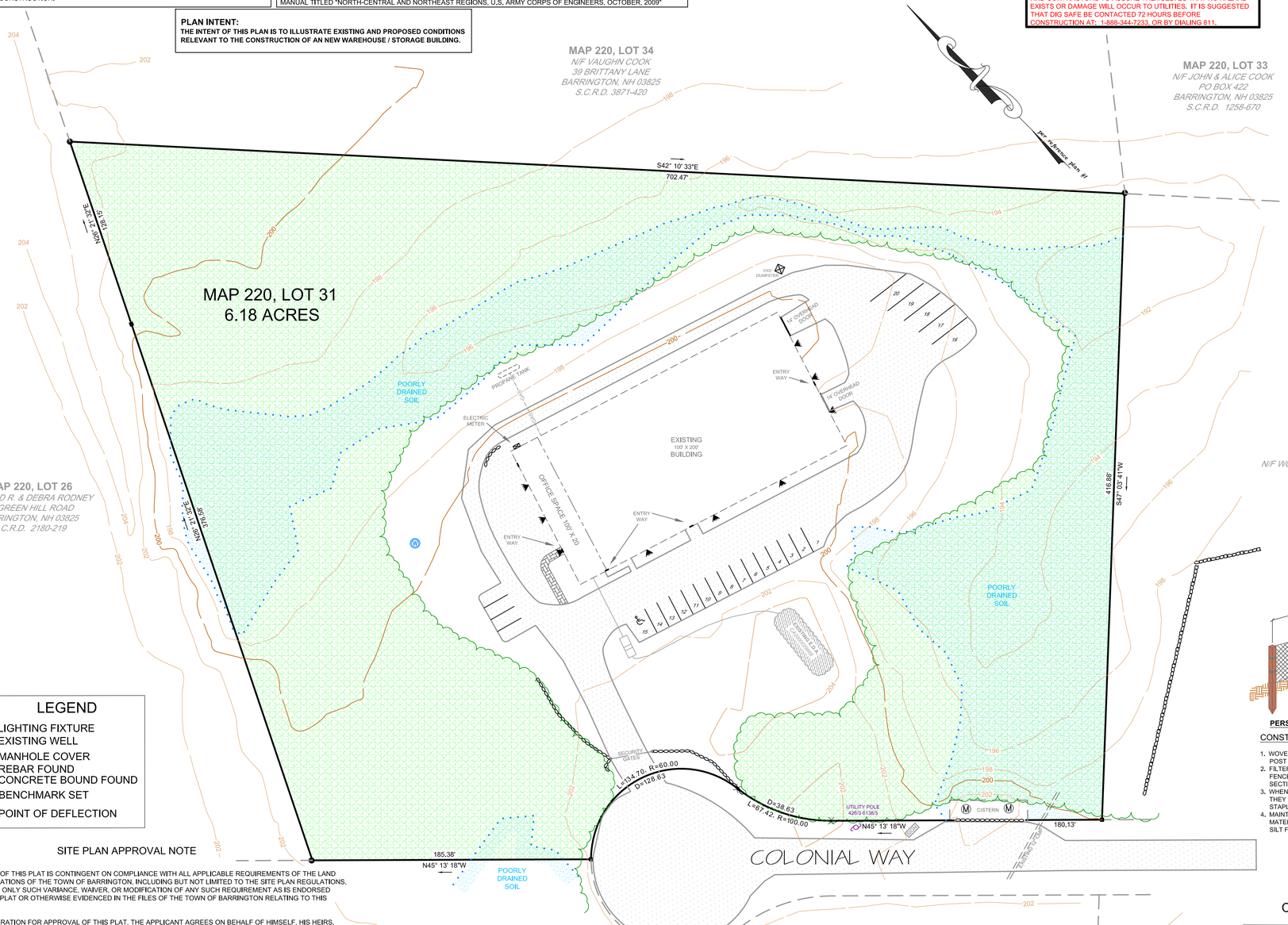
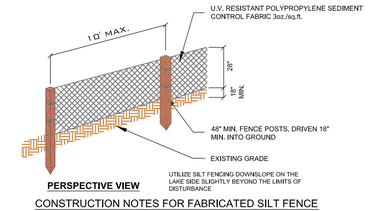



## LEGEND

- LIGHTING FIXTURE
- EXISTING WELL
- MANHOLE COVER
- REBAR FOUND
- CONCRETE BOUND FOUND
- BENCHMARK SET
- POINT OF DEFLECTION

## SILT FENCE
NOT TO SCALE

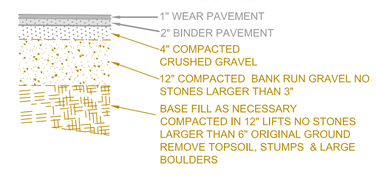



**PERSPECTIVE VIEW**

CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POST WITH WIRE TIES OR STAPLES
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP, MID SECTIONS, AND BOTTOM.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6 INCHES, FOLDED AND STAPLED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

## PAVED PARKING & ACCESSWAY CONSTRUCTION DETAIL




## SITE PLAN APPROVAL NOTE

APPROVAL OF THIS PLAT IS CONTINGENT ON COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF THE LAND USE REGULATIONS OF THE TOWN OF BARRINGTON, INCLUDING BUT NOT LIMITED TO THE SITE PLAN REGULATIONS, EXCEPTING ONLY SUCH VARIANCE, WAIVER, OR MODIFICATION OF ANY SUCH REQUIREMENT AS IS ENDORSED UPON THIS PLAT OR OTHERWISE EVIDENCED IN THE FILES OF THE TOWN OF BARRINGTON RELATING TO THIS APPROVAL.

IN CONSIDERATION FOR APPROVAL OF THIS PLAT, THE APPLICANT AGREES ON BEHALF OF HIMSELF, HIS HEIRS, SUCCESSORS AND ASSIGNS, TO BE BOUND BY THE FOLLOWING GENERAL CONDITIONS:

1. TO CARRY OUT THE IMPROVEMENTS AGREED UPON AND AS SHOWN AND INTENDED BY SAID PLAT, INCLUDING ANY WORK MADE NECESSARY BY UNFORSEEN CONDITIONS WHICH BECOME APPARENT DURING CONSTRUCTION OF THE SITE PLAN.
2. TO POST ALL INTERIOR SUBDIVISION ROADS "PRIVATE" UNLESS AND UNTIL SAID ROADS ARE LAID OUT OR ACCEPTED AS TOWN ROADS, AND INSTALL STREET SIGNS AS APPROVED BY THE SELECTMEN FOR ALL INTERSECTIONS.
3. TO GIVE THE TOWN ON DEMAND, PROPER DEEDS FOR LAND OR RIGHT-OF-WAYS RESERVED ON THE PLAT FOR STREETS, DRAINAGE, OR OTHER PURPOSES AS AGREED UPON.
4. TO INDEMNIFY AND HOLD THE TOWN HARMLESS FROM ANY AND ALL LIABILITY IT MAY INCUR ARISING FROM ANY FAILURE OF THE APPLICANT TO COMPLY WITH ANY OF THE FORGOING PROVISIONS, OR WITH ANY OTHER CONDITION OF APPROVAL OF THE SITE PLAN.

