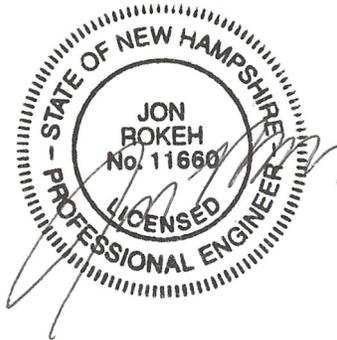


DRAINAGE SUMMARY
STEPHEN AND LORI LAMB

90 BENNETT ROAD - TAX MAP 14, LOT 34-1

DURHAM NH 03824
June 25, 2014

Revised July 29, 2014



Jon Rokeh, P.E.
Rokeh Consulting, LLC
89 King Road
Chichester, NH 03258
Phone: 603-387-8688
jon@rokehconsulting.com

STEPHEN AND LORI LAMB
90 BENNETT ROAD - TAX MAP 14, LOT 34-1
DURHAM NH 03824
DRAINAGE SUMMARY

INTRODUCTION

PREDEVELOPMENT CONDITIONS

POST DEVELOPMENT CONDITIONS

USGS LOCATION MAP

METHODOLOGY

EXTREME RAINFALL CHART

WEB SOILS REPORT

10,25-50 YEAR POST DEVELOPMENT COMPUTATIONS-

SUBCATCHMENT MAPS

STEPHEN AND LORI LAMB
90 BENNETT ROAD - TAX MAP 14, LOT 34-1
DURHAM NH 03824
DRAINAGE SUMMARY

INTRODUCTION

This proposal is for the redevelopment of an existing 3.591 acre bed and breakfast site off of Bennett Road in Durham, NH. The project includes the addition of a parking area for the expanded barn and tent area for outdoor events. There are no wetlands impacted with the project. The purpose for this analysis is to illustrate the effects of the completed parking area on the surrounding area. The drainage is reviewed for the 1inch, 2,10 and 25-year peak storm events and pond checks for the 50 year storm event.

PREDEVELOPMENT CONDITIONS

Currently the location of the proposed parking area is an undeveloped moderately sloping wooded site. The overall parcel site is approximately 3.591 acres.

Soils within the developed area consist predominantly of Charlton Sandy Loam. Merrimac fine sandy loam and Udorthents Sandy. These soils are classified as Hydrological Group B,A and A respectively. See the attached Site Specific Soil Survey. A test pit and a number of Amoozimeter readings were performed with an average infiltration rate of 8.65 inches per hour for design purposes we are using a conservative rate of 6 inches per hour. The existing site consists of two design nodes, both of them existing culverts on the roadway.

POST DEVELOPMENT CONDITIONS

The proposed conditions will consist of the construction of a gravel parking lot for approximately 20 vehicles. The drainage will be directed toward the westerly side of the lot and captured in a 210 foot long shallow infiltration basin. Additional detention is obtained in a small infiltration basin on the accessway to the parking lot and a small rain garden infiltrating part of the barn and the new deck. The basins has been designed to hold and infiltrate the 1inch, 2,10 and 25 year storm event. A conservative infiltration rate of 6 inches per hour is used. See attached soil report. Additionally the ponds are provided with overflow spill ways or outfalls.

STEPHEN AND LORI LAMB
 90 BENNETT ROAD - TAX MAP 14, LOT 34-1
 DURHAM NH 03824
 DRAINAGE SUMMARY

Drainage summation of flows to the roadway culverts

PRE-VS-POST DEVELOPMENT FLOW –

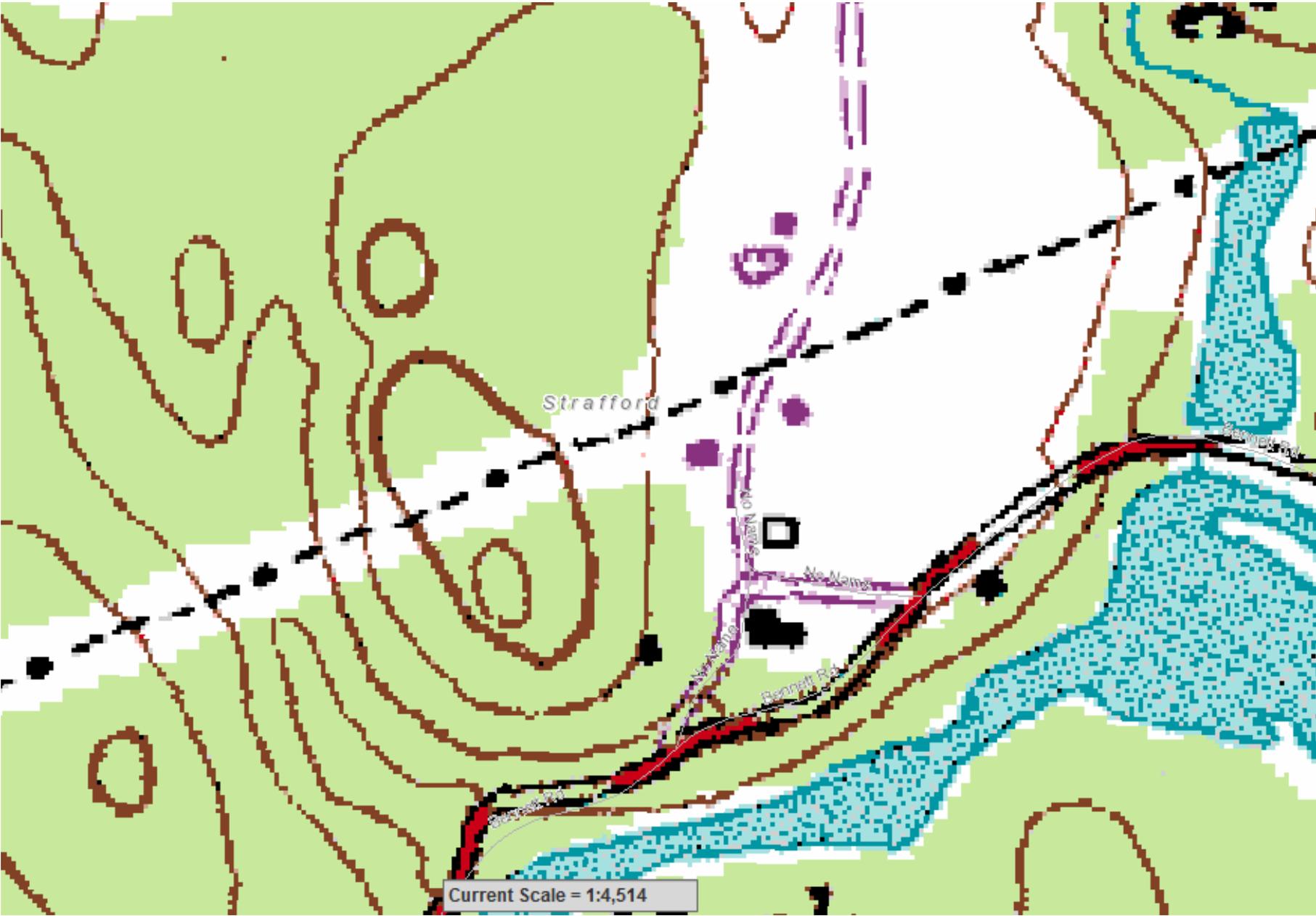
Design node	Pre 5S	POST 5S+8P+15P	Pre 6SPOST 6S
1 INCH	0	0	0
2 YEAR	Pre .51 CFS 3371 CF	Post .67 CFS 3485 CF	PRE/POST .02 CFS 407 CF
10 YEAR	Pre 2.45 CFS 10998 CF	Post 2.30CFS 9732 CF	Pre/Post .50 CFS 2309 cf
25 YEAR	Pre 4.53 CFS 18890 CF	Post 4.36 CFS 15916 CF	Pre/Post 1.35 CFS 4604 cf
50 YEAR	Pre 6.72 CFS	Post 6.0 CFS	Pre/Post 2.32 CFS

METHODOLOGY

The storm water runoff was calculated using the TR 20 methodology, using Hydro CAD version 10.0 software. This program performs both the hydrologic calculations, for determining the amount of runoff for pre and post construction comparisons. Calculations were performed for the 1 inch, 2, 10,25 and 50 year storm event.

STEPHEN AND LORI LAMB
90 BENNETT ROAD - TAX MAP 14, LOT 34-1
DURHAM NH 03824
DRAINAGE SUMMARY

USGS LOCATION MAP



STEPHEN AND LORI LAMB
90 BENNETT ROAD - TAX MAP 14, LOT 34-1
DURHAM NH 03824
DRAINAGE SUMMARY

EXTREME RAINFALL CHART

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.950 degrees West
Latitude	43.105 degrees North
Elevation	59 feet
Date/Time	Wed, 25 Jun 2014 18:37:31 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.03	1yr	0.70	0.98	1.21	1.55	2.01	2.61	2.84	1yr	2.31	2.73	3.13	3.85	4.44	1yr
2yr	0.32	0.49	0.61	0.81	1.02	1.29	2yr	0.88	1.17	1.50	1.91	2.44	3.14	3.47	2yr	2.78	3.34	3.84	4.57	5.20	2yr
5yr	0.37	0.57	0.72	0.96	1.23	1.58	5yr	1.06	1.45	1.85	2.39	3.08	3.98	4.46	5yr	3.52	4.29	4.90	5.79	6.56	5yr
10yr	0.40	0.63	0.80	1.09	1.42	1.85	10yr	1.23	1.70	2.18	2.83	3.67	4.76	5.39	10yr	4.21	5.18	5.89	6.94	7.81	10yr
25yr	0.46	0.74	0.94	1.30	1.73	2.28	25yr	1.49	2.10	2.70	3.54	4.63	6.04	6.92	25yr	5.34	6.65	7.52	8.81	9.86	25yr
50yr	0.52	0.83	1.06	1.49	2.01	2.67	50yr	1.73	2.47	3.19	4.21	5.53	7.24	8.36	50yr	6.40	8.04	9.05	10.55	11.76	50yr
100yr	0.58	0.94	1.21	1.71	2.33	3.14	100yr	2.01	2.90	3.76	4.99	6.59	8.67	10.12	100yr	7.67	9.73	10.89	12.65	14.04	100yr
200yr	0.64	1.05	1.36	1.96	2.71	3.69	200yr	2.34	3.41	4.45	5.94	7.87	10.39	12.24	200yr	9.20	11.77	13.12	15.17	16.76	200yr
500yr	0.76	1.25	1.63	2.36	3.31	4.56	500yr	2.86	4.24	5.53	7.44	9.94	13.22	15.75	500yr	11.70	15.15	16.77	19.31	21.21	500yr

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.37	0.45	0.60	0.74	0.90	1yr	0.64	0.88	0.92	1.25	1.54	2.02	2.51	1yr	1.79	2.41	2.92	3.30	3.99	1yr
2yr	0.32	0.49	0.60	0.81	1.00	1.18	2yr	0.86	1.16	1.37	1.83	2.35	3.04	3.40	2yr	2.69	3.27	3.75	4.46	5.04	2yr
5yr	0.35	0.54	0.67	0.92	1.17	1.40	5yr	1.01	1.37	1.62	2.15	2.78	3.73	4.15	5yr	3.30	3.99	4.59	5.44	6.16	5yr
10yr	0.39	0.59	0.73	1.03	1.32	1.61	10yr	1.14	1.57	1.82	2.45	3.13	4.30	4.83	10yr	3.80	4.64	5.34	6.31	7.09	10yr
25yr	0.44	0.67	0.83	1.19	1.57	1.92	25yr	1.35	1.88	2.11	2.85	3.66	4.98	5.89	25yr	4.41	5.66	6.52	7.68	8.58	25yr
50yr	0.49	0.74	0.92	1.33	1.78	2.20	50yr	1.54	2.15	2.36	3.20	4.12	5.70	6.82	50yr	5.04	6.56	7.60	8.90	9.88	50yr
100yr	0.55	0.82	1.03	1.49	2.04	2.52	100yr	1.76	2.47	2.64	3.59	4.61	6.50	7.91	100yr	5.75	7.60	8.85	10.30	11.35	100yr
200yr	0.61	0.91	1.16	1.67	2.34	2.89	200yr	2.02	2.82	2.94	4.02	5.16	7.40	9.20	200yr	6.55	8.85	10.31	11.93	13.07	200yr
500yr	0.71	1.06	1.36	1.97	2.81	3.48	500yr	2.42	3.40	3.41	4.67	6.02	8.77	11.19	500yr	7.76	10.76	12.63	14.48	15.69	500yr

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.53	0.71	0.88	1.08	1yr	0.76	1.05	1.24	1.74	2.21	2.84	3.02	1yr	2.52	2.90	3.40	4.17	4.81	1yr
2yr	0.33	0.51	0.62	0.84	1.04	1.25	2yr	0.90	1.22	1.48	1.95	2.50	3.27	3.57	2yr	2.89	3.43	3.94	4.71	5.42	2yr
5yr	0.39	0.61	0.75	1.03	1.31	1.58	5yr	1.13	1.55	1.85	2.49	3.18	4.23	4.76	5yr	3.75	4.58	5.23	6.16	6.94	5yr
10yr	0.46	0.70	0.87	1.22	1.58	1.92	10yr	1.36	1.88	2.23	3.03	3.82	5.23	5.94	10yr	4.63	5.71	6.48	7.58	8.48	10yr
25yr	0.56	0.85	1.06	1.51	1.98	2.48	25yr	1.71	2.42	2.87	3.94	4.90	7.12	7.96	25yr	6.30	7.65	8.61	10.00	11.07	25yr
50yr	0.64	0.98	1.22	1.76	2.36	3.00	50yr	2.04	2.93	3.49	4.80	5.93	8.84	9.95	50yr	7.82	9.57	10.69	12.33	13.55	50yr
100yr	0.75	1.13	1.42	2.05	2.81	3.62	100yr	2.43	3.54	4.23	5.87	7.19	10.96	12.44	100yr	9.70	11.96	13.25	15.23	16.61	100yr
200yr	0.87	1.31	1.66	2.40	3.35	4.39	200yr	2.89	4.29	5.14	7.17	8.70	13.65	15.53	200yr	12.08	14.93	16.44	18.80	20.40	200yr
500yr	1.06	1.58	2.04	2.96	4.20	5.64	500yr	3.63	5.52	6.64	9.38	11.21	18.27	20.88	500yr	16.17	20.08	21.87	24.88	26.78	500yr



STEPHEN AND LORI LAMB
90 BENNETT ROAD - TAX MAP 14, LOT 34-1
DURHAM NH 03824
DRAINAGE SUMMARY

SITE SPECIFIC SOIL SURVEY

SCHAUER ENVIRONMENTAL CONSULTANTS, L.L.C.

