Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

NEW HAMPSHIRE 200

AnneMarie Skinner City Planner
City of Concord Community Development Planning Division
41 Green Street
Concord NH, 03301

August 15th, 2025

Re: Proposed Site Plan Amendment 30 Manchester St. (781Z-29)
Major Site Plan Application (2024-024)

Dear AnneMarie,

Overview

On December 2023, the Concord Planning Board conditionally approved a Comprehensive Development Plan fronting Manchester Street and Black Hill Road (2021-26) showing this parcel as a development site. On May 17th, 2024, the Concord Planning Board conditionally approved a Major Site Plan Application for a Gas Station and Convenience Store with an accessory Car Wash (2024-024). The plans associated with that application were approved and finalized by the Board Chair on 3/10/25. On April 28th, 2025, the plans were signed for construction by the Associate Engineer at a pre-construction meeting. At that meeting, it was outlined that only a portion of the site plan was to be constructed as the future operator wanted to amend the layout with an updated footprint. This application is to amend the site plans for that updated building and finish the construction at 32 Manchester Street.

The two major layout changes from the previous design are:
(1) the building footprints slightly increased
(2) the drive-up window is a future phase

The gas station was increased from 5,775 SF to 6,873 SF. The carwash was increased from 2,730 SF to 3,409 SF. There is no increase in vehicle fueling positions (vfp) or carwash lanes.

The applicant intends to construct the site as shown on the site layout plan without the drive-thru window. This application seeks to permit the future construction of the drive-thru. The applicant shall seek a separate building permit for that work at a later date.

To accompany the increased footprints, some of the site geometry was revised. A summary of the changes is outlined below:

Permitting

The following State permits have been obtained under the existing approval and are noted on the plan:

- NHDES AoT (approved and changes do not meet the threshold for amending the permit)
- EPA CGP (active)
- NHDES Sewer Connection (coordinating permit update for an additional 96 GPD (a 1.5% flow increase)

Traffic

The traffic for the current approved site plan was approved last through a study titled "Supplemental Analysis Phase 1A Rev 3" dated August 9th, 2024. That analysis used ITE LUC 945 Gas Station/Convenience Store with 9-15 vfp (vehicle fueling position) and 5-10k GFA. Supplemental analysis has been provided for reference.

Drainage

TFMoran has conducted a drainage evaluation for the updated layout for gas station located at 32 Manchester St. It has been determined that the changes in subcatchement areas and drainage patterns are inconsequential to the approved Stormwater Management System design. The proposed subsurface systems will be effective at treating and retaining the changes in flows and volumes. As shown in the attached table, there is no increase in the offsite peak rate of runoff or volume from the project as a result of the updated layout of the gas station development.

Utilities

The site utilities will stay generally the same as previously approved. The MEP engineer specified that the building does not require a FDC connection for sprinklers. The water connection was revised to provide a single domestic connection.

All the approved sewer infrastructure will remain the same.

Landscaping and Lighting

The landscaping and lighting plans had to be modified to to account for the pavement layout that surrounds the new building.

We would like to thank Staff and City officials in advance for coordinating and reviewing this proposal. Please call with any questions or comments at 603-472-4488.

Sincerely
TFMoran, Inc.

Jonathan Devine, E.I.T
Project Manager

CALCULATIONS

PARKING LOT PERIMETER (28-7-10(a) & 28-7-12(c)(1) ZONING ORDINANCE):
REQUIRED:
-15' FRONT PERIMETER LANDSCAPE AREA, AND 5' SIDE/REAR
PROPOSED:
-15' FRONT PERIMETER LANDSCAPE AREA, AND 5' SIDE/REAR

INTERIOR GREEN SPACE (28-7-10(b) ZONING ORDINANCE):
-LESS THAN 50 SPACES = N/A

PARKING AREA SHADE TREES (28-7-10(d) ZONING ORDINANCE):
-ONE (1) ORNAMENTAL OR SHADE TREE PER 1,000 SQUARE FEET OF PARKING LOT AREA
TREES TO BE WITHIN 20' OF THE PARKING LOT, OR IN LANDSCAPED AREAS BETWEEN BUILDINGS AND THE PARKING FIELD.

TOTAL REQUIRED = 9,200 SF/ 1,000 SF = 9 TREES
TOTAL PROVIDED = 13 TREES

LANDSCAPE LEGEND

SYMBOL	LABEL	QTY	BOTANICAL NAME COMMON NAME	SIZE	REMARKS
	AB	4	ACER RUBRUM 'BOWHALL' BOWHALL RED MAPLE	2 1/2" TO 3" CAL.	B&B
	AR	10	ACER RUBRUM 'OCTOBER GLORY' OCTOBER GLORY RED MAPLE	2 1/2" TO 3" CAL.	B&B
	AS	6	AMELANCHIER LAEVIS 'SPRING FLURRY' SPRING FLURRY SERVICEBERRY	2 1/2" TO 3" CAL.	B&B
	BN	6	BETULA NIGRA 'DURA HEAT' DURA HEAT RIVER BIRCH	10' TO 12' MULTI	B&B
	PA	10	PLATANUS X ACERIFOLIA 'BLOODGOOD' BLOODGOOD LONDON PLANETREE	2 1/2" TO 3" CAL.	B&B
	JV	2	JUNIPERUS VIRGINIANA EASTERN RED CEDAR	6' TO 7'	B&B
	PG	3	PICEA GLAUCA WHITE SPRUCE	6' TO 7'	B&B
	AL	21	ARONIA MELANOCARPA 'LOW SCAPE MOUND' LOW SCAPE MOUND BLACK CHOKEBERRY	2 GAL.	CONT.
	CA	10	CLETHRA ALNIFOLIA 'RUBY SPICE' RUBY SPICE SUMMERSWEET	3 GAL.	CONT.
	FG	3	FOTHERGILLA GARDENII 'BLUE MIST' BLUE MIST FOTHERGILLA	3 GAL.	CONT.
	JH	19	JUNIPERUS HORIZONTALIS 'BAR HARBOR' BAR HARBOR JUNIPER	3 GAL.	CONT.
	PO	2	PHYSOCARPUS OPULIFOLIUS 'TINY WINE GOLD' TINY WINE GOLD NINEBARK	3 GAL.	CONT.
	SS	34	SCHIZACHYRIUM SCOPARIUM 'STANDING OVATION' STANDING OVATION LITTLE BLUESTEM GRASS	2 GAL.	CONT.
	TO	16	THUJA OCCIDENTALIS 'SMARAGD' EMERALD GREEN ARBORVITAE	5' TO 6'	B&B
	HH/HB	155	HEMEROCALLIS 'HAPPY RETURNS'/'BLAZING RETURNS' HAPPY RETURNS/BLAZING RETURNS DAYLILY	1 GAL.	CONT.

LANDSCAPE NOTES

(SEE DETAILS FOR ADDITIONAL NOTES)

GENERAL

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE RULES, REGULATIONS, LAWS, AND ORDINANCES HAVING JURISDICTION OVER THIS PROJECT SITE.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES AND NOTIFY OWNER'S REPRESENTATIVE OF CONFLICTS.
3. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL QUANTITIES SHOWN ON PLANS BEFORE PRICING THE WORK. ANY DIFFERENCE IN QUANTITIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT FOR CLARIFICATION. LANDSCAPE QUANTITIES SHOWN ON THE PLAN SHALL SUPERCEDE QUANTITIES LISTED IN LANDSCAPE LEGEND.
4. THE CONTRACTOR SHALL CONTACT THE LANDSCAPE ARCHITECT PRIOR TO STARTING WORK AND VERIFY THAT THE PLANS IN THE CONTRACTOR'S POSSESSION ARE THE MOST CURRENT PLANS AVAILABLE AND ARE THE APPROVED PLAN SET FOR USE IN CONSTRUCTION.
5. ALL PLANT MATERIALS INSTALLED SHALL MEET OR EXCEED THE SPECIFICATIONS OF THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION (ANLA) (FORMERLY THE AMERICAN ASSOCIATION OF NURSERYMEN) IN THE AMERICAN STANDARD FOR NURSERY STOCK (AS AMENDED) (ANSI Z60.1-1996).
6. ALL PLANTS SHALL BE FIRST CLASS AND SHALL BE REPRESENTATIVE OF THEIR NORMAL SPECIES AND/OR VARIETIES. ALL PLANTS MUST HAVE GOOD, HEALTHY, WELL-FORMED UPPER GROWTH AND A LARGE, FIBEROUS, COMPACT ROOT SYSTEM.
7. ALL PLANTS SHALL BE FREE FROM DISEASE AND INSECT PESTS AND SHALL COMPLY WITH ALL APPLICABLE STATE AND FEDERAL LAWS PERTAINING TO PLANT DISEASES AND INFESTATIONS.
8. ALL TREES SHALL BE BALLED AND BURLAPPED (B&B) UNLESS OTHERWISE NOTED OR APPROVED BY LANDSCAPE ARCHITECT.
9. IF APPLICABLE, THE CONTRACTOR SHALL HAVE ALL FALL TRANSPLANTING HAZARD PLANTS DUG IN THE SPRING AND STORED FOR FALL PLANTING.
10. ALL INVASIVE PLANT SPECIES FROM THE "NEW HAMPSHIRE PROHIBITED INVASIVE PLANT SPECIES LIST", TO BE REMOVED SHALL BE DONE SO IN ACCORDANCE WITH THE "INVASIVE SPECIES ACT, HB 1258-FN."

GUARANTEE

1. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL LANDSCAPE WORK FOR A PERIOD OF ONE YEAR, BEGINNING AT THE START OF THE MAINTENANCE PERIOD.

HORIZONTAL SCALE 1"=30'
30 15 0 30

REV	DATE	DESCRIPTION	DR	CK
12	8/20/2025	UPDATED BUILDING/PHASED DRIVE THRU	JD	RD
11	2/25/2025	CONCORD ENGINEERING COMMENTS	JD	RD
10	2/18/2025	CONCORD ENGINEERING COMMENTS	JD	RD
9	1/20/2025	STAFF COMMENTS	JD	RD
8	12/6/2024	PLANNING COMMENTS	JD	RD
7	10/14/2024	REVISED FOR CITY COMMENTS	MAL	RD
6	9/20/2024	CITY COMMENTS	JD	RD
5	7/31/2024	REVISED FOR AOT COMMENTS	JD	RD
4	7/12/2024	REVISED FOR AOT COMMENTS	JD	RD
3	6/4/2024	CONDITIONS OF APPROVAL	JD	RD
2	5/9/2024	PARKING & STACKING	JD	RD
1	4/26/2024	STAFF COMMENTS	JD	RD

MAP 781Z, LOT 29

LANDSCAPE PLAN

GAS STATION/CONVENIENCE STORE AND CAR WASH
32 MANCHESTER STREET, CONCORD, NH

OWNED BY
ROI IRREV. TRUST - CHRISTINE WINDLER (TRUSTEE)
722 CHESTNUT STREET
MANCHESTER, NH 03104-300

SCALE: 1" = 30' **MARCH 20, 2024**

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Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
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Phone (603) 472-4488
Fax (603) 472-9747
www.tfmoran.com

FILE 95486.08 | DR SRP | FB - | CK JK | CADFILE 95486-08 CMAN SITE PLANS PHASE 1

C-09

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48 Constitution Drive, Bedford, N.H. 03110

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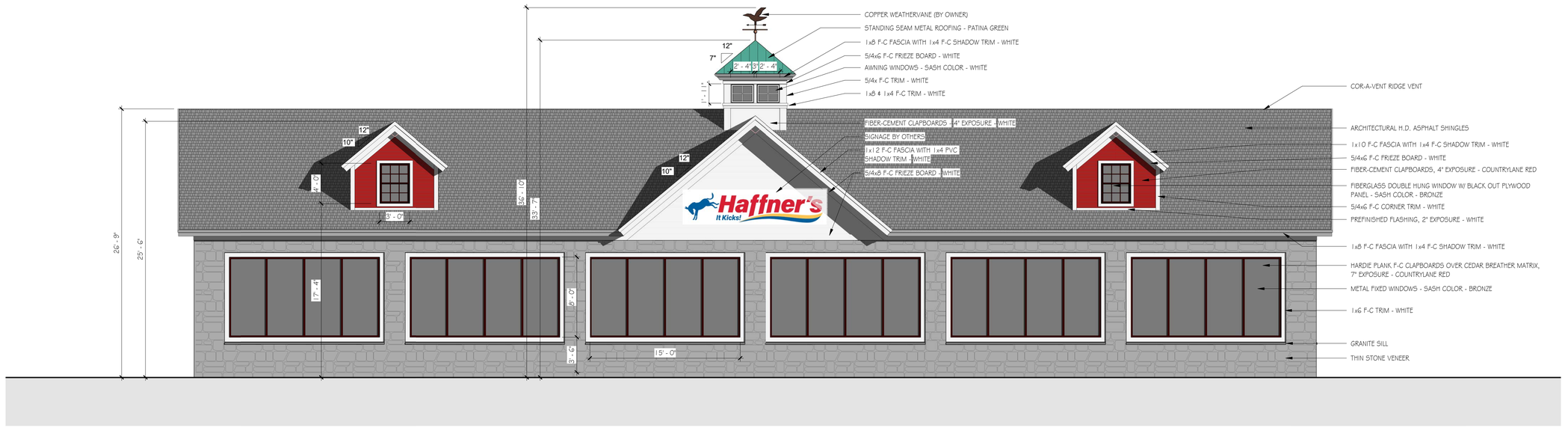
This plan is not effective unless signed by a duly authorized officer of TFMoran, Inc.

DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION



1 SOUTHWEST ELEVATION
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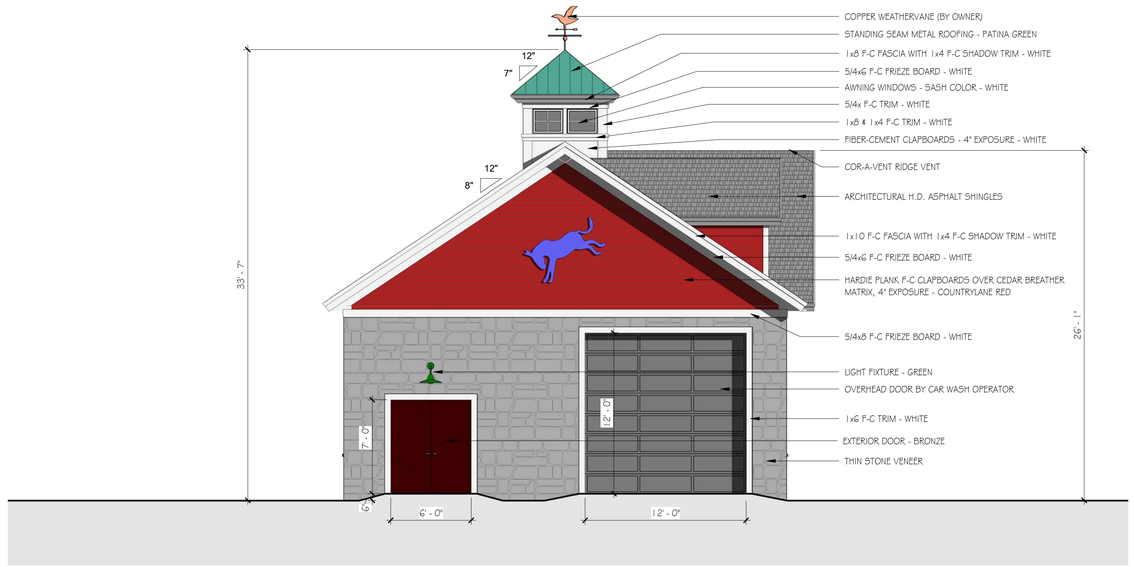

2 NORTHWEST ELEVATION
Scale: 3/16" = 1'-0"

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KEY PLAN & NORTH ARROW:

DRAWN BY: MR
CHECKED BY: WD
SCALE: 3/16" = 1'-0"

PROJECT:
CONCORD CAR WASH

CONCORD, NEW HAMPSHIRE

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SAMYN-D'ELIA ARCHITECTS

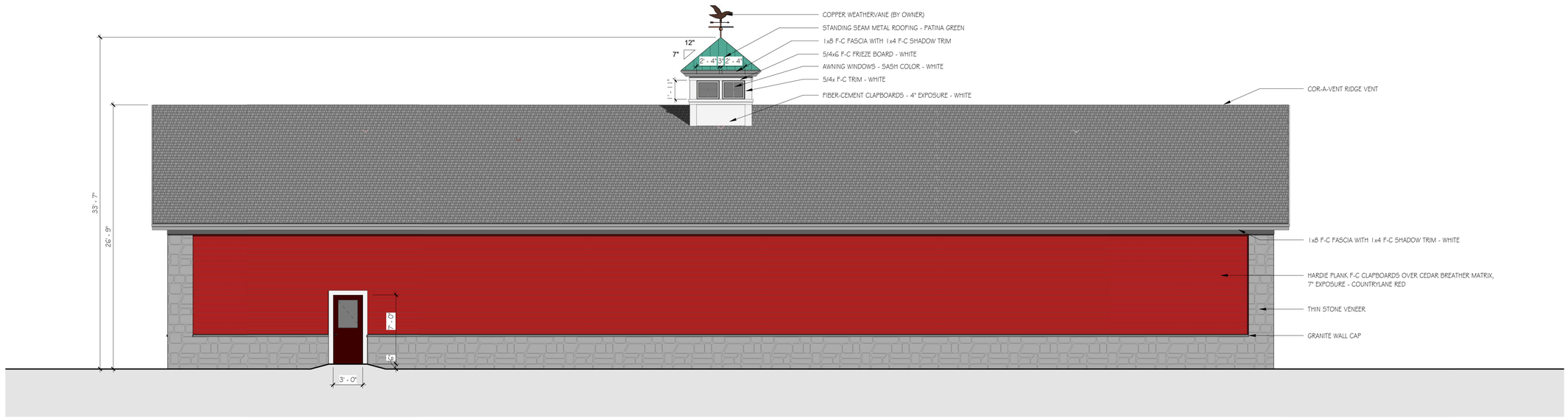
DRAWING TITLE:
EXTERIOR ELEVATIONS - PRESENTATION

ISSUED:
Schematic Design

PROJECT NO: 2102
DATE: Aug. 8, 2025

REVISION	DATE	COMMENTS

SHEET NUMBER:
P201



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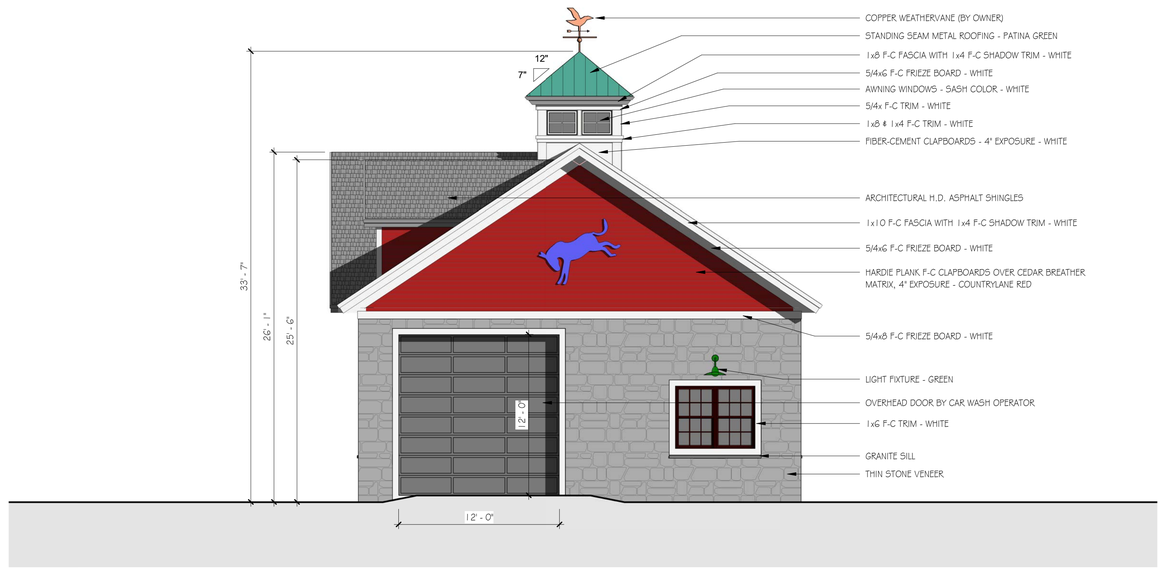

4 SOUTHEAST ELEVATION
Scale: 3/16" = 1'-0"

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KEY PLAN & NORTH ARROW:

REGISTERED ARCHITECT WILLIAM D'ELIA STATE OF NEW HAMPSHIRE

DRAWN BY: MR
CHECKED BY: WD
SCALE: 3/16" = 1'-0"

PROJECT:
CONCORD CAR WASH

CONCORD, NEW HAMPSHIRE

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EXTERIOR ELEVATIONS - PRESENTATION

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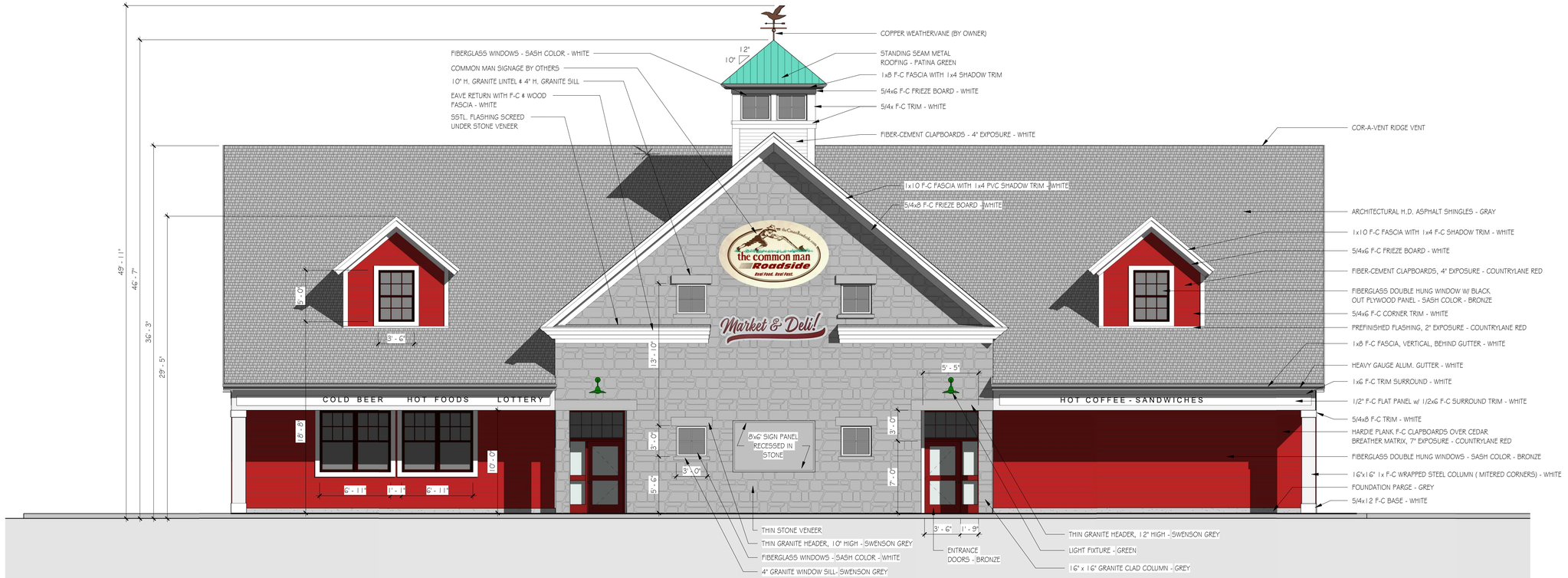
Schematic Design

PROJECT NO: 2102 DATE: Aug. 8, 2025

REVISION	DATE	COMMENTS

SHEET NUMBER:
P202



1 NORTH ELEVATION
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2 WEST ELEVATION
Scale: 3/16" = 1'-0"

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KEY PLAN & NORTH ARROW:

REGISTERED ARCHITECT — DAVID W. D'ELIA — STATE OF NEW HAMPSHIRE

DRAWN BY: MR
CHECKED BY: WD

PROJECT:
CONCORD ROADSIDE

CONCORD, NEW HAMPSHIRE

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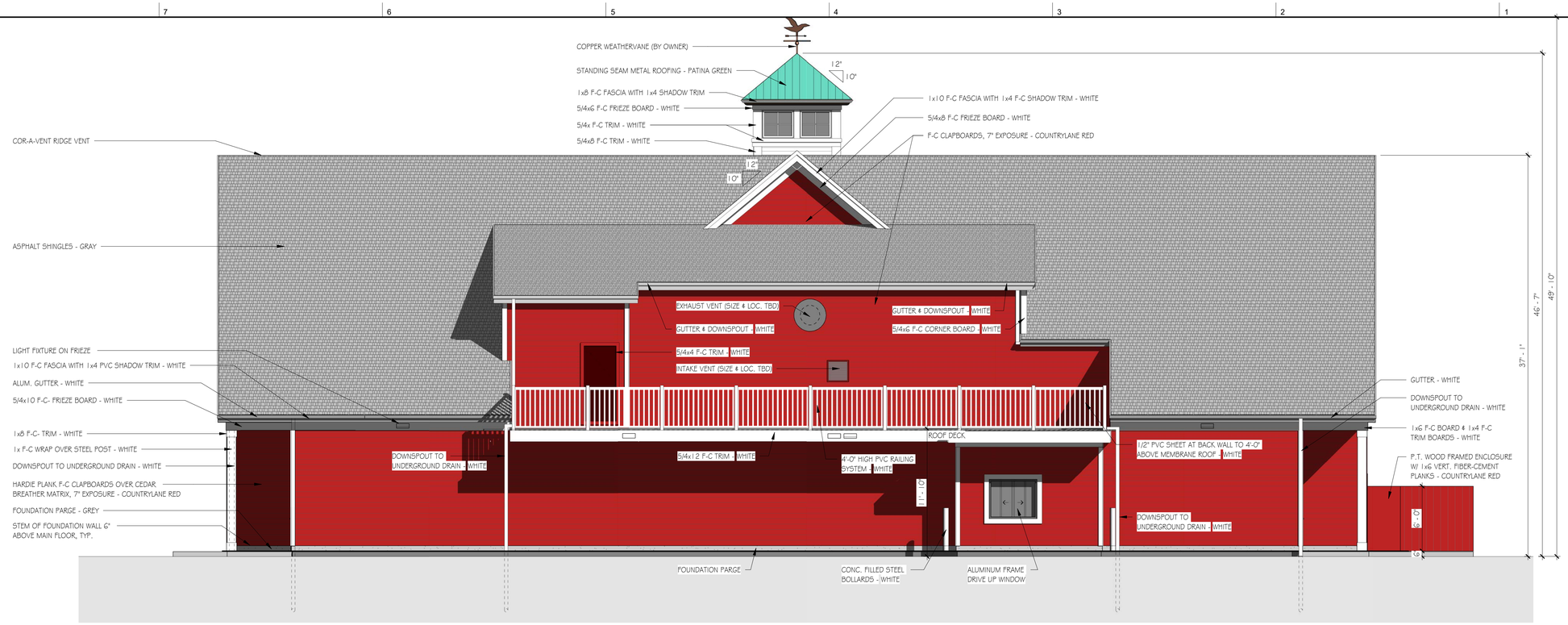
DRAWING TITLE:
EXTERIOR ELEVATIONS - PRESENTATION

ISSUED:
CD Drawings

PROJECT NO: 2102 DATE: Aug. 8, 2025

REVISION	DATE	COMMENTS

SHEET NUMBER:
P201



1 SOUTH ELEVATION
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2 EAST ELEVATION
Scale: 3/16" = 1'-0"

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PROJECT:
CONCORD ROADSIDE

CONCORD, NEW HAMPSHIRE

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REVISION	DATE	COMMENTS

SHEET NUMBER:
P202

Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

Phase 1A Gas/Convenience Store
Traffic Update

Date: 19 August 2025

To: City of Concord - Community Development/Planning

From: Robert Duval, PE
Jen Porter, PE

Project: ROI Mixed-Use Development Phase 1A –
Gas/Convenience Store Amendment

Manchester Street & Black Hill Road, Concord NH
TFM# 95486.08

---

1. Introduction:

In December 2023, the City approved a Comprehensive Development Plan (CDP) for the overall project on Manchester Street and Black Hill Road. On May 17, 2024 the Planning Board conditionally approved a Major site Plan Application for the Gas Station and Convenience Store. A Supplemental Traffic memorandum (Rev3) for Phase 1A of this project was submitted to the City on 08 July 2024 (the MEMO), which included certain minor changes to project phasing and access points to Manchester Street. Those changes are described in the MEMO along with the traffic analysis for Phase 1A. Currently, the Phase 1A bank has been constructed and is open for business and the turn lane improvements on Black Hill Road at the traffic signal of Manchester Street have been completed.

Revised Gas Station / Convenience Store Project:

Further refinements to the gas station / convenience store use has changed the building square footage. The previously proposed building was a 5,775 sf store with 6 gas pumps (12 vfp). The current proposal increases the convenience store are to 6,873 sf with the same 6 gas pumps (12 vfp). All access points to the site remain the same as previously approved as part of the CDP.

Revised Manchester Street Access Points:

The CDP Plan approved by the City includes a reduction in project access points to Manchester Street from four existing full-access points to three restricted-access points as described below. These driveways are the subject of Conditional Use applications now pending before the Planning Board.

Black Hill Road:

- All traffic will have access onto Black Hill Road, with access to Manchester Street via the signalized intersection.

Central Access driveway:

- This access point will serve the gas/convenience store and provide secondary access to the residential and commercial properties south of Black Hill Road. The access will be restricted to right-in/right-out/left-in only.