# PLAN SET INDEX


SHEET 1 - EXISTING CONDITIONS
SHEET 2 - PROPOSED CONDITIONS
SHEET 3 - NOTES & DETAILS


## NOTES

1. ZONING: (RC) REGIONAL / COMMERCIAL - STRATIFIED DRIFT AQUIFER OVERLAY
2. TAX MAP & LOT NUMBER: MAP 220, LOT 31
3. DEED REFERENCE: S.C.R.D. 2262-325
4. OWNER OF RECORD: JMH ENTERPRISES, LLC
   26 COLONIAL WAY
   BARRINGTON, N.H. 03825
5. TOTAL PARCEL AREA: 6.18 ACRES

TOTAL AREA CURRENTLY DEVELOPED: 1.39 ACRES
PROPOSED AREA OF NEW DEVELOPMENT: 0.44 ACRES
PROPOSED TOTAL DEVELOPED AREA: 1.83 ACRES

EXISTING LOT COVERAGE: 22.5%
PROPOSED LOT COVERAGE: 29.61%

TOTAL EXISTING IMPERVIOUS AREA: 45,756 SQ. FT.
TOTAL PROPOSED IMPERVIOUS AREA: 70,568 SQ. FT.

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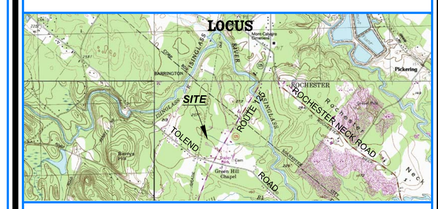


## SITE PLAN – EXISTING CONDIDTIONS

TAX MAP 220, LOT 31
26 COLONIAL WAY
BARRINGTON, STRAFFORD COUNTY
NEW HAMPSHIRE
PREPARED FOR
**JMH ENTERPRISES**

STATE OF NEW HAMPSHIRE No. 652 RANDY R. ORVIS LICENSED LAND SURVEYOR
SIGNATURE

**THIS SURVEY WAS PERFORMED BY ME OR THOSE UNDER MY DIRECT SUPERVISION.**
**RANDY R. ORVIS L.L.S. #652**
**P.O. BOX 277**
**FARMINGTON, N.H. 03835**

**PLANNING BOARD APPROVAL BLOCK**

**GRAPHIC SCALE**

40 0 20 40 80 160

( IN FEET )
1 inch = 40 ft.

**JANUARY 10, 2014** | **SHEET 1 OF 3** | **PLAN # 1227**


Géomètres Blue Hills, LLC
Land Surveying
Land Use Consulting
Septic System Design
Environmental Consulting
PO Box 277
Hornetown Road
Farmington, NH 03835
(603)859-2367


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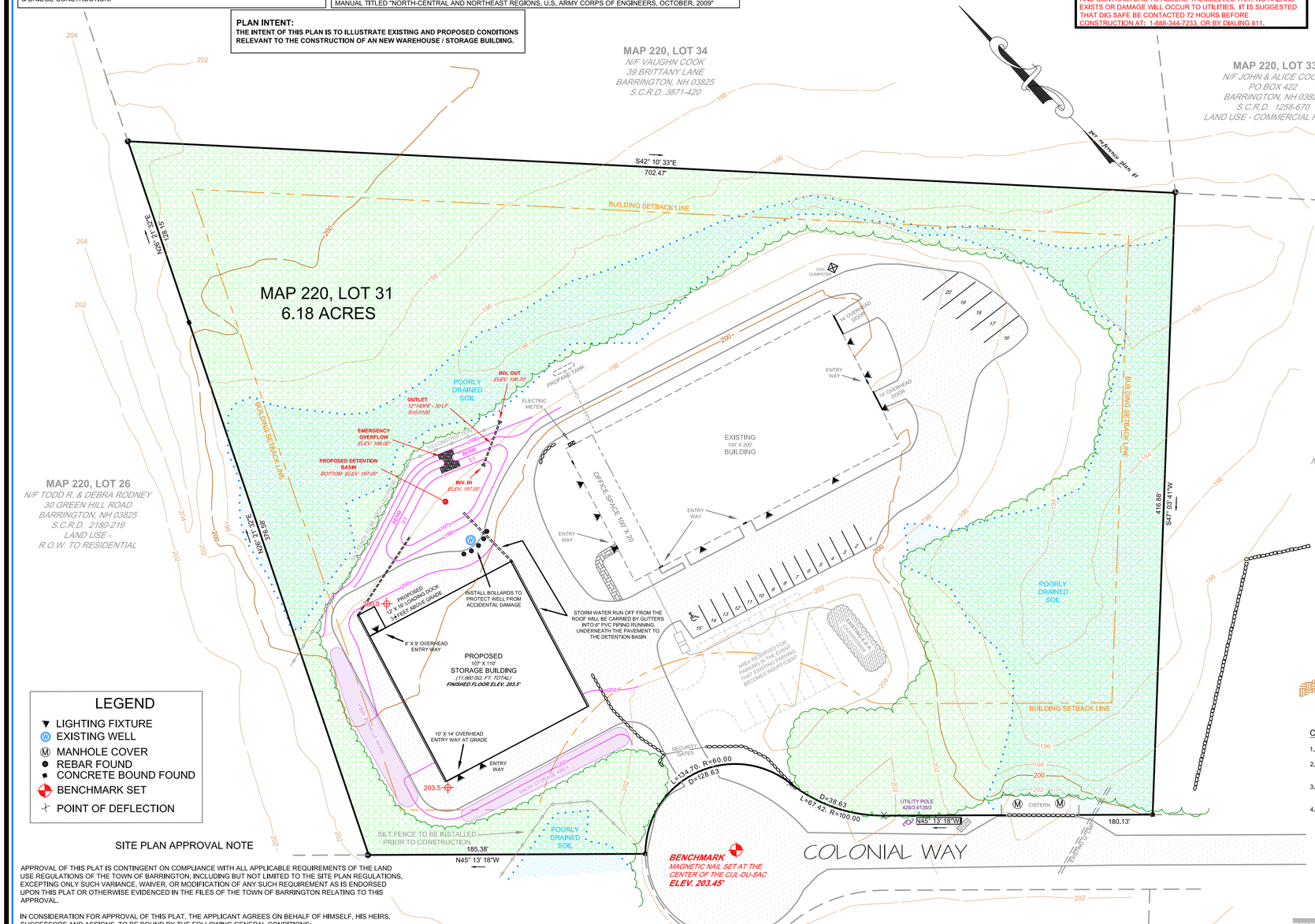


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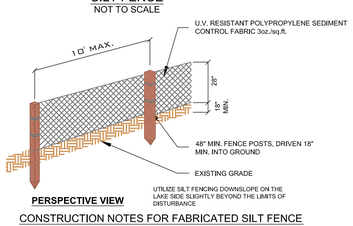
## SILT FENCE

NOT TO SCALE

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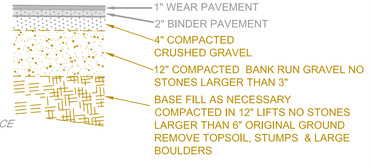