*Environmental Planning and Permitting
Soil and Wetlands Investigation
Septic Designs*

SITE-SPECIFIC
SOIL SURVEY REPORT

performed at

90 Bennett Road
Durham, New Hampshire

prepared for

Rokeh Consulting, Inc.
89 King Road
Chichester, New Hampshire 03258

SEC Project # 6434

722 Route 3A, Unit 1
Bow, NH 03304
(603) 856-8925

Soilsurfer@comcast.net

July 22, 2014

Mr. Jon Rokeh
Rokeh Consulting, Inc.
89 King Road
Chester, NH 03258

RE: Site Specific Soil Map - 90 Bennett Road, Durham, NH
Tax Map 14, Lot 34-1

Dear Mr. Rokeh:

On July 9, 2014 I performed field work on the above-referenced property located in Durham, New Hampshire for a Site Specific Soil Survey as you requested.

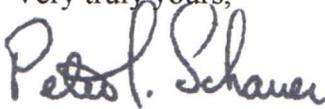
This Site Specific Soil Survey was completed utilizing SSSNNE Special Publication No. 3; Site Specific Soil Mapping Standards for New Hampshire and Vermont, Version 4.0, February 2011. The soil legend used for this soil map conforms to the New Hampshire State-Wide Numerical Soils Legend, Issue #10, January 2011 established and maintained by the Natural Resources Conservation Service.

Field work for this survey included the examination of numerous soil profiles utilizing a soil auger, and through the examination of one soil profile within a test pit excavated within a proposed stormwater management facility near the western boundary of the property. No New Hampshire Wetlands Bureau jurisdictional wetlands were identified on the site. Clearly marked property bounds and site development features were utilized as control points for this soil survey.

The following report includes a Site Specific Soil Map Key and attached soil map unit descriptions. The general surface conditions on the site consist of nearly level to steeply sloping land, a portion of which has been previously disturbed in association with the development of a large house and associated barn. Former parking areas and driveways consisting of packed sand and gravel are now lawns, but retain their dense nature and are mapped as Udorthents, sandy with low Ksat and Hydrologic Soil Group ratings. Site soils in the western third of the site were derived from dense and loose basal glacial till, and those in the eastern two-thirds of the site were derived from sandy glacial outwash deposits.

If you have any questions regarding the soils on this site and the accompanying report please contact our office.

Very truly yours,



Peter S. Schauer
Certified Soil Scientist #39



SITE SPECIFIC SOIL MAP UNIT KEY

<u>Symbol</u>	<u>Map Unit</u>	<u>Slope Class</u>	<u>Drainage Class</u>	<u>HISS Map Unit</u>	<u>Hydrologic Soil Group</u>
10B	Merrimac fine sandy loam	0-8%	Well	211BH	A
10C	Merrimac fine sandy loam	8-15%	Well	211CH	A
10D	Merrimac fine sandy loam	15-25%	Well	211DH	A
10E	Merrimac fine sandy loam	25%+	Well	211EH	A
163B	Charlton f. sandy loam, ex. stony	0-8%	Well	223BH	B
163C	Charlton f. sandy loam, ex. stony	8-15%	Well	223CH	B
163D	Charlton f. sandy loam, ex. stony	15-25%	Well	223DH	B
163E	Charlton f. sandy loam, ex. stony	25%+	Well	223EH	B
400B/cbaaa	Udorthents, sandy	0-8%	Well	261BH	A
400B/cbacc	Udorthents, sandy*	0-8%	Well	261BH	C
400C/cbacc	Udorthents, sandy*	8-15%	Well	261CH	C
400B/cbhcc	Udorthents, sandy*	0-8%	Well	761BH	D
400C/cbhcc	Udorthents, sandy*	8-15%	Well	761CH	D

* These map units consist of compacted sand and gravel surfaces (parking lots and driveways) that are nearly impervious, or impervious asphalt and building rooftops. These have been assigned slow permeability ratings (HSG C or D) to signify the nature of the impervious surface.

This detailed Site-Specific Soil Map, performed on 7/9/2014 by Peter S. Schauer, Certified Soil Scientist #039 of Schauer Environmental Consultants, L.L.C. in Bow, New Hampshire, conforms to the standards of SSSNNE Publication No. 3, as amended, "Site-Specific Soil Mapping Standards for New Hampshire and Vermont". This map has been prepared to comply with soil mapping requirements of RSA 485 A: 17 and NHDES Env-Wq 1500, Alteration of Terrain. See accompanying report for methodology, map symbol legend, and interpretations.

Supplemental Symbols

The five components of the Disturbed Soil Mapping Unit Supplement are as follows:

Symbol 1: Drainage Class

- a-Excessively Well Drained
- b-Somewhat Excessively Drained
- c-Well Drained
- d-Moderately Well Drained
- e-Somewhat Poorly Drained
- f-Poorly Drained
- g-Very Poorly Drained
- h-Not Determined

Symbol 2 -: Parent Material (of naturally formed soil only, if present)

- a-No natural soil within 60"
- b-Glaciofluvial Deposits (outwash/terraces of sand or sand and gravel)
- c-Glacial Till Material (active ice)
- d-Glaciolacustrine very fine sand and silt deposits (glacial lakes)
- e-Loamy/sandy over silt/clay deposits
- f-Marine Silt and clay deposits (ocean waters)
- g-Alluvial Deposits (floodplains)
- h-Organic Materials-Fresh water Bogs, etc
- i- Organic Materials-Tidal Marsh

Symbol 3: Restrictive/Impervious Layers

- a-None
- b-Bouldery surface with more than 15% of the surface covered with boulders
- c-Mineral restrictive layer(s) are present in the soil profile less than 40 inches below the soil surface such as hardpan, platy structure or clayey texture with consistence of at least firm, i.e. more than 20 newtons. For other examples of soil characteristics that qualify for restrictive layer, see "Soil Manual for Site evaluations in NH" 2nd Ed., page 3-17, figure 2-14
- d-Bedrock in the soil profile 0-20 inches
- e-Bedrock in the soil profile 20-60 inches
- f-Areas where depth to bedrock is so variable that a single soil type cannot be applied, will be mapped as a complex of soil types
- g-Subject to Flooding
- h –man-made impervious surface including pavement, concrete, or built-up surfaces (i.e. buildings) with no morphological restrictive layer within control section

Symbol 4 Estimated Ksat* (most restrictive layer excluding symbol 3h above).

- a- High
- b-Moderate
- c-Low
- d-Not determined

*See "Guidelines for Ksat Class Placement" in Chapter 3 of the Soil Survey Manual, USDA

Symbol 5: Hydrologic Soil Group*

- a-Group A
- b-Group B
- c-Group C
- d-Group D
- e-Not determined

*excluding man-made impervious/restrictive layers

SITE SPECIFIC SOIL MAP UNIT DESCRIPTIONS

Map Unit Symbol: 10

Map Unit Name: Merrimac fine sandy loam

Landscape Settings: Forested land and fields, nearly level to steeply sloping

Surface Features: None

Drainage Class: Well to somewhat excessively

Parent Material: Sandy glacial outwash deposits

Complex: Yes () No (X)

Nature of Dissimilar Inclusions, Locations and Estimated Percent:

May include areas having clay subsoil within 40" of soil surface, locations and extent unknown.

Additional Notes:

SITE SPECIFIC SOIL MAP UNIT DESCRIPTIONS

Map Unit Symbol: 163

Map Unit Name: Charlton fine sandy loam, extremely stony

Landscape Settings: Forested land and fields, nearly level to steeply sloping

Surface Features: Numerous stones and boulders

Drainage Class: Well

Parent Material: Dense sandy glacial till*

Complex: Yes () No (X)

Nature of Dissimilar Inclusions, Locations and Estimated Percent:

Additional Notes:

* Glacial till subsoil (C horizon) is compact in place, but crumbles easily when removed. Throughout the soil profile, stones and boulders comprise up to 60% by volume of mineral material.

SITE SPECIFIC SOIL MAP UNIT DESCRIPTIONS

Map Unit Symbol: 400B/cbaaa
Map Unit Name: Udorthents, sandy
Landscape Settings: Regraded landscapes, gravel surfaces
Surface Features: Gravel surfaces
Drainage Class: Well
Parent Material: Off-site material over sandy glacial outwash
Complex: Yes () No (X)

Nature of Dissimilar Inclusions, Locations and Estimated Percent:

Additional Notes:

SITE SPECIFIC SOIL MAP UNIT DESCRIPTIONS

Map Unit Symbol: 400B-C/cbacc

Map Unit Name: Udorthents, sandy

Landscape Settings: Regraded landscapes, packed sand/gravel surfaces

Surface Features: Gravel surfaces

Drainage Class: Well

Parent Material: Off-site material over sandy glacial outwash

Complex: Yes () No (X)

Nature of Dissimilar Inclusions, Locations and Estimated Percent:

Additional Notes:

SITE SPECIFIC SOIL MAP UNIT DESCRIPTIONS

Map Unit Symbol: 400B-C/cbhcc

Map Unit Name: Udorthents, sandy

Landscape Settings: Developed land with impervious surfaces (pavement, buildings)

Surface Features: Pavement, buildings, etc.

Drainage Class: Well

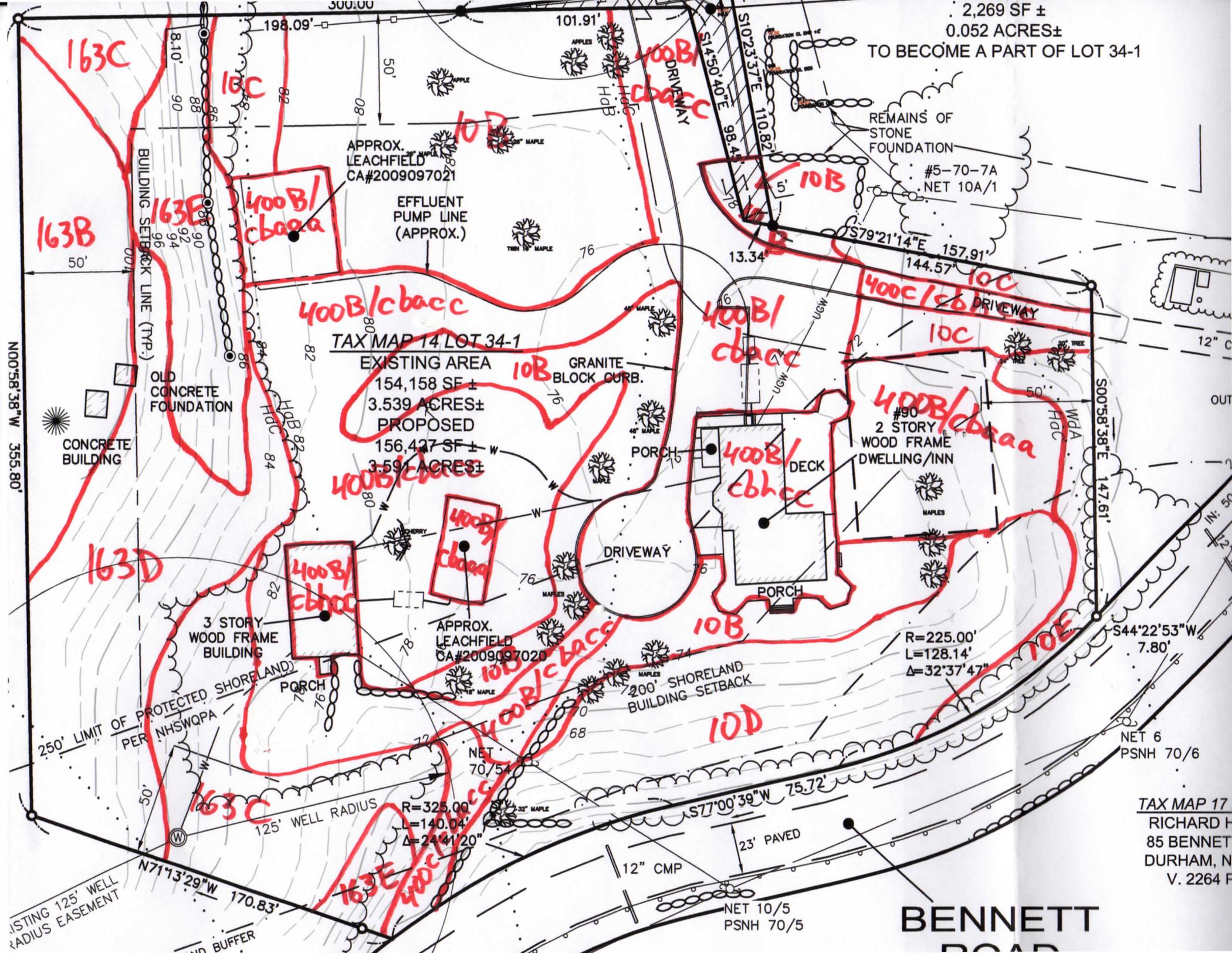
Parent Material: Sandy glacial outwash under impervious surfaces

Complex: Yes () No (X)

Nature of Dissimilar Inclusions, Locations and Estimated Percent:

Additional Notes:

2,269 SF ±
0.052 ACRES ±
TO BECOME A PART OF LOT 34-1



APPROX. LEACHFIELD CA#2009097021
EFFLUENT PUMP LINE (APPROX.)

TAX MAP 14 LOT 34-1
EXISTING AREA
154,158 SF ±
3.539 ACRES ±
PROPOSED
156,427 SF ±
3.591 ACRES ±

REMAINS OF STONE FOUNDATION
#5-70-7A
NET 10A/1

S79°21'14"E 157.91'
144.57'

#90
2 STORY WOOD FRAME DWELLING/INN

R=225.00'
L=128.14'
Δ=32°37'47"

S44°22'53"W
7.80'

NET 6
PSNH 70/6

TAX MAP 17
RICHARD H
85 BENNETT
DURHAM, N
V. 2264 F

BENNETT ROAD

EXISTING 125' WELL RADIUS EASEMENT
N71°13'29"W 170.83'

R=325.00'
L=140.04'
Δ=24°41'20"

NET 10/5
PSNH 70/5

12" CMP

23' PAVED

S77°00'39"W 75.72'

200' SHORELAND BUILDING SETBACK

APPROX. LEACHFIELD CA#2009097020

3 STORY WOOD FRAME BUILDING

250' LIMIT OF PROTECTED SHORELAND PER NWSWQPA

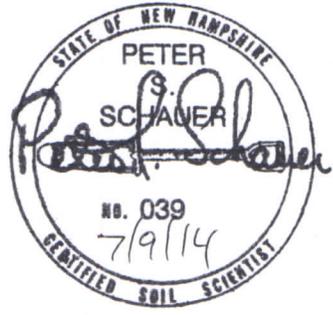
LAND BUFFER

LAND BUFFER

SEC

SCHAUER ENVIRONMENTAL CONSULTANTS, L.L.C.