Gas/Convenience Store east driveway:

- This access point will be limited to exiting gas/convenience right-turns only.

Supplemental Traffic Analysis - Phase 1A Only

On the following pages you will find an aerial map showing the proposed Bank and Gas/Convenience locations, along with proposed site plans and access drive layouts for each of these developments.

In the sections that follow, we provide trip generation calculations and LOS/Queue analysis of Phase 1A C-Store Update traffic impacts, along with recommendations for mitigation.

Study Area – Phase 1A Gas Only

The Supplemental 1A Study Area for the updated gas trips only includes the following intersection:

- Manchester Street at Black Hill/Old Turnpike Road (signalized)

FIGURE 1: AERIAL OF PHASE 1A AREA

FIGURE 2: Approved GAS/CONVENIENCE SITE PLAN

FIGURE 3: Proposed GAS/CONVENIENCE SITE PLAN

2. Trip Generation, Composition, Distribution

The tables below show the change in trip generation by the increased floor are of the proposed updated gas/convenience use.

Table 1a. Previous Gas/Convenience Trip Generation

Time Period	Directional Distribution*		Total
	In	Out	
LUC 945 - Convenience Store/Gas Station – 9-15 vfp 5,750 sf - 12 Fueling Positions			
Weekday AM Peak Hour Adjacent Street	163	162	325
Weekday PM Peak Hour Adjacent Street	157	156	313
Weekend SAT Peak Hour of the Generator	185	184	369

Table 1b. Proposed Gas/Convenience Trip Generation

LUC 945 - Convenience Store/Gas Station – 9-15 vfp 6,875 sf - 12 Fueling Positions			
Weekday AM Peak Hour Adjacent Street	195	195	390
Weekday PM Peak Hour Adjacent Street	188	188	376
Weekend SAT Peak Hour of Generator	221	221	442

Table 1c. Change in Gas/Convenience Trip Generation (Phase 1A)

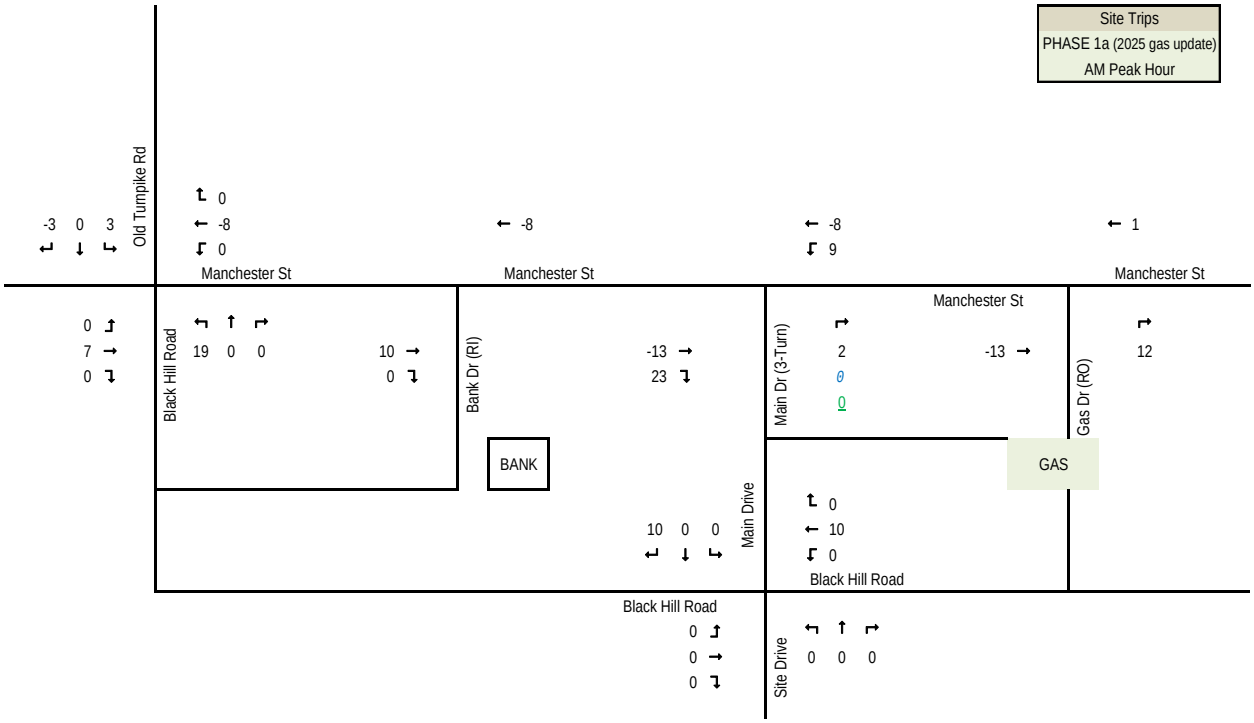
Time Period	Directional Distribution*		Total
	In	Out	
Peak Hour Period			
Weekday AM Peak Hour Adjacent Street	32	33	65
Weekday PM Peak Hour Adjacent Street	31	32	63
Weekend SAT Peak Hour of Generator	36	27	73

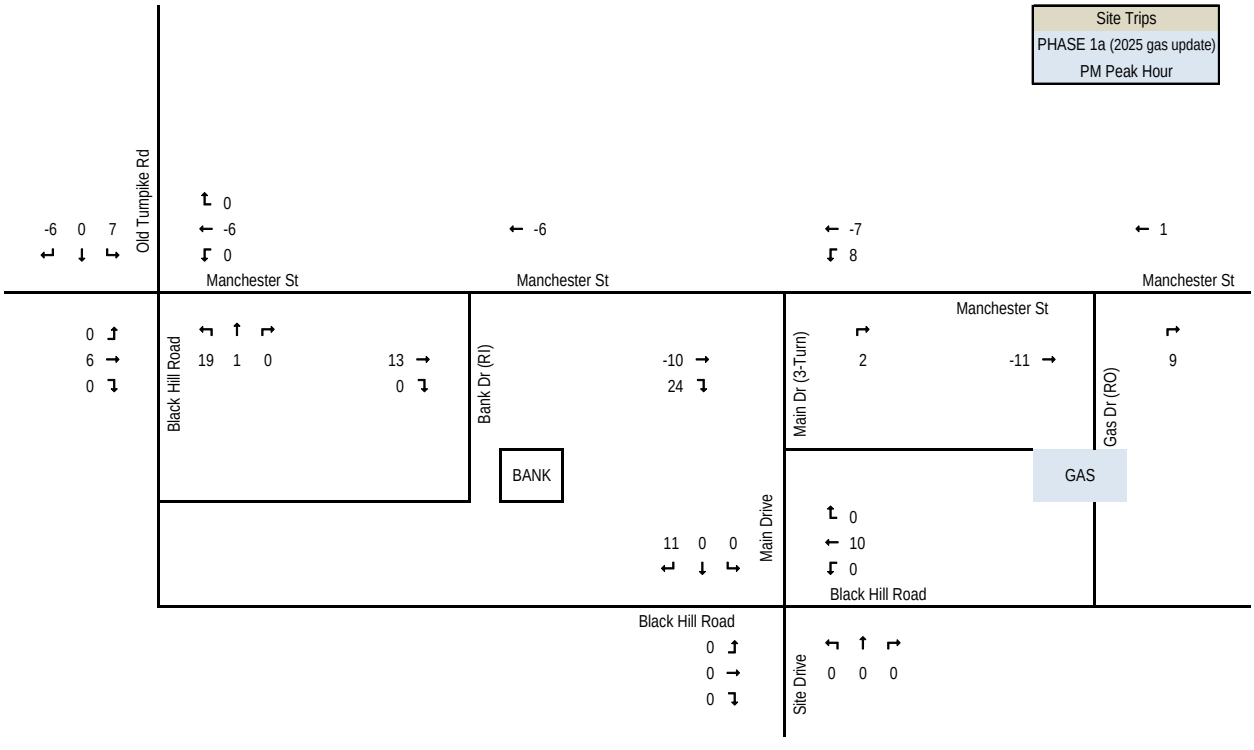
Trip Composition.
Primary, pass-by and diverted link trips were assigned based on current ITE guidelines.

Table 2. – Phase 1A Composition Change

	Primary		Pass-By		Diverted Link		Total	New Trips
	In	Out	In	Out	In	Out		
AM Peak Hour	3	3	24	25	5	5	65	16
PM Peak Hour	3	3	23	24	5	5	63	16
SAT Peak Hour	2	2	27	28	7	7	73	18

The following diagrams show the trips from the proposed gas / convenience store update distributed through the Black Hill Road and Manchester Street site intersections.


Site Trips
PHASE 1a (2025 gas update)
AM Peak Hour
Old Turnpike Rd
Manchester St
Black Hill Road
Bank Dr (RI)
Main Dr (3-Turn)
Gas Dr (RO)
BANK
GAS
Main Drive
Site Drive


Site Trips
PHASE 1a (2025 gas update)
PM Peak Hour
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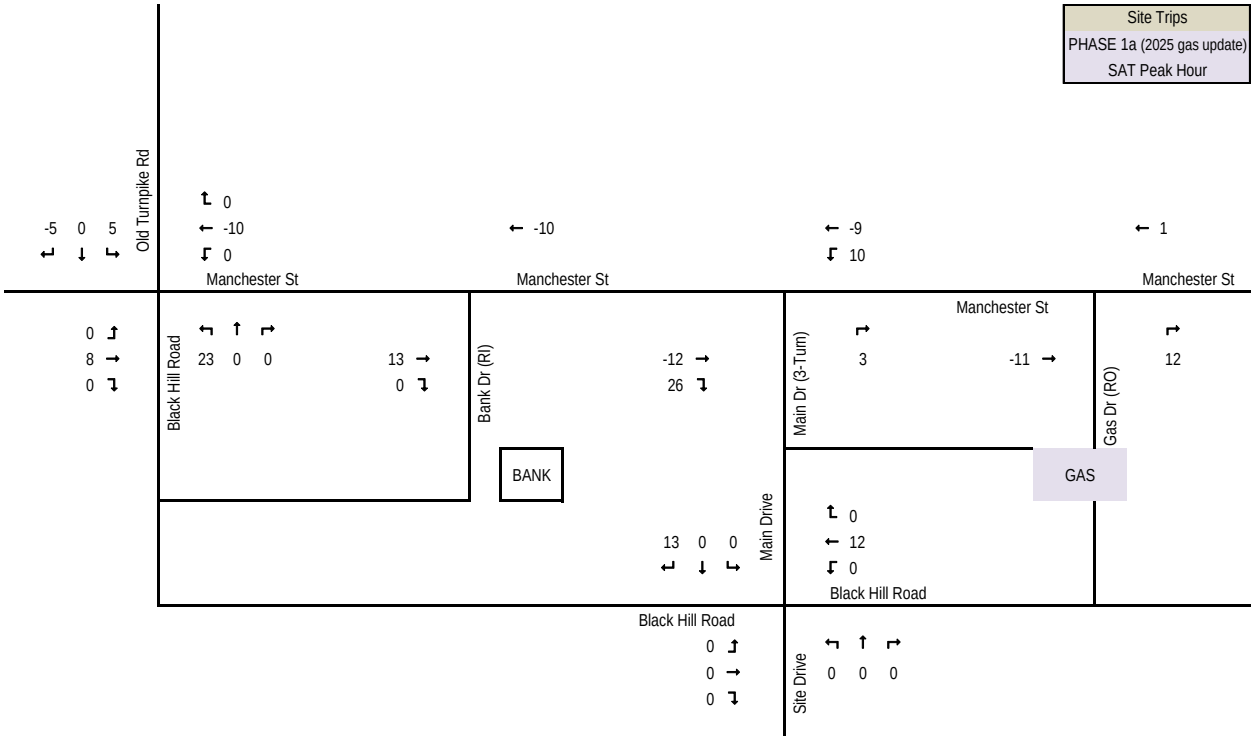
Manchester St
Black Hill Road
Bank Dr (RI)
Main Dr (3-Turn)
Gas Dr (RO)
BANK
GAS
Main Drive
Site Drive



3. Level of Service/Queue Analysis:

Methodology.
Trafficware "Synchro" v11 software was used to analyze signalized and unsignalized intersections (based on HCM 2000) within the study area intersections during weekday AM/PM and Saturday peak hours.

Queue Analysis.
Vehicle queue lengths are based on 50th and 95th percentile queues. The 95th queue is the queue that will be exceeded no more than 5% of the time during the peak periods.

Signal Timings
Signal timings used are based on timing that was established in the Phase 1A Rev3 analysis previously done.

The tables on the pages that follow show the results of our LOS and Queue analyses.

Table 3 - Level of Service Analysis Summary (2025 Phase 1A)

Peak Hour/	2025 Build (MIT)**					2025 Build (C-Store Update)				
Movement	v/c[a]	Del[b]	LOS[c]	Q50[d]	Q95[e]	v/c[a]	Del[b]	LOS[c]	Q50[d]	Q95[e]
9: Manchester Street at Black Hill Road/Old Turnpike Road [Signalized]										
AM (coord)	**120s cycle (Rev3) [No Ped Calls]**					**120s cycle [No Ped Calls]**				
OVERALL	**1.03**	**89.5**	**F**	**---**	**---**	**1.03**	**80.8**	**F**	**---**	**---**
EB L	0.86	33.1	C	344	682	0.90	38.2	D	344	682
EB TT/R	0.52	7.4	A	101	247	0.53	7.8	A	101	249
WB L	0.20	60.7	E	6	20	0.20	60.7	E	6	20
WB TT/R	1.42	242.7	F	601	652	1.36	212.2	F	592	644
NB L	0.65	70.8	E	48	106	0.65	67.3	E	56	130
NB L/T/R	0.63	68.6	E	46	101	0.64	66.4	E	55	129
SB L/T	0.73	79.0	E	57	124	0.76	83.5	F	60	130
SB R	0.24	13.4	B	0	41	0.24	14.6	B	1	41
PM (uncoord)	**120s cycle (Rev3) [No Ped Calls]**					**120s cycle [No Ped Calls]**				
OVERALL	**0.93**	**32.7**	**C**	**---**	**---**	**0.94**	**32.8**	**C**	**---**	**---**
EB L	0.92	54.4	D	242	415	0.92	54.4	D	242	415
EB TT/R	0.60	11.9	B	167	316	0.60	11.9	B	168	317
WB L	0.23	47.7	D	6	24	0.23	47.7	D	6	24
WB TT/R	0.94	44.7	D	360	490	0.94	43.7	D	355	485
NB L	0.61	51.0	D	42	102	0.70	59.2	E	49	122
NB L/T/R	0.60	50.4	D	42	101	0.69	58.7	E	49	121
SB L/T	0.65	47.8	D	71	141	0.69	50.6	D	76	153
SB R	0.81	29.8	C	150	474	0.80	29.2	C	144	467
SAT (uncoord)	**105s cycle (Rev3) [No Ped Calls]**					**105s cycle [No Ped Calls]**				
OVERALL	**0.75**	**23.1**	**C**	**---**	**---**	**0.76**	**24.5**	**C**	**---**	**---**
EB L	0.78	34.9	C	150	269	0.78	34.9	C	150	269
EB TT/R	0.41	9.7	A	76	188	0.41	9.6	A	77	190
WB L	0.19	37.8	D	7	23	0.19	38.0	D	7	23
WB TT/R	0.67	23.8	C	173	238	0.66	23.6	C	170	235
NB L	0.68	50.5	D	40	107	0.80	65.3	E	47	127
NB L/T/R	0.69	51.4	D	41	109	0.79	63.9	E	47	127
SB L/T	0.72	48.9	D	57	132	0.75	52.6	D	60	140
SB R	0.21	17.1	B	0	43	0.20	17.0	B	0	43

[a] Volume-to-capacity ratio - [b] Average delay (sec/veh) - [c] Level of service [d] 50th pctl (ft) - [e] 95th pctl (ft)

**Signal timing is based on Phase 1A mitigation timing and phasing.

4. Conclusion:

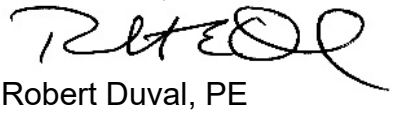
The Phase 1A mitigation improvements required for approval of St. Mary's Bank and the original Gas/Convenience store at this site have been completed, including the new signal timing and lane assignments at the Black Hill/Manchester St. intersection.

The increase in site trips due to the minor C-store addition has negligible effect on site driveways, and all movements continue to operate with minimal delays and queues.

The change also has negligible effects on overall Black Hill Road signal operations, summarized in Table 3. Black Hill Road (NB) left turn delays increase by 10 to 15 seconds, queue length increases by less than one car, and remains within the available storage length. Note that WB thru traffic is over capacity under existing conditions.

In summary, we find that the traffic associated with this site plan amendment will have no significant effects on the roadway network with the Phase 1A improvements already in place.

Respectfully Submitted,
TFMORAN, INC.



Robert Duval, PE
Chief Engineer

ATTACHMENTS

ATTACHMENT A **Trip Generation – Phase 1a Gas/Convenience Added Trips (AM/PM/SAT)**

ATTACHMENT B **Trip Distribution – Phase 1a Gas/Convenience Added Trips (AM/PM/SAT)**

- Calculations
- Diagrams

ATTACHMENT C **Volumes – Phase 1a Gas/Convenience (AM/PM/SAT)**

- Calculations
- Diagrams (Build)

ATTACHMENT D **Synchro – Phase 1a Gas/Convenience (AM/PM/SAT)**

Opening

- 2025 Build

ATTACHMENT A

Trip Generation – Phase 1a Gas/Convenience Added Trips (AM/PM/SAT)

Proposed Trip Generation - Phase 1a only

Based on ITE Trip Generation 11th Edition

Previous PHASE 1a

ITE LUC 945 - Convenience Store/Gas Station - Subcat. VFP (9-15), Variable SF: 12 VFP [5,750 sf, 6 Pumps]

Time Period	Rate/Equn		Rate/ Eq	Trip Ends	Directional Split		Directional Distribution	
	X	Rate	Used		In	Out	In	Out
Weekday AM Peak Hour Adjacent Street	5.75	56.52	Rate	325	50%	50%	163	162
Weekday PM Peak Hour Adjacent Street	5.75	54.52	Rate	313	50%	50%	157	156
Weekend SAT Peak Hour of the Generator	5.75	64.13	Rate	369	50%	50%	185	184
Weekday Daily	5.75	700.43	Rate	4027	50%	50%	2014	2013
Weekend (SAT) Daily	5.75	700.00	Rate	4025	50%	50%	2013	2012

Proposed PHASE 1a

ITE LUC 945 - Convenience Store/Gas Station - Subcat. VFP (9-15), Variable SF: 12 VFP [6,873 sf, 6 Pumps]

Time Period	Rate/Equn		Rate/ Eq	Trip Ends	Directional Split		Directional Distribution	
	X	Rate	Used		In	Out	In	Out
Weekday AM Peak Hour Adjacent Street	6.9	56.52	Rate	390	50%	50%	195	195
Weekday PM Peak Hour Adjacent Street	6.9	54.52	Rate	376	50%	50%	188	188
Weekend SAT Peak Hour of Generator	6.9	64.13	Rate	442	50%	50%	221	221
Weekday Daily	6.9	700.43	Rate	4833	50%	50%	2417	2416
Weekend (SAT) Daily	6.9	700.00	Rate	4830	50%	50%	2415	2415

Proposed Trip Composition - Phase 1a only

Source: ITE Trip Generation Manual, 11th Edition

Previous PHASE 1a

ITE LUC 945 - Convenience Store/Gas Station - Subcat. VFP (9-15), Variable SF: 12 VFP [5,750 sf, 6 Pumps]

	External		Primary				Pass-By				Diverted Link***			
	In	Out	% In	# In	% Out	# Out	% In	# In	% Out	# Out	% In	# In	% Out	# Out
AM	163	162	8%	13	8%	13	76%	124	76%	123	16%	26	16%	26
PM	157	156	8%	*12*	8%	12	75%	118	75%	117	17%	27	17%	27
SAT**	185	184	8%	15	8%	15	75%	139	75%	138	17%	31	17%	31

Vehicle Pass-By Rates by Land Use, 945 Convenience Store/Gas Station: Weekday AM Peak Period and Weekday PM Peak Period

Used PM for SAT * Ratio of non pass-by: 2/3 DL, 1/3 Primary

Proposed PHASE 1a

ITE LUC 945 - Convenience Store/Gas Station - Subcat. VFP (9-15), Variable SF: 12 VFP [6,873 sf, 6 Pumps]

	External		Primary				Pass-By				Diverted Link**			
	In	Out	% In	# In	% Out	# Out	% In	# In	% Out	# Out	% In	# In	% Out	# Out
AM	195	195	8%	16	8%	16	76%	148	76%	148	16%	31	16%	31
PM	188	188	8%	*15*	8%	*15*	75%	141	75%	141	17%	32	17%	32
SAT	221	221	8%	*17*	8%	*17*	75%	166	75%	166	17%	38	17%	38

Vehicle Pass-By Rates by Land Use, 912 Drive-In Bank: Weekday AM Peak Period, Weekday PM Peak Period and Saturday Midday

Proposed Change in Phase 1a Trip Generation

TOTAL TRIP GENERATION		Trip Ends		In	Out
Weekday AM Peak Hour Adjacent Street		65		32	33
Weekday PM Peak Hour Adjacent Street		63		31	32
Weekend SAT Peak Hour of Generator		73		36	37
Weekday Daily		806		403	403
Weekend Daily		805		402	403

Proposed Change in Phase 1a Trip Composition

	External		Primary				Pass-By				Diverted Link			
	In	Out	% Total	# In		# Out	% Total	# In		# Out	% Total	# In		# Out
AM	32	33	10%	3		3	75%	24		25	15%	5		5
PM	31	32	9%	3		3	75%	23		24	16%	5		5
SAT	36	37	6%	2		2	75%	27		28	19%	7		7

Proposed Phase 1 Trip Composition: Non Pass-By and Pass-By

	External		Non Pass-By				Pass-By			
	In	Out	% Total	# In		# Out	% Total	# In		# Out
AM	32	33	25%	8		8	75%	24		25
PM	31	32	25%	8		8	75%	23		24
SAT	36	37	25%	9		9	75%	27		28

ATTACHMENT B

Trip Distribution – Phase 1a Gas/Convenience Added Trips (AM/PM/SAT)

Calculations

Diagrams

RETAIL (Gas Station):
Site Trip Distribution for Phase 1a
(2025 Proposed Gas/Convenience)

% ProRata Oct2021 counts

Primary

	In	Out
AM Totals	3	3

Manchester Street (US3) at Old Turnpike Road / Black Hill Road

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBL			0	0
EBT	54%		2	0
EBR			0	0
WBL			0	0
WBT			0	0
WBR			0	0
NBL		54%	0	2
NBT		13%	0	0
NBR			0	0
SBL	13%		0	0
SBT			0	0
SBR			0	0

Manchester Street (US3) at Bank Drive (RI)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT	67%		2	0
EBR			0	0
WBT			0	0

Manchester Street (US3) at Main Drive (3-Turn)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT			0	0
EBR	67%		2	0
WBL	33%		1	0
WBT			0	0
NBR		7%	0	0

Manchester Street (US3) at Gas Drive (RO)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT		7%	0	0
WBT	33%		1	0
NBR		26%	0	1

% ProRata Oct2021 counts

Pass-By

	In	Out
AM Totals	24	25

Manchester Street (US3) at Old Turnpike Road / Black Hill Road

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBL			0	0
EBT			0	0
EBR			0	0
WBL			0	0
WBT	-33%		-8	0
WBR			0	0
NBL		46%	0	*12*
NBT			0	0
NBR			0	0
SBL	13%		3	0
SBT			0	0
SBR	-13%		-3	0

Manchester Street (US3) at Bank Drive (RI)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT	13%		3	0
EBR			0	0
WBT	-33%		-8	0

Manchester Street (US3) at Main Drive (3-Turn)

	PERCENTAGES		TRIPS	
Movement			In	Out
EBT	-54%		-13	0
EBR	67%		16	0
WBL	33%		8	0
WBT	-33%		-8	0
NBR		11%	0	*2*

Manchester Street (US3) at Gas Drive (RO)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT	-54%		-13	0
WBT			0	0
NBR		43%	0	11

% ProRata Oct2021 counts

Diverted Link

	In	Out
AM Totals	5	5

Manchester Street (US3) at Old Turnpike Road / Black Hill Road

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBL			0	0
EBT	100%		5	0
EBR			0	0
WBL			0	0
WBT			0	0
WBR			0	0
NBL		100%	0	5
NBT			0	0
NBR			0	0
SBL			0	0
SBT			0	0
SBR			0	0

Manchester Street (US3) at Bank Drive (RI)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT	100%		5	0
EBR			0	0
WBT			0	0

Manchester Street (US3) at Main Drive (3-Turn)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT			0	0
EBR	100%		5	0
WBL			0	0
WBT			0	0
NBR			0	0

Manchester Street (US3) at Gas Drive (RO)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT			0	0
WBT			0	0
NBR			0	0

TOTAL PRIMARY:
Site Trip Distribution for Phase 1a
(2025 Proposed Gas/Convenience)

TOTAL PASS-BY:
Site Trip Distribution for Phase 1a
(2025 Proposed Gas/Convenience)

TOTAL DIVERTED LINK:
Site Trip Distribution for Phase 1a
(2025 Proposed Gas/Convenience)

TOTAL:
Site Trip Distribution for Phase 1a
(2025 Proposed Gas/Convenience)

TOTAL

	PRIMARY
	6

Manchester Street (US3) at
Old Turnpike Road / Black Hill Road

Movement	
EBL	0
EBT	2
EBR	0
WBL	0
WBT	0
WBR	0
NBL	2
NBT	0
NBR	0
SBL	0
SBT	0
SBR	0

Manchester Street (US3) at
Bank Drive (RI)

Movement	
EBT	2
EBR	0
WBT	0

Manchester Street (US3) at
Main Drive (3-Turn)

Movement	
EBT	0
EBR	2
WBL	1
WBT	0
NBR	0

Manchester Street (US3) at
Gas Drive (RO)

Movement	
EBT	0
WBT	1
NBR	1

TOTAL

	PASS-BY
	49

Manchester Street (US3) at
Old Turnpike Road / Black Hill Road

Movement	
EBL	0
EBT	0
EBR	0
WBL	0
WBT	-8
WBR	0
NBL	12
NBT	0
NBR	0
SBL	3
SBT	0
SBR	-3

Manchester Street (US3) at
Bank Drive (RIRO)

Movement	
EBT	3
EBR	0
WBT	-8

Manchester Street (US3) at
Main Drive (3-Turn)

Movement	
EBT	-13
EBR	16
WBL	8
WBT	-8
NBR	2

Manchester Street (US3) at
Gas Drive (RO)

Movement	
EBT	-13
WBT	0
NBR	11

TOTAL

	DIERTED LINK
	10

Manchester Street (US3) at
Old Turnpike Road / Black Hill Road

Movement	
EBL	0
EBT	5
EBR	0
WBL	0
WBT	0
WBR	0
NBL	5
NBT	0
NBR	0
SBL	0
SBT	0
SBR	0

Manchester Street (US3) at
Bank Drive (RIRO)

Movement	
EBT	5
EBR	0
WBT	0

Manchester Street (US3) at
Main Drive (3-Turn)

Movement	
EBT	0
EBR	5
WBL	0
WBT	0
NBR	0

Manchester Street (US3) at
Gas Drive (RO)

Movement	
EBT	0
WBT	0
NBR	0

TOTAL

	TOTAL
	65

Manchester Street (US3) at
Old Turnpike Road / Black Hill Road

Movement	
EBL	0
EBT	7
EBR	0
WBL	0
WBT	-8
WBR	0
NBL	19
NBT	0
NBR	0
SBL	3
SBT	0
SBR	-3

Manchester Street (US3) at
Bank Drive (RIRO)

Movement	
EBT	10
EBR	0
WBT	-8

Manchester Street (US3) at
Main Drive (3-Turn)

Movement	
EBT	-13
EBR	23
WBL	9
WBT	-8
NBR	2

Manchester Street (US3) at
Gas Drive (RO)

Movement	
EBT	-13
WBT	1
NBR	12

RETAIL (Gas Station):
Site Trip Distribution for Phase 1a
(2025 Proposed Gas/Convenience)

% ProRata Oct2021 counts	% ProRata Oct2021 counts	% ProRata Oct2021 counts

Primary

	In	Out
PM Totals	3	3

Manchester Street (US3) at Old Turnpike Road / Black Hill Road

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBL			0	0
EBT	44%		1	0
EBR			0	0
WBL			0	0
WBT			0	0
WBR			0	0
NBL		44%	0	1
NBT		26%	0	1
NBR			0	0
SBL	26%		1	0
SBT			0	0
SBR			0	0

Manchester Street (US3) at Bank Drive (RI)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT	70%		2	0
EBR			0	0
WBT			0	0

Manchester Street (US3) at Main Drive (3-Turn)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT			0	0
EBR	70%		2	0
WBL	30%		1	0
WBT			0	0
NBR		6%	0	0

Manchester Street (US3) at Gas Drive (RO)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT		6%	0	0
WBT	30%		1	0
NBR		24%	0	1

Pass-By

	In	Out
PM Totals	23	24

Manchester Street (US3) at Old Turnpike Road / Black Hill Road

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBL			0	0
EBT			0	0
EBR			0	0
WBL			0	0
WBT	-30%		-6	0
WBR			0	0
NBL		56%	0	13
NBT			0	0
NBR			0	0
SBL	26%		6	0
SBT			0	0
SBR	-26%		-6	0

Manchester Street (US3) at Bank Drive (RI)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT	26%		6	0
EBR			0	0
WBT	-30%		-6	0