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2. TAX MAP & LOT NUMBER: MAP 220, LOT 31
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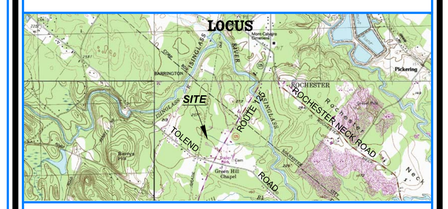


# SITE PLAN – PROPOSED CONDIDTIONS

TAX MAP 220, LOT 31
26 COLONIAL WAY
BARRINGTON, STRAFFORD COUNTY
NEW HAMPSHIRE
PREPARED FOR
**JMH ENTERPRISES**

STATE OF NEW HAMPSHIRE No. 652 RANDY R. ORVIS LICENSED LAND SURVEYOR
SIGNATURE

**THIS SURVEY WAS PERFORMED BY ME OR THOSE UNDER MY DIRECT SUPERVISION.**
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**P.O. BOX 277**
**FARMINGTON, N.H. 03835**

**PLANNING BOARD APPROVAL BLOCK**

**GRAPHIC SCALE**

40 0 20 40 80 160

*( IN FEET )*
*1 inch = 40 ft.*

**JANUARY 10, 2014** | **SHEET 2 OF 3** | **PLAN # 1227**


Géomètres Blue Hills, LLC
Land Surveying
Land Use Consulting
Septic System Design
Environmental Consulting
PO Box 277
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(603)859-2367


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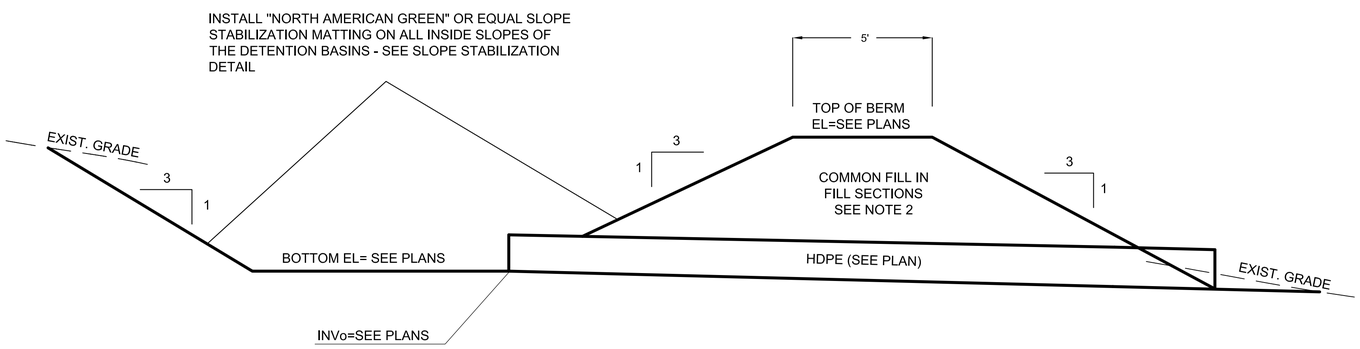



## DETENTION BASIN CONSTRUCTION NOTES

1. THE FOUNDATION AREA SHALL BE CLEARED OF TREES. LOGS, STUMPS, ROOTS, BRUSH. BOULDERS, SOD AND RUBBISH. SCARIFY SURFACE BEFORE PLACING FILL. THE AREA SHALL BE MOIST FOR GOOD BONDING OF THE NEW FILL. KEEP STANDING WATER FROM FORMING ON OR NEAR THE FILL AREA.
2. THE FILL SHALL BE FREE OF DETRIMENTAL AMOUNTS OF SOD, ROOTS, FROZEN SOIL, STONES LARGER THAN 6 INCHES AND OTHER OBJECTIONABLE MATERIAL. CRUSHED GRAVEL (3/4") SHALL BE PLACED AROUND PIPES AND CONCRETE STRUCTURES.
3. THE PLACING AND SPREADING OF FILL SHALL BE STARTED AT THE LOWEST POINT IN THE BERM AREA AND BROUGHT UP IN HORIZONTAL LAYERS (LIFTS) OF ABOUT 12" SO THAT REQUIRED COMPACTION CAN BE OBTAINED. THE DISTRIBUTION AND GRADATION OF MATERIALS SHALL BE SUCH THAT NO LENSES, POCKETS, STREAKS OR LAYERS OF MATERIAL DIFFER SUBSTANTIALLY IN TEXTURE OR GRADATION FROM THE SURROUNDING MATERIAL.
4. THE MOISTURE CONTENT OF THE FILL MATERIAL SHALL BE ADEQUATE FOR OBTAINING THE REQUIRED COMPACTION.
5. CONSTRUCTION EQUIPMENT SHALL BE OPERATED OVER AREAS OR EACH LAYER OF FILL TO INSURE REQUIRED COMPACTION. USE SPECIAL EQUIPMENT IF NECESSARY. FILL ADJACENT TO PIPES AND STRUCTURES SHALL BE COMPACTED BY HAND TAMPING OR PLATE VIBRATOR. FILL ADJACENT TO CONCRETE STRUCTURES SHALL NOT BE COMPACTED UNTIL CONCRETE HAS CURED STRONG ENOUGH TO SUPPORT THE LOAD.
6. FOR PROTECTION ALL EXPOSED AND DISTURBED SURFACES SHALL HAVE A COVER OF VEGETATION, PREFERABLY TOPSOIL AND SEED. FOLLOW SEEDING SPECIFICATIONS AND GENERAL NOTES IN THE EROSION CONTROL DETAILS SECTION IN THIS PLANSET.

## SAFETY

1. PONDS THAT ARE EASILY ACCESSIBLE IN POPULATED AREAS SHOULD INCORPORATE ALL POSSIBLE SAFETY PRECAUTIONS. DUE TO ONLY TEMPORARY WATER LEVELS IN THESE BASINS, FENCING IS NOT NECESSARY.