TEST PIT LOG SHEET

Date: 7/9/2014			Project No: 6434				Lot: 34-1	
Inspector: Peter S. Schauer			Project Name: Rokeh/Bennett Road/Durham				Test Pit No: 1	
HOR	DEPTH	COLOR	TEXTURE	STRUCTURE	CONSISTENCY	REDOX FEATURES	NOTES	
Oe	0-1"	10YR 3/2	Hemic	--	--	--	Forest duff	
A	1-10"	10YR 3/2	Sandy Loam	Granular	Very Friable	None	Many fine, medium and coarse roots	
Bw	10-34"	10YR 5/6	Sandy Loam	Subangular Blocky Weak	Friable	None	Many fine, medium and coarse roots	
Cd	34-60"	2.5Y 5/3	Loamy Sand	Subangular Blocky Weak	Firm in place, friable when disturbed	Many, medium, distinct 10YR 5/6 concentrations @34"	Common medium roots to 35"	
<p>ESHWT: 34"</p> <p>ROOTS: 35"</p> <p>OBSERVED WATER: N/O</p> <p>LEDGE: N/O</p> <p>RESTRICTIVE LAYER: Firm at 34"</p>				<p>NOTES: Cd horizon firm in place, but crumbles easily when dug. Stones and boulders, 4"-36", common throughout profile (approximately 60%).</p> <p>Permeameter tests 1-3, avg. Ksat 8.6 in/hr.</p>			 <p>DESIGNER STAMP</p>	

FIELD SHEET
WASTEWATER ALTERNATIVES, INC

AMOOZEMETER DATA SHEET

DATE: 7/9/14	PERMEAMETER NO 1523
LOCATION: 90 Bennett Road Durham, NH	AIR TEMP
	BEGIN 76°F FINAL 77°F
TEST BY: TES	
SOIL MAP UNIT H2C	NOTES: Stormwater basin site.
HORIZON Bw	
DISTURBED SITE No	
SOIL LOG RECORDED Yes	

Test
 1-0
 1-1
 1-2
 1-3
 1-4

SETUP CALCULATIONS			
HOLE DEPTH	d+	(cm) 64	(BOTTOM OF HOLE TO SURFACE)
SURFACE TO REF LINE	+	5	(ON AMMOOZEMETER)
DEPTH OF H2O IN HOLE	H -	15	(15 CM MIN. - 5.9")
CHT TUBE SETTING	H1=	54	(SET TUBE FROM WATER LEVEL DOWN)

OUTFLOW CHAMBER(S) USED 1 on = 20cm² **CF**
 associated Conversion Factor 2 on = 105cm² **CF**

FIELD TEST	1	OF	3	2	SATURATED HYDRAULIC CONDUCTIVITY (K _{SAT})	
DROP IN WATER LEVEL IN FLOW RES. (1)	ELAPSED TIME (2)		OUTFLOW CHAMBER(S) USED (3)	OUTFLOW (Q) (1*3)/2 =(Q)	= Q * Coeff A) A= 0.001163 when H=15cm	
cm	min	min/hr	(C.F)	cm ³ /hr	(cm / hr)	(in/hr)
2.3	1	0.016	105	14490	16.85	6.63
2.0	1	0.016	105	12600	14.65	5.77
2.1	1	0.016	105	13230	15.39	6.08
2.0	1	0.016	105	12600	14.65	5.77
avg K _{SAT}					15.39	6.06
mean K _{SAT}						
stand.dev K _{SAT}					1.04	0.41

STEPHEN AND LORI LAMB
90 BENNETT ROAD - TAX MAP 14, LOT 34-1
DURHAM NH 03824
DRAINAGE SUMMARY

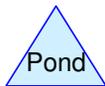
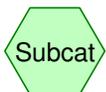
**1 inch, 2,10, 25 and 50-YEAR PRE DEVELOPMENT
COMPUTATIONS**



TO WESTERLY
CULVERT 2



TO EASTERLY
CULVERT 1



Bennett Road Inn Pre Drainage August

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
71,959	39	>75% Grass cover, Good, HSG A (5S, 6S)
5,012	61	>75% Grass cover, Good, HSG B (5S)
12,628	76	Gravel roads, HSG A (6S)
30,256	89	Gravel roads, HSG C (5S)
7,482	98	Paved parking & roofs (5S, 6S)
8,326	30	Woods, Good, HSG A (5S, 6S)
52,003	55	Woods, Good, HSG B (5S)
187,666	57	TOTAL AREA

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Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
92,913	HSG A	5S, 6S
57,015	HSG B	5S
30,256	HSG C	5S
0	HSG D	
7,482	Other	5S, 6S
187,666		TOTAL AREA

Bennett Road Inn Pre Drainage August

Type III 24-hr 2 YR Rainfall=3.14"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 5S: TO WESTERLY

Runoff Area=134,264 sf 3.46% Impervious Runoff Depth>0.30"
Flow Length=474' Tc=16.7 min CN=59 Runoff=0.51 cfs 3,371 cf

Subcatchment 6S: TO EASTERLY

Runoff Area=53,402 sf 5.30% Impervious Runoff Depth>0.09"
Tc=5.0 min CN=50 Runoff=0.02 cfs 407 cf

Total Runoff Area = 187,666 sf Runoff Volume = 3,778 cf Average Runoff Depth = 0.24"
96.01% Pervious = 180,184 sf 3.99% Impervious = 7,482 sf

Bennett Road Inn Pre Drainage August

Type III 24-hr 2 YR Rainfall=3.14"

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Summary for Subcatchment 5S: TO WESTERLY CULVERT 2

Runoff = 0.51 cfs @ 12.41 hrs, Volume= 3,371 cf, Depth> 0.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 YR Rainfall=3.14"

Area (sf)	CN	Description
41,484	55	Woods, Good, HSG B
5,012	61	>75% Grass cover, Good, HSG B
39,329	39	>75% Grass cover, Good, HSG A
3,013	30	Woods, Good, HSG A
4,651	98	Paved parking & roofs
30,256	89	Gravel roads, HSG C
10,519	55	Woods, Good, HSG B
134,264	59	Weighted Average
129,613		96.54% Pervious Area
4,651		3.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	50	0.0200	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.86"
1.8	174	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.9	250	0.1000	2.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
16.7	474	Total			

Summary for Subcatchment 6S: TO EASTERLY CULVERT 1

Runoff = 0.02 cfs @ 12.48 hrs, Volume= 407 cf, Depth> 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 YR Rainfall=3.14"

Area (sf)	CN	Description
32,630	39	>75% Grass cover, Good, HSG A
5,313	30	Woods, Good, HSG A
2,831	98	Paved parking & roofs
12,628	76	Gravel roads, HSG A
53,402	50	Weighted Average
50,571		94.70% Pervious Area
2,831		5.30% Impervious Area

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

Bennett Road Inn Pre Drainage August

Type III 24-hr 10YR Rainfall=4.76"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 5S: TO WESTERLY

Runoff Area=134,264 sf 3.46% Impervious Runoff Depth>0.98"
Flow Length=474' Tc=16.7 min CN=59 Runoff=2.45 cfs 10,998 cf

Subcatchment 6S: TO EASTERLY

Runoff Area=53,402 sf 5.30% Impervious Runoff Depth>0.52"
Tc=5.0 min CN=50 Runoff=0.50 cfs 2,309 cf

Total Runoff Area = 187,666 sf Runoff Volume = 13,307 cf Average Runoff Depth = 0.85"
96.01% Pervious = 180,184 sf 3.99% Impervious = 7,482 sf

Bennett Road Inn Pre Drainage August

Type III 24-hr 10YR Rainfall=4.76"

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Summary for Subcatchment 5S: TO WESTERLY CULVERT 2

Runoff = 2.45 cfs @ 12.27 hrs, Volume= 10,998 cf, Depth> 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.76"

Area (sf)	CN	Description
41,484	55	Woods, Good, HSG B
5,012	61	>75% Grass cover, Good, HSG B
39,329	39	>75% Grass cover, Good, HSG A
3,013	30	Woods, Good, HSG A
4,651	98	Paved parking & roofs
30,256	89	Gravel roads, HSG C
10,519	55	Woods, Good, HSG B
134,264	59	Weighted Average
129,613		96.54% Pervious Area
4,651		3.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	50	0.0200	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.86"
1.8	174	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.9	250	0.1000	2.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
16.7	474	Total			

Summary for Subcatchment 6S: TO EASTERLY CULVERT 1

Runoff = 0.50 cfs @ 12.12 hrs, Volume= 2,309 cf, Depth> 0.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.76"

Area (sf)	CN	Description
32,630	39	>75% Grass cover, Good, HSG A
5,313	30	Woods, Good, HSG A
2,831	98	Paved parking & roofs
12,628	76	Gravel roads, HSG A
53,402	50	Weighted Average
50,571		94.70% Pervious Area
2,831		5.30% Impervious Area

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

Bennett Road Inn Pre Drainage August

Type III 24-hr 25YR Rainfall=6.04"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 5S: TO WESTERLY

Runoff Area=134,264 sf 3.46% Impervious Runoff Depth>1.69"
Flow Length=474' Tc=16.7 min CN=59 Runoff=4.53 cfs 18,890 cf

Subcatchment 6S: TO EASTERLY

Runoff Area=53,402 sf 5.30% Impervious Runoff Depth>1.04"
Tc=5.0 min CN=50 Runoff=1.35 cfs 4,606 cf

Total Runoff Area = 187,666 sf Runoff Volume = 23,496 cf Average Runoff Depth = 1.50"
96.01% Pervious = 180,184 sf 3.99% Impervious = 7,482 sf

Bennett Road Inn Pre Drainage August

Type III 24-hr 25YR Rainfall=6.04"

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Summary for Subcatchment 5S: TO WESTERLY CULVERT 2

Runoff = 4.53 cfs @ 12.25 hrs, Volume= 18,890 cf, Depth> 1.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR Rainfall=6.04"

Area (sf)	CN	Description
41,484	55	Woods, Good, HSG B
5,012	61	>75% Grass cover, Good, HSG B
39,329	39	>75% Grass cover, Good, HSG A
3,013	30	Woods, Good, HSG A
4,651	98	Paved parking & roofs
30,256	89	Gravel roads, HSG C
10,519	55	Woods, Good, HSG B
134,264	59	Weighted Average
129,613		96.54% Pervious Area
4,651		3.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	50	0.0200	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.86"
1.8	174	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.9	250	0.1000	2.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
16.7	474	Total			

Summary for Subcatchment 6S: TO EASTERLY CULVERT 1

Runoff = 1.35 cfs @ 12.10 hrs, Volume= 4,606 cf, Depth> 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR Rainfall=6.04"

Area (sf)	CN	Description
32,630	39	>75% Grass cover, Good, HSG A
5,313	30	Woods, Good, HSG A
2,831	98	Paved parking & roofs
12,628	76	Gravel roads, HSG A
53,402	50	Weighted Average
50,571		94.70% Pervious Area
2,831		5.30% Impervious Area

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

Bennett Road Inn Pre Drainage August

Type III 24-hr 50YR Rainfall=7.24"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 5S: TO WESTERLY

Runoff Area=134,264 sf 3.46% Impervious Runoff Depth>2.44"
Flow Length=474' Tc=16.7 min CN=59 Runoff=6.72 cfs 27,315 cf

Subcatchment 6S: TO EASTERLY

Runoff Area=53,402 sf 5.30% Impervious Runoff Depth>1.62"
Tc=5.0 min CN=50 Runoff=2.32 cfs 7,229 cf

Total Runoff Area = 187,666 sf Runoff Volume = 34,544 cf Average Runoff Depth = 2.21"
96.01% Pervious = 180,184 sf 3.99% Impervious = 7,482 sf

Bennett Road Inn Pre Drainage August

Type III 24-hr 50YR Rainfall=7.24"

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Summary for Subcatchment 5S: TO WESTERLY CULVERT 2

Runoff = 6.72 cfs @ 12.25 hrs, Volume= 27,315 cf, Depth> 2.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50YR Rainfall=7.24"

Area (sf)	CN	Description
41,484	55	Woods, Good, HSG B
5,012	61	>75% Grass cover, Good, HSG B
39,329	39	>75% Grass cover, Good, HSG A
3,013	30	Woods, Good, HSG A
4,651	98	Paved parking & roofs
30,256	89	Gravel roads, HSG C
10,519	55	Woods, Good, HSG B
134,264	59	Weighted Average
129,613		96.54% Pervious Area
4,651		3.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	50	0.0200	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.86"
1.8	174	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.9	250	0.1000	2.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
16.7	474	Total			

Summary for Subcatchment 6S: TO EASTERLY CULVERT 1

Runoff = 2.32 cfs @ 12.09 hrs, Volume= 7,229 cf, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50YR Rainfall=7.24"

Area (sf)	CN	Description
32,630	39	>75% Grass cover, Good, HSG A
5,313	30	Woods, Good, HSG A
2,831	98	Paved parking & roofs
12,628	76	Gravel roads, HSG A
53,402	50	Weighted Average
50,571		94.70% Pervious Area
2,831		5.30% Impervious Area

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

Bennett Road Inn Pre Drainage August

Type III 24-hr inch Rainfall=1.00"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 5S: TO WESTERLY

Runoff Area=134,264 sf 3.46% Impervious Runoff Depth=0.00"
Flow Length=474' Tc=16.7 min CN=59 Runoff=0.00 cfs 0 cf

Subcatchment 6S: TO EASTERLY

Runoff Area=53,402 sf 5.30% Impervious Runoff Depth=0.00"
Tc=5.0 min CN=50 Runoff=0.00 cfs 0 cf