Manchester Street (US3) at Main Drive (3-Turn)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT	-44%		-10	0
EBR	70%		17	0
WBL	30%		7	0
WBT	-30%		-7	0
NBR		9%	0	2

Manchester Street (US3) at Gas Drive (RO)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT	-47%		-11	0
WBT			0	0
NBR		35%	0	8

Diverted Link

	In	Out
PM Totals	5	5

Manchester Street (US3) at Old Turnpike Road / Black Hill Road

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBL			0	0
EBT	100%		5	0
EBR			0	0
WBL			0	0
WBT			0	0
WBR			0	0
NBL		100%	0	5
NBT			0	0
NBR			0	0
SBL			0	0
SBT			0	0
SBR			0	0

Manchester Street (US3) at Bank Drive (RI)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT	100%		5	0
EBR			0	0
WBT			0	0

Manchester Street (US3) at Main Drive (3-Turn)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT			0	0
EBR	100%		5	0
WBL			0	0
WBT			0	0
NBR			0	0

Manchester Street (US3) at Gas Drive (RO)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT			0	0
WBT			0	0
NBR			0	0

TOTAL PRIMARY:
Site Trip Distribution for Phase 1a
(2025 Proposed Gas/Convenience)

TOTAL PASS-BY:
Site Trip Distribution for Phase 1a
(2025 Proposed Gas/Convenience)

TOTAL DIVERTED LINK:
Site Trip Distribution for Phase 1a
(2025 Proposed Gas/Convenience)

TOTAL:
Site Trip Distribution for Phase 1a
(2025 Proposed Gas/Convenience)

TOTAL

	PRIMARY
	6

Manchester Street (US3) at
Old Turnpike Road / Black Hill Road

Movement	
EBL	0
EBT	1
EBR	0
WBL	0
WBT	0
WBR	0
NBL	1
NBT	1
NBR	0
SBL	1
SBT	0
SBR	0

Manchester Street (US3) at
Bank Drive (RI)

Movement	
EBT	2
EBR	0
WBT	0

Manchester Street (US3) at
Main Drive (3-Turn)

Movement	
EBT	0
EBR	2
WBL	1
WBT	0
NBR	0

Manchester Street (US3) at
Gas Drive (RO)

Movement	
EBT	0
WBT	1
NBR	1

TOTAL

	PASS-BY
	47

Manchester Street (US3) at
Old Turnpike Road / Black Hill Road

Movement	
EBL	0
EBT	0
EBR	0
WBL	0
WBT	-6
WBR	0
NBL	13
NBT	0
NBR	0
SBL	6
SBT	0
SBR	-6

Manchester Street (US3) at
Bank Drive (RI)

Movement	
EBT	6
EBR	0
WBT	-6

Manchester Street (US3) at
Main Drive (3-Turn)

Movement	
EBT	-10
EBR	17
WBL	7
WBT	-7
NBR	2

Manchester Street (US3) at
Gas Drive (RO)

Movement	
EBT	-11
WBT	0
NBR	8

TOTAL

	DIERTED LINK
	10

Manchester Street (US3) at
Old Turnpike Road / Black Hill Road

Movement	
EBL	0
EBT	5
EBR	0
WBL	0
WBT	0
WBR	0
NBL	5
NBT	0
NBR	0
SBL	0
SBT	0
SBR	0

Manchester Street (US3) at
Bank Drive (RI)

Movement	
EBT	5
EBR	0
WBT	0

Manchester Street (US3) at
Main Drive (3-Turn)

Movement	
EBT	0
EBR	5
WBL	0
WBT	0
NBR	0

Manchester Street (US3) at
Gas Drive (RO)

Movement	
EBT	0
WBT	0
NBR	0

TOTAL

	TOTAL
	63

Manchester Street (US3) at
Old Turnpike Road / Black Hill Road

Movement	
EBL	0
EBT	6
EBR	0
WBL	0
WBT	-6
WBR	0
NBL	19
NBT	1
NBR	0
SBL	7
SBT	0
SBR	-6

Manchester Street (US3) at
Bank Drive (RI)

Movement	
EBT	13
EBR	0
WBT	-6

Manchester Street (US3) at
Main Drive (3-Turn)

Movement	
EBT	-10
EBR	24
WBL	8
WBT	-7
NBR	2

Manchester Street (US3) at
Gas Drive (RO)

Movement	
EBT	-11
WBT	1
NBR	9

RETAIL (Gas Station):
Site Trip Distribution for Phase 1a
(2025 Proposed Gas/Convenience)

% ProRata Oct2021 counts

Primary

	In	Out
SAT Totals	2	2

Manchester Street (US3) at Old Turnpike Road / Black Hill Road

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBL			0	0
EBT	46%		1	0
EBR			0	0
WBL			0	0
WBT			0	0
WBR			0	0
NBL		46%	0	1
NBT		18%	0	0
NBR			0	0
SBL	18%		0	0
SBT			0	0
SBR			0	0

Manchester Street (US3) at Bank Drive (RI)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT	64%		1	0
EBR			0	0
WBT			0	0

Manchester Street (US3) at Main Drive (3-Turn)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT			0	0
EBR	64%		1	0
WBL	36%		1	0
WBT			0	0
NBR		7%	0	0

Manchester Street (US3) at Gas Drive (RO)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT		7%	0	0
WBT	36%		1	0
NBR		29%	0	1

% ProRata Oct2021 counts

Pass-By

	In	Out
SAT Totals	27	28

Manchester Street (US3) at Old Turnpike Road / Black Hill Road

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBL			0	0
EBT			0	0
EBR			0	0
WBL			0	0
WBT	-36%		-10	0
WBR			0	0
NBL		54%	0	*15*
NBT			0	0
NBR			0	0
SBL	18%		5	0
SBT			0	0
SBR	-18%		-5	0

Manchester Street (US3) at Bank Drive (RI)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT	18%		5	0
EBR			0	0
WBT	-36%		-10	0

Manchester Street (US3) at Main Drive (3-Turn)

	PERCENTAGES		TRIPS	
Movement			In	Out
EBT	-46%		-12	0
EBR	64%		*18*	0
WBL	36%		*9*	0
WBT	-36%		*-9*	0
NBR		9%	0	3

Manchester Street (US3) at Gas Drive (RO)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT	-42%		-11	0
WBT			0	0
NBR		37%	0	*11*

% ProRata Oct2021 counts

Diverted Link

	In	Out
SAT Totals	7	7

Manchester Street (US3) at Old Turnpike Road / Black Hill Road

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBL			0	0
EBT	100%		7	0
EBR			0	0
WBL			0	0
WBT			0	0
WBR			0	0
NBL		100%	0	7
NBT			0	0
NBR			0	0
SBL			0	0
SBT			0	0
SBR			0	0

Manchester Street (US3) at Bank Drive (RI)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT	100%		7	0
EBR			0	0
WBT			0	0

Manchester Street (US3) at Main Drive (3-Turn)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT			0	0
EBR	100%		7	0
WBL			0	0
WBT			0	0
NBR			0	0

Manchester Street (US3) at Gas Drive (RO)

	PERCENTAGES		TRIPS	
Movement	In	Out	In	Out
EBT			0	0
WBT			0	0
NBR			0	0

TOTAL PRIMARY:
Site Trip Distribution for Phase 1a
(2025 Proposed Gas/Convenience)

TOTAL PASS-BY:
Site Trip Distribution for Phase 1a
(2025 Proposed Gas/Convenience)

TOTAL DIVERTED LINK:
Site Trip Distribution for Phase 1a
(2025 Proposed Gas/Convenience)

TOTAL:
Site Trip Distribution for Phase 1a
(2025 Proposed Gas/Convenience)

TOTAL

	PRIMARY
	4

Manchester Street (US3) at
Old Turnpike Road / Black Hill Road

Movement	
EBL	0
EBT	1
EBR	0
WBL	0
WBT	0
WBR	0
NBL	1
NBT	0
NBR	0
SBL	0
SBT	0
SBR	0

Manchester Street (US3) at
Bank Drive (RI)

Movement	
EBT	1
EBR	0
WBT	0

Manchester Street (US3) at
Main Drive (3-Turn)

Movement	
EBT	0
EBR	1
WBL	1
WBT	0
NBR	0

Manchester Street (US3) at
Gas Drive (RO)

Movement	
EBT	0
WBT	1
NBR	1

TOTAL

	PASS-BY
	55

Manchester Street (US3) at
Old Turnpike Road / Black Hill Road

Movement	
EBL	0
EBT	0
EBR	0
WBL	0
WBT	-10
WBR	0
NBL	15
NBT	0
NBR	0
SBL	5
SBT	0
SBR	-5

Manchester Street (US3) at
Bank Drive (RI)

Movement	
EBT	5
EBR	0
WBT	-10

Manchester Street (US3) at
Main Drive (3-Turn)

Movement	
EBT	-12
EBR	18
WBL	9
WBT	-9
NBR	3

Manchester Street (US3) at
Gas Drive (RO)

Movement	
EBT	-11
WBT	0
NBR	11

TOTAL

	DIVERTED LINK
	14

Manchester Street (US3) at
Old Turnpike Road / Black Hill Road

Movement	
EBL	0
EBT	7
EBR	0
WBL	0
WBT	0
WBR	0
NBL	7
NBT	0
NBR	0
SBL	0
SBT	0
SBR	0

Manchester Street (US3) at
Bank Drive (RI)

Movement	
EBT	7
EBR	0
WBT	0

Manchester Street (US3) at
Main Drive (3-Turn)

Movement	
EBT	0
EBR	7
WBL	0
WBT	0
NBR	0

Manchester Street (US3) at
Gas Drive (RO)

Movement	
EBT	0
WBT	0
NBR	0

TOTAL

	TOTAL
	73

Manchester Street (US3) at
Old Turnpike Road / Black Hill Road

Movement	
EBL	0
EBT	8
EBR	0
WBL	0
WBT	-10
WBR	0
NBL	23
NBT	0
NBR	0
SBL	5
SBT	0
SBR	-5

Manchester Street (US3) at
Bank Drive (RI)

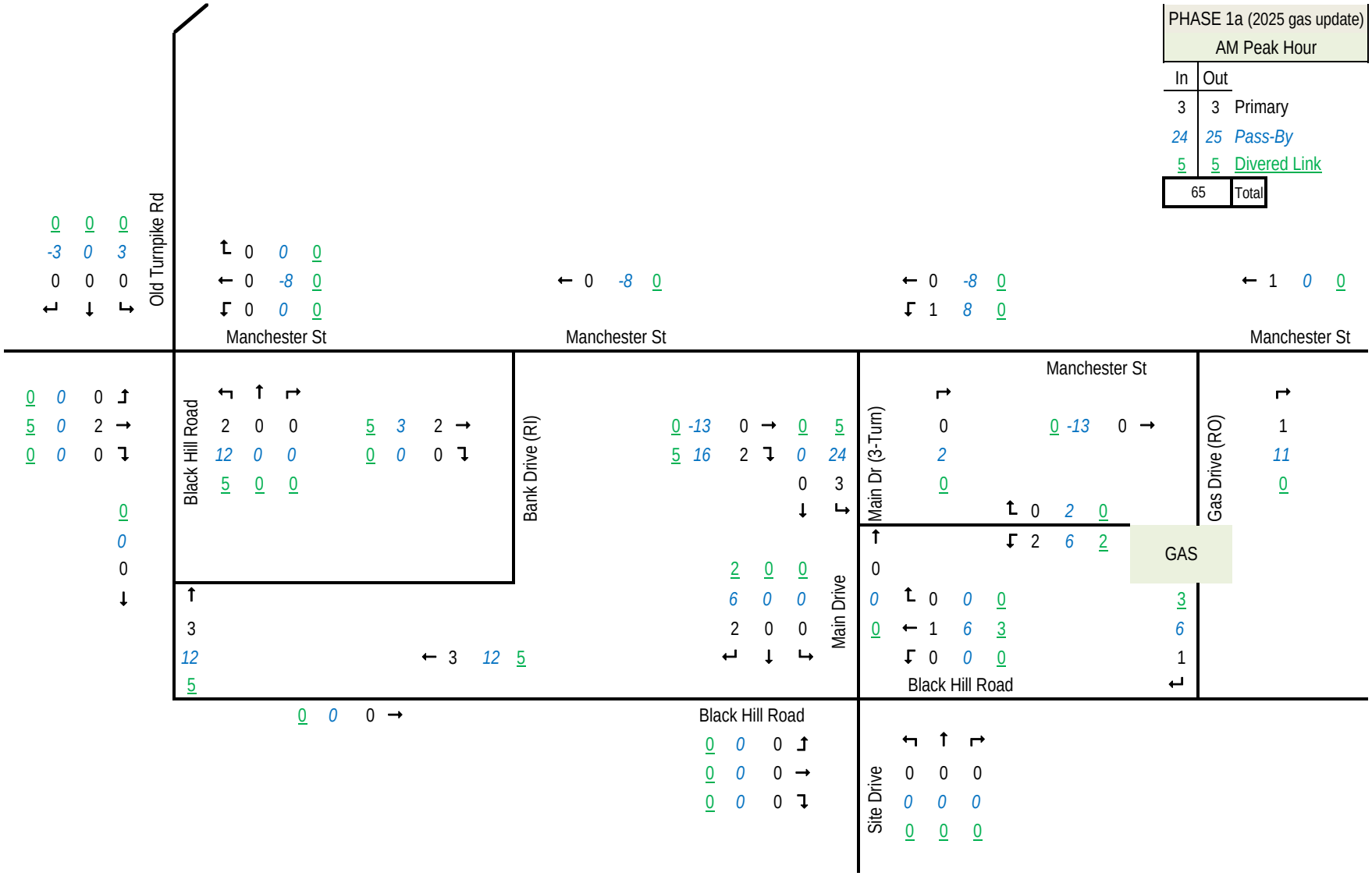
Movement	
EBT	13
EBR	0
WBT	-10

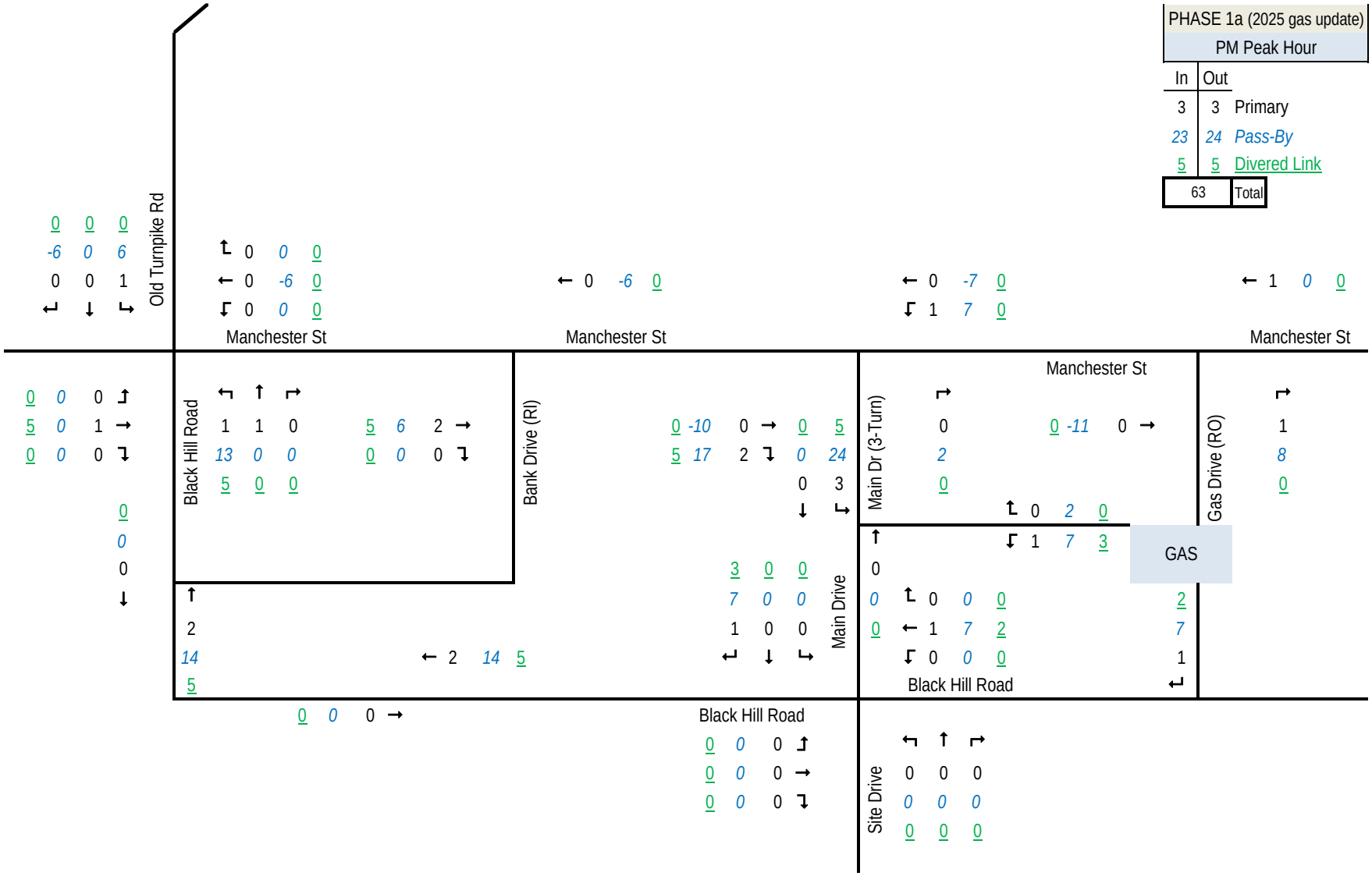
Manchester Street (US3) at
Main Drive (3-Turn)

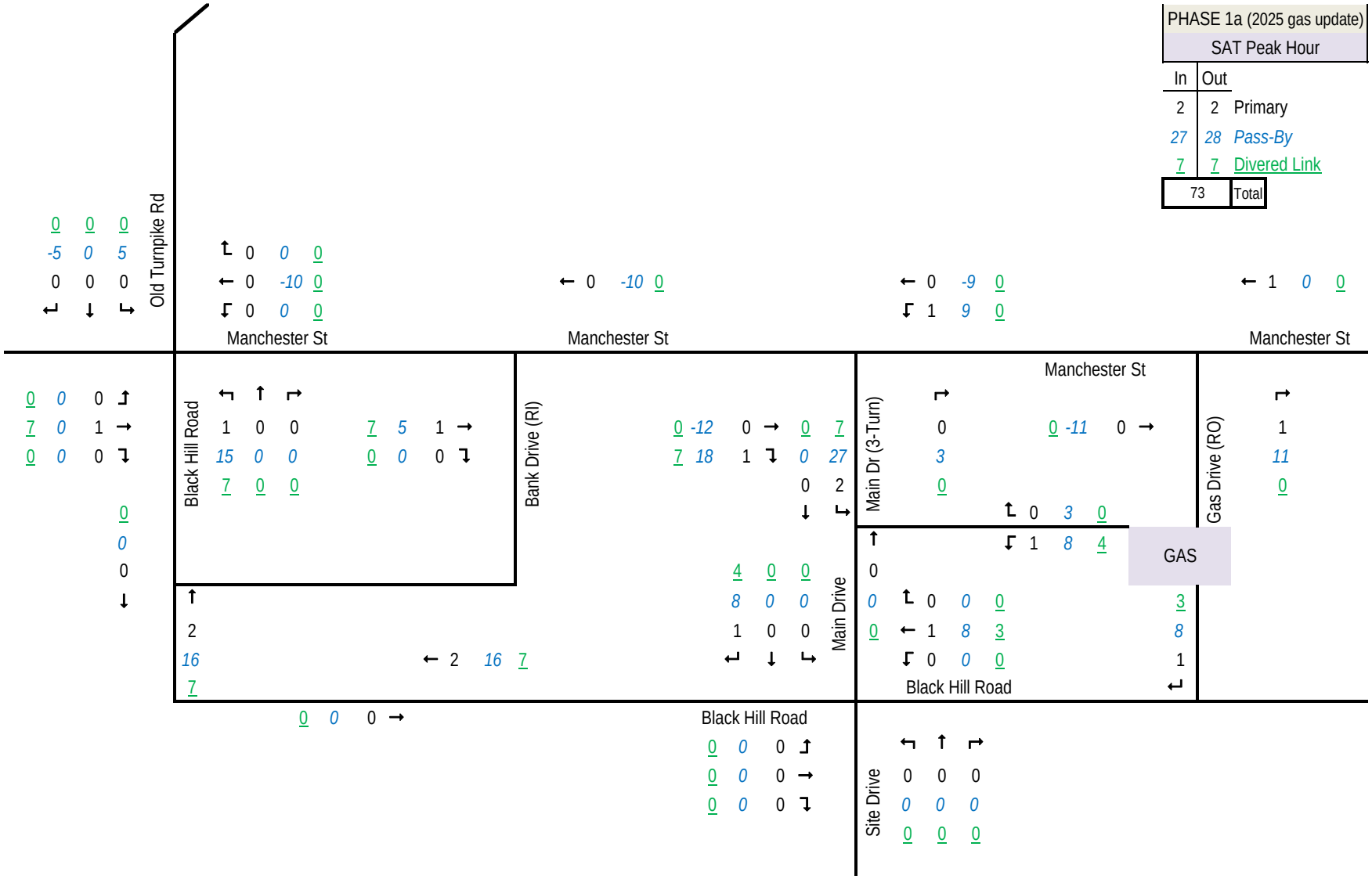
Movement	
EBT	-12
EBR	26
WBL	10
WBT	-9
NBR	3

Manchester Street (US3) at
Gas Drive (RO)

Movement	
EBT	-11
WBT	1
NBR	12


PHASE 1a (2025 gas update)
AM Peak Hour
In
Out
3
3
Primary
24
25
Pass-By
5
5
Divered Link
65
Total
Old Turnpike Rd
Manchester St
Manchester St
Manchester St
Manchester St
Black Hill Road
Bank Drive (RI)
Main Dr (3-Turn)
Gas Drive (RO)
Main Drive
GAS
Black Hill Road
Black Hill Road
Site Drive


PHASE 1a (2025 gas update)
PM Peak Hour
In
Out
3
3
Primary
23
24
Pass-By
5
5
Divered Link
63
Total
Old Turnpike Rd
Manchester St
Manchester St
Manchester St
Manchester St
Black Hill Road
Bank Drive (RI)
Main Dr (3-Turn)
Gas Drive (RO)
Main Drive
GAS
Black Hill Road
Black Hill Road
Site Drive


PHASE 1a (2025 gas update)
SAT Peak Hour
In Out
2 2 Primary
27 28 Pass-By
7 7 Divered Link
73 Total
Old Turnpike Rd
Manchester St
Manchester St
Manchester St
Manchester St
Black Hill Road
Bank Drive (RI)
Main Dr (3-Turn)
Gas Drive (RO)
Main Drive
GAS
Black Hill Road
Black Hill Road
Site Drive

ATTACHMENT C

Volumes – Phase 1a Gas/Convenience (AM/PM/SAT)

Calculations

Diagrams (Build)

Background Traffic Volumes
AM Peak data

Assumed growth rate	0.01	
October 2019 Seasonal Adjust	1.07	Seasonal Adjustment Calculation based on 3 nearby NHDOT Stations
Covid/Stay-home factor	1.083	

Site Trips

AM Peak Hour	Existing 2021 (Raw data) [10/21/2021]	Existing 2021 w/ Seasonal Adjustment (Dec)	Covid/Stay Home Adjustment	2021	Balance	2021 BASE	2022	2023	2024	2025
9. Manchester Street (US3) at Old Turnpike Road / Black Hill Road	7:15 AM									
Movement										
EBL	502	537	1.083	581.57	+3	584.57	590.42	596.32	602.28	608.30
EBT	832	890	1.083	963.87	+5	968.87	978.56	988.35	998.23	1008.21
EBR	*2*	*2*	1.083	2.17		2.17	*2.17*	*2.17*	*2.17*	*2.17*
WBL	*1*	*1*	1.083	1.08		1.08	*1.08*	*1.08*	*1.08*	*1.08*
WBT	769	823	1.083	891.31	+1	892.31	901.23	910.24	919.34	928.53
WBR	32	34	1.083	36.82		36.82	37.19	37.56	37.94	38.32
NBL	*3*	*3*	1.083	3.25		3.25	*3.25*	*3.25*	*3.25*	*3.25*
NBT	*1*	*1*	1.083	1.08		1.08	*1.08*	*1.08*	*1.08*	*1.08*
NBR	*2*	*2*	1.083	2.17		2.17	*2.17*	*2.17*	*2.17*	*2.17*
SBL	38	41	1.083	44.40		44.40	44.84	45.29	45.74	46.20
SBT	1	1	1.083	1.08		1.08	1.09	1.10	1.11	1.12
SBR	284	304	1.083	329.23	+1	330.23	333.53	336.87	340.24	343.64
12. Manchester Street (US3) at Bank Drive (RI)	Calculated									
Movement										
EBT	872	933	1.083	1010.4	5	1015.00	1025.6	1035.8	1046.1	1056.58
EBR	*0*	*0*	1.083	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
WBT	802	858	1.083	929.21	1	930.21	939.00	948.88	958.36	967.93
15. Manchester Street (US3) at Main Drive (3-Turn)	Calculated									
Movement										
EBT	872	933	1.083	1010.4	5	1015	1025.6	1035.8	1046.1	1056.58
EBR	*0*	*0*	1.083	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
WBL	*0*	*0*	1.083	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
WBT	802	858	1.083	929.21	1	930.21	939	948.88	958.36	967.93
NBR	*0*	*0*	1.083	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
18. Manchester Street (US3) at Gas Drive (RO)	Calculated									
Movement										
EBT	872	933	1.083	1010.4	5	1015	1025.6	1035.8	1046.1	1056.58
WBT	802	858	1.083	929.21	1	930.21	939	948.88	958.36	967.93
NBR	*0*	*0*	1.083	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
27. Black Hill Road at Site Drive (Internal)										
Movement										
EBL		*0*	1.083	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
EBT		*0*	1.083	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
EBR		*0*	1.083	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
WBL		*0*	1.083	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
WBT		*0*	1.083	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
WBR		*0*	1.083	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
NBL		*0*	1.083	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
NBT		*0*	1.083	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
NBR		*0*	1.083	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
SBL		*0*	1.083	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
SBT		*0*	1.083	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
SBR		*0*	1.083	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*

are not Seasonally Adjusted or Growr				OPENING YEAR						
AM PHF	% Heavy	Counted Heavy	*Calculated Heavy*	AM Peak Hour	2021 BASE	2025	Other Developments (3)	2025 No-Build	Site Trip Distribution (Phase 1a - plus additional 2025 gas trips)	2025 Build (Phase 1a)
				9. Manchester Street (US3) at Old Turnpike Road / Black Hill Road						
				Movement						
	3%	13		EBL	585	608	6	614	0	614
0.85	5%	44	*4%*	EBT	969	1008	7	1015	50	1065
	0%	0		EBR	2	2	0	2	0	2
	0%	0		WBL	1	1	0	1	6	7
0.83	7%	55	*7%*	WBT	892	929	20	949	-51	898
	13%	4		WBR	37	38	1	39	0	39
	0%	0		NBL	3	3	0	3	118	121
0.67/ 0.90 (Build)	0%	0	*2%*	NBT	1	1	0	1	3	4
	0%	0		NBR	2	2	0	2	0	2
	5%	2		SBL	44	46	3	49	23	72
0.93	0%	0	*7%*	SBT	1	1	0	1	0	1
	7%	19		SBR	330	344	16	360	-20	340
				12. Manchester Street (US3) at Bank Drive (RI)						
				Movement						
0.90	5%	46	*5%*	EBT	1015	1057	10	1067	58	1125
	#DIV/0!			EBR	0	0	0	0	15	15
0.90	7%	59	*7%*	WBT	930	968	21	989	-45	944
				15. Manchester Street (US3) at Main Drive (3-Turn)						
				Movement						
0.90	5%	46	*5%*	EBT	1015	1057	10	1067	-80	987
	#DIV/0!			EBR	0	0	0	0	141	141
0.90	#DIV/0!		*7%*	WBL	0	0	0	0	54	54
	7%	59		WBT	930	968	21	989	-45	944
0.90	#DIV/0!		-	NBR	0	0	0	0	22	22
				18. Manchester Street (US3) at Gas Drive (RO)						
				Movement						
0.90	5%	46	*5%*	EBT	1015	1057	10	1067	-76	991
0.90	7%	59	*7%*	WBT	930	968	21	989	9	998
0.90	#DIV/0!		-	NBR	0	0	0	0	68	68
				27. Black Hill Road at Site Drive (Internal)						
				Movement						
	#DIV/0!			EBL	0	0	0	0	6	6
0.90	#DIV/0!			EBT	0	0	0	0	0	0
	#DIV/0!			EBR	0	0	0	0	0	0
	#DIV/0!			WBL	0	0	0	0	0	0
0.90	#DIV/0!			WBT	0	0	0	0	56	56
	#DIV/0!			WBR	0	0	0	0	0	0
	#DIV/0!			NBL	0	0	0	0	0	0
0.90	#DIV/0!			NBT	0	0	0	0	0	0
	#DIV/0!			NBR	0	0	0	0	0	0
	#DIV/0!			SBL	0	0	0	0	0	0
0.90	#DIV/0!			SBT	0	0	0	0	0	0
	#DIV/0!			SBR	0	0	0	0	56	56

Background Traffic Volumes
PM Peak data

Assumed growth rate	0.01	
October 2019 Seasonal Adjust	1.07	Seasonal Adjustment Calculation based on 3 nearby NHDOT Stations
Covid/Stay-home factor	1.038	