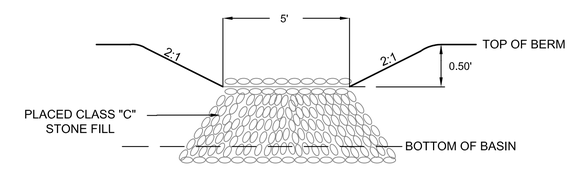
## MAINTENANCE

1. MAINTENANCE IS NECESSARY IF THE BASIN IS TO CONTINUE TO FUNCTION AS DESIGNED. THE LANDOWNER MUST BE AWARE OF THE REQUIREMENTS FOR A PROPERLY OPERATIONAL BASIN AND A PLAN BE DEVELOPED FOR REGULAR SCHEDULED MAINTENANCE.
2. THE EMBANKMENT SHOULD BE INSPECTED TO DETERMINE IF RODENT BURROWS, WET AREAS OR EROSION OF THE FILL IS TAKING PLACE.
3. THE VEGETATION SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC AND DENSE WEED GROWTH. LIME AND FERTILIZER SHOULD BE APPLIED AS NECESSARY AS DETERMINED BY SOIL TESTS. TREES AND SHRUBS SHOULD BE KEPT OFF THE EMBANKMENT AND EMERGENCY SPILLWAY AREAS.
4. PIPE INLETS AND SPILLWAY STRUCTURES SHOULD BE INSPECTED ANNUALLY AND AFTER EVERY MAJOR STORM. ACCUMULATED DEBRIS AND SEDIMENT SHOULD BE REMOVED. IF PIPES ARE COATED, THE COATING SHOULD BE CHECKED AND REPAIRED AS NECESSARY.
5. PIPE OUTLETS SHOULD BE INSPECTED ANNUALLY AND AFTER EVERY MAJOR STORM. THE CONDITION OF THE PIPES SHOULD BE NOTED AND REPAIRS MADE AS NECESSARY. IF EROSION IS TAKING PLACE, THEN MEASURES SHOULD BE TAKEN TO STABILIZE AND PROTECT THE AFFECTED AREA OF THE OUTLET.
6. SEDIMENT SHOULD BE CONTINUALLY CHECKED IN THE BASIN. WHEN SEDIMENT ACCUMULATIONS REACH THE PREDETERMINED DESIGN ELEVATION, THEN THE SEDIMENT SHOULD BE REMOVED AND PROPERLY DISPOSED OF.

# DETENTION BASIN DETAIL

SECTION

NOT TO SCALE




# TYPICAL EMERGENCY SPILLWAY DETAIL

NOT TO SCALE

PLANNING BOARD
APPROVAL BLOCK

SITE PLAN – PROPOSED CONDIDTIONS
DETENTION BASIN DETAIL
TAX MAP 220, LOT 31
26 COLONIAL WAY
BARRINGTON, STRAFFORD COUNTY
NEW HAMPSHIRE
PREPARED FOR
JMH ENTERPRISES

RJB ENGINEERING, LLC.
R. JEFFREY BURD, P.E.
15 PLEASANT STREET, SUITE 5
CONCORD N.H. 03301
(603) 219-0194

JANUARY 22, 2014

PLAN # 1227

STAMP

Géomètres
Blue Hills, LLC
PO Box 277
Hornetown Road
Farmington, NH 03835
(603)859-2367
Land Surveying
Land Use Consulting
Septic System Design
Environmental Consulting

SHEET

3 OF 3

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# DRAINAGE REPORT

**William C. Huff Moving and Storage**
Tax Map 220, Lot 31
Non-Residential Site Development
Barrington, NH

January 22, 2014

Prepared for:
**Geometres Blue Hills, LLC**
PO BOX 277
Farmington, NH 03835

Prepared By:
**RJB Engineering, LLC**
15 Pleasant Street, Suite 5
Concord, NH 03301

**William C. Huff Moving and Storage, Barrington, NH**
**DRAINAGE REPORT**

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| Existing Conditions | 1 |
| Proposed development | 2 |
| Design methodology | 2 |
| Design analysis | 2 |
| Stormwater Treatment | 3 |
| Erosion Control Measures | 3 |

USGS Map


## Appendix:


Predevelopment computations
- 10-year pre-development computations – node listing
- 50-year pre-development computations - summaries

Post-development computations
- 10-year post-development computations – node listing
- 50-year post-development computations - summaries

Pre-development Drainage Area Plan

Post-development Drainage Area Plan

**William C. Huff Moving and Storage, Barrington, NH**
**DRAINAGE REPORT**

## Introduction

This project is the expansion of an existing moving and storage business on a 6.18 acre property located on Colonial way in Barrington. The property is currently developed with an existing 20,000 s.f. building, access roads, parking, and related site improvements. The property is zoned for commercial purposes.

There is an existing seasonal stream that bisects the property and carries stormwater runoff from the upstream drainage basin and the subject property easterly to NH Route 125 and ultimately into the Isinglass River. The drainage on the existing property is open drainage, basically sheet drainage over the developed area draining over a vegetated buffer and into the adjacent wetland and seasonal stream.

The proposed project consists of constructing a new 11,770 s.f. building and an access driveway surrounding the new building. Drainage runoff from the new improvements will be routed to a new detention basin designed to mitigate peak storm events such that there is no increase is stormwater runoff from the proposed impervious surfaces.

## Existing Conditions

The property is identified on tax map 220 as lot 31, is 6.18 acres in size, and has 382 feet of frontage on Colonial Way. The property is in the Regional / Commercial (RC) zoning district and the Stratified Drift Aquifer Overlay District. The middle portion of the site is developed with an existing 20,000 s.f. building, access roads, parking for 20 vehicles, and related site improvements. The current improvements occupy approximately 2.0 acres of the subject property. The remaining area is unimproved and wooded.

As noted above there is an existing seasonal stream that bisects the property and carries stormwater runoff from the upstream drainage basin and the subject property easterly to NH Route 125 and ultimately into the Isinglass River. The upstream drainage basin is over 35 acres of wooded undeveloped land. There are poorly drained soils surrounding the existing development. The soils in the development area are mapped as Saugatuck loamy sand as taken from the NRCS Web Soil Survey. The northwesterly portion of the property is unimproved and wooded. Slopes on the subject property are fairly flat ranging from 1 to 4%.

The existing site drainage basically sheets off of the proposed development area into the surrounding poorly drained soils. There is a depression at the northeasterly corner of the property that acts naturally to detain runoff from peak storm events and thereby reduce peak flows in the seasonal stream.

## Proposed development

This project is an expansion to the existing moving and storage business. Proposed site improvements include constructing a new 11,770 s.f. building and an access driveway surrounding the new building. The total area of impervious surfaces added to the site as a result of the improvements is approximately 22,850 s.f. The total area to be disturbed during construction is approximately 33,000 s.f. There are no wetland impacts associated with this project.

The proposed drainage system for the new expansion will be an open system with stormwater flows directed to a new detention basin designed to mitigate peak storm events such that there is no increase is stormwater runoff from the proposed impervious surfaces. The calculations demonstrate that there are no increases in peak flows as a result from the development.

## Design methodology

The drainage analysis in this study was completed using HydroCad Version 10.0, a stormwater modeling program utilizing TR-20 and TR-55 methodology. This program performs both the hydrologic computations for determination of runoff flows, and the hydraulic calculations for pipe, ditch, and pond design. Calculations were performed for 10, and 50-year return frequency storms in accordance with Municipal regulations. The following design parameters were used:

Rainfall distribution: Type III
2-year storm rainfall: 3.00 inches
10-year storm rainfall: 4.30 inches
50-year storm rainfall: 5.65 inches

## Design analysis

Peak runoff flows have been evaluated in this study to insure that post-development flows do not exceed pre-development flows. Mitigation for increased flows has been provided by using a proposed detention basin as previously described. The stormwater runoff has been modeled to a single point in the adjacent seasonal stream on the subject property (see drainage area plans). Pre and post development flows were analyzed at that point of reference. The peak flows are shown in the accompanying table:

| Storm event | Pre-development (cfs) | Post-development (cfs) |
|---|---|---|
| 10-year | 24.8 | 24.7 |
| 50-year | 42.7 | 42.5 |

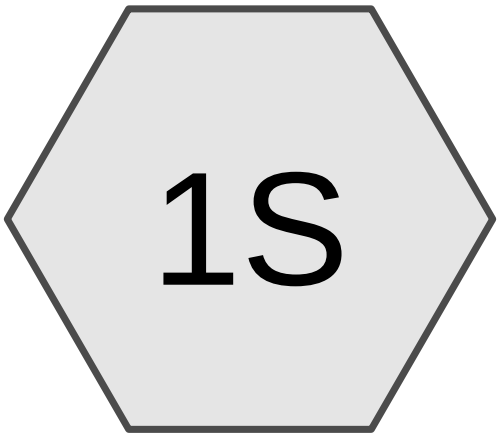
## Stormwater Treatment

Stormwater treatment is provided to reduce pollutants and sediment from discharging into downstream public waters. The design of this site largely relies on the proposed vegetation surrounding the proposed improvements to act as a vegetated buffer strip, consistent with the design of the original site. The detention basin will further provide treatment by capturing sediment and pollutants.