Total Runoff Area = 187,666 sf Runoff Volume = 0 cf Average Runoff Depth = 0.00"
96.01% Pervious = 180,184 sf 3.99% Impervious = 7,482 sf

Bennett Road Inn Pre Drainage August

Type III 24-hr inch Rainfall=1.00"

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Summary for Subcatchment 5S: TO WESTERLY CULVERT 2

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr inch Rainfall=1.00"

Area (sf)	CN	Description
41,484	55	Woods, Good, HSG B
5,012	61	>75% Grass cover, Good, HSG B
39,329	39	>75% Grass cover, Good, HSG A
3,013	30	Woods, Good, HSG A
4,651	98	Paved parking & roofs
30,256	89	Gravel roads, HSG C
10,519	55	Woods, Good, HSG B
134,264	59	Weighted Average
129,613		96.54% Pervious Area
4,651		3.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	50	0.0200	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.86"
1.8	174	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.9	250	0.1000	2.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
16.7	474	Total			

Summary for Subcatchment 6S: TO EASTERLY CULVERT 1

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr inch Rainfall=1.00"

Area (sf)	CN	Description
32,630	39	>75% Grass cover, Good, HSG A
5,313	30	Woods, Good, HSG A
2,831	98	Paved parking & roofs
12,628	76	Gravel roads, HSG A
53,402	50	Weighted Average
50,571		94.70% Pervious Area
2,831		5.30% Impervious Area

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

STEPHEN AND LORI LAMB
90 BENNETT ROAD - TAX MAP 14, LOT 34-1
DURHAM NH 03824
DRAINAGE SUMMARY

**1 Inch, 2,10, 25 and 50-YEAR POST
DEVELOPMENT COMPUTATIONS**

5S
TO WESTERLY
CULVERT 2

3S
PROPOSED GRAVEL
PARKING LOT

4P

PROPOSED 2FT DEEP
INFILTRATION POND

19R

STONE DITCH

12S

lower drive

13P

SHALLOW POND

20R

STONE DITCH

7S

UPPER AREA
CULVERT

8P

CULVERT

15S

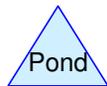
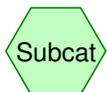
HALF BARN AND
PORTCH

15P

650 SQ FT Rain Garden
(approximately 20 by
33 by 3' deep)

6S

TO EASTERLY
CULVERT 1



Routing Diagram for Bennett Road Inn Post Drainage August

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
58,910	39	>75% Grass cover, Good, HSG A (5S, 6S)
7,885	61	>75% Grass cover, Good, HSG B (3S, 5S, 12S)
16,262	74	>75% Grass cover, Good, HSG C (5S, 15S)
42,468	76	Gravel roads, HSG A (5S, 6S)
17,073	85	Gravel roads, HSG B (3S, 7S, 12S)
10,333	98	Paved parking & roofs (5S, 6S, 15S)
8,326	30	Woods, Good, HSG A (5S, 6S)
25,800	55	Woods, Good, HSG B (3S, 5S, 7S)
187,057	61	TOTAL AREA

Bennett Road Inn Post Drainage August

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Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
109,704	HSG A	5S, 6S
50,758	HSG B	3S, 5S, 7S, 12S
16,262	HSG C	5S, 15S
0	HSG D	
10,333	Other	5S, 6S, 15S
187,057		TOTAL AREA

Bennett Road Inn Post Drainage August

Type III 24-hr 1 Rainfall=1.00"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 3S: PROPOSED GRAVEL Runoff Area=24,930 sf 0.00% Impervious Runoff Depth=0.00"
 Tc=5.0 min CN=66 Runoff=0.00 cfs 0 cf

Subcatchment 5S: TO WESTERLY Runoff Area=87,404 sf 5.63% Impervious Runoff Depth=0.00"
 Flow Length=474' Tc=16.7 min CN=61 Runoff=0.00 cfs 0 cf

Subcatchment 6S: TO EASTERLY Runoff Area=53,402 sf 5.30% Impervious Runoff Depth=0.00"
 Tc=5.0 min CN=50 Runoff=0.00 cfs 0 cf

Subcatchment 7S: UPPER AREA CULVERT Runoff Area=8,482 sf 0.00% Impervious Runoff Depth>0.06"
 Flow Length=502' Tc=15.0 min CN=79 Runoff=0.00 cfs 41 cf

Subcatchment 12S: lower drive Runoff Area=5,265 sf 0.00% Impervious Runoff Depth>0.00"
 Tc=5.0 min CN=70 Runoff=0.00 cfs 1 cf

Subcatchment 15S: HALF BARN AND Runoff Area=7,574 sf 34.12% Impervious Runoff Depth>0.10"
 Tc=5.0 min CN=82 Runoff=0.01 cfs 62 cf

Reach 19R: STONE DITCH Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0 cf
 n=0.050 L=136.0' S=0.0882 '/' Capacity=88.61 cfs Outflow=0.00 cfs 0 cf

Reach 20R: STONE DITCH Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0 cf
 n=0.050 L=119.0' S=0.1261 '/' Capacity=105.91 cfs Outflow=0.00 cfs 0 cf

Pond 4P: PROPOSED 2FT DEEP INFILTRATION POND Peak Elev=96.00' Storage=0 cf Inflow=0.00 cfs 0 cf
 Discarded=0.00 cfs 0 cf Primary=0.00 cfs 0 cf Outflow=0.00 cfs 0 cf

Pond 8P: CULVERT Peak Elev=62.03' Inflow=0.00 cfs 41 cf
 12.0" Round Culvert n=0.013 L=40.0' S=0.0500 '/' Outflow=0.00 cfs 41 cf

Pond 13P: SHALLOW POND Peak Elev=86.00' Storage=0 cf Inflow=0.00 cfs 1 cf
 Discarded=0.00 cfs 1 cf Primary=0.00 cfs 0 cf Outflow=0.00 cfs 1 cf

Pond 15P: 650 SQ FT Rain Garden (approximately 20 Peak Elev=0.00' Storage=1 cf Inflow=0.01 cfs 62 cf
 Discarded=0.01 cfs 62 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 62 cf

Total Runoff Area = 187,057 sf Runoff Volume = 104 cf Average Runoff Depth = 0.01"
94.48% Pervious = 176,724 sf 5.52% Impervious = 10,333 sf

Bennett Road Inn Post Drainage August

Type III 24-hr 1 Rainfall=1.00"

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Summary for Subcatchment 3S: PROPOSED GRAVEL PARKING LOT

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 Rainfall=1.00"

Area (sf)	CN	Description
8,231	85	Gravel roads, HSG B
3,033	61	>75% Grass cover, Good, HSG B
8,709	55	Woods, Good, HSG B
4,957	55	Woods, Good, HSG B
24,930	66	Weighted Average
24,930		100.00% Pervious Area

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

Summary for Subcatchment 5S: TO WESTERLY CULVERT 2

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 Rainfall=1.00"

Area (sf)	CN	Description
10,505	55	Woods, Good, HSG B
1,576	61	>75% Grass cover, Good, HSG B
26,280	39	>75% Grass cover, Good, HSG A
3,013	30	Woods, Good, HSG A
4,918	98	Paved parking & roofs
29,840	76	Gravel roads, HSG A
11,272	74	>75% Grass cover, Good, HSG C
87,404	61	Weighted Average
82,486		94.37% Pervious Area
4,918		5.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	50	0.0200	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.86"
1.8	174	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.9	250	0.1000	2.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
16.7	474	Total			

Bennett Road Inn Post Drainage August

Type III 24-hr 1 Rainfall=1.00"

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Summary for Subcatchment 6S: TO EASTERLY CULVERT 1

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 Rainfall=1.00"

Area (sf)	CN	Description
32,630	39	>75% Grass cover, Good, HSG A
5,313	30	Woods, Good, HSG A
2,831	98	Paved parking & roofs
12,628	76	Gravel roads, HSG A
53,402	50	Weighted Average
50,571		94.70% Pervious Area
2,831		5.30% Impervious Area

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

Summary for Subcatchment 7S: UPPER AREA CULVERT

Runoff = 0.00 cfs @ 12.50 hrs, Volume= 41 cf, Depth> 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 Rainfall=1.00"

Area (sf)	CN	Description
1,629	55	Woods, Good, HSG B
6,853	85	Gravel roads, HSG B
8,482	79	Weighted Average
8,482		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	50	0.0200	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.86"
1.1	107	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.9	345	0.1000	6.28	25.12	Trap/Vee/Rect Channel Flow, Bot.W=1.00' D=1.00' Z= 3.0 '/' Top.W=7.00' n= 0.050
15.0	502	Total			

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Type III 24-hr 1 Rainfall=1.00"

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Summary for Subcatchment 12S: lower drive

Runoff = 0.00 cfs @ 20.00 hrs, Volume= 1 cf, Depth> 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 Rainfall=1.00"

Area (sf)	CN	Description
1,989	85	Gravel roads, HSG B
3,276	61	>75% Grass cover, Good, HSG B
5,265	70	Weighted Average
5,265		100.00% Pervious Area

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

Summary for Subcatchment 15S: HALF BARN AND PORTCH

Runoff = 0.01 cfs @ 12.13 hrs, Volume= 62 cf, Depth> 0.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 Rainfall=1.00"

Area (sf)	CN	Description
1,173	98	Paved parking & roofs
4,310	74	>75% Grass cover, Good, HSG C
1,411	98	Paved parking & roofs
680	74	>75% Grass cover, Good, HSG C
7,574	82	Weighted Average
4,990		65.88% Pervious Area
2,584		34.12% Impervious Area

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

Summary for Reach 19R: STONE DITCH

Inflow Area = 24,930 sf, 0.00% Impervious, Inflow Depth = 0.00" for 1 event

Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs

Average Depth at Peak Storage= 0.00'

Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 88.61 cfs

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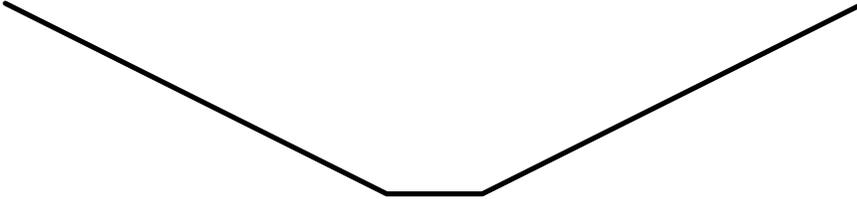
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Type III 24-hr 1 Rainfall=1.00"

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1.00' x 2.00' deep channel, n= 0.050
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 136.0' Slope= 0.0882 '/'
Inlet Invert= 96.00', Outlet Invert= 84.00'



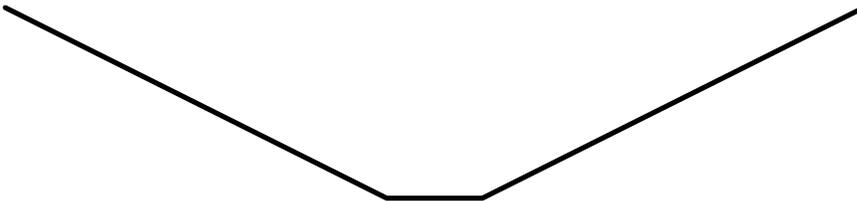
Summary for Reach 20R: STONE DITCH

Inflow Area = 30,195 sf, 0.00% Impervious, Inflow Depth = 0.00" for 1 event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 105.91 cfs

1.00' x 2.00' deep channel, n= 0.050
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 119.0' Slope= 0.1261 '/'
Inlet Invert= 83.00', Outlet Invert= 68.00'



Summary for Pond 4P: PROPOSED 2FT DEEP INFILTRATION POND

Inflow Area = 24,930 sf, 0.00% Impervious, Inflow Depth = 0.00" for 1 event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 5.00 hrs, Volume= 0 cf
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 96.00' @ 5.00 hrs Surf.Area= 750 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

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Type III 24-hr 1 Rainfall=1.00"

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Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	96.00'	3,550 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.00	750	0	0
98.00	2,800	3,550	3,550

Device	Routing	Invert	Outlet Devices
#1	Primary	97.50'	4.0' long x 9.0' 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) 2.46 2.55 2.70 2.69 2.68 2.68 2.67 2.64 2.64 2.64 2.65 2.64 2.65 2.65 2.66 2.67 2.69
#2	Discarded	96.00'	6.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 5.00 hrs HW=96.00' (Free Discharge)
 ↳ **2=Exfiltration** (Passes 0.00 cfs of 0.10 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=96.00' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 8P: CULVERT

Inflow Area = 38,677 sf, 0.00% Impervious, Inflow Depth > 0.01" for 1 event
 Inflow = 0.00 cfs @ 12.50 hrs, Volume= 41 cf
 Outflow = 0.00 cfs @ 12.50 hrs, Volume= 41 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 12.50 hrs, Volume= 41 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 62.03' @ 12.50 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	62.00'	12.0" Round Culvert L= 40.0' Ke= 0.500 Inlet / Outlet Invert= 62.00' / 60.00' S= 0.0500 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.50 hrs HW=62.03' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 0.00 cfs @ 0.61 fps)

Summary for Pond 13P: SHALLOW POND

Inflow Area = 5,265 sf, 0.00% Impervious, Inflow Depth > 0.00" for 1 event
 Inflow = 0.00 cfs @ 20.00 hrs, Volume= 1 cf
 Outflow = 0.00 cfs @ 20.00 hrs, Volume= 1 cf, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 20.00 hrs, Volume= 1 cf
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Type III 24-hr 1 Rainfall=1.00"

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Peak Elev= 86.00' @ 20.00 hrs Surf.Area= 290 sf Storage= 0 cf

Plug-Flow detention time= 2.4 min calculated for 1 cf (99% of inflow)
Center-of-Mass det. time= 1.1 min (1,078.4 - 1,077.4)

Volume	Invert	Avail.Storage	Storage Description
#1	86.00'	965 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
86.00	290	0	0
88.00	675	965	965

Device	Routing	Invert	Outlet Devices
#1	Primary	81.00'	12.0" Round Culvert L= 46.0' Ke= 0.500 Inlet / Outlet Invert= 81.00' / 80.77' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	87.00'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Discarded	86.00'	6.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.04 cfs @ 20.00 hrs HW=86.00' (Free Discharge)
 ↳ **3=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=86.00' (Free Discharge)
 ↳ **1=Culvert** (Passes 0.00 cfs of 7.55 cfs potential flow)
 ↳ **2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 15P: 650 SQ FT Rain Garden (approximately 20 by 33 by 3' deep)