PM Peak Hour	Existing 2021 (Raw data) [10/21/2021]	Existing 2021 w/ Seasonal Adjustment (Dec)	Covid/Stay Home Adjustment	2021	Balance	2021 BASE	2022	2023	2024	2025
9. Manchester Street (US3) at Old Turnpike Road / Black Hill Road	4:00 PM									
Movement										
EBL	361	386	1.038	400.67	+2	402.67	406.70	410.77	414.88	419.03
EBT	945	1011	1.038	1049.42	+4	1053.42	1063.95	1074.59	1085.34	1096.19
EBR	*0*	*0*	1.038	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
WBL	*2*	*2*	1.038	2.08		2.08	*2.08*	*2.08*	*2.08*	*2.08*
WBT	850	910	1.038	944.58		944.58	954.03	963.57	973.21	982.94
WBR	34	36	1.038	37.37		37.37	37.74	38.12	38.50	38.89
NBL	*1*	*1*	1.038	1.04		1.04	*1.04*	*1.04*	*1.04*	*1.04*
NBT	*0*	*0*	1.038	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
NBR	*0*	*0*	1.038	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
SBL	64	68	1.038	70.58		70.58	71.29	72.00	72.72	73.45
SBT	1	1	1.038	1.04		1.04	1.05	1.06	1.07	1.08
SBR	707	756	1.038	784.73		784.73	792.58	800.51	808.52	816.61
12. Manchester Street (US3) at Bank Drive (RI)	Calculated									
Movement										
EBT	1009	1079	1.038	1120.00	4	1124.00	1135.24	1146.59	1158.06	1169.64
EBR	*0*	*0*	1.038	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
WBT	886	948	1.038	984.03	0	984.03	993.85	1003.77	1013.79	1023.91
15. Manchester Street (US3) at Main Drive (3-Turn)	Calculated									
Movement										
EBT	1009	1079	1.038	1120.00	4	1124.00	1135.24	1146.59	1158.06	1169.64
EBR	*0*	*0*	1.038	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
WBL	*0*	*0*	1.038	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
WBT	886	948	1.038	984.03	0	984.03	993.85	1003.77	1013.79	1023.91
NBR	*0*	*0*	1.038	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
18. Manchester Street (US3) at Gas Drive (RO)	Calculated									
Movement										
EBT	1009	1079	1.038	1120.00	4	1124.00	1135.24	1146.59	1158.06	1169.64
WBT	886	948	1.038	984.03	0	984.03	993.85	1003.77	1013.79	1023.91
NBR	*0*	*0*	1.038	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
27. Black Hill Road at Site Drive (Internal)										
Movement										
EBL		*0*	1.038	0.00		0.00	0.00	*0.00*	*0.00*	*0.00*
EBT		*0*	1.038	0.00		0.00	0.00	*0.00*	*0.00*	*0.00*
EBR		*0*	1.038	0.00		0.00	0.00	*0.00*	*0.00*	*0.00*
WBL		*0*	1.038	0.00		0.00	0.00	*0.00*	*0.00*	*0.00*
WBT		*0*	1.038	0.00		0.00	0.00	*0.00*	*0.00*	*0.00*
WBR		*0*	1.038	0.00		0.00	0.00	*0.00*	*0.00*	*0.00*
NBL		*0*	1.038	0.00		0.00	0.00	*0.00*	*0.00*	*0.00*
NBT		*0*	1.038	0.00		0.00	0.00	*0.00*	*0.00*	*0.00*
NBR		*0*	1.038	0.00		0.00	0.00	*0.00*	*0.00*	*0.00*
SBL		*0*	1.038	0.00		0.00	0.00	*0.00*	*0.00*	*0.00*
SBT		*0*	1.038	0.00		0.00	0.00	*0.00*	*0.00*	*0.00*
SBR		*0*	1.038	0.00		0.00	0.00	*0.00*	*0.00*	*0.00*

are not Seasonally Adjusted or Growr

PM PHF	% Heavy	Counted Heavy	*Calculated Heavy*	PM Peak Hour	2021 BASE	2025	Other Developments (3)	2025 No-Build	Site Trip Distribution (Phase 1a - plus additional 2025 gas trips)	2025 Build (Phase 1a)
				9. Manchester Street (US3) at Old Turnpike Road / Black Hill Road					0	
				Movement					0	
	3%	10		EBL	403	419	17	436	0	436
0.96	4%	39	*4%*	EBT	1053	1096	24	1120	54	1174
	-	0		EBR	0	0	0	0	0	0
	0%	0		WBL	2	2	0	2	9	11
0.91	3%	23	*3%*	WBT	945	983	14	997	-45	952
	6%	2		WBR	37	39	2	41	0	41
	0%	0		NBL	1	1	0	1	140	141
0.25/ 0.90 (Build)	-	0	*2%*	NBT	0	0	0	0	8	8
	-	0		NBR	0	0	0	0	0	0
	2%	1		SBL	71	73	1	74	49	123
0.90	0%	0	*1%*	SBT	1	1	0	1	0	1
	1%	7		SBR	785	817	11	828	-41	787
									0	
				12. Manchester Street (US3) at Bank Drive (RI)					0	
				Movement					0	
0.90	4%	40	*4%*	EBT	1124	1170	25	1195	73	1268
	#DIV/0!			EBR	0	0	0	0	30	30
0.90	3%	25	*3%*	WBT	984	1024	16	1040	-36	1004
									0	
				15. Manchester Street (US3) at Main Drive (3-Turn)					0	
				Movement					0	
0.90	4%	40	*4%*	EBT	1124	1170	25	1195	-62	1133
	#DIV/0!			EBR	0	0	0	0	142	142
0.90	#DIV/0!		*3%*	WBL	0	0	0	0	47	47
	3%	25		WBT	984	1024	16	1040	-37	1003
0.90	#DIV/0!		-	NBR	0	0	0	0	25	25
									0	
				18. Manchester Street (US3) at Gas Drive (RO)					0	
				Movement					0	
0.90	4%	40	*4%*	EBT	1124	1170	25	1195	-59	1136
0.90	3%	25	*3%*	WBT	984	1024	16	1040	10	1050
0.90	#DIV/0!		-	NBR	0	0	0	0	53	53
									0	
				27. Black Hill Road at Site Drive (Internal)					0	
				Movement					0	
	#DIV/0!			EBL	0	0	0	0	11	11
0.90	#DIV/0!			EBT	0	0	0	0	0	0
	#DIV/0!			EBR	0	0	0	0	0	0
	#DIV/0!			WBL	0	0	0	0	0	0
0.90	#DIV/0!			WBT	0	0	0	0	60	60
	#DIV/0!			WBR	0	0	0	0	0	0
	#DIV/0!			NBL	0	0	0	0	0	0
0.90	#DIV/0!			NBT	0	0	0	0	0	0
	#DIV/0!			NBR	0	0	0	0	0	0
	#DIV/0!			SBL	0	0	0	0	0	0
0.90	#DIV/0!			SBT	0	0	0	0	0	0
	#DIV/0!			SBR	0	0	0	0	62	62

Background Traffic Volumes
SAT Peak data

Assumed growth rate	0.01	
October 2019 Seasonal Adjust	1.07	Seasonal Adjustment Calculation based on 3 nearby NHDOT Stations
Covid/Stay-home factor	*1.008*	

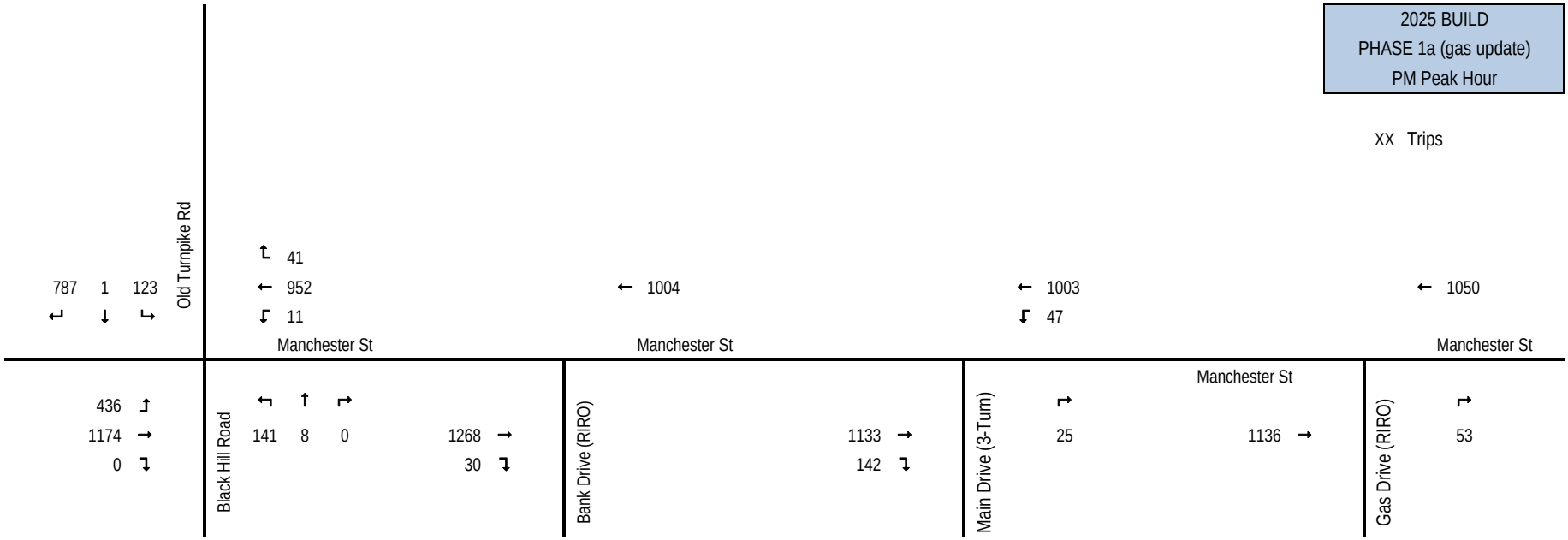
Site Trips

SAT Peak Hour	Existing 2021 (Raw data) [10/23/2021]	Existing 2021 w/ Seasonal Adjustment (Dec)	Covid/Stay Home Adjustment	2021	Balance	2021 BASE	2022	2023	2024	2025
9. Manchester Street (US3) at Old Turnpike Road / Black Hill Road	11:00 AM									
Movement										
EBL	293	314	1.008	316.51		316.51	319.68	322.88	326.11	329.37
EBT	611	654	1.008	659.23		659.23	665.82	672.48	679.20	685.99
EBR	*0*	*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
WBL	*1*	*1*	1.008	1.01		1.01	*1.01*	*1.01*	*1.01*	*1.01*
WBT	611	654	1.008	659.23	+53	712.23	719.35	726.54	733.81	741.15
WBR	42	45	1.008	45.36		45.36	45.81	46.27	46.73	47.20
NBL	*3*	*3*	1.008	3.02		3.02	*3.02*	*3.02*	*3.02*	*3.02*
NBT	*0*	*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
NBR	*0*	*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
SBL	66	71	1.008	71.57		71.57	72.29	73.01	73.74	74.48
SBT	0	0	1.008	0.00		0.00	0.00	0.00	0.00	0.00
SBR	281	301	1.008	303.41	+24	327.41	330.68	333.99	337.33	340.70
12. Manchester Street (US3) at Bank Drive (RI)	Calculated									
Movement										
EBT	677	725	1.008	730.80	0	730.00	738.11	745.49	752.94	760.47
EBR	*0*	*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
WBT	654	700	1.008	705.60	53	758.60	766.17	773.82	781.55	789.36
15. Manchester Street (US3) at Main Drive (3-Turn)	Calculated									
Movement										
EBT	677	725	1.008	730.80	0	730.00	738.11	745.49	752.94	760.47
EBR	*0*	*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
WBL	*0*	*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
WBT	654	700	1.008	705.60	53	758.60	766.17	773.82	781.55	789.36
NBR	*0*	*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
18. Manchester Street (US3) at Gas Drive (RO)	Calculated									
Movement										
EBT	677	725	1.008	730.80	0	730.00	738.11	745.49	752.94	760.47
WBT	654	700	1.008	705.60	53	758.60	766.17	773.82	781.55	789.36
NBR	*0*	*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
27. Black Hill Road at Site Drive (Internal)										
Movement										
EBL		*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
EBT		*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
EBR		*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
WBL		*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
WBT		*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
WBR		*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
NBL		*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
NBT		*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
NBR		*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
SBL		*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
SBT		*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*
SBR		*0*	1.008	0.00		0.00	*0.00*	*0.00*	*0.00*	*0.00*

are not Seasonally Adjusted or Growr

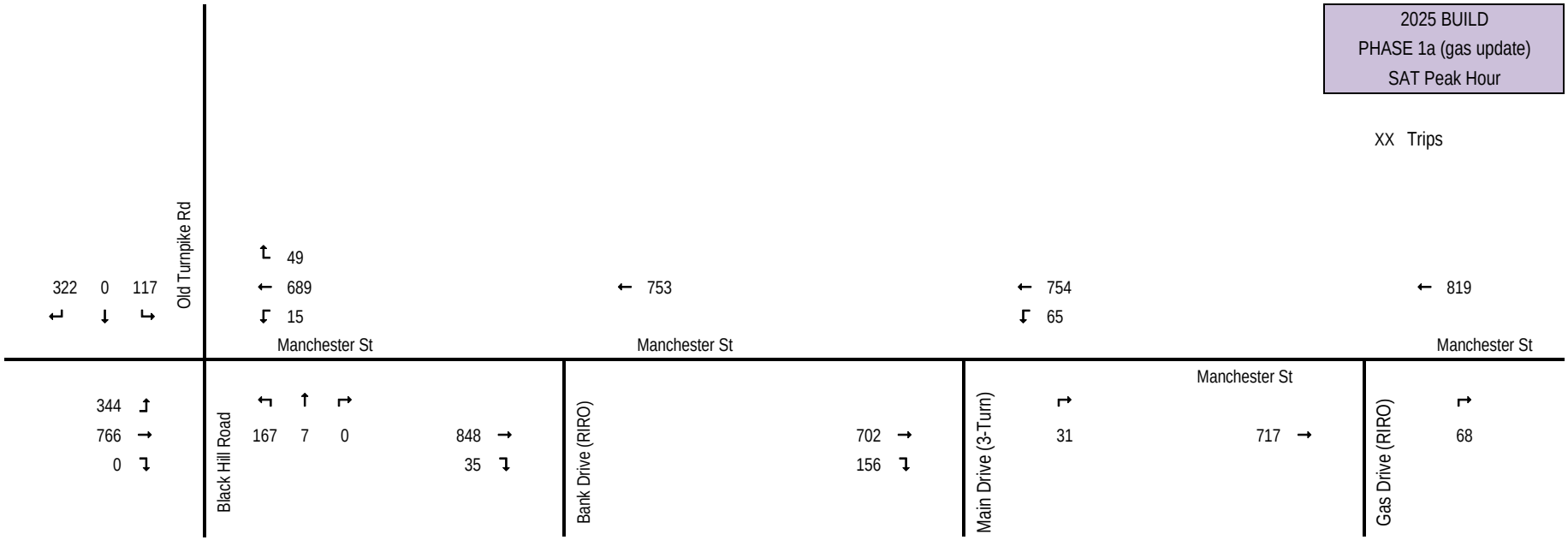
SAT PHF	% Heavy	Counted Heavy	*Calculated Heavy*	SAT Peak Hour	2021 BASE	2025	Other Developments (3)	2025 No-Build	Site Trip Distribution (Phase 1a - plus additional 2025 gas trips)	2025 Build (Phase 1a)
				9. Manchester Street (US3) at Old Turnpike Road / Black Hill Road						
				Movement						
	2%	6		EBL	317	329	15	344	0	344
0.95	3%	18	*3%*	EBT	659	686	15	701	65	766
	-	0		EBR	0	0	0	0	0	0
	0%	0		WBL	1	1	0	1	14	15
0.94	2%	12	*2%*	WBT	712	741	15	756	-67	689
	0%	0		WBR	45	47	2	49	0	49
	0%	0		NBL	3	3	0	3	164	167
0.38/ 0.90 (Build)	-	0	*2%*	NBT	0	0	0	0	7	7
	-	0		NBR	0	0	0	0	0	0
	0%	0		SBL	72	74	3	77	40	117
0.90	-	0	*1%*	SBT	0	0	0	0	0	0
	1%	2		SBR	327	341	14	355	-33	322
				12. Manchester Street (US3) at Bank Drive (RI)						
				Movement						
	3%	18		EBT	730	760	18	778	70	848
0.90	-		*3%*	EBR	0	0	0	0	35	35
0.90	2%	12	*2%*	WBT	759	789	17	806	-53	753
				15. Manchester Street (US3) at Main Drive (3-Turn)						
				Movement						
	3%	18		EBT	730	760	18	778	-76	702
0.90	-		*3%*	EBR	0	0	0	0	156	156
	-			WBL	0	0	0	0	65	65
0.90	2%	12	*2%*	WBT	759	789	17	806	-52	754
	-		-	NBR	0	0	0	0	31	31
				18. Manchester Street (US3) at Gas Drive (RO)						
				Movement						
0.90	3%	18	*3%*	EBT	730	760	18	778	-61	717
0.90	2%	12	*2%*	WBT	759	789	17	806	13	819
0.90	-		-	NBR	0	0	0	0	68	68
				27. Black Hill Road at Site Drive (Internal)						
				Movement						
				EBL	0	0	0	0	15	15
0.90				EBT	0	0	0	0	0	0
				EBR	0	0	0	0	0	0
				WBL	0	0	0	0	0	0
0.90				WBT	0	0	0	0	69	69
				WBR	0	0	0	0	0	0
				NBL	0	0	0	0	0	0
0.90				NBT	0	0	0	0	0	0
				NBR	0	0	0	0	0	0
				SBL	0	0	0	0	0	0
0.90				SBT	0	0	0	0	0	0
				SBR	0	0	0	0	71	71

2025 BUILD
PHASE 1a (gas update)
AM Peak Hour
XX Trips
Old Turnpike Rd
340 1 72
39
898
7
Manchester St
944
Manchester St
944
54
Manchester St
998
Manchester St
Manchester St
614
1065
2
Black Hill Road
121 4 2
1125
15
Bank Drive (RIRO)
987
141
Main Drive (3-Turn)
22
991
Gas Drive (3-Turn)
68


2025 BUILD
PHASE 1a (gas update)
PM Peak Hour
XX Trips
Old Turnpike Rd
787 1 123
41
952
11
Manchester St
1004
Manchester St
1003
47
Manchester St
1050
Manchester St
436
1174
0
Black Hill Road
141 8 0
1268
30
Bank Drive (RIRO)
1133
142
Main Drive (3-Turn)
25
Manchester St
1136
Gas Drive (RIRO)
53

2025 BUILD
PHASE 1a (gas update)
SAT Peak Hour

XX Trips



ATTACHMENT D

Synchro – Phase 1a Gas/Convenience (AM/PM/SAT)

Opening

2025 Build

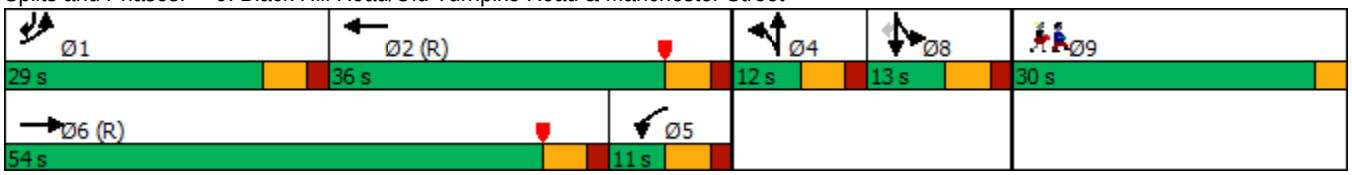
9: Black Hill Road/Old Turnpike Road & Manchester Street

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR	Ø9
Lane Configurations									
Traffic Volume (vph)	614	1065	7	898	121	4	1	340	
Future Volume (vph)	614	1065	7	898	121	4	1	340	
Turn Type	Prot	NA	Prot	NA	Split	NA	NA	pm+ov	
Protected Phases	1	6	5	2	4	4	8	1	9
Permitted Phases								8	
Detector Phase	1	6	5	2	4	4	8	1	
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	5.0	1.0
Minimum Split (s)	11.0	24.0	11.0	36.0	12.0	12.0	13.0	11.0	30.0
Total Split (s)	29.0	54.0	11.0	36.0	12.0	12.0	13.0	29.0	30.0
Total Split (%)	24.2%	45.0%	9.2%	30.0%	10.0%	10.0%	10.8%	24.2%	25%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?									
Recall Mode	None	C-Min	None	C-Min	None	None	None	None	None
Act Effct Green (s)	57.6	91.4	8.4	32.0	8.0	8.0	9.0	68.0	
Actuated g/C Ratio	0.48	0.76	0.07	0.27	0.07	0.07	0.08	0.57	
v/c Ratio	0.90	0.49	0.07	1.30	0.65	0.64	0.64	0.37	
Control Delay	41.9	6.4	54.1	180.9	81.7	80.2	77.6	2.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.9	6.4	54.1	180.9	81.7	80.2	77.6	2.4	
LOS	D	A	D	F	F	F	E	A	
Approach Delay		19.3		180.0		80.9	15.6		
Approach LOS		B		F		F	B		

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 54 (45%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.30
Intersection Signal Delay: 70.6 Intersection LOS: E
Intersection Capacity Utilization 80.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 9: Black Hill Road/Old Turnpike Road & Manchester Street



9: Black Hill Road/Old Turnpike Road & Manchester Street

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	722	1255	8	1129	70	70	78	366
v/c Ratio	0.90	0.49	0.07	1.30	0.65	0.64	0.64	0.37
Control Delay	41.9	6.4	54.1	180.9	81.7	80.2	77.6	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.9	6.4	54.1	180.9	81.7	80.2	77.6	2.4
Queue Length 50th (ft)	344	101	6	~592	56	55	60	0
Queue Length 95th (ft)	#682	249	20	#644	#130	#129	#130	41
Internal Link Dist (ft)		1270		190		320	642	
Turn Bay Length (ft)	500		250					100
Base Capacity (vph)	805	2555	114	867	108	109	122	985
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.49	0.07	1.30	0.65	0.64	0.64	0.37

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	614	1065	2	7	898	39	121	4	2	72	1	340
Future Volume (vph)	614	1065	2	7	898	39	121	4	2	72	1	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95			1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96			0.95	1.00
Satd. Flow (prot)	1678	3355		1631	3241		1625	1629			1636	1459
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96			0.95	1.00
Satd. Flow (perm)	1678	3355		1631	3241		1625	1629			1636	1459
Peak-hour factor, PHF	0.85	0.85	0.85	0.83	0.83	0.83	0.90	0.90	0.90	0.93	0.93	0.93
Adj. Flow (vph)	722	1253	2	8	1082	47	134	4	2	77	1	366
RTOR Reduction (vph)	0	0	0	0	3	0	0	1	0	0	0	167
Lane Group Flow (vph)	722	1255	0	8	1126	0	70	69	0	0	78	199
Heavy Vehicles (%)	4%	4%	4%	7%	7%	7%	2%	2%	2%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	pm+ov
Protected Phases	1	6		5	2		4	4		8	8	1
Permitted Phases												8
Actuated Green, G (s)	55.6	83.4		1.0	28.8		6.0	6.0			5.6	61.2
Effective Green, g (s)	57.6	85.4		3.0	30.8		8.0	8.0			7.6	65.2
Actuated g/C Ratio	0.48	0.71		0.02	0.26		0.07	0.07			0.06	0.54
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0			4.0	4.0
Lane Grp Cap (vph)	805	2387		40	831		108	108			103	841
v/s Ratio Prot	c0.43	0.37		0.00	c0.35		c0.04	0.04			c0.05	0.11
v/s Ratio Perm												0.02
v/c Ratio	0.90	0.53		0.20	1.36		0.65	0.64			0.76	0.24
Uniform Delay, d1	28.5	8.0		57.3	44.6		54.6	54.6			55.3	14.4
Progression Factor	0.95	0.89		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	11.2	0.7		3.3	167.6		12.6	11.8			28.2	0.2
Delay (s)	38.2	7.8		60.7	212.2		67.3	66.4			83.5	14.6
Level of Service	D	A		E	F		E	E			F	B
Approach Delay (s)		18.9			211.2			66.8			26.7	
Approach LOS		B			F			E			C	

Intersection Summary

HCM 2000 Control Delay	80.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

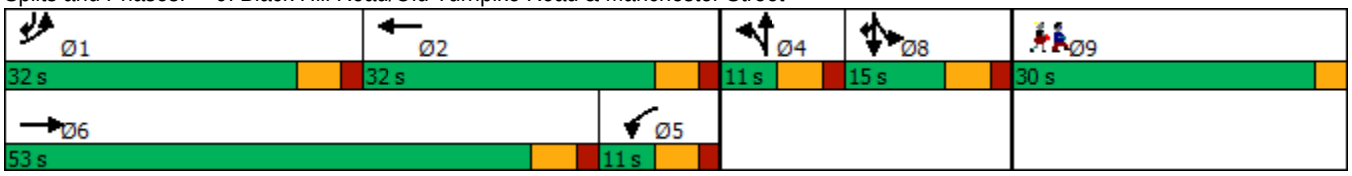
9: Black Hill Road/Old Turnpike Road & Manchester Street

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR	Ø9
Lane Configurations									
Traffic Volume (vph)	436	1174	11	952	141	8	1	787	
Future Volume (vph)	436	1174	11	952	141	8	1	787	
Turn Type	Prot	NA	Prot	NA	Split	NA	NA	pt+ov	
Protected Phases	1	6	5	2	4	4	8	8 1	9
Permitted Phases									
Detector Phase	1	6	5	2	4	4	8	8 1	
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0		1.0
Minimum Split (s)	11.0	24.0	11.0	24.0	10.0	10.0	15.0		30.0
Total Split (s)	32.0	53.0	11.0	32.0	11.0	11.0	15.0		30.0
Total Split (%)	26.7%	44.2%	9.2%	26.7%	9.2%	9.2%	12.5%		25%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0		3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0		0.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0		
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag		
Lead-Lag Optimize?									
Recall Mode	None	Min	None	Min	None	None	None		None
Act Effct Green (s)	28.0	57.8	7.0	28.0	7.0	7.0	11.0	43.0	
Actuated g/C Ratio	0.31	0.64	0.08	0.31	0.08	0.08	0.12	0.48	
v/c Ratio	0.87	0.57	0.09	1.04	0.66	0.65	0.65	0.84	
Control Delay	48.5	11.1	40.4	70.5	66.1	65.4	53.6	16.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	48.5	11.1	40.4	70.5	66.1	65.4	53.6	16.0	
LOS	D	B	D	E	E	E	D	B	
Approach Delay		21.2		70.1		65.7	21.2		
Approach LOS		C		E		E	C		

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 90
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 36.7 Intersection LOS: D
Intersection Capacity Utilization 90.5% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 9: Black Hill Road/Old Turnpike Road & Manchester Street



9: Black Hill Road/Old Turnpike Road & Manchester Street

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	454	1223	12	1091	83	83	138	874
v/c Ratio	0.87	0.57	0.09	1.04	0.66	0.65	0.65	0.84
Control Delay	48.5	11.1	40.4	70.5	66.1	65.4	53.6	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.5	11.1	40.4	70.5	66.1	65.4	53.6	16.0
Queue Length 50th (ft)	242	168	6	~355	49	49	76	144
Queue Length 95th (ft)	#415	317	24	#485	#122	#121	#153	#467
Internal Link Dist (ft)		1270		190		320	642	
Turn Bay Length (ft)	500		250					100
Base Capacity (vph)	522	2154	131	1049	126	127	211	1036
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.57	0.09	1.04	0.66	0.65	0.65	0.84

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	436	1174	0	11	952	41	141	8	0	123	1	787
Future Volume (vph)	436	1174	0	11	952	41	141	8	0	123	1	787
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95			1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96			0.95	1.00
Satd. Flow (prot)	1678	3355		1694	3367		1625	1638			1732	1546
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96			0.95	1.00
Satd. Flow (perm)	1678	3355		1694	3367		1625	1638			1732	1546
Peak-hour factor, PHF	0.96	0.96	0.96	0.91	0.91	0.91	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	454	1223	0	12	1046	45	157	9	0	137	1	874
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	0	311
Lane Group Flow (vph)	454	1223	0	12	1089	0	83	83	0	0	138	563
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6		5	2		4	4		8	8	8 1
Permitted Phases												
Actuated Green, G (s)	26.0	55.8		1.0	30.8		5.0	5.0			9.0	41.0
Effective Green, g (s)	28.0	57.8		3.0	32.8		7.0	7.0			11.0	43.0
Actuated g/C Ratio	0.30	0.61		0.03	0.35		0.07	0.07			0.12	0.45
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0			4.0	
Lane Grp Cap (vph)	495	2045		53	1164		119	120			200	701
v/s Ratio Prot	c0.27	0.36		0.01	c0.32		c0.05	0.05			0.08	c0.36
v/s Ratio Perm												
v/c Ratio	0.92	0.60		0.23	0.94		0.70	0.69			0.69	0.80
Uniform Delay, d1	32.3	11.4		44.8	30.0		42.9	42.8			40.3	22.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	22.1	0.6		3.0	13.7		16.3	15.8			10.3	7.0
Delay (s)	54.4	11.9		47.7	43.7		59.2	58.7			50.6	29.2
Level of Service	D	B		D	D		E	E			D	C
Approach Delay (s)		23.4			43.8			58.9			32.1	
Approach LOS		C			D			E			C	

Intersection Summary

HCM 2000 Control Delay	32.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	94.8	Sum of lost time (s)	19.0
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