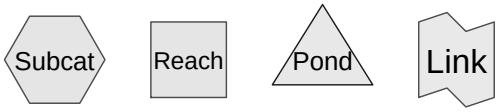
## Erosion Control Measures

This site is very flat and the soils are sandy. There is therefore not a high level of concern for erosion during construction. It is recommended that silt fence be placed downslope of the construction limits adjacent to the poorly drained soils to minimize any possible sediment migration. As the disturbance of this site is less than 50,000 s.f. a Stormwater Pollution Prevention Plan (SWPPP) is not required. The contractor would however be expected to follow reasonable means and methods to minimize any erosion concerns.

Pre-development computations




sub 1




**Routing Diagram for 01-21-14 Huff Storage-PRE**
Prepared by RJB Engineering, Printed 1/25/2014
HydroCAD® 10.00 s/n 05821 © 2013 HydroCAD Software Solutions LLC

## Area Listing (selected nodes)

| Area (acres) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 0.400 | 91 | Urban industrial, 72% imp, HSG C (1S) |
| 0.500 | 30 | Woods, Good, HSG A (1S) |
| 1.700 | 55 | Woods, Good, HSG B (1S) |
| 35.500 | 70 | Woods, Good, HSG C (1S) |
| **38.100** | **69** | **TOTAL AREA** |

## Soil Listing (selected nodes)

| Area (acres) | Soil Group | Subcatchment Numbers |
|---|---|---|
| 0.500 | HSG A | 1S |
| 1.700 | HSG B | 1S |
| 35.900 | HSG C | 1S |
| 0.000 | HSG D | |
| 0.000 | Other | |
| **38.100** | | **TOTAL AREA** |

Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 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: sub 1** Runoff Area=38.100 ac 0.76% Impervious Runoff Depth>1.44"
Flow Length=1,500' Tc=58.7 min CN=69 Runoff=24.75 cfs 4.579 af

**Total Runoff Area = 38.100 ac Runoff Volume = 4.579 af Average Runoff Depth = 1.44"**
**99.24% Pervious = 37.812 ac 0.76% Impervious = 0.288 ac**

Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 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: sub 1** Runoff Area=38.100 ac 0.76% Impervious Runoff Depth>2.41"
Flow Length=1,500' Tc=58.7 min CN=69 Runoff=42.69 cfs 7.644 af

**Total Runoff Area = 38.100 ac Runoff Volume = 7.644 af Average Runoff Depth = 2.41"**
**99.24% Pervious = 37.812 ac 0.76% Impervious = 0.288 ac**

## Summary for Subcatchment 1S: sub 1

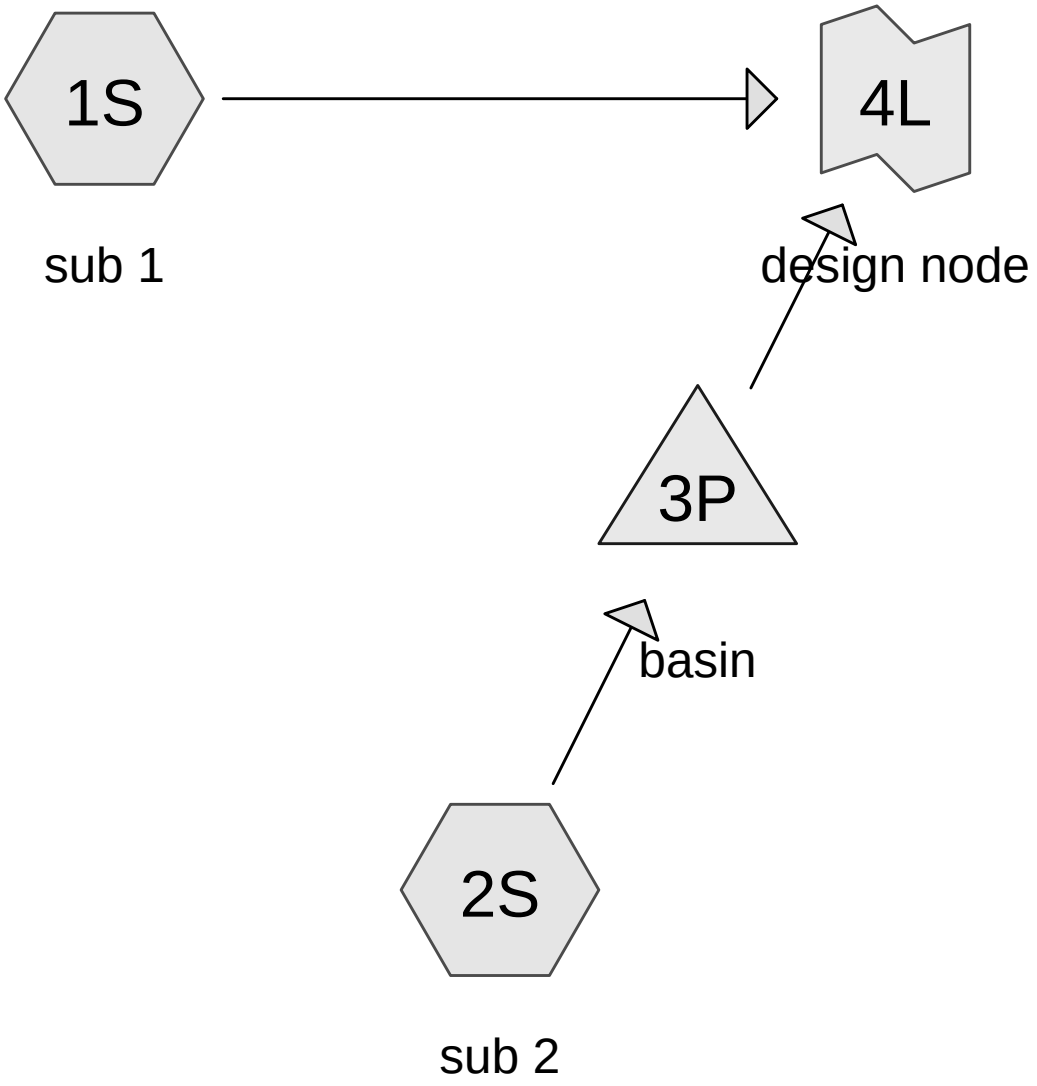
Runoff = 42.69 cfs @ 12.83 hrs, Volume= 7.644 af, Depth> 2.41"