Inflow Area = 7,574 sf, 34.12% Impervious, Inflow Depth > 0.10" for 1 event
 Inflow = 0.01 cfs @ 12.13 hrs, Volume= 62 cf
 Outflow = 0.01 cfs @ 12.17 hrs, Volume= 62 cf, Atten= 0%, Lag= 2.3 min
 Discarded = 0.01 cfs @ 12.17 hrs, Volume= 62 cf
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 0.00' @ 12.17 hrs Surf.Area= 650 sf Storage= 1 cf

Plug-Flow detention time= 1.5 min calculated for 62 cf (100% of inflow)
 Center-of-Mass det. time= 1.1 min (867.0 - 865.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	260 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 650 cf Overall x 40.0% Voids
#2	1.10'	390 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 975 cf Overall x 40.0% Voids
#3	2.70'	130 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 260 cf Overall x 50.0% Voids
		780 cf	Total Available Storage

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Type III 24-hr 1 Rainfall=1.00"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	650	0	0
1.00	650	650	650

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1.10	650	0	0
2.60	650	975	975

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
2.70	650	0	0
3.10	650	260	260

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	6.000 in/hr Exfiltration over Surface area
#2	Primary	3.00'	6.0' long x 3.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50
			Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
			2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.09 cfs @ 12.17 hrs HW=0.00' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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Type III 24-hr 2 YR Rainfall=3.14"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 3S: PROPOSED GRAVEL Runoff Area=24,930 sf 0.00% Impervious Runoff Depth>0.55"
 Tc=5.0 min CN=66 Runoff=0.33 cfs 1,135 cf

Subcatchment 5S: TO WESTERLY Runoff Area=87,404 sf 5.63% Impervious Runoff Depth>0.36"
 Flow Length=474' Tc=16.7 min CN=61 Runoff=0.45 cfs 2,647 cf

Subcatchment 6S: TO EASTERLY Runoff Area=53,402 sf 5.30% Impervious Runoff Depth>0.09"
 Tc=5.0 min CN=50 Runoff=0.02 cfs 407 cf

Subcatchment 7S: UPPER AREA CULVERT Runoff Area=8,482 sf 0.00% Impervious Runoff Depth>1.19"
 Flow Length=502' Tc=15.0 min CN=79 Runoff=0.22 cfs 838 cf

Subcatchment 12S: lower drive Runoff Area=5,265 sf 0.00% Impervious Runoff Depth>0.72"
 Tc=5.0 min CN=70 Runoff=0.10 cfs 314 cf

Subcatchment 15S: HALF BARN AND Runoff Area=7,574 sf 34.12% Impervious Runoff Depth>1.38"
 Tc=5.0 min CN=82 Runoff=0.30 cfs 872 cf

Reach 19R: STONE DITCH Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0 cf
 n=0.050 L=136.0' S=0.0882 '/' Capacity=88.61 cfs Outflow=0.00 cfs 0 cf

Reach 20R: STONE DITCH Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0 cf
 n=0.050 L=119.0' S=0.1261 '/' Capacity=105.91 cfs Outflow=0.00 cfs 0 cf

Pond 4P: PROPOSED 2FT DEEP Peak Elev=96.20' Storage=172 cf Inflow=0.33 cfs 1,135 cf
 Discarded=0.13 cfs 1,133 cf Primary=0.00 cfs 0 cf Outflow=0.13 cfs 1,133 cf

Pond 8P: CULVERT Peak Elev=62.23' Inflow=0.22 cfs 838 cf
 12.0" Round Culvert n=0.013 L=40.0' S=0.0500 '/' Outflow=0.22 cfs 838 cf

Pond 13P: SHALLOW POND Peak Elev=86.14' Storage=41 cf Inflow=0.10 cfs 314 cf
 Discarded=0.04 cfs 314 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 314 cf

Pond 15P: 650 SQ FT Rain Garden (approximately) Peak Elev=0.65' Storage=170 cf Inflow=0.30 cfs 872 cf
 Discarded=0.09 cfs 871 cf Primary=0.00 cfs 0 cf Outflow=0.09 cfs 871 cf

Total Runoff Area = 187,057 sf Runoff Volume = 6,212 cf Average Runoff Depth = 0.40"
94.48% Pervious = 176,724 sf 5.52% Impervious = 10,333 sf

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Type III 24-hr 2 YR Rainfall=3.14"

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Summary for Subcatchment 3S: PROPOSED GRAVEL PARKING LOT

Runoff = 0.33 cfs @ 12.10 hrs, Volume= 1,135 cf, Depth> 0.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 YR Rainfall=3.14"

Area (sf)	CN	Description
8,231	85	Gravel roads, HSG B
3,033	61	>75% Grass cover, Good, HSG B
8,709	55	Woods, Good, HSG B
4,957	55	Woods, Good, HSG B
24,930	66	Weighted Average
24,930		100.00% Pervious Area

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

Summary for Subcatchment 5S: TO WESTERLY CULVERT 2

Runoff = 0.45 cfs @ 12.35 hrs, Volume= 2,647 cf, Depth> 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 YR Rainfall=3.14"

Area (sf)	CN	Description
10,505	55	Woods, Good, HSG B
1,576	61	>75% Grass cover, Good, HSG B
26,280	39	>75% Grass cover, Good, HSG A
3,013	30	Woods, Good, HSG A
4,918	98	Paved parking & roofs
29,840	76	Gravel roads, HSG A
11,272	74	>75% Grass cover, Good, HSG C
87,404	61	Weighted Average
82,486		94.37% Pervious Area
4,918		5.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	50	0.0200	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.86"
1.8	174	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.9	250	0.1000	2.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
16.7	474	Total			

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Type III 24-hr 2 YR Rainfall=3.14"

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Summary for Subcatchment 6S: TO EASTERLY CULVERT 1

Runoff = 0.02 cfs @ 12.48 hrs, Volume= 407 cf, Depth> 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 YR Rainfall=3.14"

Area (sf)	CN	Description
32,630	39	>75% Grass cover, Good, HSG A
5,313	30	Woods, Good, HSG A
2,831	98	Paved parking & roofs
12,628	76	Gravel roads, HSG A
53,402	50	Weighted Average
50,571		94.70% Pervious Area
2,831		5.30% Impervious Area

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

Summary for Subcatchment 7S: UPPER AREA CULVERT

Runoff = 0.22 cfs @ 12.22 hrs, Volume= 838 cf, Depth> 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 YR Rainfall=3.14"

Area (sf)	CN	Description
1,629	55	Woods, Good, HSG B
6,853	85	Gravel roads, HSG B
8,482	79	Weighted Average
8,482		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	50	0.0200	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.86"
1.1	107	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.9	345	0.1000	6.28	25.12	Trap/Vee/Rect Channel Flow, Bot.W=1.00' D=1.00' Z= 3.0 '/' Top.W=7.00' n= 0.050
15.0	502	Total			

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Type III 24-hr 2 YR Rainfall=3.14"

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Summary for Subcatchment 12S: lower drive

Runoff = 0.10 cfs @ 12.09 hrs, Volume= 314 cf, Depth> 0.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 YR Rainfall=3.14"

Area (sf)	CN	Description
1,989	85	Gravel roads, HSG B
3,276	61	>75% Grass cover, Good, HSG B
5,265	70	Weighted Average
5,265		100.00% Pervious Area

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

Summary for Subcatchment 15S: HALF BARN AND PORTCH

Runoff = 0.30 cfs @ 12.08 hrs, Volume= 872 cf, Depth> 1.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 YR Rainfall=3.14"

Area (sf)	CN	Description
1,173	98	Paved parking & roofs
4,310	74	>75% Grass cover, Good, HSG C
1,411	98	Paved parking & roofs
680	74	>75% Grass cover, Good, HSG C
7,574	82	Weighted Average
4,990		65.88% Pervious Area
2,584		34.12% Impervious Area

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

Summary for Reach 19R: STONE DITCH

Inflow Area = 24,930 sf, 0.00% Impervious, Inflow Depth = 0.00" for 2 YR event

Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs

Average Depth at Peak Storage= 0.00'

Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 88.61 cfs

Bennett Road Inn Post Drainage August

Type III 24-hr 2 YR Rainfall=3.14"

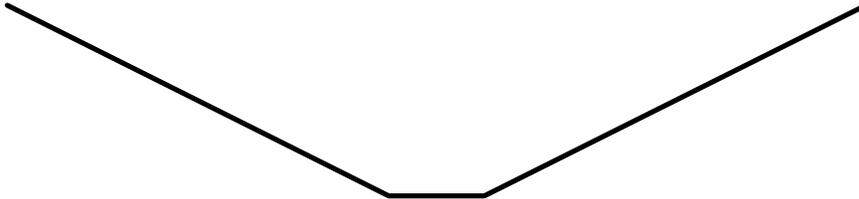
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1.00' x 2.00' deep channel, n= 0.050
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 136.0' Slope= 0.0882 '/'
Inlet Invert= 96.00', Outlet Invert= 84.00'



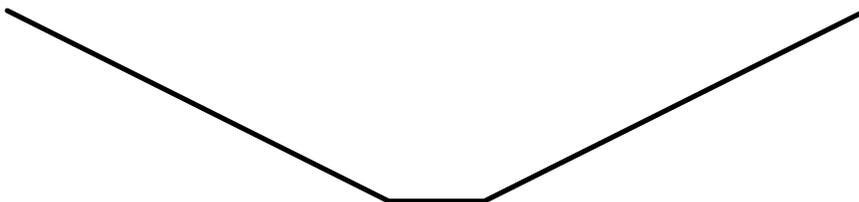
Summary for Reach 20R: STONE DITCH

Inflow Area = 30,195 sf, 0.00% Impervious, Inflow Depth = 0.00" for 2 YR event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 105.91 cfs

1.00' x 2.00' deep channel, n= 0.050
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 119.0' Slope= 0.1261 '/'
Inlet Invert= 83.00', Outlet Invert= 68.00'



Summary for Pond 4P: PROPOSED 2FT DEEP INFILTRATION POND

Inflow Area = 24,930 sf, 0.00% Impervious, Inflow Depth > 0.55" for 2 YR event
Inflow = 0.33 cfs @ 12.10 hrs, Volume= 1,135 cf
Outflow = 0.13 cfs @ 12.45 hrs, Volume= 1,133 cf, Atten= 60%, Lag= 21.1 min
Discarded = 0.13 cfs @ 12.45 hrs, Volume= 1,133 cf
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 96.20' @ 12.45 hrs Surf.Area= 957 sf Storage= 172 cf

Plug-Flow detention time= 8.1 min calculated for 1,133 cf (100% of inflow)

Bennett Road Inn Post Drainage August

Type III 24-hr 2 YR Rainfall=3.14"

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Center-of-Mass det. time= 7.7 min (847.9 - 840.2)

Volume	Invert	Avail.Storage	Storage Description
#1	96.00'	3,550 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.00	750	0	0
98.00	2,800	3,550	3,550

Device	Routing	Invert	Outlet Devices
#1	Primary	97.50'	4.0' long x 9.0' 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) 2.46 2.55 2.70 2.69 2.68 2.68 2.67 2.64 2.64 2.64 2.65 2.64 2.65 2.65 2.66 2.67 2.69
#2	Discarded	96.00'	6.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.13 cfs @ 12.45 hrs HW=96.20' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=96.00' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 8P: CULVERT

Inflow Area = 38,677 sf, 0.00% Impervious, Inflow Depth > 0.26" for 2 YR event
 Inflow = 0.22 cfs @ 12.22 hrs, Volume= 838 cf
 Outflow = 0.22 cfs @ 12.22 hrs, Volume= 838 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.22 cfs @ 12.22 hrs, Volume= 838 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 62.23' @ 12.22 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	62.00'	12.0" Round Culvert L= 40.0' Ke= 0.500 Inlet / Outlet Invert= 62.00' / 60.00' S= 0.0500 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.21 cfs @ 12.22 hrs HW=62.23' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 0.21 cfs @ 1.62 fps)

Summary for Pond 13P: SHALLOW POND

Inflow Area = 5,265 sf, 0.00% Impervious, Inflow Depth > 0.72" for 2 YR event
 Inflow = 0.10 cfs @ 12.09 hrs, Volume= 314 cf
 Outflow = 0.04 cfs @ 12.38 hrs, Volume= 314 cf, Atten= 57%, Lag= 17.2 min
 Discarded = 0.04 cfs @ 12.38 hrs, Volume= 314 cf
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Bennett Road Inn Post Drainage August

Type III 24-hr 2 YR Rainfall=3.14"

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Peak Elev= 86.14' @ 12.38 hrs Surf.Area= 316 sf Storage= 41 cf

Plug-Flow detention time= 6.1 min calculated for 313 cf (100% of inflow)

Center-of-Mass det. time= 5.6 min (834.3 - 828.7)

Volume	Invert	Avail.Storage	Storage Description
#1	86.00'	965 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
86.00	290	0	0
88.00	675	965	965

Device	Routing	Invert	Outlet Devices
#1	Primary	81.00'	12.0" Round Culvert L= 46.0' Ke= 0.500 Inlet / Outlet Invert= 81.00' / 80.77' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	87.00'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Discarded	86.00'	6.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.04 cfs @ 12.38 hrs HW=86.14' (Free Discharge)

↑**3=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=86.00' (Free Discharge)

↑**1=Culvert** (Passes 0.00 cfs of 7.55 cfs potential flow)

↑**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 15P: 650 SQ FT Rain Garden (approximately 20 by 33 by 3' deep)

Inflow Area = 7,574 sf, 34.12% Impervious, Inflow Depth > 1.38" for 2 YR event
 Inflow = 0.30 cfs @ 12.08 hrs, Volume= 872 cf
 Outflow = 0.09 cfs @ 11.90 hrs, Volume= 871 cf, Atten= 70%, Lag= 0.0 min
 Discarded = 0.09 cfs @ 11.90 hrs, Volume= 871 cf
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 0.65' @ 12.44 hrs Surf.Area= 650 sf Storage= 170 cf

Plug-Flow detention time= 10.8 min calculated for 871 cf (100% of inflow)

Center-of-Mass det. time= 10.5 min (809.1 - 798.6)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	260 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 650 cf Overall x 40.0% Voids
#2	1.10'	390 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 975 cf Overall x 40.0% Voids
#3	2.70'	130 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 260 cf Overall x 50.0% Voids
		780 cf	Total Available Storage

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Type III 24-hr 2 YR Rainfall=3.14"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	650	0	0
1.00	650	650	650