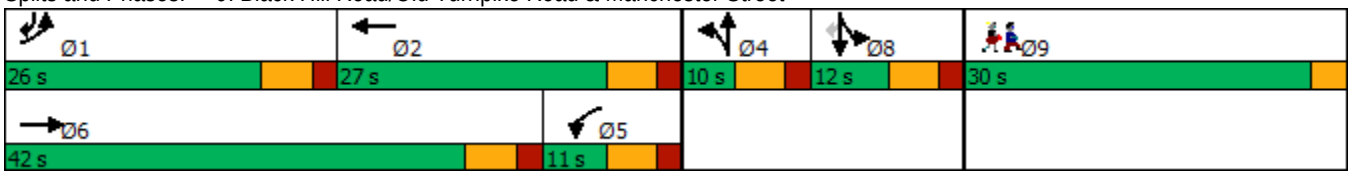
9: Black Hill Road/Old Turnpike Road & Manchester Street

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR	Ø9
Lane Configurations									
Traffic Volume (vph)	344	766	15	689	167	7	0	322	
Future Volume (vph)	344	766	15	689	167	7	0	322	
Turn Type	Prot	NA	Prot	NA	Split	NA	NA	pm+ov	
Protected Phases	1	6	5	2	4	4	8	1	9
Permitted Phases								8	
Detector Phase	1	6	5	2	4	4	8	1	
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	5.0	1.0
Minimum Split (s)	11.0	24.0	11.0	18.0	10.0	10.0	10.0	11.0	30.0
Total Split (s)	26.0	42.0	11.0	27.0	10.0	10.0	12.0	26.0	30.0
Total Split (%)	24.8%	40.0%	10.5%	25.7%	9.5%	9.5%	11.4%	24.8%	29%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	None	Min	None	None	None	None	None
Act Effct Green (s)	22.0	45.9	7.9	23.0	6.0	6.0	8.0	34.0	
Actuated g/C Ratio	0.29	0.61	0.11	0.31	0.08	0.08	0.11	0.45	
v/c Ratio	0.73	0.39	0.09	0.75	0.75	0.75	0.71	0.40	
Control Delay	34.2	9.3	30.3	28.7	68.9	68.9	55.1	3.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	34.2	9.3	30.3	28.7	68.9	68.9	55.1	3.0	
LOS	C	A	C	C	E	E	E	A	
Approach Delay		17.0		28.7		68.9	16.9		
Approach LOS		B		C		E	B		

Intersection Summary

Cycle Length: 105
Actuated Cycle Length: 75
Natural Cycle: 105
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 24.3 Intersection LOS: C
Intersection Capacity Utilization 62.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 9: Black Hill Road/Old Turnpike Road & Manchester Street



9: Black Hill Road/Old Turnpike Road & Manchester Street

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	362	806	16	785	97	97	130	358
v/c Ratio	0.73	0.39	0.09	0.75	0.75	0.75	0.71	0.40
Control Delay	34.2	9.3	30.3	28.7	68.9	68.9	55.1	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.2	9.3	30.3	28.7	68.9	68.9	55.1	3.0
Queue Length 50th (ft)	150	77	7	170	47	47	60	0
Queue Length 95th (ft)	#269	190	23	235	#127	#127	#140	43
Internal Link Dist (ft)		1270		190		320	642	
Turn Bay Length (ft)	500		250					100
Base Capacity (vph)	496	2114	180	1042	130	130	184	896
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.38	0.09	0.75	0.75	0.75	0.71	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	344	766	0	15	689	49	167	7	0	117	0	322
Future Volume (vph)	344	766	0	15	689	49	167	7	0	117	0	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95			1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96			0.95	1.00
Satd. Flow (prot)	1694	3388		1711	3387		1625	1636			1728	1546
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96			0.95	1.00
Satd. Flow (perm)	1694	3388		1711	3387		1625	1636			1728	1546
Peak-hour factor, PHF	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	362	806	0	16	733	52	186	8	0	130	0	358
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	0	223
Lane Group Flow (vph)	362	806	0	16	781	0	97	97	0	0	130	135
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	pm+ov
Protected Phases	1	6		5	2		4	4		8	8	1
Permitted Phases												8
Actuated Green, G (s)	20.0	43.9		1.9	25.8		4.0	4.0			6.0	26.0
Effective Green, g (s)	22.0	45.9		3.9	27.8		6.0	6.0			8.0	30.0
Actuated g/C Ratio	0.28	0.58		0.05	0.35		0.08	0.08			0.10	0.38
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0			4.0	4.0
Lane Grp Cap (vph)	467	1948		83	1179		122	123			173	658
v/s Ratio Prot	c0.21	0.24		0.01	c0.23		c0.06	0.06			c0.08	0.06
v/s Ratio Perm												0.03
v/c Ratio	0.78	0.41		0.19	0.66		0.80	0.79			0.75	0.20
Uniform Delay, d1	26.6	9.4		36.4	22.0		36.3	36.3			34.9	16.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	8.3	0.2		1.5	1.6		29.0	27.6			17.7	0.2
Delay (s)	34.9	9.6		38.0	23.6		65.3	63.9			52.6	17.0
Level of Service	C	A		D	C		E	E			D	B
Approach Delay (s)		17.5			23.9			64.6			26.5	
Approach LOS		B			C			E			C	

Intersection Summary

HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	19.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

AMENDED PREFACE MATERIALS

SOIL LEGEND (PER SITE SPECIFIC SOIL SURVEY)		
SYMBOL	DESCRIPTION	HYDROLOGIC SOIL GROUP
500B/cgade	UFORTHENTS, LOAMY, 0–8% SLOPES, WELL DRAINED	B
601B	OCCUM, RARELY FLOODED, 0–8% SLOPES, WELL DRAINED	B

SOIL LEGEND (PER NRCS WEB SOIL SURVEY)		
SYMBOL	DESCRIPTION	HYDROLOGIC SOIL GROUP
4A	POOTATUCK VERY FINE SANDY LOAM, 0–3% SLOPES, OCCASIONALLY FLOODED, MODERATELY WELL DRAINED	B
498A	URBAN LAND–POOTATUCK COMPLEX, 0–3% SLOPES	B

N

OLD TURNPIKE (PUBLIC) (CLASS V)

CARLSON'S MOTOR SALES

792Z–1
CARLSON'S MOTOR SALES INC.
13 MANCHESTER STREET
CONCORD, NH 03301–5106
BK. 1105 PG. 237

GAS STATION CANOPY

781Z–1
ARANOSIAN OIL CO. INC.
557 NORTH STATE STREET
CONCORD, NH 03301–3326
BK.3717 PG.163

781Z–1
ARANOSIAN OIL CO. INC.
557 NORTH STATE STREET
CONCORD, NH 03301–3326

781Z–1
ARANOSIAN OIL COMPANY
FORMERLY ARANCO REALTY INC.
557 NORTH STATE STREET
CONCORD, NH 03301–3236

781Z–2
JLMW REAL ESTATE LLC
96 SCHOOL STREET
NORTHWOOD, NH 03261–3722
BK. 3717 PG. 163

781Z–2
ARANOSIAN OIL CO. INC.
557 NORTH STATE STREET
CONCORD, NH 03301–3326

781Z–2
REAL ESTATE
96 SCHOOL STREET
NORTHWOOD, NH 03261–3722
BK.3717 PG.163

781Z–3
ENDICOTT FURNITURE CO.INC.
12 SOUTH MAIN STREET
CONCORD, NH 03301–4809
BK.909 PG.447

781Z–
SUN COMM.
F.K.A. JENSEN
27777 FRANKLIN
SUITE 200
SOUTHFIELD, MI
48034–8205

MANCHESTER STREET
(PUBLIC) (CLASS IV) (100 FT. WIDE)

U.S. ROUTE 3

TO DISCHARGE POINT A

2.0'

2.0'

JERSEY BARRIER (TYP.)

792Z–2–1
LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS CORP.)
STATE OF NEW HAMPSHIRE DAD
NH
U3UD3–3305
(GAS SUBSTATION)

(VARIABLE WIDTH THIS SECTION)

BR1

BR2

1PC

2PC

3PC

4PC

5PC

3APC

4APC

5APC

781Z–31
SKUFFY'S LLC
48 SOUTH CURTISVILLE ROAD
CONCORD, NH 03301–5908
BK.3833 PG.2454

781Z–31
SKUFFY'S LLC
48 SOUTH CURTISVILLE ROAD
CONCORD, NH 03301–5908
BK.3833 PG.2454

781Z–1
ARANOSIAN OIL CO. INC.
557 NORTH STATE STREET
CONCORD, NH 03301–3326

781Z–2
96 SCHOOL STREET
NORTHWOOD, NH 03261–3722
BK.3717 PG.163

781Z–3
ENDICOTT FURNITURE CO.INC.
12 SOUTH MAIN STREET
CONCORD, NH 03301–4809
BK.909 PG.447

781Z–
SUN COMM.
F.K.A. JENSEN
27777 FRANKLIN
SUITE 200
SOUTHFIELD, MI
48034–8205

MANCHESTER STREET
(PUBLIC) (CLASS IV) (100 FT. WIDE)

U.S. ROUTE 3

7BPC

7APC

14PC

6APC

6BPC

MANCHESTER STREET

1PC

10PC

13PC

781Z–28
MARIE L. BLAIS (TRUSTEE)
M.L.B. REVOCABLE TRUST
18 PLEASANT VIEW AVENUE
CONCORD, NH 03301–2554
BK. 3244 PG. 932

9PC

10APC

12PC

12APC

13APC

8PC

6PC

7CPC

7DPC

ST1

ST2

ST3

A

B

C

D

792Z–1
STATE OF NEW HAMPSHIRE
C/O SECRETARY OF STATE
107 NORTH MAIN STREET
CONCORD, NH 03301–4951
BK. 1974 PG.78

792Z–3
CHRISTINE M. WINDLER (TRUSTEE)
ROI IRREVOCABLE TRUST
C/O CRONIN, BISSON & ZALINSKY PC
722 CHESTNUT STREET
MANCHESTER, NH 03104–4001
BK. 3173 PG. 1067

781Z–34
CHRISTINE M. WINDLER (TRUSTEE)
ROI IRREVOCABLE TRUST
C/O CRONIN, BISSON & ZALINSKY PC
722 CHESTNUT STREET
CONCORD, NH 03301–300
BK. 3173 PG. 1067

PT OF BLACK HILL ROAD
(PUBLIC) (CLASS V) (50 FT. WIDE)

VARIABLE WIDTH PAVED SURFACE

BLACK HILL ROAD
(PUBLIC)(CLASS V)
(50 FT. WIDE)

1BPC

1APC

2APC

110–H2–10

TO DISCHARGE POINT A

110–H3–3

30" CMP DRAIN PIPE

LIMIT OF 20 FT. DRAINAGE EASEMENT

LIMIT OF 20 FT. DRAINAGE EASEMENT

100–YEAR FLOOD LINE

ZONE X

ZONE AE

FLOOD PER FEMA MAP

10.2

781Z–3
STATE OF NEW HAMPSHIRE
C/O SECRETARY OF STATE
107 NORTH MAIN ST
CONCORD, NH
03301–4951
P.78

792Z–4
STATE OF NEW HAMPSHIRE
C/O SECRETARY OF STATE
107 NORTH MAIN STREET
CONCORD, NH 03301–4951
BK. 1974 PG.78

P.O. BK. 2210 PG.697 PLT.783
PT TO STATE NH

BNDF 5°50'X2"BG
TIE COURSE
N89°44'08"W 0.36'
CHRISTINE M. WINDLER (TRUSTEE)
ROI IRREVOCABLE TRUST
C/O CRONIN, BISSON & ZALINSKY PC
722 CHESTNUT STREET

LEGEND

- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION
- 5 SUBCATCHMENT
- 9 REACH
- A POND
- D DISCHARGE POINT

Graphic Scale in Feet
40 20 10 0 40

MAP 792Z, LOT 2
MAP 781Z, LOT 30, 29, & 32

POST DEVELOPMENT DRAINAGE MAP

EXIT 13 (MANCHESTER STREET)

CONCORD, NH

OWNED BY

ROI IRREV. TRUST - CHRISTINE WINDLER (TRUSTEE)

PREPARED FOR

SAINT MARY'S BANK & ROI IRREV. TRUST

SCALE: 1" = 40' **MARCH 20, 2024**

REV	DATE	DESCRIPTION	DR	CK
2	7/19/2024	REVISED PER ENGINEERING COMMENTS	JR	RD
1	7/12/2024	REVISED FOR AOT COMMENTS	JD	RD

TFM
Civil Engineers
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FILE 95486.11 | DR SRP | CK JK | FB – | CADFILE 95486–01 95486–08 DRAINAGE MAPS PHASE 1 | DAM2

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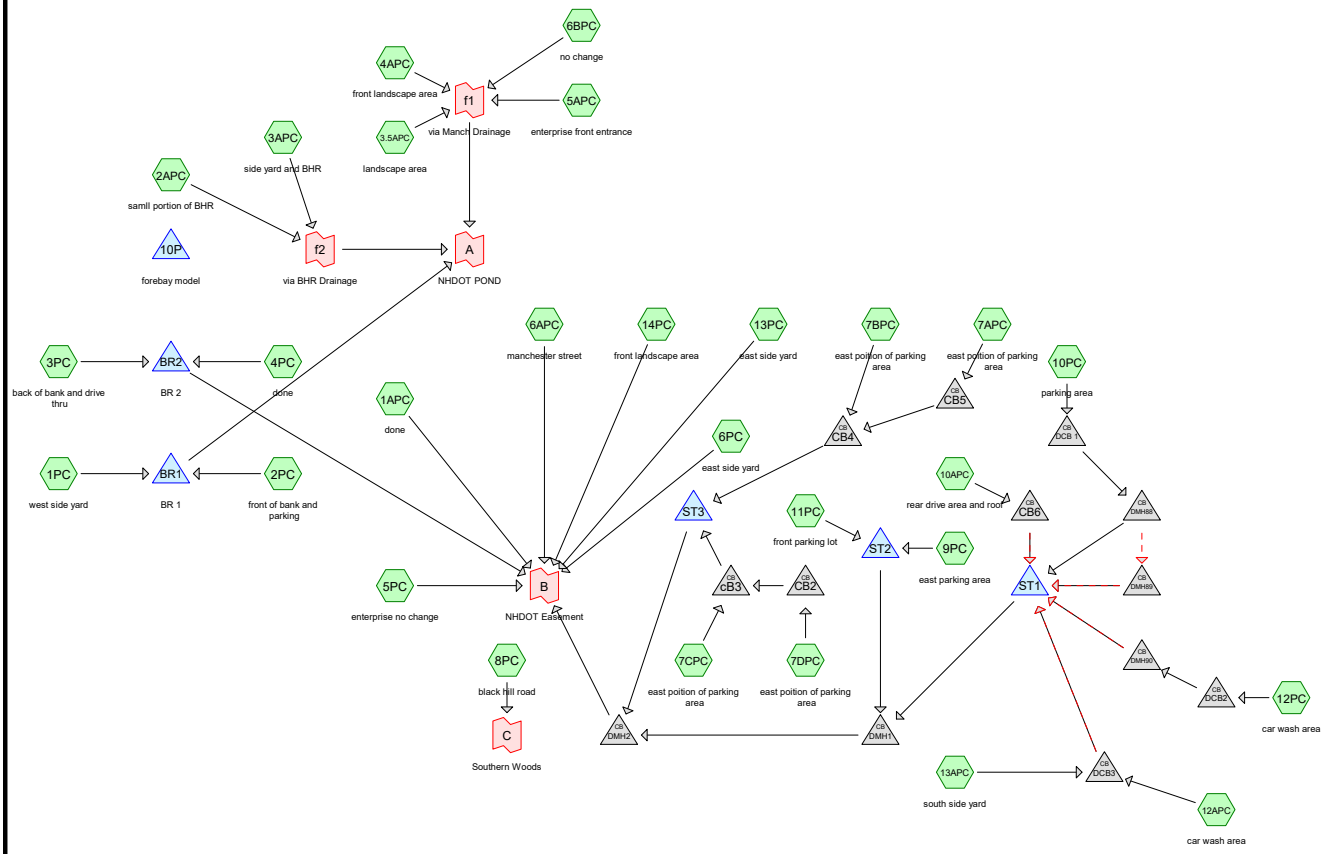
Peak Rate Flows Reflecting New Site Layout

There is no increase in the off-site peak rate of runoff from the project site.

FLOW (CFS)	2-YR		10-YR		25-YR		50-YR		100-YR	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
A	0.85	0.77	1.60	1.34	2.24	1.82	2.86	2.28	3.63	2.85
B	2.78	1.26	5.31	3.71	7.38	6.10	9.33	8.34	11.69	10.98
C	1.75	1.01	3.36	2.15	4.67	3.11	5.89	4.02	7.38	5.14

VOLUME (AF)	2-YR		10-YR	
	Pre	Post	Pre	Post
A	0.09	0.08	0.17	0.15
B	0.35	0.22	0.67	0.56
C	0.24	0.08	0.45	0.16



Subcat Reach Pond Link

Routing Diagram for 2025-08-01 nault post PHASE 1
Prepared by T F Moran Inc, Printed 8/5/2025
HydroCAD® 10.20-7a s/n 00866 © 2025 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-inch	Type III 24-hr		Default	24.00	1	1.00	2
2	2-YR	Type III 24-hr		Default	24.00	1	2.82	2
3	10-YR	Type III 24-hr		Default	24.00	1	4.16	2
4	25-YR	Type III 24-hr		Default	24.00	1	5.20	2
5	50-YR	Type III 24-hr		Default	24.00	1	6.16	2
6	100-YR	Type III 24-hr		Default	24.00	1	7.31	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
137,017	61	>75% Grass cover, Good, HSG B (1APC, 1PC, 2APC, 2PC, 3.5APC, 3APC, 3PC, 4APC, 4PC, 5APC, 5PC, 6APC, 6PC, 7APC, 7BPC, 7CPC, 7DPC, 8PC, 9PC, 10PC, 12APC, 12PC, 13APC, 13PC, 14PC)
170,195	98	Paved parking, HSG B (2APC, 2PC, 3APC, 3PC, 5APC, 5PC, 6APC, 6BPC, 6PC, 7APC, 7BPC, 7CPC, 7DPC, 8PC, 9PC, 10APC, 10PC, 11PC, 12APC, 12PC)
18,369	98	Roofs, HSG B (2PC, 3PC, 5PC, 9PC, 10APC, 10PC, 11PC, 12PC)
2,728	98	Unconnected pavement, HSG B (1APC, 2PC)
5,119	55	Woods, Good, HSG B (5PC, 6PC, 13PC)
333,428	**82**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
333,428	HSG B	1APC, 1PC, 2APC, 2PC, 3.5APC, 3APC, 3PC, 4APC, 4PC, 5APC, 5PC, 6APC, 6BPC, 6PC, 7APC, 7BPC, 7CPC, 7DPC, 8PC, 9PC, 10APC, 10PC, 11PC, 12APC, 12PC, 13APC, 13PC, 14PC
0	HSG C	
0	HSG D	
0	Other	
333,428		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Su Nu
0	137,017	0	0	0	137,017	>75% Grass cover, Good	
0	170,195	0	0	0	170,195	Paved parking	
0	18,369	0	0	0	18,369	Roofs	
0	2,728	0	0	0	2,728	Unconnected pavement	
0	5,119	0	0	0	5,119	Woods, Good	
0	**333,428**	**0**	**0**	**0**	**333,428**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	CB2	227.45	227.30	28.0	0.0054	0.013	0.0	15.0	0.0	
2	cB3	227.20	227.10	13.0	0.0077	0.013	0.0	15.0	0.0	
3	CB4	227.57	227.20	93.0	0.0040	0.013	0.0	12.0	0.0	
4	CB5	227.86	227.66	39.0	0.0051	0.013	0.0	12.0	0.0	
5	CB6	229.00	228.84	8.0	0.0200	0.013	0.0	12.0	0.0	
6	CB6	229.50	229.50	10.0	0.0000	0.013	0.0	12.0	0.0	
7	DCB 1	229.65	229.34	31.0	0.0100	0.013	0.0	15.0	0.0	
8	DCB2	229.50	229.10	20.0	0.0200	0.013	0.0	15.0	0.0	
9	DCB3	229.00	228.84	8.0	0.0200	0.013	0.0	12.0	0.0	
10	DCB3	229.50	229.50	10.0	0.0000	0.013	0.0	12.0	0.0	
11	DMH1	226.50	225.50	124.0	0.0081	0.013	0.0	18.0	0.0	
12	DMH2	225.25	225.00	36.0	0.0069	0.013	0.0	18.0	0.0	
13	DMH88	229.00	228.84	8.0	0.0200	0.013	0.0	12.0	0.0	
14	DMH88	229.00	229.00	10.0	0.0000	0.013	0.0	12.0	0.0	
15	DMH89	229.00	228.84	8.0	0.0200	0.013	0.0	12.0	0.0	
16	DMH89	229.50	229.50	10.0	0.0000	0.013	0.0	12.0	0.0	
17	DMH90	229.00	228.84	8.0	0.0200	0.013	0.0	12.0	0.0	
18	DMH90	229.50	229.50	10.0	0.0000	0.013	0.0	12.0	0.0	
19	ST1	229.26	228.50	10.0	0.0760	0.013	0.0	10.0	0.0	
20	ST2	227.89	227.00	10.0	0.0890	0.013	0.0	8.0	0.0	
21	ST3	227.20	226.00	10.0	0.1200	0.013	0.0	6.0	0.0	

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1APC: done Runoff Area=12,232 sf 18.26% Impervious Runoff Depth=0.00"
Tc=6.0 min UI Adjusted CN=64 Runoff=0.00 cfs 0 cf

Subcatchment 1PC: west side yard Runoff Area=10,013 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=45' Slope=0.0300 '/' Tc=10.5 min CN=61 Runoff=0.00 cfs 0 cf

Subcatchment 2APC: samll portion of BHR Runoff Area=3,785 sf 31.78% Impervious Runoff Depth>0.02"
Flow Length=135' Slope=0.0050 '/' Tc=41.8 min CN=73 Runoff=0.00 cfs 5 cf

Subcatchment 2PC: front of bank and Runoff Area=14,246 sf 89.87% Impervious Runoff Depth>0.50"
Tc=6.0 min CN=94 Runoff=0.19 cfs 597 cf

Subcatchment 3.5APC: landscape area Runoff Area=2,440 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=68' Slope=0.0200 '/' Tc=11.2 min CN=61 Runoff=0.00 cfs 0 cf

Subcatchment 3APC: side yard and BHR Runoff Area=7,495 sf 66.24% Impervious Runoff Depth>0.20"
Flow Length=111' Slope=0.0100 '/' Tc=31.1 min CN=86 Runoff=0.02 cfs 122 cf

Subcatchment 3PC: back of bank and Runoff Area=12,737 sf 94.82% Impervious Runoff Depth>0.63"
Tc=0.0 min CN=96 Runoff=0.25 cfs 669 cf

Subcatchment 4APC: front landscape area Runoff Area=5,356 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=61 Runoff=0.00 cfs 0 cf

Subcatchment 4PC: done Runoff Area=7,069 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=61 Runoff=0.00 cfs 0 cf

Subcatchment 5APC: enterprise front Runoff Area=3,136 sf 46.49% Impervious Runoff Depth>0.06"
Tc=6.0 min CN=78 Runoff=0.00 cfs 15 cf

Subcatchment 5PC: enterprise no change Runoff Area=44,417 sf 56.84% Impervious Runoff Depth>0.11"
Flow Length=168' Tc=33.8 min CN=82 Runoff=0.04 cfs 417 cf

Subcatchment 6APC: manchester street Runoff Area=11,208 sf 96.77% Impervious Runoff Depth>0.71"
Tc=6.0 min CN=97 Runoff=0.20 cfs 658 cf

Subcatchment 6BPC: no change Runoff Area=9,809 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.20 cfs 646 cf

Subcatchment 6PC: east side yard Runoff Area=17,316 sf 7.79% Impervious Runoff Depth=0.00"
Flow Length=100' Slope=0.0050 '/' Tc=26.5 min CN=63 Runoff=0.00 cfs 0 cf

Subcatchment 7APC: east poition of Runoff Area=5,024 sf 71.56% Impervious Runoff Depth>0.22"
Tc=6.0 min CN=87 Runoff=0.03 cfs 94 cf

Subcatchment 7BPC: east poition of Runoff Area=2,824 sf 98.55% Impervious Runoff Depth>0.71"
Tc=6.0 min CN=97 Runoff=0.05 cfs 166 cf

Subcatchment 7CPC: east poition of Runoff Area=6,464 sf 94.37% Impervious Runoff Depth>0.63"
Tc=6.0 min CN=96 Runoff=0.11 cfs 339 cf

Subcatchment 7DPC: east poition of Runoff Area=7,585 sf 60.32% Impervious Runoff Depth>0.13"
Tc=6.0 min CN=83 Runoff=0.02 cfs 83 cf

Subcatchment 8PC: black hill road Runoff Area=42,175 sf 42.55% Impervious Runoff Depth>0.05"
Tc=6.0 min CN=77 Runoff=0.01 cfs 168 cf

Subcatchment 9PC: east parking area Runoff Area=12,923 sf 97.03% Impervious Runoff Depth>0.71"
Tc=6.0 min CN=97 Runoff=0.24 cfs 759 cf

Subcatchment 10APC: rear drive area Runoff Area=10,218 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.20 cfs 673 cf

Subcatchment 10PC: parking area Runoff Area=19,211 sf 84.32% Impervious Runoff Depth>0.40"
Tc=6.0 min CN=92 Runoff=0.20 cfs 644 cf

Subcatchment 11PC: front parking lot Runoff Area=10,689 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.21 cfs 704 cf

Subcatchment 12APC: car wash area Runoff Area=10,862 sf 91.74% Impervious Runoff Depth>0.56"
Flow Length=220' Tc=6.0 min CN=95 Runoff=0.16 cfs 509 cf

Subcatchment 12PC: car wash area Runoff Area=19,922 sf 73.75% Impervious Runoff Depth>0.25"
Flow Length=150' Tc=7.8 min CN=88 Runoff=0.11 cfs 419 cf

Subcatchment 13APC: south side yard Runoff Area=6,450 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=145' Tc=13.4 min CN=61 Runoff=0.00 cfs 0 cf

Subcatchment 13PC: east side yard Runoff Area=11,994 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=325' Slope=0.0300 '/' Tc=16.0 min CN=60 Runoff=0.00 cfs 0 cf

Subcatchment 14PC: front landscape area Runoff Area=5,828 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=150' Tc=16.2 min CN=61 Runoff=0.00 cfs 0 cf

Pond 10P: forebay model Peak Elev=0.00' Storage=0 cf

Pond BR1: BR 1 Peak Elev=228.62' Storage=188 cf Inflow=0.19 cfs 597 cf
Discarded=0.03 cfs 599 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 599 cf

Pond BR2: BR 2 Peak Elev=228.19' Storage=244 cf Inflow=0.25 cfs 669 cf
Discarded=0.02 cfs 669 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 669 cf

Pond CB2: Peak Elev=227.52' Inflow=0.02 cfs 83 cf
15.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.02 cfs 83 cf

Pond cB3: Peak Elev=227.38' Inflow=0.12 cfs 423 cf
15.0" Round Culvert n=0.013 L=13.0' S=0.0077 '/' Outflow=0.12 cfs 423 cf

Pond CB4: Peak Elev=227.74' Inflow=0.08 cfs 260 cf
12.0" Round Culvert n=0.013 L=93.0' S=0.0040 '/' Outflow=0.08 cfs 260 cf

Pond CB5: Peak Elev=227.95' Inflow=0.03 cfs 94 cf
12.0" Round Culvert n=0.013 L=39.0' S=0.0051 '/' Outflow=0.03 cfs 94 cf

Pond CB6: Peak Elev=229.22' Inflow=0.20 cfs 673 cf
Primary=0.20 cfs 673 cf Secondary=0.00 cfs 0 cf Outflow=0.20 cfs 673 cf

Pond DCB 1: Peak Elev=229.86' Inflow=0.20 cfs 644 cf
15.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=0.20 cfs 644 cf

Pond DCB2: Peak Elev=229.65' Inflow=0.11 cfs 419 cf
15.0" Round Culvert n=0.013 L=20.0' S=0.0200 '/' Outflow=0.11 cfs 419 cf

Pond DCB3: Peak Elev=229.19' Inflow=0.16 cfs 509 cf
Primary=0.16 cfs 509 cf Secondary=0.00 cfs 0 cf Outflow=0.16 cfs 509 cf

Pond DMH1: Peak Elev=226.50' Inflow=0.00 cfs 0 cf
18.0" Round Culvert n=0.013 L=124.0' S=0.0081 '/' Outflow=0.00 cfs 0 cf

Pond DMH2: Peak Elev=225.25' Inflow=0.00 cfs 0 cf
18.0" Round Culvert n=0.013 L=36.0' S=0.0069 '/' Outflow=0.00 cfs 0 cf

Pond DMH88: Peak Elev=229.18' Inflow=0.20 cfs 644 cf
Primary=0.14 cfs 491 cf Secondary=0.06 cfs 153 cf Outflow=0.20 cfs 644 cf

Pond DMH89: Peak Elev=229.12' Inflow=0.06 cfs 153 cf
Primary=0.06 cfs 153 cf Secondary=0.00 cfs 0 cf Outflow=0.06 cfs 153 cf

Pond DMH90: Peak Elev=229.16' Inflow=0.11 cfs 419 cf
Primary=0.11 cfs 419 cf Secondary=0.00 cfs 0 cf Outflow=0.11 cfs 419 cf

Pond ST1: Peak Elev=228.62' Storage=470 cf Inflow=0.67 cfs 2,245 cf
Discarded=0.28 cfs 2,232 cf Primary=0.00 cfs 0 cf Outflow=0.28 cfs 2,232 cf