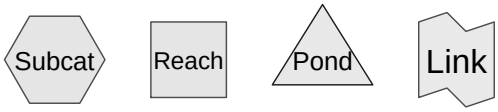
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=5.65"

| Area (ac) | CN | Description |
|---|---|---|
| 0.500 | 30 | Woods, Good, HSG A |
| 1.700 | 55 | Woods, Good, HSG B |
| 35.500 | 70 | Woods, Good, HSG C |
| 0.400 | 91 | Urban industrial, 72% imp, HSG C |
| 38.100 | 69 | Weighted Average |
| 37.812 | | 99.24% Pervious Area |
| 0.288 | | 0.76% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 29.3 | 100 | 0.0100 | 0.06 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00" |
| 26.7 | 800 | 0.0100 | 0.50 | | **Shallow Concentrated Flow,** Woodland Kv= 5.0 fps |
| 2.7 | 600 | 0.0150 | 3.64 | 14.56 | **Channel Flow,** Area= 4.0 sf Perim= 4.0' r= 1.00' n= 0.050 Mountain streams w/large boulders |
| 58.7 | 1,500 | Total | | | |

Post-development computations




**Routing Diagram for 01-21-14 Huff Storage-POST**
Prepared by RJB Engineering, Printed 1/25/2014
HydroCAD® 10.00 s/n 05821 © 2013 HydroCAD Software Solutions LLC

## Area Listing (all nodes)

| Area (acres) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 0.114 | 74 | >75% Grass cover, Good, HSG C (2S) |
| 0.079 | 96 | Gravel surface, HSG C (2S) |
| 0.210 | 98 | Paved parking, HSG C (2S) |
| 0.275 | 98 | Roofs, HSG C (2S) |
| 0.500 | 30 | Woods, Good, HSG A (1S) |
| 1.700 | 55 | Woods, Good, HSG B (1S) |
| 35.222 | 70 | Woods, Good, HSG C (1S) |
| **38.100** | **69** | **TOTAL AREA** |

## Soil Listing (all nodes)

| Area (acres) | Soil Group | Subcatchment Numbers |
|---|---|---|
| 0.500 | HSG A | 1S |
| 1.700 | HSG B | 1S |
| 35.900 | HSG C | 1S, 2S |
| 0.000 | HSG D | |
| 0.000 | Other | |
| **38.100** | | **TOTAL AREA** |

Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 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: sub 1** Runoff Area=37.422 ac 0.00% Impervious Runoff Depth>1.44"
Flow Length=1,500' Tc=58.7 min CN=69 Runoff=24.31 cfs 4.498 af

**Subcatchment 2S: sub 2** Runoff Area=0.678 ac 71.53% Impervious Runoff Depth>3.60"
Tc=6.0 min CN=94 Runoff=2.64 cfs 0.203 af

**Pond 3P: basin** Peak Elev=197.79' Storage=1,432 cf Inflow=2.64 cfs 0.203 af
Outflow=1.77 cfs 0.201 af

**Link 4L: design node** Inflow=24.74 cfs 4.698 af
Primary=24.74 cfs 4.698 af

**Total Runoff Area = 38.100 ac Runoff Volume = 4.701 af Average Runoff Depth = 1.48"**
**98.73% Pervious = 37.615 ac 1.27% Impervious = 0.485 ac**

Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 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: sub 1** Runoff Area=37.422 ac 0.00% Impervious Runoff Depth>2.41"
Flow Length=1,500' Tc=58.7 min CN=69 Runoff=41.93 cfs 7.508 af

**Subcatchment 2S: sub 2** Runoff Area=0.678 ac 71.53% Impervious Runoff Depth>4.91"
Tc=6.0 min CN=94 Runoff=3.55 cfs 0.277 af

**Pond 3P: basin** Peak Elev=197.97' Storage=1,842 cf Inflow=3.55 cfs 0.277 af
Outflow=2.31 cfs 0.274 af

**Link 4L: design node** Inflow=42.52 cfs 7.782 af
Primary=42.52 cfs 7.782 af

**Total Runoff Area = 38.100 ac Runoff Volume = 7.785 af Average Runoff Depth = 2.45"**
**98.73% Pervious = 37.615 ac 1.27% Impervious = 0.485 ac**

## Summary for Subcatchment 1S: sub 1

Runoff = 41.93 cfs @ 12.83 hrs, Volume= 7.508 af, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=5.65"

| Area (ac) | CN | Description |
|---|---|---|
| 0.500 | 30 | Woods, Good, HSG A |
| 1.700 | 55 | Woods, Good, HSG B |
| 35.222 | 70 | Woods, Good, HSG C |
| 37.422 | 69 | Weighted Average |
| 37.422 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 29.3 | 100 | 0.0100 | 0.06 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00" |
| 26.7 | 800 | 0.0100 | 0.50 | | **Shallow Concentrated Flow,** Woodland Kv= 5.0 fps |
| 2.7 | 600 | 0.0150 | 3.64 | 14.56 | **Channel Flow,** Area= 4.0 sf Perim= 4.0' r= 1.00' n= 0.050 Mountain streams w/large boulders |
| 58.7 | 1,500 | Total | | | |

## Summary for Subcatchment 2S: sub 2

Runoff = 3.55 cfs @ 12.09 hrs, Volume= 0.277 af, Depth> 4.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=5.65"

| Area (ac) | CN | Description |
|---|---|---|
| 0.275 | 98 | Roofs, HSG C |
| 0.210 | 98 | Paved parking, HSG C |
| 0.079 | 96 | Gravel surface, HSG C |
| 0.114 | 74 | >75% Grass cover, Good, HSG C |
| 0.678 | 94 | Weighted Average |
| 0.193 | | 28.47% Pervious Area |
| 0.485 | | 71.53% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Pond 3P: basin

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.678 ac, 71.53% Impervious, Inflow Depth > 4.91" for 50-yr event
Inflow = 3.55 cfs @ 12.09 hrs, Volume= 0.277 af
Outflow = 2.31 cfs @ 12.19 hrs, Volume= 0.274 af, Atten= 35%, Lag= 5.9 min
Primary = 2.31 cfs @ 12.19 hrs, Volume= 0.274 af

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 197.97' @ 12.19 hrs Surf.Area= 2,288 sf Storage= 1,842 cf

Plug-Flow detention time= 27.5 min calculated for 0.274 af (99% of inflow)
Center-of-Mass det. time= 19.6 min ( 793.6 - 774.0 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 197.00' | 4,620 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 197.00 | 1,500 | 0 | 0 |
| 199.00 | 3,120 | 4,620 | 4,620 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 197.00' | **12.0" Round Culvert** L= 30.0' CPP, mitered to conform to fill, Ke= 0.700<br>Inlet / Outlet Invert= 197.00' / 196.70' S= 0.0100 '/' Cc= 0.900<br>n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf |
| #2 | Primary | 198.00' | **4.0' long x 6.0' breadth Broad-Crested Rectangular Weir**<br>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<br>Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83 |