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1.10	650	0	0
2.60	650	975	975

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
2.70	650	0	0
3.10	650	260	260

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	6.000 in/hr Exfiltration over Surface area
#2	Primary	3.00'	6.0' long x 3.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50
			Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
			2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.09 cfs @ 11.90 hrs HW=0.03' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Bennett Road Inn Post Drainage August

Type III 24-hr 10YR Rainfall=4.76"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 3S: PROPOSED GRAVEL Runoff Area=24,930 sf 0.00% Impervious Runoff Depth>1.43"
 Tc=5.0 min CN=66 Runoff=1.01 cfs 2,971 cf

Subcatchment 5S: TO WESTERLY Runoff Area=87,404 sf 5.63% Impervious Runoff Depth>1.10"
 Flow Length=474' Tc=16.7 min CN=61 Runoff=1.85 cfs 8,027 cf

Subcatchment 6S: TO EASTERLY Runoff Area=53,402 sf 5.30% Impervious Runoff Depth>0.52"
 Tc=5.0 min CN=50 Runoff=0.50 cfs 2,309 cf

Subcatchment 7S: UPPER AREA CULVERT Runoff Area=8,482 sf 0.00% Impervious Runoff Depth>2.41"
 Flow Length=502' Tc=15.0 min CN=79 Runoff=0.45 cfs 1,705 cf

Subcatchment 12S: lower drive Runoff Area=5,265 sf 0.00% Impervious Runoff Depth>1.71"
 Tc=5.0 min CN=70 Runoff=0.26 cfs 751 cf

Subcatchment 15S: HALF BARN AND Runoff Area=7,574 sf 34.12% Impervious Runoff Depth>2.68"
 Tc=5.0 min CN=82 Runoff=0.58 cfs 1,693 cf

Reach 19R: STONE DITCH Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0 cf
 n=0.050 L=136.0' S=0.0882 '/' Capacity=88.61 cfs Outflow=0.00 cfs 0 cf

Reach 20R: STONE DITCH Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0 cf
 n=0.050 L=119.0' S=0.1261 '/' Capacity=105.91 cfs Outflow=0.00 cfs 0 cf

Pond 4P: PROPOSED 2FT DEEP Peak Elev=96.77' Storage=887 cf Inflow=1.01 cfs 2,971 cf
 Discarded=0.21 cfs 2,968 cf Primary=0.00 cfs 0 cf Outflow=0.21 cfs 2,968 cf

Pond 8P: CULVERT Peak Elev=62.33' Inflow=0.45 cfs 1,705 cf
 12.0" Round Culvert n=0.013 L=40.0' S=0.0500 '/' Outflow=0.45 cfs 1,705 cf

Pond 13P: SHALLOW POND Peak Elev=86.61' Storage=212 cf Inflow=0.26 cfs 751 cf
 Discarded=0.06 cfs 750 cf Primary=0.00 cfs 0 cf Outflow=0.06 cfs 750 cf

Pond 15P: 650 SQ FT Rain Garden Peak Elev=1.66' Storage=405 cf Inflow=0.58 cfs 1,693 cf
 Discarded=0.18 cfs 1,692 cf Primary=0.00 cfs 0 cf Outflow=0.18 cfs 1,692 cf

Total Runoff Area = 187,057 sf Runoff Volume = 17,455 cf Average Runoff Depth = 1.12"
94.48% Pervious = 176,724 sf 5.52% Impervious = 10,333 sf

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Type III 24-hr 10YR Rainfall=4.76"

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Summary for Subcatchment 3S: PROPOSED GRAVEL PARKING LOT

Runoff = 1.01 cfs @ 12.09 hrs, Volume= 2,971 cf, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.76"

Area (sf)	CN	Description
8,231	85	Gravel roads, HSG B
3,033	61	>75% Grass cover, Good, HSG B
8,709	55	Woods, Good, HSG B
4,957	55	Woods, Good, HSG B
24,930	66	Weighted Average
24,930		100.00% Pervious Area

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

Summary for Subcatchment 5S: TO WESTERLY CULVERT 2

Runoff = 1.85 cfs @ 12.26 hrs, Volume= 8,027 cf, Depth> 1.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.76"

Area (sf)	CN	Description
10,505	55	Woods, Good, HSG B
1,576	61	>75% Grass cover, Good, HSG B
26,280	39	>75% Grass cover, Good, HSG A
3,013	30	Woods, Good, HSG A
4,918	98	Paved parking & roofs
29,840	76	Gravel roads, HSG A
11,272	74	>75% Grass cover, Good, HSG C
87,404	61	Weighted Average
82,486		94.37% Pervious Area
4,918		5.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	50	0.0200	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.86"
1.8	174	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.9	250	0.1000	2.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
16.7	474	Total			

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Type III 24-hr 10YR Rainfall=4.76"

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Summary for Subcatchment 6S: TO EASTERLY CULVERT 1

Runoff = 0.50 cfs @ 12.12 hrs, Volume= 2,309 cf, Depth> 0.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.76"

Area (sf)	CN	Description
32,630	39	>75% Grass cover, Good, HSG A
5,313	30	Woods, Good, HSG A
2,831	98	Paved parking & roofs
12,628	76	Gravel roads, HSG A
53,402	50	Weighted Average
50,571		94.70% Pervious Area
2,831		5.30% Impervious Area

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

Summary for Subcatchment 7S: UPPER AREA CULVERT

Runoff = 0.45 cfs @ 12.21 hrs, Volume= 1,705 cf, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.76"

Area (sf)	CN	Description
1,629	55	Woods, Good, HSG B
6,853	85	Gravel roads, HSG B
8,482	79	Weighted Average
8,482		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	50	0.0200	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.86"
1.1	107	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.9	345	0.1000	6.28	25.12	Trap/Vee/Rect Channel Flow, Bot.W=1.00' D=1.00' Z= 3.0 '/' Top.W=7.00' n= 0.050
15.0	502	Total			

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Type III 24-hr 10YR Rainfall=4.76"

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Summary for Subcatchment 12S: lower drive

Runoff = 0.26 cfs @ 12.08 hrs, Volume= 751 cf, Depth> 1.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.76"

Area (sf)	CN	Description
1,989	85	Gravel roads, HSG B
3,276	61	>75% Grass cover, Good, HSG B
5,265	70	Weighted Average
5,265		100.00% Pervious Area

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

Summary for Subcatchment 15S: HALF BARN AND PORTCH

Runoff = 0.58 cfs @ 12.08 hrs, Volume= 1,693 cf, Depth> 2.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.76"

Area (sf)	CN	Description
1,173	98	Paved parking & roofs
4,310	74	>75% Grass cover, Good, HSG C
1,411	98	Paved parking & roofs
680	74	>75% Grass cover, Good, HSG C
7,574	82	Weighted Average
4,990		65.88% Pervious Area
2,584		34.12% Impervious Area

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

Summary for Reach 19R: STONE DITCH

Inflow Area = 24,930 sf, 0.00% Impervious, Inflow Depth = 0.00" for 10YR event

Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs

Average Depth at Peak Storage= 0.00'

Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 88.61 cfs

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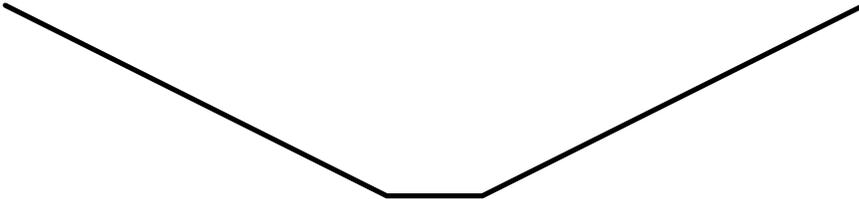
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1.00' x 2.00' deep channel, n= 0.050
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 136.0' Slope= 0.0882 '/'
Inlet Invert= 96.00', Outlet Invert= 84.00'



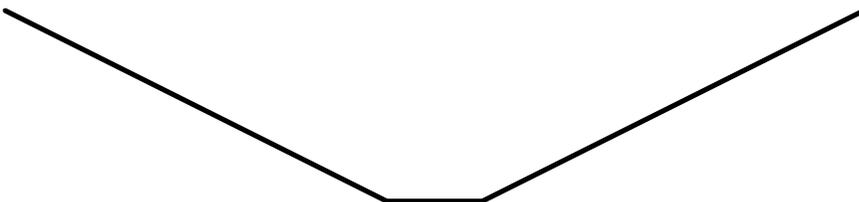
Summary for Reach 20R: STONE DITCH

Inflow Area = 30,195 sf, 0.00% Impervious, Inflow Depth = 0.00" for 10YR event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 105.91 cfs

1.00' x 2.00' deep channel, n= 0.050
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 119.0' Slope= 0.1261 '/'
Inlet Invert= 83.00', Outlet Invert= 68.00'



Summary for Pond 4P: PROPOSED 2FT DEEP INFILTRATION POND

Inflow Area = 24,930 sf, 0.00% Impervious, Inflow Depth > 1.43" for 10YR event
Inflow = 1.01 cfs @ 12.09 hrs, Volume= 2,971 cf
Outflow = 0.21 cfs @ 12.55 hrs, Volume= 2,968 cf, Atten= 79%, Lag= 27.8 min
Discarded = 0.21 cfs @ 12.55 hrs, Volume= 2,968 cf
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 96.77' @ 12.55 hrs Surf.Area= 1,543 sf Storage= 887 cf

Plug-Flow detention time= 36.2 min calculated for 2,968 cf (100% of inflow)

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Type III 24-hr 10YR Rainfall=4.76"

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Center-of-Mass det. time= 35.8 min (852.7 - 816.9)

Volume	Invert	Avail.Storage	Storage Description
#1	96.00'	3,550 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.00	750	0	0
98.00	2,800	3,550	3,550

Device	Routing	Invert	Outlet Devices
#1	Primary	97.50'	4.0' long x 9.0' 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) 2.46 2.55 2.70 2.69 2.68 2.68 2.67 2.64 2.64 2.64 2.65 2.64 2.65 2.65 2.66 2.67 2.69
#2	Discarded	96.00'	6.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.21 cfs @ 12.55 hrs HW=96.77' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.21 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=96.00' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 8P: CULVERT

Inflow Area = 38,677 sf, 0.00% Impervious, Inflow Depth > 0.53" for 10YR event
 Inflow = 0.45 cfs @ 12.21 hrs, Volume= 1,705 cf
 Outflow = 0.45 cfs @ 12.21 hrs, Volume= 1,705 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.45 cfs @ 12.21 hrs, Volume= 1,705 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 62.33' @ 12.21 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	62.00'	12.0" Round Culvert L= 40.0' Ke= 0.500 Inlet / Outlet Invert= 62.00' / 60.00' S= 0.0500 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.44 cfs @ 12.21 hrs HW=62.33' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 0.44 cfs @ 1.96 fps)

Summary for Pond 13P: SHALLOW POND

Inflow Area = 5,265 sf, 0.00% Impervious, Inflow Depth > 1.71" for 10YR event
 Inflow = 0.26 cfs @ 12.08 hrs, Volume= 751 cf
 Outflow = 0.06 cfs @ 12.53 hrs, Volume= 750 cf, Atten= 78%, Lag= 26.7 min
 Discarded = 0.06 cfs @ 12.53 hrs, Volume= 750 cf
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Bennett Road Inn Post Drainage August

Type III 24-hr 10YR Rainfall=4.76"

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Peak Elev= 86.61' @ 12.53 hrs Surf.Area= 407 sf Storage= 212 cf

Plug-Flow detention time= 28.4 min calculated for 750 cf (100% of inflow)

Center-of-Mass det. time= 28.0 min (836.7 - 808.7)

Volume	Invert	Avail.Storage	Storage Description
#1	86.00'	965 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
86.00	290	0	0
88.00	675	965	965

Device	Routing	Invert	Outlet Devices
#1	Primary	81.00'	12.0" Round Culvert L= 46.0' Ke= 0.500 Inlet / Outlet Invert= 81.00' / 80.77' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	87.00'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Discarded	86.00'	6.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.06 cfs @ 12.53 hrs HW=86.61' (Free Discharge)

↑**3=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=86.00' (Free Discharge)

↑**1=Culvert** (Passes 0.00 cfs of 7.55 cfs potential flow)

↑**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 15P: 650 SQ FT Rain Garden (approximately 20 by 33 by 3' deep)

Inflow Area = 7,574 sf, 34.12% Impervious, Inflow Depth > 2.68" for 10YR event
 Inflow = 0.58 cfs @ 12.08 hrs, Volume= 1,693 cf
 Outflow = 0.18 cfs @ 12.10 hrs, Volume= 1,692 cf, Atten= 69%, Lag= 1.4 min
 Discarded = 0.18 cfs @ 12.10 hrs, Volume= 1,692 cf
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 1.66' @ 12.41 hrs Surf.Area= 1,300 sf Storage= 405 cf

Plug-Flow detention time= 19.1 min calculated for 1,692 cf (100% of inflow)

Center-of-Mass det. time= 18.9 min (802.3 - 783.4)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	260 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 650 cf Overall x 40.0% Voids
#2	1.10'	390 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 975 cf Overall x 40.0% Voids
#3	2.70'	130 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 260 cf Overall x 50.0% Voids
		780 cf	Total Available Storage

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	650	0	0
1.00	650	650	650

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1.10	650	0	0
2.60	650	975	975

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
2.70	650	0	0
3.10	650	260	260

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	6.000 in/hr Exfiltration over Surface area
#2	Primary	3.00'	6.0' long x 3.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50
			Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
			2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.18 cfs @ 12.10 hrs HW=1.14' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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Type III 24-hr 25YR Rainfall=6.04"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 3S: PROPOSED GRAVEL Runoff Area=24,930 sf 0.00% Impervious Runoff Depth>2.28"
 Tc=5.0 min CN=66 Runoff=1.63 cfs 4,728 cf

Subcatchment 5S: TO WESTERLY Runoff Area=87,404 sf 5.63% Impervious Runoff Depth>1.85"
 Flow Length=474' Tc=16.7 min CN=61 Runoff=3.27 cfs 13,459 cf

Subcatchment 6S: TO EASTERLY Runoff Area=53,402 sf 5.30% Impervious Runoff Depth>1.04"
 Tc=5.0 min CN=50 Runoff=1.35 cfs 4,606 cf