Pond ST2: Peak Elev=227.49' Storage=618 cf Inflow=0.45 cfs 1,463 cf
Discarded=0.05 cfs 1,446 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 1,446 cf

Pond ST3: Peak Elev=226.66' Storage=239 cf Inflow=0.20 cfs 682 cf
Discarded=0.03 cfs 668 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 668 cf

Link A: NHDOT POND Inflow=0.20 cfs 789 cf
Primary=0.20 cfs 789 cf

Link B: NHDOT Easement Inflow=0.21 cfs 1,075 cf
Primary=0.21 cfs 1,075 cf

Link C: Southern Woods Inflow=0.01 cfs 168 cf
Primary=0.01 cfs 168 cf

Link f1: via Manch Drainage Inflow=0.20 cfs 661 cf
Primary=0.20 cfs 661 cf

Link f2: via BHR Drainage Inflow=0.02 cfs 127 cf
Primary=0.02 cfs 127 cf

Total Runoff Area = 333,428 sf Runoff Volume = 7,688 cf Average Runoff Depth = 0.28"
42.63% Pervious = 142,136 sf 57.37% Impervious = 191,292 sf

Summary for Subcatchment 1APC: done

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Adj	Description
2,233	98		Unconnected pavement, HSG B
9,999	61		>75% Grass cover, Good, HSG B
12,232	68	64	Weighted Average, UI Adjusted
9,999			81.74% Pervious Area
2,233			18.26% Impervious Area
2,233			100.00% Unconnected

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

Summary for Subcatchment 1PC: west side yard

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Pond BR1 : BR 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
10,013	61	>75% Grass cover, Good, HSG B
10,013		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	45	0.0300	0.07		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"

Summary for Subcatchment 2APC: samll portion of BHR

Runoff = 0.00 cfs @ 15.66 hrs, Volume= 5 cf, Depth> 0.02"
Routed to Link f2 : via BHR Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
1,203	98	Paved parking, HSG B
2,582	61	>75% Grass cover, Good, HSG B
3,785	73	Weighted Average
2,582		68.22% Pervious Area
1,203		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.6	100	0.0050	0.04		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
1.2	35	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
41.8	135	Total			

Summary for Subcatchment 2PC: front of bank and parking

Runoff = 0.19 cfs @ 12.09 hrs, Volume= 597 cf, Depth> 0.50"
Routed to Pond BR1 : BR 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
10,524	98	Paved parking, HSG B
1,784	98	Roofs, HSG B
495	98	Unconnected pavement, HSG B
1,443	61	>75% Grass cover, Good, HSG B
14,246	94	Weighted Average
1,443		10.13% Pervious Area
12,803		89.87% Impervious Area
495		3.87% Unconnected

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

Summary for Subcatchment 3.5APC: landscape area

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
2,440	61	>75% Grass cover, Good, HSG B
2,440		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	68	0.0200	0.10		**Sheet Flow, gras** Grass: Dense n= 0.240 P2= 2.82"

Summary for Subcatchment 3APC: side yard and BHR

Runoff = 0.02 cfs @ 12.52 hrs, Volume= 122 cf, Depth> 0.20"
Routed to Link f2 : via BHR Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
4,965	98	Paved parking, HSG B
2,530	61	>75% Grass cover, Good, HSG B
7,495	86	Weighted Average
2,530		33.76% Pervious Area
4,965		66.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.8	100	0.0100	0.05		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
0.3	11	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
31.1	111	Total			

Summary for Subcatchment 3PC: back of bank and drive thru

Runoff = 0.25 cfs @ 12.00 hrs, Volume= 669 cf, Depth> 0.63"
Routed to Pond BR2 : BR 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
9,256	98	Paved parking, HSG B
2,821	98	Roofs, HSG B
660	61	>75% Grass cover, Good, HSG B
12,737	96	Weighted Average
660		5.18% Pervious Area
12,077		94.82% Impervious Area

Summary for Subcatchment 4APC: front landscape area

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
5,356	61	>75% Grass cover, Good, HSG B
5,356		100.00% Pervious Area

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

Summary for Subcatchment 4PC: done

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Pond BR2 : BR 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
7,069	61	>75% Grass cover, Good, HSG B
7,069		100.00% Pervious Area

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

Summary for Subcatchment 5APC: enterprise front entrance

Runoff = 0.00 cfs @ 12.39 hrs, Volume= 15 cf, Depth> 0.06"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
1,458	98	Paved parking, HSG B
1,678	61	>75% Grass cover, Good, HSG B
3,136	78	Weighted Average
1,678		53.51% Pervious Area
1,458		46.49% Impervious Area

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

Summary for Subcatchment 5PC: enterprise no change

Runoff = 0.04 cfs @ 12.66 hrs, Volume= 417 cf, Depth> 0.11"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
23,787	98	Paved parking, HSG B
1,545	55	Woods, Good, HSG B
1,460	98	Roofs, HSG B
17,625	61	>75% Grass cover, Good, HSG B
44,417	82	Weighted Average
19,170		43.16% Pervious Area
25,247		56.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2	100	0.0100	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.82"
3.6	68	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
33.8	168	Total			

Summary for Subcatchment 6APC: manchester street

Runoff = 0.20 cfs @ 12.09 hrs, Volume= 658 cf, Depth> 0.71"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
10,846	98	Paved parking, HSG B
362	61	>75% Grass cover, Good, HSG B
11,208	97	Weighted Average
362		3.23% Pervious Area
10,846		96.77% Impervious Area

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

Summary for Subcatchment 6BPC: no change

Runoff = 0.20 cfs @ 12.09 hrs, Volume= 646 cf, Depth> 0.79"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
9,809	98	Paved parking, HSG B
9,809		100.00% Impervious Area

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

Summary for Subcatchment 6PC: east side yard

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
14,825	61	>75% Grass cover, Good, HSG B
1,349	98	Paved parking, HSG B
1,142	55	Woods, Good, HSG B
17,316	63	Weighted Average
15,967		92.21% Pervious Area
1,349		7.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.5	100	0.0050	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"

Summary for Subcatchment 7APC: east poition of parking area

Runoff = 0.03 cfs @ 12.11 hrs, Volume= 94 cf, Depth> 0.22"
Routed to Pond CB5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
1,429	61	>75% Grass cover, Good, HSG B
3,595	98	Paved parking, HSG B
5,024	87	Weighted Average
1,429		28.44% Pervious Area
3,595		71.56% Impervious Area

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

Summary for Subcatchment 7BPC: east poition of parking area

Runoff = 0.05 cfs @ 12.09 hrs, Volume= 166 cf, Depth> 0.71"
Routed to Pond CB4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
41	61	>75% Grass cover, Good, HSG B
2,783	98	Paved parking, HSG B
2,824	97	Weighted Average
41		1.45% Pervious Area
2,783		98.55% Impervious Area

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

Summary for Subcatchment 7CPC: east poition of parking area

Runoff = 0.11 cfs @ 12.09 hrs, Volume= 339 cf, Depth> 0.63"
Routed to Pond cB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
364	61	>75% Grass cover, Good, HSG B
0	98	Roofs, HSG B
6,100	98	Paved parking, HSG B
6,464	96	Weighted Average
364		5.63% Pervious Area
6,100		94.37% Impervious Area

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

Summary for Subcatchment 7DPC: east poition of parking area

Runoff = 0.02 cfs @ 12.14 hrs, Volume= 83 cf, Depth> 0.13"
Routed to Pond CB2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
3,010	61	>75% Grass cover, Good, HSG B
4,575	98	Paved parking, HSG B
7,585	83	Weighted Average
3,010		39.68% Pervious Area
4,575		60.32% Impervious Area

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

Summary for Subcatchment 8PC: black hill road

Runoff = 0.01 cfs @ 12.44 hrs, Volume= 168 cf, Depth> 0.05"
Routed to Link C : Southern Woods

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
24,228	61	>75% Grass cover, Good, HSG B
17,947	98	Paved parking, HSG B
42,175	77	Weighted Average
24,228		57.45% Pervious Area
17,947		42.55% Impervious Area

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

Summary for Subcatchment 9PC: east parking area

Runoff = 0.24 cfs @ 12.09 hrs, Volume= 759 cf, Depth> 0.71"
Routed to Pond ST2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
384	61	>75% Grass cover, Good, HSG B
1,452	98	Roofs, HSG B
11,087	98	Paved parking, HSG B
12,923	97	Weighted Average
384		2.97% Pervious Area
12,539		97.03% Impervious Area

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

Summary for Subcatchment 10APC: rear drive area and roof

Runoff = 0.20 cfs @ 12.09 hrs, Volume= 673 cf, Depth> 0.79"
Routed to Pond CB6 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
6,369	98	Paved parking, HSG B
3,849	98	Roofs, HSG B
0	61	>75% Grass cover, Good, HSG B
10,218	98	Weighted Average
10,218		100.00% Impervious Area

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

Summary for Subcatchment 10PC: parking area

Runoff = 0.20 cfs @ 12.10 hrs, Volume= 644 cf, Depth> 0.40"
Routed to Pond DCB 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
14,808	98	Paved parking, HSG B
1,391	98	Roofs, HSG B
3,012	61	>75% Grass cover, Good, HSG B
19,211	92	Weighted Average
3,012		15.68% Pervious Area
16,199		84.32% Impervious Area

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

Summary for Subcatchment 11PC: front parking lot

Runoff = 0.21 cfs @ 12.09 hrs, Volume= 704 cf, Depth> 0.79"
Routed to Pond ST2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
8,331	98	Paved parking, HSG B
2,358	98	Roofs, HSG B
10,689	98	Weighted Average
10,689		100.00% Impervious Area

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

Summary for Subcatchment 12APC: car wash area

Runoff = 0.16 cfs @ 12.09 hrs, Volume= 509 cf, Depth> 0.56"
Routed to Pond DCB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
9,965	98	Paved parking, HSG B
897	61	>75% Grass cover, Good, HSG B
10,862	95	Weighted Average
897		8.26% Pervious Area
9,965		91.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0300	1.32		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.82"
1.1	170	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.7	220	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 12PC: car wash area

Runoff = 0.11 cfs @ 12.13 hrs, Volume= 419 cf, Depth> 0.25"
Routed to Pond DCB2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
5,230	61	>75% Grass cover, Good, HSG B
3,254	98	Roofs, HSG B
11,438	98	Paved parking, HSG B
19,922	88	Weighted Average
5,230		26.25% Pervious Area
14,692		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	40	0.0200	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
0.5	110	0.0400	4.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
7.8	150	Total			

Summary for Subcatchment 13APC: south side yard

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Pond DCB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
6,450	61	>75% Grass cover, Good, HSG B
0	98	Paved parking, HSG B
6,450	61	Weighted Average
6,450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0300	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
0.5	45	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.4	145	Total			

Summary for Subcatchment 13PC: east side yard

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
9,562	61	>75% Grass cover, Good, HSG B
2,432	55	Woods, Good, HSG B
11,994	60	Weighted Average
11,994		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0300	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
3.1	225	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.0	325	Total			

Summary for Subcatchment 14PC: front landscape area

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-inch Rainfall=1.00"

Area (sf)	CN	Description
5,828	61	>75% Grass cover, Good, HSG B
5,828		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0200	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
1.0	50	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.2	150	Total			

Summary for Pond 10P: forebay model

Volume	Invert	Avail.Storage	Storage Description
#1	229.50'	313 cf	**1.00'W x 5.00'L x 2.50'H Prismatoid Z=3.0**

Summary for Pond BR1: BR 1

Inflow Area = 24,259 sf, 52.78% Impervious, Inflow Depth > 0.30" for 1-inch event
Inflow = 0.19 cfs @ 12.09 hrs, Volume= 597 cf
Outflow = 0.03 cfs @ 12.69 hrs, Volume= 599 cf, Atten= 86%, Lag= 35.7 min
Discarded = 0.03 cfs @ 12.69 hrs, Volume= 599 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link A : NHDOT POND

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.62' @ 12.69 hrs Surf.Area= 1,654 sf Storage= 188 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 51.8 min (884.0 - 832.2)

Volume	Invert	Avail.Storage	Storage Description
#1	228.50'	9,971 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.50	1,576	0	0
229.00	1,913	872	872
230.00	2,628	2,271	3,143
231.00	3,400	3,014	6,157
232.00	4,229	3,815	9,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.50'	**0.700 in/hr Exfiltration over Surface area**
#2	Primary	231.67'	**15.0' long + 20.0 '/' SideZ x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.03 cfs @ 12.69 hrs HW=228.62' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.50' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond BR2: BR 2

Inflow Area = 19,806 sf, 60.98% Impervious, Inflow Depth > 0.41" for 1-inch event
Inflow = 0.25 cfs @ 12.00 hrs, Volume= 669 cf
Outflow = 0.02 cfs @ 12.85 hrs, Volume= 669 cf, Atten= 91%, Lag= 50.6 min
Discarded = 0.02 cfs @ 12.85 hrs, Volume= 669 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link B : NHDOT Easement

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.19' @ 12.85 hrs Surf.Area= 1,345 sf Storage= 244 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 90.2 min (898.8 - 808.6)

Volume	Invert	Avail.Storage	Storage Description
#1	228.00'	9,749 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.00	1,241	0	0
229.00	1,790	1,516	1,516
230.00	2,395	2,093	3,608
231.00	3,056	2,726	6,334
232.00	3,774	3,415	9,749

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.00'	**0.700 in/hr Exfiltration over Surface area**
#2	Primary	231.67'	**15.0' long + 20.0 '/' SideZ x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.02 cfs @ 12.85 hrs HW=228.19' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond CB2:

Inflow Area = 7,585 sf, 60.32% Impervious, Inflow Depth > 0.13" for 1-inch event
Inflow = 0.02 cfs @ 12.14 hrs, Volume= 83 cf
Outflow = 0.02 cfs @ 12.14 hrs, Volume= 83 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 12.14 hrs, Volume= 83 cf
Routed to Pond cB3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.52' @ 12.14 hrs
Flood Elev= 231.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.45'	**15.0" Round Culvert** L= 28.0' Ke= 0.500
			Inlet / Outlet Invert= 227.45' / 227.30' S= 0.0054 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.02 cfs @ 12.14 hrs HW=227.52' TW=227.37' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.02 cfs @ 0.85 fps)

Summary for Pond cB3:

Inflow Area = 14,049 sf, 75.98% Impervious, Inflow Depth > 0.36" for 1-inch event
Inflow = 0.12 cfs @ 12.10 hrs, Volume= 423 cf
Outflow = 0.12 cfs @ 12.10 hrs, Volume= 423 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.12 cfs @ 12.10 hrs, Volume= 423 cf
Routed to Pond ST3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.38' @ 12.10 hrs
Flood Elev= 231.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.20'	**15.0" Round Culvert** L= 13.0' Ke= 0.500 Inlet / Outlet Invert= 227.20' / 227.10' S= 0.0077 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.12 cfs @ 12.10 hrs HW=227.38' TW=226.59' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.12 cfs @ 1.70 fps)

Summary for Pond CB4:

Inflow Area = 7,848 sf, 81.27% Impervious, Inflow Depth > 0.40" for 1-inch event
Inflow = 0.08 cfs @ 12.10 hrs, Volume= 260 cf
Outflow = 0.08 cfs @ 12.10 hrs, Volume= 260 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.08 cfs @ 12.10 hrs, Volume= 260 cf
Routed to Pond ST3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.74' @ 12.10 hrs
Flood Elev= 231.12'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.57'	**12.0" Round Culvert** L= 93.0' Ke= 0.500 Inlet / Outlet Invert= 227.57' / 227.20' S= 0.0040 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.08 cfs @ 12.10 hrs HW=227.74' TW=226.59' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.08 cfs @ 1.33 fps)

Summary for Pond CB5:

Inflow Area = 5,024 sf, 71.56% Impervious, Inflow Depth > 0.22" for 1-inch event
Inflow = 0.03 cfs @ 12.11 hrs, Volume= 94 cf
Outflow = 0.03 cfs @ 12.11 hrs, Volume= 94 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.03 cfs @ 12.11 hrs, Volume= 94 cf
Routed to Pond CB4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 227.95' @ 12.11 hrs
Flood Elev= 231.66'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.86'	**12.0" Round Culvert** L= 39.0' Ke= 0.500 Inlet / Outlet Invert= 227.86' / 227.66' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.02 cfs @ 12.11 hrs HW=227.95' TW=227.74' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.02 cfs @ 1.02 fps)

Summary for Pond CB6:

Inflow Area = 10,218 sf,100.00% Impervious, Inflow Depth > 0.79" for 1-inch event
Inflow = 0.20 cfs @ 12.09 hrs, Volume= 673 cf
Outflow = 0.20 cfs @ 12.09 hrs, Volume= 673 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.20 cfs @ 12.09 hrs, Volume= 673 cf
Routed to Pond ST1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.22' @ 12.09 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.20 cfs @ 12.09 hrs HW=229.22' TW=228.58' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.20 cfs @ 1.59 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=229.00' TW=228.50' (Dynamic Tailwater)
↑—**2=Culvert** (Controls 0.00 cfs)

Summary for Pond DCB 1:

Inflow Area = 19,211 sf, 84.32% Impervious, Inflow Depth > 0.40" for 1-inch event
Inflow = 0.20 cfs @ 12.10 hrs, Volume= 644 cf
Outflow = 0.20 cfs @ 12.10 hrs, Volume= 644 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.20 cfs @ 12.10 hrs, Volume= 644 cf
Routed to Pond DMH88 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.86' @ 12.10 hrs
Flood Elev= 233.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.65'	**15.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 229.65' / 229.34' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.20 cfs @ 12.10 hrs HW=229.86' TW=229.18' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 0.20 cfs @ 2.20 fps)

Summary for Pond DCB2:

Inflow Area = 19,922 sf, 73.75% Impervious, Inflow Depth > 0.25" for 1-inch event
Inflow = 0.11 cfs @ 12.13 hrs, Volume= 419 cf
Outflow = 0.11 cfs @ 12.13 hrs, Volume= 419 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.11 cfs @ 12.13 hrs, Volume= 419 cf
Routed to Pond DMH90 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.65' @ 12.13 hrs
Flood Elev= 233.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.50'	**15.0" Round Culvert** L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.10' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.11 cfs @ 12.13 hrs HW=229.65' TW=229.16' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.11 cfs @ 1.31 fps)

Summary for Pond DCB3:

Inflow Area = 17,312 sf, 57.56% Impervious, Inflow Depth > 0.35" for 1-inch event
Inflow = 0.16 cfs @ 12.09 hrs, Volume= 509 cf
Outflow = 0.16 cfs @ 12.09 hrs, Volume= 509 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 12.09 hrs, Volume= 509 cf
Routed to Pond ST1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.19' @ 12.09 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.16 cfs @ 12.09 hrs HW=229.19' TW=228.58' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.16 cfs @ 1.49 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=229.00' TW=228.50' (Dynamic Tailwater)
↑—**2=Culvert** (Controls 0.00 cfs)

Summary for Pond DMH1:

Inflow Area = 90,275 sf, 82.31% Impervious, Inflow Depth = 0.00" for 1-inch event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond DMH2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 226.50' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	226.50'	**18.0" Round Culvert** L= 124.0' Ke= 0.500 Inlet / Outlet Invert= 226.50' / 225.50' S= 0.0081 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=226.50' TW=225.25' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)

Summary for Pond DMH2:

Inflow Area = 112,172 sf, 81.44% Impervious, Inflow Depth = 0.00" for 1-inch event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link B : NHDOT Easement

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 225.25' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	225.25'	**18.0" Round Culvert** L= 36.0' Ke= 0.500 Inlet / Outlet Invert= 225.25' / 225.00' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=225.25' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)

Summary for Pond DMH88:

Inflow Area = 19,211 sf, 84.32% Impervious, Inflow Depth > 0.40" for 1-inch event
Inflow = 0.20 cfs @ 12.10 hrs, Volume= 644 cf
Outflow = 0.20 cfs @ 12.10 hrs, Volume= 644 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 12.10 hrs, Volume= 491 cf
Routed to Pond ST1 :
Secondary = 0.06 cfs @ 12.10 hrs, Volume= 153 cf
Routed to Pond DMH89 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.18' @ 12.10 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.00'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 229.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.14 cfs @ 12.10 hrs HW=229.18' TW=228.58' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.14 cfs @ 1.44 fps)

Secondary OutFlow Max=0.06 cfs @ 12.10 hrs HW=229.18' TW=229.12' (Dynamic Tailwater)
↑—**2=Culvert** (Barrel Controls 0.06 cfs @ 1.00 fps)

Summary for Pond DMH89:

Inflow = 0.06 cfs @ 12.10 hrs, Volume= 153 cf
Outflow = 0.06 cfs @ 12.10 hrs, Volume= 153 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.06 cfs @ 12.10 hrs, Volume= 153 cf
Routed to Pond ST1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.12' @ 12.10 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.06 cfs @ 12.10 hrs HW=229.12' TW=228.58' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.06 cfs @ 1.18 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=229.00' TW=228.50' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond DMH90:

Inflow Area = 19,922 sf, 73.75% Impervious, Inflow Depth > 0.25" for 1-inch event
Inflow = 0.11 cfs @ 12.13 hrs, Volume= 419 cf
Outflow = 0.11 cfs @ 12.13 hrs, Volume= 419 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.11 cfs @ 12.13 hrs, Volume= 419 cf
Routed to Pond ST1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.16' @ 12.13 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.11 cfs @ 12.13 hrs HW=229.16' TW=228.59' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.11 cfs @ 1.35 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=229.00' TW=228.50' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond ST1:

Inflow Area = 66,663 sf, 76.62% Impervious, Inflow Depth > 0.40" for 1-inch event
Inflow = 0.67 cfs @ 12.10 hrs, Volume= 2,245 cf
Outflow = 0.28 cfs @ 12.25 hrs, Volume= 2,232 cf, Atten= 58%, Lag= 9.1 min
Discarded = 0.28 cfs @ 12.25 hrs, Volume= 2,232 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond DMH1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.62' @ 12.36 hrs Surf.Area= 10,126 sf Storage= 470 cf

Plug-Flow detention time= 24.4 min calculated for 2,227 cf (99% of inflow)
Center-of-Mass det. time= 20.8 min (850.6 - 829.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	228.50'	7,045 cf	**58.17'W x 174.08'L x 2.33'H Field A** 23,627 cf Overall - 6,015 cf Embedded = 17,612 cf x 40.0% Voids
#2A	229.00'	6,015 cf	**ADS_StormTech SC-310 +Cap** x 408 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 408 Chambers in 17 Rows
		13,059 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.50'	**1.200 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'
#2	Primary	229.26'	**10.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.26' / 228.50' S= 0.0760 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.28 cfs @ 12.25 hrs HW=228.61' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.50' TW=226.50' (Dynamic Tailwater)
↑—**2=Culvert** (Controls 0.00 cfs)

Summary for Pond ST2:

Inflow Area = 23,612 sf, 98.37% Impervious, Inflow Depth > 0.74" for 1-inch event
Inflow = 0.45 cfs @ 12.09 hrs, Volume= 1,463 cf
Outflow = 0.05 cfs @ 12.88 hrs, Volume= 1,446 cf, Atten= 90%, Lag= 47.2 min
Discarded = 0.05 cfs @ 12.88 hrs, Volume= 1,446 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond DMH1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.49' @ 12.88 hrs Surf.Area= 3,938 sf Storage= 618 cf

Plug-Flow detention time= 124.9 min calculated for 1,443 cf (99% of inflow)
Center-of-Mass det. time= 117.3 min (912.3 - 795.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	227.10'	2,791 cf	**101.50'W x 38.80'L x 2.33'H Field A** 9,189 cf Overall - 2,211 cf Embedded = 6,978 cf x 40.0% Voids
#2A	227.60'	2,211 cf	**ADS_StormTech SC-310 +Cap** x 150 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 150 Chambers in 30 Rows
		5,002 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	227.10'	**0.500 in/hr Exfiltration over Wetted area** Phase-In= 0.10'
#2	Primary	227.89'	**8.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 227.89' / 227.00' S= 0.0890 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.05 cfs @ 12.88 hrs HW=227.49' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=227.10' TW=226.50' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond ST3:

Inflow Area = 21,897 sf, 77.88% Impervious, Inflow Depth > 0.37" for 1-inch event
Inflow = 0.20 cfs @ 12.10 hrs, Volume= 682 cf
Outflow = 0.03 cfs @ 12.61 hrs, Volume= 668 cf, Atten= 82%, Lag= 30.9 min
Discarded = 0.03 cfs @ 12.61 hrs, Volume= 668 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond DMH2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 226.66' @ 12.61 hrs Surf.Area= 3,700 sf Storage= 239 cf

Plug-Flow detention time= 81.6 min calculated for 668 cf (98% of inflow)
Center-of-Mass det. time= 69.7 min (902.7 - 833.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	226.50'	2,604 cf	**28.17'W x 131.36'L x 2.33'H Field A** 8,633 cf Overall - 2,123 cf Embedded = 6,510 cf x 40.0% Voids
#2A	227.00'	2,123 cf	**ADS_StormTech SC-310 +Cap** x 144 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 144 Chambers in 8 Rows
		4,727 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	226.50'	**0.400 in/hr Exfiltration over Wetted area** Phase-In= 0.10'
#2	Primary	227.20'	**6.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 227.20' / 226.00' S= 0.1200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.03 cfs @ 12.61 hrs HW=226.66' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=226.50' TW=225.25' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Link A: NHDOT POND

Inflow Area = 56,280 sf, 53.73% Impervious, Inflow Depth > 0.17" for 1-inch event
Inflow = 0.20 cfs @ 12.09 hrs, Volume= 789 cf
Primary = 0.20 cfs @ 12.09 hrs, Volume= 789 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link B: NHDOT Easement

Inflow Area = 234,973 sf, 60.90% Impervious, Inflow Depth > 0.05" for 1-inch event
Inflow = 0.21 cfs @ 12.09 hrs, Volume= 1,075 cf
Primary = 0.21 cfs @ 12.09 hrs, Volume= 1,075 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link C: Southern Woods

Inflow Area = 42,175 sf, 42.55% Impervious, Inflow Depth > 0.05" for 1-inch event
Inflow = 0.01 cfs @ 12.44 hrs, Volume= 168 cf
Primary = 0.01 cfs @ 12.44 hrs, Volume= 168 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link f1: via Manch Drainage

Inflow Area = 20,741 sf, 54.32% Impervious, Inflow Depth > 0.38" for 1-inch event
Inflow = 0.20 cfs @ 12.09 hrs, Volume= 661 cf
Primary = 0.20 cfs @ 12.09 hrs, Volume= 661 cf, Atten= 0%, Lag= 0.0 min
Routed to Link A : NHDOT POND

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link f2: via BHR Drainage

Inflow Area = 11,280 sf, 54.68% Impervious, Inflow Depth > 0.14" for 1-inch event
Inflow = 0.02 cfs @ 12.52 hrs, Volume= 127 cf
Primary = 0.02 cfs @ 12.52 hrs, Volume= 127 cf, Atten= 0%, Lag= 0.0 min
Routed to Link A : NHDOT POND

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1APC: done Runoff Area=12,232 sf 18.26% Impervious Runoff Depth>0.39"
Tc=6.0 min UI Adjusted CN=64 Runoff=0.08 cfs 399 cf

Subcatchment 1PC: west side yard Runoff Area=10,013 sf 0.00% Impervious Runoff Depth>0.30"
Flow Length=45' Slope=0.0300 '/' Tc=10.5 min CN=61 Runoff=0.03 cfs 249 cf

Subcatchment 2APC: samll portion of BHR Runoff Area=3,785 sf 31.78% Impervious Runoff Depth>0.74"
Flow Length=135' Slope=0.0050 '/' Tc=41.8 min CN=73 Runoff=0.03 cfs 233 cf

Subcatchment 2PC: front of bank and Runoff Area=14,246 sf 89.87% Impervious Runoff Depth>2.17"
Tc=6.0 min CN=94 Runoff=0.79 cfs 2,582 cf

Subcatchment 3.5APC: landscape area Runoff Area=2,440 sf 0.00% Impervious Runoff Depth>0.30"
Flow Length=68' Slope=0.0200 '/' Tc=11.2 min CN=61 Runoff=0.01 cfs 61 cf

Subcatchment 3APC: side yard and BHR Runoff Area=7,495 sf 66.24% Impervious Runoff Depth>1.50"
Flow Length=111' Slope=0.0100 '/' Tc=31.1 min CN=86 Runoff=0.17 cfs 937 cf

Subcatchment 3PC: back of bank and Runoff Area=12,737 sf 94.82% Impervious Runoff Depth>2.38"
Tc=0.0 min CN=96 Runoff=0.88 cfs 2,521 cf

Subcatchment 4APC: front landscape area Runoff Area=5,356 sf 0.00% Impervious Runoff Depth>0.30"
Tc=6.0 min CN=61 Runoff=0.02 cfs 133 cf

Subcatchment 4PC: done Runoff Area=7,069 sf 0.00% Impervious Runoff Depth>0.30"
Tc=6.0 min CN=61 Runoff=0.03 cfs 176 cf

Subcatchment 5APC: enterprise front Runoff Area=3,136 sf 46.49% Impervious Runoff Depth>1.00"
Tc=6.0 min CN=78 Runoff=0.08 cfs 262 cf

Subcatchment 5PC: enterprise no change Runoff Area=44,417 sf 56.84% Impervious Runoff Depth>1.23"
Flow Length=168' Tc=33.8 min CN=82 Runoff=0.78 cfs 4,550 cf

Subcatchment 6APC: manchester street Runoff Area=11,208 sf 96.77% Impervious Runoff Depth>2.48"
Tc=6.0 min CN=97 Runoff=0.67 cfs 2,315 cf