**Primary OutFlow** Max=2.30 cfs @ 12.19 hrs HW=197.97' (Free Discharge)
└─**1=Culvert** (Inlet Controls 2.30 cfs @ 2.96 fps)
└─**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Link 4L: design node

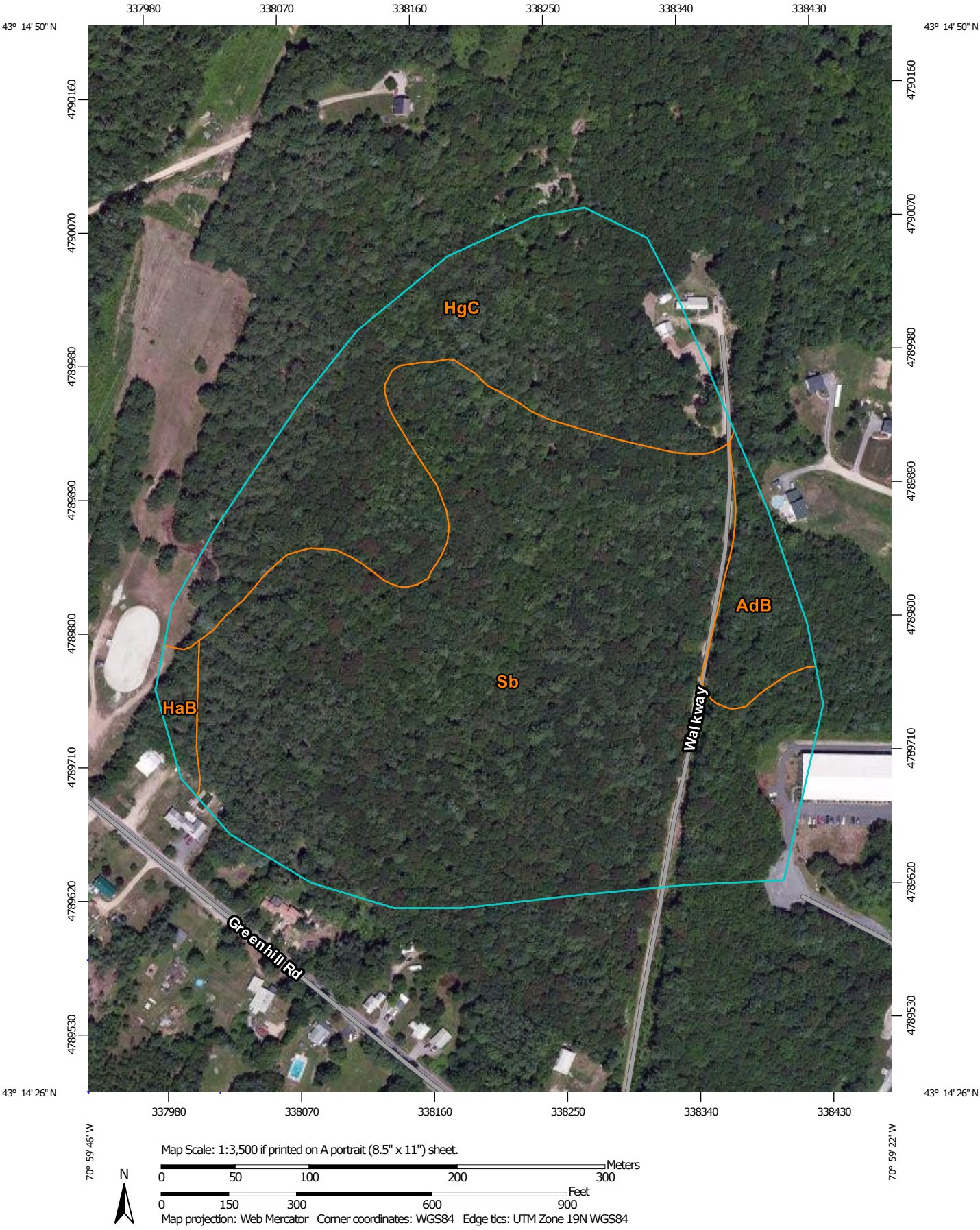
Inflow Area = 38.100 ac, 1.27% Impervious, Inflow Depth > 2.45" for 50-yr event
Inflow = 42.52 cfs @ 12.83 hrs, Volume= 7.782 af
Primary = 42.52 cfs @ 12.83 hrs, Volume= 7.782 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Off-site Drainage Area Map

Soil Map—Strafford County, New Hampshire
(Huff Storage)

Soil Map—Strafford County, New Hampshire
(Huff Storage)



## 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**

Topographic Map

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: http://websoilsurvey.nrcs.usda.gov
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: Strafford County, New Hampshire
Survey Area Data: Version 13, Dec 31, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 20, 2010—May 1, 2011

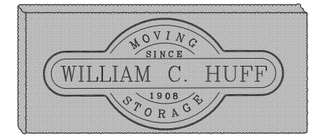
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