Subcatchment 7S: UPPER AREA CULVERT Runoff Area=8,482 sf 0.00% Impervious Runoff Depth>3.47"
 Flow Length=502' Tc=15.0 min CN=79 Runoff=0.64 cfs 2,452 cf

Subcatchment 12S: lower drive Runoff Area=5,265 sf 0.00% Impervious Runoff Depth>2.63"
 Tc=5.0 min CN=70 Runoff=0.40 cfs 1,153 cf

Subcatchment 15S: HALF BARN AND Runoff Area=7,574 sf 34.12% Impervious Runoff Depth>3.78"
 Tc=5.0 min CN=82 Runoff=0.82 cfs 2,387 cf

Reach 19R: STONE DITCH Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0 cf
 n=0.050 L=136.0' S=0.0882 '/ Capacity=88.61 cfs Outflow=0.00 cfs 0 cf

Reach 20R: STONE DITCH Avg. Flow Depth=0.01' Max Vel=0.75 fps Inflow=0.01 cfs 5 cf
 n=0.050 L=119.0' S=0.1261 '/ Capacity=105.91 cfs Outflow=0.01 cfs 5 cf

Pond 4P: PROPOSED 2FT DEEP Peak Elev=97.21' Storage=1,661 cf Inflow=1.63 cfs 4,728 cf
 Discarded=0.28 cfs 4,724 cf Primary=0.00 cfs 0 cf Outflow=0.28 cfs 4,724 cf

Pond 8P: CULVERT Peak Elev=62.40' Inflow=0.64 cfs 2,457 cf
 12.0" Round Culvert n=0.013 L=40.0' S=0.0500 '/ Outflow=0.64 cfs 2,457 cf

Pond 13P: SHALLOW POND Peak Elev=87.00' Storage=388 cf Inflow=0.40 cfs 1,153 cf
 Discarded=0.07 cfs 1,148 cf Primary=0.01 cfs 5 cf Outflow=0.08 cfs 1,152 cf

Pond 15P: 650 SQ FT Rain Garden Peak Elev=2.74' Storage=662 cf Inflow=0.82 cfs 2,387 cf
 Discarded=0.27 cfs 2,386 cf Primary=0.00 cfs 0 cf Outflow=0.27 cfs 2,386 cf

Total Runoff Area = 187,057 sf Runoff Volume = 28,785 cf Average Runoff Depth = 1.85"
94.48% Pervious = 176,724 sf 5.52% Impervious = 10,333 sf

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Type III 24-hr 25YR Rainfall=6.04"

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Summary for Subcatchment 3S: PROPOSED GRAVEL PARKING LOT

Runoff = 1.63 cfs @ 12.08 hrs, Volume= 4,728 cf, Depth> 2.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR Rainfall=6.04"

Area (sf)	CN	Description
8,231	85	Gravel roads, HSG B
3,033	61	>75% Grass cover, Good, HSG B
8,709	55	Woods, Good, HSG B
4,957	55	Woods, Good, HSG B
24,930	66	Weighted Average
24,930		100.00% Pervious Area

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

Summary for Subcatchment 5S: TO WESTERLY CULVERT 2

Runoff = 3.27 cfs @ 12.25 hrs, Volume= 13,459 cf, Depth> 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR Rainfall=6.04"

Area (sf)	CN	Description
10,505	55	Woods, Good, HSG B
1,576	61	>75% Grass cover, Good, HSG B
26,280	39	>75% Grass cover, Good, HSG A
3,013	30	Woods, Good, HSG A
4,918	98	Paved parking & roofs
29,840	76	Gravel roads, HSG A
11,272	74	>75% Grass cover, Good, HSG C
87,404	61	Weighted Average
82,486		94.37% Pervious Area
4,918		5.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	50	0.0200	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.86"
1.8	174	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.9	250	0.1000	2.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
16.7	474	Total			

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Type III 24-hr 25YR Rainfall=6.04"

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Summary for Subcatchment 6S: TO EASTERLY CULVERT 1

Runoff = 1.35 cfs @ 12.10 hrs, Volume= 4,606 cf, Depth> 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR Rainfall=6.04"

Area (sf)	CN	Description
32,630	39	>75% Grass cover, Good, HSG A
5,313	30	Woods, Good, HSG A
2,831	98	Paved parking & roofs
12,628	76	Gravel roads, HSG A
53,402	50	Weighted Average
50,571		94.70% Pervious Area
2,831		5.30% Impervious Area

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

Summary for Subcatchment 7S: UPPER AREA CULVERT

Runoff = 0.64 cfs @ 12.21 hrs, Volume= 2,452 cf, Depth> 3.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR Rainfall=6.04"

Area (sf)	CN	Description
1,629	55	Woods, Good, HSG B
6,853	85	Gravel roads, HSG B
8,482	79	Weighted Average
8,482		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	50	0.0200	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.86"
1.1	107	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.9	345	0.1000	6.28	25.12	Trap/Vee/Rect Channel Flow, Bot.W=1.00' D=1.00' Z= 3.0 '/' Top.W=7.00' n= 0.050
15.0	502	Total			

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Type III 24-hr 25YR Rainfall=6.04"

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Summary for Subcatchment 12S: lower drive

Runoff = 0.40 cfs @ 12.08 hrs, Volume= 1,153 cf, Depth> 2.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR Rainfall=6.04"

Area (sf)	CN	Description
1,989	85	Gravel roads, HSG B
3,276	61	>75% Grass cover, Good, HSG B
5,265	70	Weighted Average
5,265		100.00% Pervious Area

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

Summary for Subcatchment 15S: HALF BARN AND PORTCH

Runoff = 0.82 cfs @ 12.07 hrs, Volume= 2,387 cf, Depth> 3.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR Rainfall=6.04"

Area (sf)	CN	Description
1,173	98	Paved parking & roofs
4,310	74	>75% Grass cover, Good, HSG C
1,411	98	Paved parking & roofs
680	74	>75% Grass cover, Good, HSG C
7,574	82	Weighted Average
4,990		65.88% Pervious Area
2,584		34.12% Impervious Area

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

Summary for Reach 19R: STONE DITCH

Inflow Area = 24,930 sf, 0.00% Impervious, Inflow Depth = 0.00" for 25YR event

Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs

Average Depth at Peak Storage= 0.00'

Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 88.61 cfs

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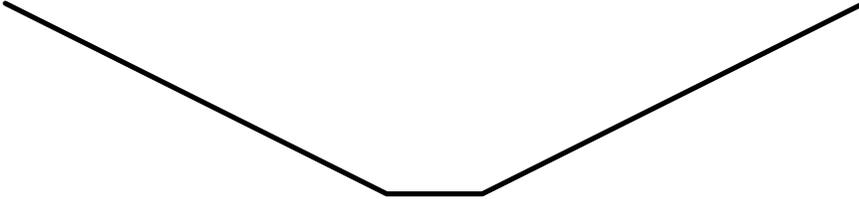
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Type III 24-hr 25YR Rainfall=6.04"

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1.00' x 2.00' deep channel, n= 0.050
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 136.0' Slope= 0.0882 '/'
Inlet Invert= 96.00', Outlet Invert= 84.00'



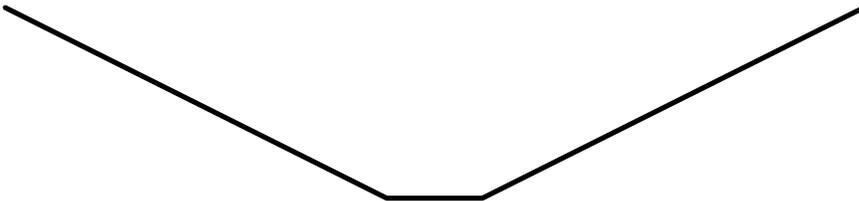
Summary for Reach 20R: STONE DITCH

Inflow Area = 30,195 sf, 0.00% Impervious, Inflow Depth = 0.00" for 25YR event
Inflow = 0.01 cfs @ 12.55 hrs, Volume= 5 cf
Outflow = 0.01 cfs @ 12.62 hrs, Volume= 5 cf, Atten= 38%, Lag= 4.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.75 fps, Min. Travel Time= 2.6 min
Avg. Velocity = 0.75 fps, Avg. Travel Time= 2.6 min

Peak Storage= 2 cf @ 12.58 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 105.91 cfs

1.00' x 2.00' deep channel, n= 0.050
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 119.0' Slope= 0.1261 '/'
Inlet Invert= 83.00', Outlet Invert= 68.00'



Summary for Pond 4P: PROPOSED 2FT DEEP INFILTRATION POND

Inflow Area = 24,930 sf, 0.00% Impervious, Inflow Depth > 2.28" for 25YR event
Inflow = 1.63 cfs @ 12.08 hrs, Volume= 4,728 cf
Outflow = 0.28 cfs @ 12.60 hrs, Volume= 4,724 cf, Atten= 83%, Lag= 30.8 min
Discarded = 0.28 cfs @ 12.60 hrs, Volume= 4,724 cf
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 97.21' @ 12.60 hrs Surf.Area= 1,992 sf Storage= 1,661 cf

Plug-Flow detention time= 59.5 min calculated for 4,708 cf (100% of inflow)

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Type III 24-hr 25YR Rainfall=6.04"

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Center-of-Mass det. time= 59.0 min (865.5 - 806.5)

Volume	Invert	Avail.Storage	Storage Description
#1	96.00'	3,550 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.00	750	0	0
98.00	2,800	3,550	3,550

Device	Routing	Invert	Outlet Devices
#1	Primary	97.50'	4.0' long x 9.0' 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) 2.46 2.55 2.70 2.69 2.68 2.68 2.67 2.64 2.64 2.64 2.65 2.64 2.65 2.65 2.66 2.67 2.69
#2	Discarded	96.00'	6.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.28 cfs @ 12.60 hrs HW=97.21' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=96.00' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 8P: CULVERT

Inflow Area = 38,677 sf, 0.00% Impervious, Inflow Depth > 0.76" for 25YR event
 Inflow = 0.64 cfs @ 12.21 hrs, Volume= 2,457 cf
 Outflow = 0.64 cfs @ 12.21 hrs, Volume= 2,457 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.64 cfs @ 12.21 hrs, Volume= 2,457 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 62.40' @ 12.21 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	62.00'	12.0" Round Culvert L= 40.0' Ke= 0.500 Inlet / Outlet Invert= 62.00' / 60.00' S= 0.0500 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.63 cfs @ 12.21 hrs HW=62.40' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 0.63 cfs @ 2.16 fps)

Summary for Pond 13P: SHALLOW POND

Inflow Area = 5,265 sf, 0.00% Impervious, Inflow Depth > 2.63" for 25YR event
 Inflow = 0.40 cfs @ 12.08 hrs, Volume= 1,153 cf
 Outflow = 0.08 cfs @ 12.55 hrs, Volume= 1,152 cf, Atten= 80%, Lag= 27.9 min
 Discarded = 0.07 cfs @ 12.55 hrs, Volume= 1,148 cf
 Primary = 0.01 cfs @ 12.55 hrs, Volume= 5 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Type III 24-hr 25YR Rainfall=6.04"

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Peak Elev= 87.00' @ 12.55 hrs Surf.Area= 483 sf Storage= 388 cf

Plug-Flow detention time= 50.4 min calculated for 1,148 cf (100% of inflow)

Center-of-Mass det. time= 49.9 min (849.0 - 799.1)

Volume	Invert	Avail.Storage	Storage Description
#1	86.00'	965 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
86.00	290	0	0
88.00	675	965	965

Device	Routing	Invert	Outlet Devices
#1	Primary	81.00'	12.0" Round Culvert L= 46.0' Ke= 0.500 Inlet / Outlet Invert= 81.00' / 80.77' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	87.00'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Discarded	86.00'	6.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.07 cfs @ 12.55 hrs HW=87.00' (Free Discharge)

↳ **3=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.01 cfs @ 12.55 hrs HW=87.00' (Free Discharge)

↳ **1=Culvert** (Passes 0.01 cfs of 8.40 cfs potential flow)

↳ **2=Orifice/Grate** (Weir Controls 0.01 cfs @ 0.20 fps)

Summary for Pond 15P: 650 SQ FT Rain Garden (approximately 20 by 33 by 3' deep)

Inflow Area = 7,574 sf, 34.12% Impervious, Inflow Depth > 3.78" for 25YR event
 Inflow = 0.82 cfs @ 12.07 hrs, Volume= 2,387 cf
 Outflow = 0.27 cfs @ 12.35 hrs, Volume= 2,386 cf, Atten= 67%, Lag= 16.5 min
 Discarded = 0.27 cfs @ 12.35 hrs, Volume= 2,386 cf
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 2.74' @ 12.37 hrs Surf.Area= 1,950 sf Storage= 662 cf

Plug-Flow detention time= 26.7 min calculated for 2,378 cf (100% of inflow)

Center-of-Mass det. time= 26.5 min (801.7 - 775.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	260 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 650 cf Overall x 40.0% Voids
#2	1.10'	390 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 975 cf Overall x 40.0% Voids
#3	2.70'	130 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 260 cf Overall x 50.0% Voids
		780 cf	Total Available Storage

Bennett Road Inn Post Drainage August

Type III 24-hr 25YR Rainfall=6.04"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	650	0	0
1.00	650	650	650

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1.10	650	0	0
2.60	650	975	975

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
2.70	650	0	0
3.10	650	260	260

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	6.000 in/hr Exfiltration over Surface area
#2	Primary	3.00'	6.0' long x 3.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50
			Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
			2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.27 cfs @ 12.35 hrs HW=2.73' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.27 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Bennett Road Inn Post Drainage August

Type III 24-hr 50YR Rainfall=7.24"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 3S: PROPOSED GRAVEL Runoff Area=24,930 sf 0.00% Impervious Runoff Depth>3.14"
 Tc=5.0 min CN=66 Runoff=2.27 cfs 6,533 cf

Subcatchment 5S: TO WESTERLY Runoff Area=87,404 sf 5.63% Impervious Runoff Depth>2.63"
 Flow Length=474' Tc=16.7 min CN=61 Runoff=4.76 cfs 19,189 cf

Subcatchment 6S: TO EASTERLY Runoff Area=53,402 sf 5.30% Impervious Runoff Depth>1.62"
 Tc=5.0 min CN=50 Runoff=2.32 cfs 7,229 cf

Subcatchment 7S: UPPER AREA CULVERT Runoff Area=8,482 sf 0.00% Impervious Runoff Depth>4.50"
 Flow Length=502' Tc=15.0 min CN=79 Runoff=0.82 cfs 3,182 cf

Subcatchment 12S: lower drive Runoff Area=5,265 sf 0.00% Impervious Runoff Depth>3.56"
 Tc=5.0 min CN=70 Runoff=0.54 cfs 1,560 cf

Subcatchment 15S: HALF BARN AND Runoff Area=7,574 sf 34.12% Impervious Runoff Depth>4.84"
 Tc=5.0 min CN=82 Runoff=1.04 cfs 3,058 cf

Reach 19R: STONE DITCH Avg. Flow Depth=0.08' Max Vel=1.53 fps Inflow=0.15 cfs 170 cf
 n=0.050 L=136.0' S=0.0882 '/' Capacity=88.61 cfs Outflow=0.15 cfs 170 cf

Reach 20R: STONE DITCH Avg. Flow Depth=0.10' Max Vel=2.05 fps Inflow=0.26 cfs 376 cf
 n=0.050 L=119.0' S=0.1261 '/' Capacity=105.91 cfs Outflow=0.23 cfs 376 cf

Pond 4P: PROPOSED 2FT DEEP Peak Elev=97.56' Storage=2,423 cf Inflow=2.27 cfs 6,533 cf
 Discarded=0.33 cfs 6,357 cf Primary=0.15 cfs 170 cf Outflow=0.48 cfs 6,527 cf

Pond 8P: CULVERT Peak Elev=62.52' Inflow=1.00 cfs 3,558 cf
 12.0" Round Culvert n=0.013 L=40.0' S=0.0500 '/' Outflow=1.00 cfs 3,558 cf

Pond 13P: SHALLOW POND Peak Elev=87.04' Storage=408 cf Inflow=0.54 cfs 1,560 cf
 Discarded=0.07 cfs 1,352 cf Primary=0.26 cfs 206 cf Outflow=0.33 cfs 1,558 cf

Pond 15P: 650 SQ FT Rain Garden Peak Elev=3.06' Storage=769 cf Inflow=1.04 cfs 3,058 cf
 Discarded=0.27 cfs 2,919 cf Primary=0.24 cfs 137 cf Outflow=0.51 cfs 3,056 cf

Total Runoff Area = 187,057 sf Runoff Volume = 40,751 cf Average Runoff Depth = 2.61"
94.48% Pervious = 176,724 sf 5.52% Impervious = 10,333 sf

Bennett Road Inn Post Drainage August

Type III 24-hr 50YR Rainfall=7.24"

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Summary for Subcatchment 3S: PROPOSED GRAVEL PARKING LOT

Runoff = 2.27 cfs @ 12.08 hrs, Volume= 6,533 cf, Depth> 3.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50YR Rainfall=7.24"

Area (sf)	CN	Description
8,231	85	Gravel roads, HSG B
3,033	61	>75% Grass cover, Good, HSG B
8,709	55	Woods, Good, HSG B
4,957	55	Woods, Good, HSG B
24,930	66	Weighted Average
24,930		100.00% Pervious Area

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

Summary for Subcatchment 5S: TO WESTERLY CULVERT 2

Runoff = 4.76 cfs @ 12.24 hrs, Volume= 19,189 cf, Depth> 2.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50YR Rainfall=7.24"

Area (sf)	CN	Description
10,505	55	Woods, Good, HSG B
1,576	61	>75% Grass cover, Good, HSG B
26,280	39	>75% Grass cover, Good, HSG A
3,013	30	Woods, Good, HSG A
4,918	98	Paved parking & roofs
29,840	76	Gravel roads, HSG A
11,272	74	>75% Grass cover, Good, HSG C
87,404	61	Weighted Average
82,486		94.37% Pervious Area
4,918		5.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	50	0.0200	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.86"
1.8	174	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.9	250	0.1000	2.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
16.7	474	Total			

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Summary for Subcatchment 6S: TO EASTERLY CULVERT 1

Runoff = 2.32 cfs @ 12.09 hrs, Volume= 7,229 cf, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50YR Rainfall=7.24"

Area (sf)	CN	Description
32,630	39	>75% Grass cover, Good, HSG A
5,313	30	Woods, Good, HSG A
2,831	98	Paved parking & roofs
12,628	76	Gravel roads, HSG A
53,402	50	Weighted Average
50,571		94.70% Pervious Area
2,831		5.30% Impervious Area

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

Summary for Subcatchment 7S: UPPER AREA CULVERT

Runoff = 0.82 cfs @ 12.21 hrs, Volume= 3,182 cf, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50YR Rainfall=7.24"

Area (sf)	CN	Description
1,629	55	Woods, Good, HSG B
6,853	85	Gravel roads, HSG B
8,482	79	Weighted Average
8,482		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	50	0.0200	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.86"
1.1	107	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.9	345	0.1000	6.28	25.12	Trap/Vee/Rect Channel Flow, Bot.W=1.00' D=1.00' Z= 3.0 '/' Top.W=7.00' n= 0.050
15.0	502	Total			

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Type III 24-hr 50YR Rainfall=7.24"

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Summary for Subcatchment 12S: lower drive

Runoff = 0.54 cfs @ 12.08 hrs, Volume= 1,560 cf, Depth> 3.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50YR Rainfall=7.24"

Area (sf)	CN	Description
1,989	85	Gravel roads, HSG B
3,276	61	>75% Grass cover, Good, HSG B
5,265	70	Weighted Average
5,265		100.00% Pervious Area

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

Summary for Subcatchment 15S: HALF BARN AND PORTCH

Runoff = 1.04 cfs @ 12.07 hrs, Volume= 3,058 cf, Depth> 4.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50YR Rainfall=7.24"

Area (sf)	CN	Description
1,173	98	Paved parking & roofs
4,310	74	>75% Grass cover, Good, HSG C
1,411	98	Paved parking & roofs
680	74	>75% Grass cover, Good, HSG C
7,574	82	Weighted Average
4,990		65.88% Pervious Area
2,584		34.12% Impervious Area

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

Summary for Reach 19R: STONE DITCH

Inflow Area = 24,930 sf, 0.00% Impervious, Inflow Depth = 0.08" for 50YR event

Inflow = 0.15 cfs @ 12.52 hrs, Volume= 170 cf

Outflow = 0.15 cfs @ 12.57 hrs, Volume= 170 cf, Atten= 3%, Lag= 2.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.53 fps, Min. Travel Time= 1.5 min

Avg. Velocity= 0.98 fps, Avg. Travel Time= 2.3 min

Peak Storage= 13 cf @ 12.54 hrs

Average Depth at Peak Storage= 0.08'

Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 88.61 cfs

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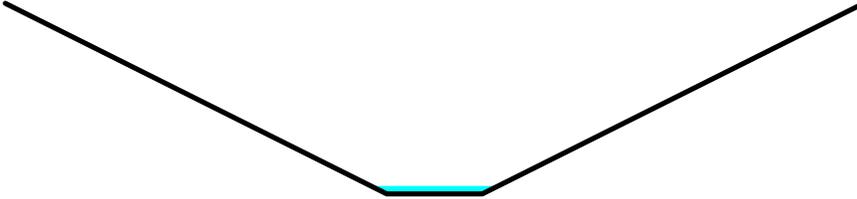
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Type III 24-hr 50YR Rainfall=7.24"

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1.00' x 2.00' deep channel, n= 0.050
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 136.0' Slope= 0.0882 '/'
Inlet Invert= 96.00', Outlet Invert= 84.00'



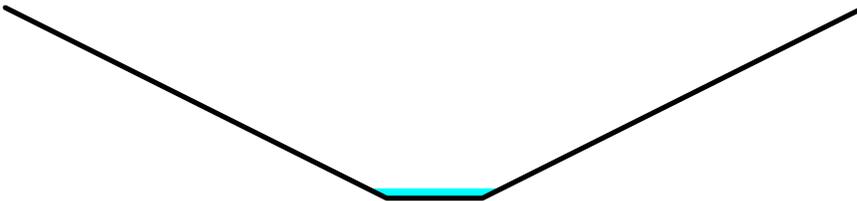
Summary for Reach 20R: STONE DITCH

Inflow Area = 30,195 sf, 0.00% Impervious, Inflow Depth = 0.15" for 50YR event
Inflow = 0.26 cfs @ 12.22 hrs, Volume= 376 cf
Outflow = 0.23 cfs @ 12.27 hrs, Volume= 376 cf, Atten= 14%, Lag= 2.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.05 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.30 fps, Avg. Travel Time= 1.5 min

Peak Storage= 15 cf @ 12.25 hrs
Average Depth at Peak Storage= 0.10'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 105.91 cfs

1.00' x 2.00' deep channel, n= 0.050
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 119.0' Slope= 0.1261 '/'
Inlet Invert= 83.00', Outlet Invert= 68.00'



Summary for Pond 4P: PROPOSED 2FT DEEP INFILTRATION POND

Inflow Area = 24,930 sf, 0.00% Impervious, Inflow Depth > 3.14" for 50YR event
Inflow = 2.27 cfs @ 12.08 hrs, Volume= 6,533 cf
Outflow = 0.48 cfs @ 12.52 hrs, Volume= 6,527 cf, Atten= 79%, Lag= 26.6 min
Discarded = 0.33 cfs @ 12.52 hrs, Volume= 6,357 cf
Primary = 0.15 cfs @ 12.52 hrs, Volume= 170 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 97.56' @ 12.52 hrs Surf.Area= 2,352 sf Storage= 2,423 cf

Plug-Flow detention time= 74.7 min calculated for 6,505 cf (100% of inflow)

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Type III 24-hr 50YR Rainfall=7.24"

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Center-of-Mass det. time= 74.1 min (873.4 - 799.2)

Volume	Invert	Avail.Storage	Storage Description
#1	96.00'	3,550 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.00	750	0	0
98.00	2,800	3,550	3,550

Device	Routing	Invert	Outlet Devices
#1	Primary	97.50'	4.0' long x 9.0' 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) 2.46 2.55 2.70 2.69 2.68 2.68 2.67 2.64 2.64 2.64 2.65 2.64 2.65 2.65 2.66 2.67 2.69
#2	Discarded	96.00'	6.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.33 cfs @ 12.52 hrs HW=97.56' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.33 cfs)

Primary OutFlow Max=0.15 cfs @ 12.52 hrs HW=97.56' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Weir Controls 0.15 cfs @ 0.61 fps)

Summary for Pond 8P: CULVERT

Inflow Area = 38,677 sf, 0.00% Impervious, Inflow Depth > 1.10" for 50YR event
 Inflow = 1.00 cfs @ 12.25 hrs, Volume= 3,558 cf
 Outflow = 1.00 cfs @ 12.25 hrs, Volume= 3,558 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.00 cfs @ 12.25 hrs, Volume= 3,558 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 62.52' @ 12.25 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	62.00'	12.0" Round Culvert L= 40.0' Ke= 0.500 Inlet / Outlet Invert= 62.00' / 60.00' S= 0.0500 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.99 cfs @ 12.25 hrs HW=62.51' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 0.99 cfs @ 2.44 fps)

Summary for Pond 13P: SHALLOW POND

Inflow Area = 5,265 sf, 0.00% Impervious, Inflow Depth > 3.56" for 50YR event
 Inflow = 0.54 cfs @ 12.08 hrs, Volume= 1,560 cf
 Outflow = 0.33 cfs @ 12.22 hrs, Volume= 1,558 cf, Atten= 39%, Lag= 8.4 min
 Discarded = 0.07 cfs @ 12.20 hrs, Volume= 1,352 cf
 Primary = 0.26 cfs @ 12.22 hrs, Volume= 206 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Type III 24-hr 50YR Rainfall=7.24"

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Peak Elev= 87.04' @ 12.20 hrs Surf.Area= 491 sf Storage= 408 cf

Plug-Flow detention time= 46.3 min calculated for 1,558 cf (100% of inflow)

Center-of-Mass det. time= 45.9 min (838.2 - 792.3)

Volume	Invert	Avail.Storage	Storage Description
#1	86.00'	965 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
86.00	290	0	0
88.00	675	965	965

Device	Routing	Invert	Outlet Devices
#1	Primary	81.00'	12.0" Round Culvert L= 46.0' Ke= 0.500 Inlet / Outlet Invert= 81.00' / 80.77' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	87.00'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Discarded	86.00'	6.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.07 cfs @ 12.20 hrs HW=87.04' (Free Discharge)

↳ **3=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.23 cfs @ 12.22 hrs HW=87.04' (Free Discharge)

↳ **1=Culvert** (Passes 0.23 cfs of 8.43 cfs potential flow)

↳ **2=Orifice/Grate** (Weir Controls 0.23 cfs @ 0.67 fps)

Summary for Pond 15P: 650 SQ FT Rain Garden (approximately 20 by 33 by 3' deep)

Inflow Area = 7,574 sf, 34.12% Impervious, Inflow Depth > 4.84" for 50YR event
 Inflow = 1.04 cfs @ 12.07 hrs, Volume= 3,058 cf
 Outflow = 0.51 cfs @ 12.25 hrs, Volume= 3,056 cf, Atten= 50%, Lag= 10.3 min
 Discarded = 0.27 cfs @ 12.15 hrs, Volume= 2,919 cf
 Primary = 0.24 cfs @ 12.25 hrs, Volume= 137 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 3.06' @ 12.25 hrs Surf.Area= 1,950 sf Storage= 769 cf

Plug-Flow detention time= 26.1 min calculated for 3,056 cf (100% of inflow)

Center-of-Mass det. time= 25.9 min (795.3 - 769.4)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	260 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 650 cf Overall x 40.0% Voids
#2	1.10'	390 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 975 cf Overall x 40.0% Voids
#3	2.70'	130 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 260 cf Overall x 50.0% Voids
		780 cf	Total Available Storage

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Type III 24-hr 50YR Rainfall=7.24"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	650	0	0
1.00	650	650	650

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1.10	650	0	0
2.60	650	975	975

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
2.70	650	0	0
3.10	650	260	260

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	6.000 in/hr Exfiltration over Surface area
#2	Primary	3.00'	6.0' long x 3.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50
			Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
			2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.27 cfs @ 12.15 hrs HW=2.90' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.27 cfs)

Primary OutFlow Max=0.23 cfs @ 12.25 hrs HW=3.06' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Weir Controls 0.23 cfs @ 0.61 fps)

STEPHEN AND LORI LAMB
90 BENNETT ROAD - TAX MAP 14, LOT 34-1
DURHAM NH 03824
DRAINAGE SUMMARY

SUBCATCHMENT DIAGRAMS