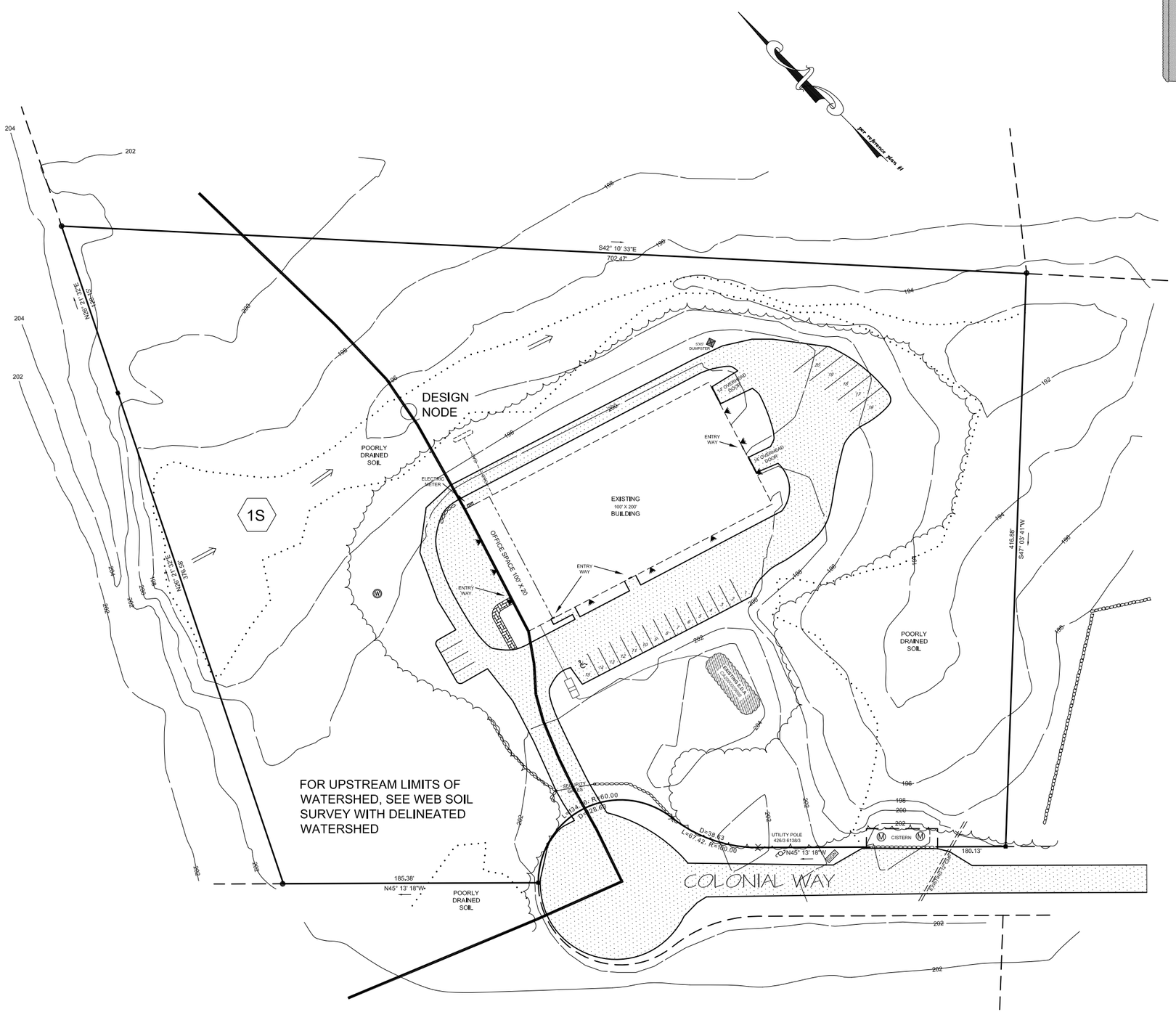
| Strafford County, New Hampshire (NH017) | | | |
|---|---|---|---|
| **Map Unit Symbol** | **Map Unit Name** | **Acres in AOI** | **Percent of AOI** |
| AdB | Acton very stony fine sandy loam, 0 to 8 percent slopes | 1.7 | 4.6% |
| HaB | Hinckley loamy sand, 3 to 8 percent slopes | 0.5 | 1.3% |
| HgC | Hollis-Gloucester very rocky fine sandy loams, 8 to 15 percent slopes | 10.3 | 27.1% |
| Sb | Saugatuck loamy sand | 25.6 | 67.0% |
| **Totals for Area of Interest** | | **38.1** | **100.0%** |

# Drainage Area Plans

## SIGN DETAIL




EXISTING 4' X 6' CARVED GRANITE SIGN

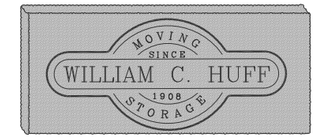



PRE-DEVELOPMENT
DRAINAGE AREA PLAN

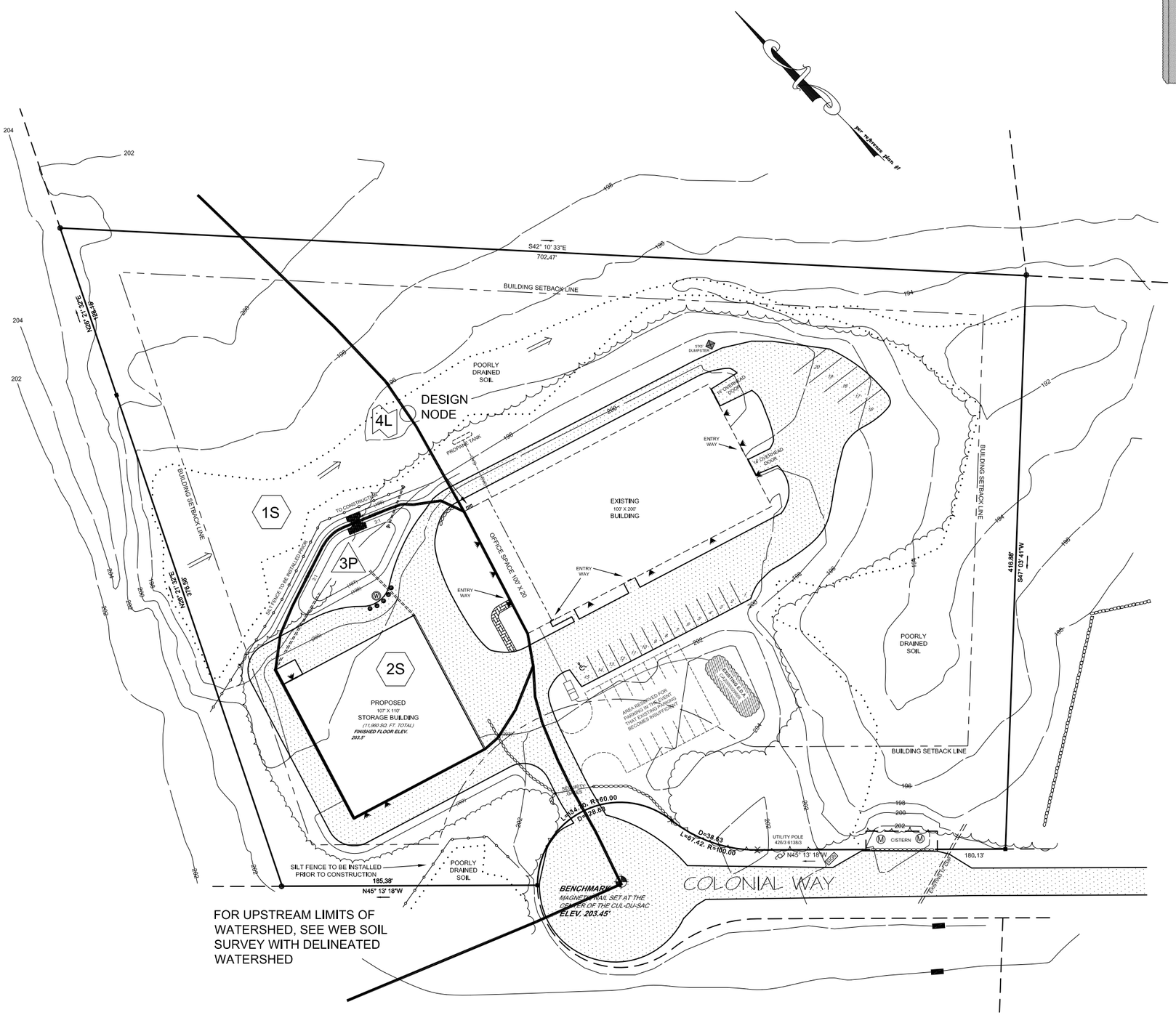
WILLIAM C. HUFF
MOVING & STORAGE
TAX MAP 220, LOT 31
BARRINGTON, NH

PREPARED BY:
RJB ENGINEERING
15 PLEASANT ST, SUITE 5
CONCORD, NH 03301
PH. 603-219-0194

## SIGN DETAIL




EXISTING 4' X 6' CARVED GRANITE SIGN




POST-DEVELOPMENT
DRAINAGE AREA PLAN

WILLIAM C. HUFF
MOVING & STORAGE

TAX MAP 220, LOT 31

BARRINGTON, NH

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