Subcatchment 6BPC: no change Runoff Area=9,809 sf 100.00% Impervious Runoff Depth>2.59"
Tc=6.0 min CN=98 Runoff=0.60 cfs 2,115 cf

Subcatchment 6PC: east side yard Runoff Area=17,316 sf 7.79% Impervious Runoff Depth>0.36"
Flow Length=100' Slope=0.0050 '/' Tc=26.5 min CN=63 Runoff=0.06 cfs 514 cf

Subcatchment 7APC: east poition of Runoff Area=5,024 sf 71.56% Impervious Runoff Depth>1.58"
Tc=6.0 min CN=87 Runoff=0.21 cfs 662 cf

Subcatchment 7BPC: east poition of Runoff Area=2,824 sf 98.55% Impervious Runoff Depth>2.48"
Tc=6.0 min CN=97 Runoff=0.17 cfs 583 cf

Subcatchment 7CPC: east poition of Runoff Area=6,464 sf 94.37% Impervious Runoff Depth>2.37"
Tc=6.0 min CN=96 Runoff=0.38 cfs 1,278 cf

Subcatchment 7DPC: east poition of Runoff Area=7,585 sf 60.32% Impervious Runoff Depth>1.30"
Tc=6.0 min CN=83 Runoff=0.26 cfs 823 cf

Subcatchment 8PC: black hill road Runoff Area=42,175 sf 42.55% Impervious Runoff Depth>0.95"
Tc=6.0 min CN=77 Runoff=1.01 cfs 3,329 cf

Subcatchment 9PC: east parking area Runoff Area=12,923 sf 97.03% Impervious Runoff Depth>2.48"
Tc=6.0 min CN=97 Runoff=0.78 cfs 2,669 cf

Subcatchment 10APC: rear drive area Runoff Area=10,218 sf 100.00% Impervious Runoff Depth>2.59"
Tc=6.0 min CN=98 Runoff=0.62 cfs 2,203 cf

Subcatchment 10PC: parking area Runoff Area=19,211 sf 84.32% Impervious Runoff Depth>1.99"
Tc=6.0 min CN=92 Runoff=0.99 cfs 3,186 cf

Subcatchment 11PC: front parking lot Runoff Area=10,689 sf 100.00% Impervious Runoff Depth>2.59"
Tc=6.0 min CN=98 Runoff=0.65 cfs 2,305 cf

Subcatchment 12APC: car wash area Runoff Area=10,862 sf 91.74% Impervious Runoff Depth>2.27"
Flow Length=220' Tc=6.0 min CN=95 Runoff=0.62 cfs 2,057 cf

Subcatchment 12PC: car wash area Runoff Area=19,922 sf 73.75% Impervious Runoff Depth>1.66"
Flow Length=150' Tc=7.8 min CN=88 Runoff=0.83 cfs 2,751 cf

Subcatchment 13APC: south side yard Runoff Area=6,450 sf 0.00% Impervious Runoff Depth>0.30"
Flow Length=145' Tc=13.4 min CN=61 Runoff=0.02 cfs 160 cf

Subcatchment 13PC: east side yard Runoff Area=11,994 sf 0.00% Impervious Runoff Depth>0.27"
Flow Length=325' Slope=0.0300 '/' Tc=16.0 min CN=60 Runoff=0.03 cfs 269 cf

Subcatchment 14PC: front landscape area Runoff Area=5,828 sf 0.00% Impervious Runoff Depth>0.30"
Flow Length=150' Tc=16.2 min CN=61 Runoff=0.02 cfs 144 cf

Pond 10P: forebay model Peak Elev=0.00' Storage=0 cf

Pond BR1: BR 1 Peak Elev=229.32' Storage=1,521 cf Inflow=0.80 cfs 2,831 cf
Discarded=0.03 cfs 1,820 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 1,820 cf

Pond BR2: BR 2 Peak Elev=229.00' Storage=1,516 cf Inflow=0.88 cfs 2,697 cf
Discarded=0.03 cfs 1,598 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 1,598 cf

Pond CB2: Peak Elev=227.76' Inflow=0.26 cfs 823 cf
15.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.26 cfs 823 cf

Pond cB3: Peak Elev=227.63' Inflow=0.64 cfs 2,101 cf
15.0" Round Culvert n=0.013 L=13.0' S=0.0077 '/' Outflow=0.64 cfs 2,101 cf

Pond CB4: Peak Elev=227.94' Inflow=0.38 cfs 1,245 cf
12.0" Round Culvert n=0.013 L=93.0' S=0.0040 '/' Outflow=0.38 cfs 1,245 cf

Pond CB5: Peak Elev=228.14' Inflow=0.21 cfs 662 cf
12.0" Round Culvert n=0.013 L=39.0' S=0.0051 '/' Outflow=0.21 cfs 662 cf

Pond CB6: Peak Elev=229.42' Inflow=0.62 cfs 2,203 cf
Primary=0.62 cfs 2,203 cf Secondary=0.00 cfs 0 cf Outflow=0.62 cfs 2,203 cf

Pond DCB 1: Peak Elev=230.15' Inflow=0.99 cfs 3,186 cf
15.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=0.99 cfs 3,186 cf

Pond DCB2: Peak Elev=229.93' Inflow=0.83 cfs 2,751 cf
15.0" Round Culvert n=0.013 L=20.0' S=0.0200 '/' Outflow=0.83 cfs 2,751 cf

Pond DCB3: Peak Elev=229.41' Inflow=0.62 cfs 2,217 cf
Primary=0.62 cfs 2,217 cf Secondary=0.00 cfs 0 cf Outflow=0.62 cfs 2,217 cf

Pond DMH1: Peak Elev=226.68' Inflow=0.16 cfs 1,040 cf
18.0" Round Culvert n=0.013 L=124.0' S=0.0081 '/' Outflow=0.16 cfs 1,040 cf

Pond DMH2: Peak Elev=225.46' Inflow=0.19 cfs 1,527 cf
18.0" Round Culvert n=0.013 L=36.0' S=0.0069 '/' Outflow=0.19 cfs 1,527 cf

Pond DMH88: Peak Elev=229.41' Inflow=0.99 cfs 3,186 cf
Primary=0.61 cfs 2,138 cf Secondary=0.38 cfs 1,048 cf Outflow=0.99 cfs 3,186 cf

Pond DMH89: Peak Elev=229.31' Inflow=0.38 cfs 1,048 cf
Primary=0.38 cfs 1,048 cf Secondary=0.00 cfs 0 cf Outflow=0.38 cfs 1,048 cf

Pond DMH90: Peak Elev=229.49' Inflow=0.83 cfs 2,751 cf
Primary=0.83 cfs 2,751 cf Secondary=0.00 cfs 0 cf Outflow=0.83 cfs 2,751 cf

Pond ST1: Peak Elev=229.26' Storage=4,154 cf Inflow=3.04 cfs 10,357 cf
Discarded=0.28 cfs 10,307 cf Primary=0.00 cfs 0 cf Outflow=0.28 cfs 10,307 cf

Pond ST2: Peak Elev=228.11' Storage=2,318 cf Inflow=1.43 cfs 4,974 cf
Discarded=0.05 cfs 2,847 cf Primary=0.16 cfs 1,040 cf Outflow=0.21 cfs 3,886 cf

Pond ST3: Peak Elev=227.32' Storage=1,679 cf Inflow=1.02 cfs 3,347 cf
Discarded=0.04 cfs 1,908 cf Primary=0.04 cfs 487 cf Outflow=0.08 cfs 2,395 cf

Link A: NHDOT POND Inflow=0.77 cfs 3,741 cf
Primary=0.77 cfs 3,741 cf

Link B: NHDOT Easement Inflow=1.26 cfs 9,719 cf
Primary=1.26 cfs 9,719 cf

Link C: Southern Woods Inflow=1.01 cfs 3,329 cf
Primary=1.01 cfs 3,329 cf

Link f1: via Manch Drainage Inflow=0.70 cfs 2,571 cf
Primary=0.70 cfs 2,571 cf

Link f2: via BHR Drainage Inflow=0.20 cfs 1,170 cf
Primary=0.20 cfs 1,170 cf

Total Runoff Area = 333,428 sf Runoff Volume = 39,467 cf Average Runoff Depth = 1.42"
42.63% Pervious = 142,136 sf 57.37% Impervious = 191,292 sf

Summary for Subcatchment 1APC: done

Runoff = 0.08 cfs @ 12.13 hrs, Volume= 399 cf, Depth> 0.39"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Adj	Description
2,233	98		Unconnected pavement, HSG B
9,999	61		>75% Grass cover, Good, HSG B
12,232	68	64	Weighted Average, UI Adjusted
9,999			81.74% Pervious Area
2,233			18.26% Impervious Area
2,233			100.00% Unconnected

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

Summary for Subcatchment 1PC: west side yard

Runoff = 0.03 cfs @ 12.32 hrs, Volume= 249 cf, Depth> 0.30"
Routed to Pond BR1 : BR 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
10,013	61	>75% Grass cover, Good, HSG B
10,013		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	45	0.0300	0.07		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"

Summary for Subcatchment 2APC: samll portion of BHR

Runoff = 0.03 cfs @ 12.64 hrs, Volume= 233 cf, Depth> 0.74"
Routed to Link f2 : via BHR Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
1,203	98	Paved parking, HSG B
2,582	61	>75% Grass cover, Good, HSG B
3,785	73	Weighted Average
2,582		68.22% Pervious Area
1,203		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.6	100	0.0050	0.04		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
1.2	35	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
41.8	135	Total			

Summary for Subcatchment 2PC: front of bank and parking

Runoff = 0.79 cfs @ 12.09 hrs, Volume= 2,582 cf, Depth> 2.17"
Routed to Pond BR1 : BR 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
10,524	98	Paved parking, HSG B
1,784	98	Roofs, HSG B
495	98	Unconnected pavement, HSG B
1,443	61	>75% Grass cover, Good, HSG B
14,246	94	Weighted Average
1,443		10.13% Pervious Area
12,803		89.87% Impervious Area
495		3.87% Unconnected

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

Summary for Subcatchment 3.5APC: landscape area

Runoff = 0.01 cfs @ 12.33 hrs, Volume= 61 cf, Depth> 0.30"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
2,440	61	>75% Grass cover, Good, HSG B
2,440		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	68	0.0200	0.10		**Sheet Flow, gras** Grass: Dense n= 0.240 P2= 2.82"

Summary for Subcatchment 3APC: side yard and BHR

Runoff = 0.17 cfs @ 12.44 hrs, Volume= 937 cf, Depth> 1.50"
Routed to Link f2 : via BHR Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
4,965	98	Paved parking, HSG B
2,530	61	>75% Grass cover, Good, HSG B
7,495	86	Weighted Average
2,530		33.76% Pervious Area
4,965		66.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.8	100	0.0100	0.05		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
0.3	11	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
31.1	111	Total			

Summary for Subcatchment 3PC: back of bank and drive thru

Runoff = 0.88 cfs @ 12.00 hrs, Volume= 2,521 cf, Depth> 2.38"
Routed to Pond BR2 : BR 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
9,256	98	Paved parking, HSG B
2,821	98	Roofs, HSG B
660	61	>75% Grass cover, Good, HSG B
12,737	96	Weighted Average
660		5.18% Pervious Area
12,077		94.82% Impervious Area

Summary for Subcatchment 4APC: front landscape area

Runoff = 0.02 cfs @ 12.17 hrs, Volume= 133 cf, Depth> 0.30"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
5,356	61	>75% Grass cover, Good, HSG B
5,356		100.00% Pervious Area

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

Summary for Subcatchment 4PC: done

Runoff = 0.03 cfs @ 12.17 hrs, Volume= 176 cf, Depth> 0.30"
Routed to Pond BR2 : BR 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
7,069	61	>75% Grass cover, Good, HSG B
7,069		100.00% Pervious Area

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

Summary for Subcatchment 5APC: enterprise front entrance

Runoff = 0.08 cfs @ 12.10 hrs, Volume= 262 cf, Depth> 1.00"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
1,458	98	Paved parking, HSG B
1,678	61	>75% Grass cover, Good, HSG B
3,136	78	Weighted Average
1,678		53.51% Pervious Area
1,458		46.49% Impervious Area

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

Summary for Subcatchment 5PC: enterprise no change

Runoff = 0.78 cfs @ 12.49 hrs, Volume= 4,550 cf, Depth> 1.23"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
23,787	98	Paved parking, HSG B
1,545	55	Woods, Good, HSG B
1,460	98	Roofs, HSG B
17,625	61	>75% Grass cover, Good, HSG B
44,417	82	Weighted Average
19,170		43.16% Pervious Area
25,247		56.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2	100	0.0100	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.82"
3.6	68	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
33.8	168	Total			

Summary for Subcatchment 6APC: manchester street

Runoff = 0.67 cfs @ 12.09 hrs, Volume= 2,315 cf, Depth> 2.48"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
10,846	98	Paved parking, HSG B
362	61	>75% Grass cover, Good, HSG B
11,208	97	Weighted Average
362		3.23% Pervious Area
10,846		96.77% Impervious Area

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

Summary for Subcatchment 6BPC: no change

Runoff = 0.60 cfs @ 12.09 hrs, Volume= 2,115 cf, Depth> 2.59"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
9,809	98	Paved parking, HSG B
9,809		100.00% Impervious Area

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

Summary for Subcatchment 6PC: east side yard

Runoff = 0.06 cfs @ 12.53 hrs, Volume= 514 cf, Depth> 0.36"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
14,825	61	>75% Grass cover, Good, HSG B
1,349	98	Paved parking, HSG B
1,142	55	Woods, Good, HSG B
17,316	63	Weighted Average
15,967		92.21% Pervious Area
1,349		7.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.5	100	0.0050	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"

Summary for Subcatchment 7APC: east poition of parking area

Runoff = 0.21 cfs @ 12.09 hrs, Volume= 662 cf, Depth> 1.58"
Routed to Pond CB5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
1,429	61	>75% Grass cover, Good, HSG B
3,595	98	Paved parking, HSG B
5,024	87	Weighted Average
1,429		28.44% Pervious Area
3,595		71.56% Impervious Area

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

Summary for Subcatchment 7BPC: east poition of parking area

Runoff = 0.17 cfs @ 12.09 hrs, Volume= 583 cf, Depth> 2.48"
Routed to Pond CB4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
41	61	>75% Grass cover, Good, HSG B
2,783	98	Paved parking, HSG B
2,824	97	Weighted Average
41		1.45% Pervious Area
2,783		98.55% Impervious Area

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

Summary for Subcatchment 7CPC: east poition of parking area

Runoff = 0.38 cfs @ 12.09 hrs, Volume= 1,278 cf, Depth> 2.37"
Routed to Pond cB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
364	61	>75% Grass cover, Good, HSG B
0	98	Roofs, HSG B
6,100	98	Paved parking, HSG B
6,464	96	Weighted Average
364		5.63% Pervious Area
6,100		94.37% Impervious Area

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

Summary for Subcatchment 7DPC: east poition of parking area

Runoff = 0.26 cfs @ 12.10 hrs, Volume= 823 cf, Depth> 1.30"
Routed to Pond CB2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
3,010	61	>75% Grass cover, Good, HSG B
4,575	98	Paved parking, HSG B
7,585	83	Weighted Average
3,010		39.68% Pervious Area
4,575		60.32% Impervious Area

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

Summary for Subcatchment 8PC: black hill road

Runoff = 1.01 cfs @ 12.10 hrs, Volume= 3,329 cf, Depth> 0.95"
Routed to Link C : Southern Woods

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
24,228	61	>75% Grass cover, Good, HSG B
17,947	98	Paved parking, HSG B
42,175	77	Weighted Average
24,228		57.45% Pervious Area
17,947		42.55% Impervious Area

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

Summary for Subcatchment 9PC: east parking area

Runoff = 0.78 cfs @ 12.09 hrs, Volume= 2,669 cf, Depth> 2.48"
Routed to Pond ST2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
384	61	>75% Grass cover, Good, HSG B
1,452	98	Roofs, HSG B
11,087	98	Paved parking, HSG B
12,923	97	Weighted Average
384		2.97% Pervious Area
12,539		97.03% Impervious Area

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

Summary for Subcatchment 10APC: rear drive area and roof

Runoff = 0.62 cfs @ 12.09 hrs, Volume= 2,203 cf, Depth> 2.59"
Routed to Pond CB6 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
6,369	98	Paved parking, HSG B
3,849	98	Roofs, HSG B
0	61	>75% Grass cover, Good, HSG B
10,218	98	Weighted Average
10,218		100.00% Impervious Area

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

Summary for Subcatchment 10PC: parking area

Runoff = 0.99 cfs @ 12.09 hrs, Volume= 3,186 cf, Depth> 1.99"
Routed to Pond DCB 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
14,808	98	Paved parking, HSG B
1,391	98	Roofs, HSG B
3,012	61	>75% Grass cover, Good, HSG B
19,211	92	Weighted Average
3,012		15.68% Pervious Area
16,199		84.32% Impervious Area

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

Summary for Subcatchment 11PC: front parking lot

Runoff = 0.65 cfs @ 12.09 hrs, Volume= 2,305 cf, Depth> 2.59"
Routed to Pond ST2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
8,331	98	Paved parking, HSG B
2,358	98	Roofs, HSG B
10,689	98	Weighted Average
10,689		100.00% Impervious Area

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

Summary for Subcatchment 12APC: car wash area

Runoff = 0.62 cfs @ 12.09 hrs, Volume= 2,057 cf, Depth> 2.27"
Routed to Pond DCB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
9,965	98	Paved parking, HSG B
897	61	>75% Grass cover, Good, HSG B
10,862	95	Weighted Average
897		8.26% Pervious Area
9,965		91.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0300	1.32		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.82"
1.1	170	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.7	220	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 12PC: car wash area

Runoff = 0.83 cfs @ 12.11 hrs, Volume= 2,751 cf, Depth> 1.66"
Routed to Pond DCB2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
5,230	61	>75% Grass cover, Good, HSG B
3,254	98	Roofs, HSG B
11,438	98	Paved parking, HSG B
19,922	88	Weighted Average
5,230		26.25% Pervious Area
14,692		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	40	0.0200	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
0.5	110	0.0400	4.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
7.8	150	Total			

Summary for Subcatchment 13APC: south side yard

Runoff = 0.02 cfs @ 12.37 hrs, Volume= 160 cf, Depth> 0.30"
Routed to Pond DCB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
6,450	61	>75% Grass cover, Good, HSG B
0	98	Paved parking, HSG B
6,450	61	Weighted Average
6,450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0300	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
0.5	45	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.4	145	Total			

Summary for Subcatchment 13PC: east side yard

Runoff = 0.03 cfs @ 12.44 hrs, Volume= 269 cf, Depth> 0.27"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
9,562	61	>75% Grass cover, Good, HSG B
2,432	55	Woods, Good, HSG B
11,994	60	Weighted Average
11,994		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0300	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
3.1	225	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.0	325	Total			

Summary for Subcatchment 14PC: front landscape area

Runoff = 0.02 cfs @ 12.42 hrs, Volume= 144 cf, Depth> 0.30"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.82"

Area (sf)	CN	Description
5,828	61	>75% Grass cover, Good, HSG B
5,828		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0200	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
1.0	50	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.2	150	Total			

Summary for Pond 10P: forebay model

Volume	Invert	Avail.Storage	Storage Description
#1	229.50'	313 cf	**1.00'W x 5.00'L x 2.50'H Prismatoid Z=3.0**

Summary for Pond BR1: BR 1

Inflow Area = 24,259 sf, 52.78% Impervious, Inflow Depth > 1.40" for 2-YR event
Inflow = 0.80 cfs @ 12.09 hrs, Volume= 2,831 cf
Outflow = 0.03 cfs @ 15.55 hrs, Volume= 1,820 cf, Atten= 96%, Lag= 207.8 min
Discarded = 0.03 cfs @ 15.55 hrs, Volume= 1,820 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link A : NHDOT POND

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.32' @ 15.55 hrs Surf.Area= 2,142 sf Storage= 1,521 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 176.2 min (979.8 - 803.6)

Volume	Invert	Avail.Storage	Storage Description
#1	228.50'	9,971 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.50	1,576	0	0
229.00	1,913	872	872
230.00	2,628	2,271	3,143
231.00	3,400	3,014	6,157
232.00	4,229	3,815	9,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.50'	**0.700 in/hr Exfiltration over Surface area**
#2	Primary	231.67'	**15.0' long + 20.0 '/' SideZ x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.03 cfs @ 15.55 hrs HW=229.32' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.50' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond BR2: BR 2

Inflow Area = 19,806 sf, 60.98% Impervious, Inflow Depth > 1.63" for 2-YR event
Inflow = 0.88 cfs @ 12.00 hrs, Volume= 2,697 cf
Outflow = 0.03 cfs @ 15.61 hrs, Volume= 1,598 cf, Atten= 97%, Lag= 216.3 min
Discarded = 0.03 cfs @ 15.61 hrs, Volume= 1,598 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link B : NHDOT Easement

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.00' @ 15.61 hrs Surf.Area= 1,790 sf Storage= 1,516 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 171.7 min (954.3 - 782.6)

Volume	Invert	Avail.Storage	Storage Description
#1	228.00'	9,749 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.00	1,241	0	0
229.00	1,790	1,516	1,516
230.00	2,395	2,093	3,608
231.00	3,056	2,726	6,334
232.00	3,774	3,415	9,749

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.00'	**0.700 in/hr Exfiltration over Surface area**
#2	Primary	231.67'	**15.0' long + 20.0 '/' SideZ x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.03 cfs @ 15.61 hrs HW=229.00' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond CB2:

Inflow Area = 7,585 sf, 60.32% Impervious, Inflow Depth > 1.30" for 2-YR event
Inflow = 0.26 cfs @ 12.10 hrs, Volume= 823 cf
Outflow = 0.26 cfs @ 12.10 hrs, Volume= 823 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.26 cfs @ 12.10 hrs, Volume= 823 cf
Routed to Pond cB3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.76' @ 12.11 hrs
Flood Elev= 231.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.45'	**15.0" Round Culvert** L= 28.0' Ke= 0.500
			Inlet / Outlet Invert= 227.45' / 227.30' S= 0.0054 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.23 cfs @ 12.10 hrs HW=227.75' TW=227.63' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.23 cfs @ 1.53 fps)

Summary for Pond cB3:

Inflow Area = 14,049 sf, 75.98% Impervious, Inflow Depth > 1.79" for 2-YR event
Inflow = 0.64 cfs @ 12.09 hrs, Volume= 2,101 cf
Outflow = 0.64 cfs @ 12.09 hrs, Volume= 2,101 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.64 cfs @ 12.09 hrs, Volume= 2,101 cf
Routed to Pond ST3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.63' @ 12.09 hrs
Flood Elev= 231.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.20'	**15.0" Round Culvert** L= 13.0' Ke= 0.500 Inlet / Outlet Invert= 227.20' / 227.10' S= 0.0077 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.62 cfs @ 12.09 hrs HW=227.63' TW=227.04' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.62 cfs @ 2.52 fps)

Summary for Pond CB4:

Inflow Area = 7,848 sf, 81.27% Impervious, Inflow Depth > 1.90" for 2-YR event
Inflow = 0.38 cfs @ 12.09 hrs, Volume= 1,245 cf
Outflow = 0.38 cfs @ 12.09 hrs, Volume= 1,245 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 12.09 hrs, Volume= 1,245 cf
Routed to Pond ST3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.94' @ 12.09 hrs
Flood Elev= 231.12'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.57'	**12.0" Round Culvert** L= 93.0' Ke= 0.500 Inlet / Outlet Invert= 227.57' / 227.20' S= 0.0040 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.37 cfs @ 12.09 hrs HW=227.94' TW=227.04' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.37 cfs @ 2.09 fps)

Summary for Pond CB5:

Inflow Area = 5,024 sf, 71.56% Impervious, Inflow Depth > 1.58" for 2-YR event
Inflow = 0.21 cfs @ 12.09 hrs, Volume= 662 cf
Outflow = 0.21 cfs @ 12.09 hrs, Volume= 662 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.21 cfs @ 12.09 hrs, Volume= 662 cf
Routed to Pond CB4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 228.14' @ 12.11 hrs
Flood Elev= 231.66'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.86'	**12.0" Round Culvert** L= 39.0' Ke= 0.500 Inlet / Outlet Invert= 227.86' / 227.66' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.19 cfs @ 12.09 hrs HW=228.14' TW=227.94' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.19 cfs @ 1.66 fps)

Summary for Pond CB6:

Inflow Area = 10,218 sf,100.00% Impervious, Inflow Depth > 2.59" for 2-YR event
Inflow = 0.62 cfs @ 12.09 hrs, Volume= 2,203 cf
Outflow = 0.62 cfs @ 12.09 hrs, Volume= 2,203 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.62 cfs @ 12.09 hrs, Volume= 2,203 cf
Routed to Pond ST1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.42' @ 12.09 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.61 cfs @ 12.09 hrs HW=229.41' TW=228.98' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.61 cfs @ 2.98 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=229.00' TW=228.50' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond DCB 1:

Inflow Area = 19,211 sf, 84.32% Impervious, Inflow Depth > 1.99" for 2-YR event
Inflow = 0.99 cfs @ 12.09 hrs, Volume= 3,186 cf
Outflow = 0.99 cfs @ 12.09 hrs, Volume= 3,186 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.99 cfs @ 12.09 hrs, Volume= 3,186 cf
Routed to Pond DMH88 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.15' @ 12.09 hrs
Flood Elev= 233.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.65'	**15.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 229.65' / 229.34' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.97 cfs @ 12.09 hrs HW=230.14' TW=229.41' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 0.97 cfs @ 3.20 fps)

Summary for Pond DCB2:

Inflow Area = 19,922 sf, 73.75% Impervious, Inflow Depth > 1.66" for 2-YR event
Inflow = 0.83 cfs @ 12.11 hrs, Volume= 2,751 cf
Outflow = 0.83 cfs @ 12.11 hrs, Volume= 2,751 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.83 cfs @ 12.11 hrs, Volume= 2,751 cf
Routed to Pond DMH90 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.93' @ 12.11 hrs
Flood Elev= 233.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.50'	**15.0" Round Culvert** L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.10' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.80 cfs @ 12.11 hrs HW=229.92' TW=229.48' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.80 cfs @ 2.21 fps)

Summary for Pond DCB3:

Inflow Area = 17,312 sf, 57.56% Impervious, Inflow Depth > 1.54" for 2-YR event
Inflow = 0.62 cfs @ 12.09 hrs, Volume= 2,217 cf
Outflow = 0.62 cfs @ 12.09 hrs, Volume= 2,217 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.62 cfs @ 12.09 hrs, Volume= 2,217 cf
Routed to Pond ST1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.41' @ 12.09 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.61 cfs @ 12.09 hrs HW=229.41' TW=228.98' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.61 cfs @ 2.98 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=229.00' TW=228.50' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond DMH1:

Inflow Area = 90,275 sf, 82.31% Impervious, Inflow Depth = 0.14" for 2-YR event
Inflow = 0.16 cfs @ 12.60 hrs, Volume= 1,040 cf
Outflow = 0.16 cfs @ 12.60 hrs, Volume= 1,040 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 12.60 hrs, Volume= 1,040 cf
Routed to Pond DMH2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 226.68' @ 12.60 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	226.50'	**18.0" Round Culvert** L= 124.0' Ke= 0.500 Inlet / Outlet Invert= 226.50' / 225.50' S= 0.0081 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.16 cfs @ 12.60 hrs HW=226.68' TW=225.46' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.16 cfs @ 1.97 fps)

Summary for Pond DMH2:

Inflow Area = 112,172 sf, 81.44% Impervious, Inflow Depth = 0.16" for 2-YR event
Inflow = 0.19 cfs @ 12.67 hrs, Volume= 1,527 cf
Outflow = 0.19 cfs @ 12.67 hrs, Volume= 1,527 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.19 cfs @ 12.67 hrs, Volume= 1,527 cf
Routed to Link B : NHDOT Easement

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 225.46' @ 12.67 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	225.25'	**18.0" Round Culvert** L= 36.0' Ke= 0.500 Inlet / Outlet Invert= 225.25' / 225.00' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.19 cfs @ 12.67 hrs HW=225.46' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.19 cfs @ 1.90 fps)

Summary for Pond DMH88:

Inflow Area = 19,211 sf, 84.32% Impervious, Inflow Depth > 1.99" for 2-YR event
Inflow = 0.99 cfs @ 12.09 hrs, Volume= 3,186 cf
Outflow = 0.99 cfs @ 12.09 hrs, Volume= 3,186 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.61 cfs @ 12.09 hrs, Volume= 2,138 cf
Routed to Pond ST1 :
Secondary = 0.38 cfs @ 12.09 hrs, Volume= 1,048 cf
Routed to Pond DMH89 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.41' @ 12.09 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.00'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 229.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.60 cfs @ 12.09 hrs HW=229.41' TW=228.99' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 0.60 cfs @ 2.97 fps)

Secondary OutFlow Max=0.36 cfs @ 12.09 hrs HW=229.41' TW=229.30' (Dynamic Tailwater)
↑—**2=Culvert** (Barrel Controls 0.36 cfs @ 1.80 fps)

Summary for Pond DMH89:

Inflow = 0.38 cfs @ 12.09 hrs, Volume= 1,048 cf
Outflow = 0.38 cfs @ 12.09 hrs, Volume= 1,048 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 12.09 hrs, Volume= 1,048 cf
Routed to Pond ST1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.31' @ 12.09 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.36 cfs @ 12.09 hrs HW=229.30' TW=228.98' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.36 cfs @ 2.71 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=229.00' TW=228.50' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond DMH90:

Inflow Area = 19,922 sf, 73.75% Impervious, Inflow Depth > 1.66" for 2-YR event
Inflow = 0.83 cfs @ 12.11 hrs, Volume= 2,751 cf
Outflow = 0.83 cfs @ 12.11 hrs, Volume= 2,751 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.83 cfs @ 12.11 hrs, Volume= 2,751 cf
Routed to Pond ST1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.49' @ 12.11 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.80 cfs @ 12.11 hrs HW=229.48' TW=229.02' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.80 cfs @ 3.13 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=229.00' TW=228.50' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond ST1:

Inflow Area = 66,663 sf, 76.62% Impervious, Inflow Depth > 1.86" for 2-YR event
Inflow = 3.04 cfs @ 12.09 hrs, Volume= 10,357 cf
Outflow = 0.28 cfs @ 13.06 hrs, Volume= 10,307 cf, Atten= 91%, Lag= 57.8 min
Discarded = 0.28 cfs @ 11.75 hrs, Volume= 10,307 cf
Primary = 0.00 cfs @ 13.06 hrs, Volume= 0 cf
Routed to Pond DMH1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.26' @ 13.06 hrs Surf.Area= 10,126 sf Storage= 4,154 cf

Plug-Flow detention time= 127.4 min calculated for 10,286 cf (99% of inflow)
Center-of-Mass det. time= 124.1 min (920.6 - 796.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	228.50'	7,045 cf	**58.17'W x 174.08'L x 2.33'H Field A** 23,627 cf Overall - 6,015 cf Embedded = 17,612 cf x 40.0% Voids
#2A	229.00'	6,015 cf	**ADS_StormTech SC-310 +Cap** x 408 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 408 Chambers in 17 Rows
		13,059 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.50'	**1.200 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'
#2	Primary	229.26'	**10.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.26' / 228.50' S= 0.0760 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.28 cfs @ 11.75 hrs HW=228.62' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.00 cfs @ 13.06 hrs HW=229.26' TW=226.66' (Dynamic Tailwater)
↑—**2=Culvert** (Inlet Controls 0.00 cfs @ 0.12 fps)

Summary for Pond ST2:

Inflow Area = 23,612 sf, 98.37% Impervious, Inflow Depth > 2.53" for 2-YR event
Inflow = 1.43 cfs @ 12.09 hrs, Volume= 4,974 cf
Outflow = 0.21 cfs @ 12.60 hrs, Volume= 3,886 cf, Atten= 86%, Lag= 30.6 min
Discarded = 0.05 cfs @ 12.60 hrs, Volume= 2,847 cf
Primary = 0.16 cfs @ 12.60 hrs, Volume= 1,040 cf
Routed to Pond DMH1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.11' @ 12.60 hrs Surf.Area= 3,938 sf Storage= 2,318 cf

Plug-Flow detention time= 222.7 min calculated for 3,886 cf (78% of inflow)
Center-of-Mass det. time= 143.4 min (907.6 - 764.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	227.10'	2,791 cf	**101.50'W x 38.80'L x 2.33'H Field A** 9,189 cf Overall - 2,211 cf Embedded = 6,978 cf x 40.0% Voids
#2A	227.60'	2,211 cf	**ADS_StormTech SC-310 +Cap** x 150 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 150 Chambers in 30 Rows
		5,002 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	227.10'	**0.500 in/hr Exfiltration over Wetted area** Phase-In= 0.10'
#2	Primary	227.89'	**8.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 227.89' / 227.00' S= 0.0890 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.05 cfs @ 12.60 hrs HW=228.11' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.16 cfs @ 12.60 hrs HW=228.11' TW=226.68' (Dynamic Tailwater)
2=Culvert (Inlet Controls 0.16 cfs @ 1.59 fps)

Summary for Pond ST3:

Inflow Area = 21,897 sf, 77.88% Impervious, Inflow Depth > 1.83" for 2-YR event
Inflow = 1.02 cfs @ 12.09 hrs, Volume= 3,347 cf
Outflow = 0.08 cfs @ 13.33 hrs, Volume= 2,395 cf, Atten= 92%, Lag= 74.5 min
Discarded = 0.04 cfs @ 13.33 hrs, Volume= 1,908 cf
Primary = 0.04 cfs @ 13.33 hrs, Volume= 487 cf
Routed to Pond DMH2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.32' @ 13.33 hrs Surf.Area= 3,700 sf Storage= 1,679 cf

Plug-Flow detention time= 262.2 min calculated for 2,395 cf (72% of inflow)
Center-of-Mass det. time= 169.2 min (969.3 - 800.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	226.50'	2,604 cf	**28.17'W x 131.36'L x 2.33'H Field A** 8,633 cf Overall - 2,123 cf Embedded = 6,510 cf x 40.0% Voids
#2A	227.00'	2,123 cf	**ADS_StormTech SC-310 +Cap** x 144 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 144 Chambers in 8 Rows
		4,727 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	226.50'	**0.400 in/hr Exfiltration over Wetted area** Phase-In= 0.10'
#2	Primary	227.20'	**6.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 227.20' / 226.00' S= 0.1200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.04 cfs @ 13.33 hrs HW=227.32' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.04 cfs @ 13.33 hrs HW=227.32' TW=225.44' (Dynamic Tailwater)
2=Culvert (Inlet Controls 0.04 cfs @ 1.19 fps)

Summary for Link A: NHDOT POND

Inflow Area = 56,280 sf, 53.73% Impervious, Inflow Depth > 0.80" for 2-YR event
Inflow = 0.77 cfs @ 12.10 hrs, Volume= 3,741 cf
Primary = 0.77 cfs @ 12.10 hrs, Volume= 3,741 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link B: NHDOT Easement

Inflow Area = 234,973 sf, 60.90% Impervious, Inflow Depth > 0.50" for 2-YR event
Inflow = 1.26 cfs @ 12.45 hrs, Volume= 9,719 cf
Primary = 1.26 cfs @ 12.45 hrs, Volume= 9,719 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link C: Southern Woods

Inflow Area = 42,175 sf, 42.55% Impervious, Inflow Depth > 0.95" for 2-YR event
Inflow = 1.01 cfs @ 12.10 hrs, Volume= 3,329 cf
Primary = 1.01 cfs @ 12.10 hrs, Volume= 3,329 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link f1: via Manch Drainage

Inflow Area = 20,741 sf, 54.32% Impervious, Inflow Depth > 1.49" for 2-YR event
Inflow = 0.70 cfs @ 12.09 hrs, Volume= 2,571 cf
Primary = 0.70 cfs @ 12.09 hrs, Volume= 2,571 cf, Atten= 0%, Lag= 0.0 min
Routed to Link A : NHDOT POND

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link f2: via BHR Drainage

Inflow Area = 11,280 sf, 54.68% Impervious, Inflow Depth > 1.24" for 2-YR event
Inflow = 0.20 cfs @ 12.46 hrs, Volume= 1,170 cf
Primary = 0.20 cfs @ 12.46 hrs, Volume= 1,170 cf, Atten= 0%, Lag= 0.0 min
Routed to Link A : NHDOT POND

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1APC: done Runoff Area=12,232 sf 18.26% Impervious Runoff Depth>1.06"
Tc=6.0 min UI Adjusted CN=64 Runoff=0.31 cfs 1,083 cf

Subcatchment 1PC: west side yard Runoff Area=10,013 sf 0.00% Impervious Runoff Depth>0.89"
Flow Length=45' Slope=0.0300 '/' Tc=10.5 min CN=61 Runoff=0.17 cfs 745 cf

Subcatchment 2APC: samll portion of BHR Runoff Area=3,785 sf 31.78% Impervious Runoff Depth>1.63"
Flow Length=135' Slope=0.0050 '/' Tc=41.8 min CN=73 Runoff=0.08 cfs 513 cf

Subcatchment 2PC: front of bank and Runoff Area=14,246 sf 89.87% Impervious Runoff Depth>3.48"
Tc=6.0 min CN=94 Runoff=1.23 cfs 4,130 cf

Subcatchment 3.5APC: landscape area Runoff Area=2,440 sf 0.00% Impervious Runoff Depth>0.89"
Flow Length=68' Slope=0.0200 '/' Tc=11.2 min CN=61 Runoff=0.04 cfs 181 cf

Subcatchment 3APC: side yard and BHR Runoff Area=7,495 sf 66.24% Impervious Runoff Depth>2.68"
Flow Length=111' Slope=0.0100 '/' Tc=31.1 min CN=86 Runoff=0.30 cfs 1,672 cf

Subcatchment 3PC: back of bank and Runoff Area=12,737 sf 94.82% Impervious Runoff Depth>3.70"
Tc=0.0 min CN=96 Runoff=1.33 cfs 3,926 cf

Subcatchment 4APC: front landscape area Runoff Area=5,356 sf 0.00% Impervious Runoff Depth>0.89"
Tc=6.0 min CN=61 Runoff=0.11 cfs 399 cf

Subcatchment 4PC: done Runoff Area=7,069 sf 0.00% Impervious Runoff Depth>0.89"
Tc=6.0 min CN=61 Runoff=0.14 cfs 527 cf

Subcatchment 5APC: enterprise front Runoff Area=3,136 sf 46.49% Impervious Runoff Depth>2.01"
Tc=6.0 min CN=78 Runoff=0.17 cfs 526 cf

Subcatchment 5PC: enterprise no change Runoff Area=44,417 sf 56.84% Impervious Runoff Depth>2.32"
Flow Length=168' Tc=33.8 min CN=82 Runoff=1.50 cfs 8,604 cf

Subcatchment 6APC: manchester street Runoff Area=11,208 sf 96.77% Impervious Runoff Depth>3.81"
Tc=6.0 min CN=97 Runoff=1.01 cfs 3,557 cf

Subcatchment 6BPC: no change Runoff Area=9,809 sf 100.00% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=98 Runoff=0.89 cfs 3,206 cf

Subcatchment 6PC: east side yard Runoff Area=17,316 sf 7.79% Impervious Runoff Depth>1.00"
Flow Length=100' Slope=0.0050 '/' Tc=26.5 min CN=63 Runoff=0.24 cfs 1,440 cf

Subcatchment 7APC: east poition of Runoff Area=5,024 sf 71.56% Impervious Runoff Depth>2.78"
Tc=6.0 min CN=87 Runoff=0.36 cfs 1,165 cf

Subcatchment 7BPC: east poition of Runoff Area=2,824 sf 98.55% Impervious Runoff Depth>3.81"
Tc=6.0 min CN=97 Runoff=0.25 cfs 896 cf

Subcatchment 7CPC: east poition of Runoff Area=6,464 sf 94.37% Impervious Runoff Depth>3.70"
Tc=6.0 min CN=96 Runoff=0.58 cfs 1,991 cf

Subcatchment 7DPC: east poition of Runoff Area=7,585 sf 60.32% Impervious Runoff Depth>2.42"
Tc=6.0 min CN=83 Runoff=0.48 cfs 1,532 cf

Subcatchment 8PC: black hill road Runoff Area=42,175 sf 42.55% Impervious Runoff Depth>1.94"
Tc=6.0 min CN=77 Runoff=2.15 cfs 6,804 cf

Subcatchment 9PC: east parking area Runoff Area=12,923 sf 97.03% Impervious Runoff Depth>3.81"
Tc=6.0 min CN=97 Runoff=1.16 cfs 4,101 cf

Subcatchment 10APC: rear drive area Runoff Area=10,218 sf 100.00% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=98 Runoff=0.93 cfs 3,340 cf

Subcatchment 10PC: parking area Runoff Area=19,211 sf 84.32% Impervious Runoff Depth>3.27"
Tc=6.0 min CN=92 Runoff=1.59 cfs 5,235 cf

Subcatchment 11PC: front parking lot Runoff Area=10,689 sf 100.00% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=98 Runoff=0.97 cfs 3,494 cf

Subcatchment 12APC: car wash area Runoff Area=10,862 sf 91.74% Impervious Runoff Depth>3.59"
Flow Length=220' Tc=6.0 min CN=95 Runoff=0.95 cfs 3,246 cf

Subcatchment 12PC: car wash area Runoff Area=19,922 sf 73.75% Impervious Runoff Depth>2.87"
Flow Length=150' Tc=7.8 min CN=88 Runoff=1.41 cfs 4,772 cf

Subcatchment 13APC: south side yard Runoff Area=6,450 sf 0.00% Impervious Runoff Depth>0.89"
Flow Length=145' Tc=13.4 min CN=61 Runoff=0.10 cfs 479 cf

Subcatchment 13PC: east side yard Runoff Area=11,994 sf 0.00% Impervious Runoff Depth>0.84"
Flow Length=325' Slope=0.0300 '/' Tc=16.0 min CN=60 Runoff=0.16 cfs 837 cf

Subcatchment 14PC: front landscape area Runoff Area=5,828 sf 0.00% Impervious Runoff Depth>0.89"
Flow Length=150' Tc=16.2 min CN=61 Runoff=0.08 cfs 433 cf

Pond 10P: forebay model Peak Elev=0.00' Storage=0 cf

Pond BR1: BR 1 Peak Elev=229.95' Storage=3,023 cf Inflow=1.35 cfs 4,875 cf
Discarded=0.04 cfs 2,289 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 2,289 cf

Pond BR2: BR 2 Peak Elev=229.66' Storage=2,818 cf Inflow=1.39 cfs 4,452 cf
Discarded=0.04 cfs 2,005 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 2,005 cf

Pond CB2: Peak Elev=227.89' Inflow=0.48 cfs 1,532 cf
15.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.48 cfs 1,532 cf

Pond cB3: Peak Elev=227.77' Inflow=1.06 cfs 3,523 cf
15.0" Round Culvert n=0.013 L=13.0' S=0.0077 '/' Outflow=1.06 cfs 3,523 cf

Pond CB4: Peak Elev=228.05' Inflow=0.62 cfs 2,061 cf
12.0" Round Culvert n=0.013 L=93.0' S=0.0040 '/' Outflow=0.62 cfs 2,061 cf

Pond CB5: Peak Elev=228.24' Inflow=0.36 cfs 1,165 cf
12.0" Round Culvert n=0.013 L=39.0' S=0.0051 '/' Outflow=0.36 cfs 1,165 cf

Pond CB6: Peak Elev=229.62' Inflow=0.93 cfs 3,340 cf
Primary=0.93 cfs 3,323 cf Secondary=0.01 cfs 17 cf Outflow=0.93 cfs 3,340 cf

Pond DCB 1: Peak Elev=230.30' Inflow=1.59 cfs 5,235 cf
15.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=1.59 cfs 5,235 cf

Pond DCB2: Peak Elev=230.08' Inflow=1.41 cfs 4,772 cf
15.0" Round Culvert n=0.013 L=20.0' S=0.0200 '/' Outflow=1.41 cfs 4,772 cf

Pond DCB3: Peak Elev=229.62' Inflow=1.01 cfs 3,726 cf
Primary=1.01 cfs 3,700 cf Secondary=0.01 cfs 26 cf Outflow=1.01 cfs 3,726 cf

Pond DMH1: Peak Elev=226.97' Inflow=1.04 cfs 5,975 cf
18.0" Round Culvert n=0.013 L=124.0' S=0.0081 '/' Outflow=1.04 cfs 5,975 cf

Pond DMH2: Peak Elev=225.85' Inflow=1.40 cfs 8,264 cf
18.0" Round Culvert n=0.013 L=36.0' S=0.0069 '/' Outflow=1.40 cfs 8,264 cf

Pond DMH88: Peak Elev=229.62' Inflow=1.59 cfs 5,235 cf
Primary=0.95 cfs 3,233 cf Secondary=0.64 cfs 2,002 cf Outflow=1.59 cfs 5,235 cf

Pond DMH89: Peak Elev=229.61' Inflow=0.64 cfs 2,002 cf
Primary=0.64 cfs 1,988 cf Secondary=0.01 cfs 14 cf Outflow=0.64 cfs 2,002 cf

Pond DMH90: Peak Elev=229.67' Inflow=1.41 cfs 4,772 cf
Primary=1.36 cfs 4,711 cf Secondary=0.05 cfs 61 cf Outflow=1.41 cfs 4,772 cf

Pond ST1: Peak Elev=229.61' Storage=6,845 cf Inflow=4.92 cfs 17,073 cf
Discarded=0.28 cfs 14,125 cf Primary=0.44 cfs 2,864 cf Outflow=0.73 cfs 16,990 cf

Pond ST2: Peak Elev=228.39' Storage=3,086 cf Inflow=2.14 cfs 7,595 cf
Discarded=0.05 cfs 3,124 cf Primary=0.68 cfs 3,110 cf Outflow=0.73 cfs 6,234 cf

Pond ST3: Peak Elev=227.60' Storage=2,430 cf Inflow=1.68 cfs 5,584 cf
Discarded=0.04 cfs 2,104 cf Primary=0.36 cfs 2,289 cf Outflow=0.40 cfs 4,394 cf

Link A: NHDOT POND Inflow=1.34 cfs 6,497 cf
Primary=1.34 cfs 6,497 cf

Link B: NHDOT Easement Inflow=3.71 cfs 24,218 cf
Primary=3.71 cfs 24,218 cf

Link C: Southern Woods Inflow=2.15 cfs 6,804 cf
Primary=2.15 cfs 6,804 cf

Link f1: via Manch Drainage Inflow=1.19 cfs 4,313 cf
Primary=1.19 cfs 4,313 cf

Link f2: via BHR Drainage Inflow=0.37 cfs 2,185 cf
Primary=0.37 cfs 2,185 cf

Total Runoff Area = 333,428 sf Runoff Volume = 68,834 cf Average Runoff Depth = 2.48"
42.63% Pervious = 142,136 sf 57.37% Impervious = 191,292 sf

Summary for Subcatchment 1APC: done

Runoff = 0.31 cfs @ 12.10 hrs, Volume= 1,083 cf, Depth> 1.06"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Adj	Description
2,233	98		Unconnected pavement, HSG B
9,999	61		>75% Grass cover, Good, HSG B
12,232	68	64	Weighted Average, UI Adjusted
9,999			81.74% Pervious Area
2,233			18.26% Impervious Area
2,233			100.00% Unconnected

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

Summary for Subcatchment 1PC: west side yard

Runoff = 0.17 cfs @ 12.17 hrs, Volume= 745 cf, Depth> 0.89"
Routed to Pond BR1 : BR 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
10,013	61	>75% Grass cover, Good, HSG B
10,013		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	45	0.0300	0.07		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"

Summary for Subcatchment 2APC: samll portion of BHR

Runoff = 0.08 cfs @ 12.61 hrs, Volume= 513 cf, Depth> 1.63"
Routed to Link f2 : via BHR Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
1,203	98	Paved parking, HSG B
2,582	61	>75% Grass cover, Good, HSG B
3,785	73	Weighted Average
2,582		68.22% Pervious Area
1,203		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.6	100	0.0050	0.04		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
1.2	35	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
41.8	135	Total			

Summary for Subcatchment 2PC: front of bank and parking

Runoff = 1.23 cfs @ 12.09 hrs, Volume= 4,130 cf, Depth> 3.48"
Routed to Pond BR1 : BR 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
10,524	98	Paved parking, HSG B
1,784	98	Roofs, HSG B
495	98	Unconnected pavement, HSG B
1,443	61	>75% Grass cover, Good, HSG B
14,246	94	Weighted Average
1,443		10.13% Pervious Area
12,803		89.87% Impervious Area
495		3.87% Unconnected

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

Summary for Subcatchment 3.5APC: landscape area

Runoff = 0.04 cfs @ 12.19 hrs, Volume= 181 cf, Depth> 0.89"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
2,440	61	>75% Grass cover, Good, HSG B
2,440		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	68	0.0200	0.10		**Sheet Flow, gras** Grass: Dense n= 0.240 P2= 2.82"

Summary for Subcatchment 3APC: side yard and BHR

Runoff = 0.30 cfs @ 12.42 hrs, Volume= 1,672 cf, Depth> 2.68"
Routed to Link f2 : via BHR Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
4,965	98	Paved parking, HSG B
2,530	61	>75% Grass cover, Good, HSG B
7,495	86	Weighted Average
2,530		33.76% Pervious Area
4,965		66.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.8	100	0.0100	0.05		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
0.3	11	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
31.1	111	Total			

Summary for Subcatchment 3PC: back of bank and drive thru

Runoff = 1.33 cfs @ 12.00 hrs, Volume= 3,926 cf, Depth> 3.70"
Routed to Pond BR2 : BR 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
9,256	98	Paved parking, HSG B
2,821	98	Roofs, HSG B
660	61	>75% Grass cover, Good, HSG B
12,737	96	Weighted Average
660		5.18% Pervious Area
12,077		94.82% Impervious Area

Summary for Subcatchment 4APC: front landscape area

Runoff = 0.11 cfs @ 12.11 hrs, Volume= 399 cf, Depth> 0.89"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
5,356	61	>75% Grass cover, Good, HSG B
5,356		100.00% Pervious Area

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

Summary for Subcatchment 4PC: done

Runoff = 0.14 cfs @ 12.11 hrs, Volume= 527 cf, Depth> 0.89"
Routed to Pond BR2 : BR 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
7,069	61	>75% Grass cover, Good, HSG B
7,069		100.00% Pervious Area

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

Summary for Subcatchment 5APC: enterprise front entrance

Runoff = 0.17 cfs @ 12.09 hrs, Volume= 526 cf, Depth> 2.01"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
1,458	98	Paved parking, HSG B
1,678	61	>75% Grass cover, Good, HSG B
3,136	78	Weighted Average
1,678		53.51% Pervious Area
1,458		46.49% Impervious Area

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

Summary for Subcatchment 5PC: enterprise no change

Runoff = 1.50 cfs @ 12.47 hrs, Volume= 8,604 cf, Depth> 2.32"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
23,787	98	Paved parking, HSG B
1,545	55	Woods, Good, HSG B
1,460	98	Roofs, HSG B
17,625	61	>75% Grass cover, Good, HSG B
44,417	82	Weighted Average
19,170		43.16% Pervious Area
25,247		56.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2	100	0.0100	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.82"
3.6	68	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
33.8	168	Total			

Summary for Subcatchment 6APC: manchester street

Runoff = 1.01 cfs @ 12.09 hrs, Volume= 3,557 cf, Depth> 3.81"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
10,846	98	Paved parking, HSG B
362	61	>75% Grass cover, Good, HSG B
11,208	97	Weighted Average
362		3.23% Pervious Area
10,846		96.77% Impervious Area

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

Summary for Subcatchment 6BPC: no change

Runoff = 0.89 cfs @ 12.09 hrs, Volume= 3,206 cf, Depth> 3.92"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
9,809	98	Paved parking, HSG B
9,809		100.00% Impervious Area

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

Summary for Subcatchment 6PC: east side yard

Runoff = 0.24 cfs @ 12.43 hrs, Volume= 1,440 cf, Depth> 1.00"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
14,825	61	>75% Grass cover, Good, HSG B
1,349	98	Paved parking, HSG B
1,142	55	Woods, Good, HSG B
17,316	63	Weighted Average
15,967		92.21% Pervious Area
1,349		7.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.5	100	0.0050	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"

Summary for Subcatchment 7APC: east poition of parking area

Runoff = 0.36 cfs @ 12.09 hrs, Volume= 1,165 cf, Depth> 2.78"
Routed to Pond CB5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
1,429	61	>75% Grass cover, Good, HSG B
3,595	98	Paved parking, HSG B
5,024	87	Weighted Average
1,429		28.44% Pervious Area
3,595		71.56% Impervious Area

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

Summary for Subcatchment 7BPC: east poition of parking area

Runoff = 0.25 cfs @ 12.09 hrs, Volume= 896 cf, Depth> 3.81"
Routed to Pond CB4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
41	61	>75% Grass cover, Good, HSG B
2,783	98	Paved parking, HSG B
2,824	97	Weighted Average
41		1.45% Pervious Area
2,783		98.55% Impervious Area

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

Summary for Subcatchment 7CPC: east poition of parking area

Runoff = 0.58 cfs @ 12.09 hrs, Volume= 1,991 cf, Depth> 3.70"
Routed to Pond cB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
364	61	>75% Grass cover, Good, HSG B
0	98	Roofs, HSG B
6,100	98	Paved parking, HSG B
6,464	96	Weighted Average
364		5.63% Pervious Area
6,100		94.37% Impervious Area

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

Summary for Subcatchment 7DPC: east poition of parking area

Runoff = 0.48 cfs @ 12.09 hrs, Volume= 1,532 cf, Depth> 2.42"
Routed to Pond CB2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
3,010	61	>75% Grass cover, Good, HSG B
4,575	98	Paved parking, HSG B
7,585	83	Weighted Average
3,010		39.68% Pervious Area
4,575		60.32% Impervious Area

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

Summary for Subcatchment 8PC: black hill road

Runoff = 2.15 cfs @ 12.10 hrs, Volume= 6,804 cf, Depth> 1.94"
Routed to Link C : Southern Woods

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
24,228	61	>75% Grass cover, Good, HSG B
17,947	98	Paved parking, HSG B
42,175	77	Weighted Average
24,228		57.45% Pervious Area
17,947		42.55% Impervious Area

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

Summary for Subcatchment 9PC: east parking area

Runoff = 1.16 cfs @ 12.09 hrs, Volume= 4,101 cf, Depth> 3.81"
Routed to Pond ST2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
384	61	>75% Grass cover, Good, HSG B
1,452	98	Roofs, HSG B
11,087	98	Paved parking, HSG B
12,923	97	Weighted Average
384		2.97% Pervious Area
12,539		97.03% Impervious Area

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

Summary for Subcatchment 10APC: rear drive area and roof

Runoff = 0.93 cfs @ 12.09 hrs, Volume= 3,340 cf, Depth> 3.92"
Routed to Pond CB6 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
6,369	98	Paved parking, HSG B
3,849	98	Roofs, HSG B
0	61	>75% Grass cover, Good, HSG B
10,218	98	Weighted Average
10,218		100.00% Impervious Area

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

Summary for Subcatchment 10PC: parking area

Runoff = 1.59 cfs @ 12.09 hrs, Volume= 5,235 cf, Depth> 3.27"
Routed to Pond DCB 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
14,808	98	Paved parking, HSG B
1,391	98	Roofs, HSG B
3,012	61	>75% Grass cover, Good, HSG B
19,211	92	Weighted Average
3,012		15.68% Pervious Area
16,199		84.32% Impervious Area

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

Summary for Subcatchment 11PC: front parking lot

Runoff = 0.97 cfs @ 12.09 hrs, Volume= 3,494 cf, Depth> 3.92"
Routed to Pond ST2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
8,331	98	Paved parking, HSG B
2,358	98	Roofs, HSG B
10,689	98	Weighted Average
10,689		100.00% Impervious Area

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

Summary for Subcatchment 12APC: car wash area

Runoff = 0.95 cfs @ 12.09 hrs, Volume= 3,246 cf, Depth> 3.59"
Routed to Pond DCB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
9,965	98	Paved parking, HSG B
897	61	>75% Grass cover, Good, HSG B
10,862	95	Weighted Average
897		8.26% Pervious Area
9,965		91.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0300	1.32		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.82"
1.1	170	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.7	220	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 12PC: car wash area

Runoff = 1.41 cfs @ 12.11 hrs, Volume= 4,772 cf, Depth> 2.87"
Routed to Pond DCB2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
5,230	61	>75% Grass cover, Good, HSG B
3,254	98	Roofs, HSG B
11,438	98	Paved parking, HSG B
19,922	88	Weighted Average
5,230		26.25% Pervious Area
14,692		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	40	0.0200	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
0.5	110	0.0400	4.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
7.8	150	Total			

Summary for Subcatchment 13APC: south side yard

Runoff = 0.10 cfs @ 12.22 hrs, Volume= 479 cf, Depth> 0.89"
Routed to Pond DCB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
6,450	61	>75% Grass cover, Good, HSG B
0	98	Paved parking, HSG B
6,450	61	Weighted Average
6,450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0300	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
0.5	45	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.4	145	Total			

Summary for Subcatchment 13PC: east side yard

Runoff = 0.16 cfs @ 12.27 hrs, Volume= 837 cf, Depth> 0.84"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
9,562	61	>75% Grass cover, Good, HSG B
2,432	55	Woods, Good, HSG B
11,994	60	Weighted Average
11,994		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0300	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
3.1	225	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.0	325	Total			

Summary for Subcatchment 14PC: front landscape area

Runoff = 0.08 cfs @ 12.27 hrs, Volume= 433 cf, Depth> 0.89"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
5,828	61	>75% Grass cover, Good, HSG B
5,828		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0200	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
1.0	50	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.2	150	Total			

Summary for Pond 10P: forebay model

Volume	Invert	Avail.Storage	Storage Description
#1	229.50'	313 cf	**1.00'W x 5.00'L x 2.50'H Prismatoid Z=3.0**

Summary for Pond BR1: BR 1

Inflow Area = 24,259 sf, 52.78% Impervious, Inflow Depth > 2.41" for 10-YR event
Inflow = 1.35 cfs @ 12.09 hrs, Volume= 4,875 cf
Outflow = 0.04 cfs @ 16.64 hrs, Volume= 2,289 cf, Atten= 97%, Lag= 272.9 min
Discarded = 0.04 cfs @ 16.64 hrs, Volume= 2,289 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link A : NHDOT POND

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.95' @ 16.64 hrs Surf.Area= 2,595 sf Storage= 3,023 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 166.7 min (962.1 - 795.4)

Volume	Invert	Avail.Storage	Storage Description
#1	228.50'	9,971 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.50	1,576	0	0
229.00	1,913	872	872
230.00	2,628	2,271	3,143
231.00	3,400	3,014	6,157
232.00	4,229	3,815	9,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.50'	**0.700 in/hr Exfiltration over Surface area**
#2	Primary	231.67'	**15.0' long + 20.0 '/' SideZ x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.04 cfs @ 16.64 hrs HW=229.95' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.50' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond BR2: BR 2

Inflow Area = 19,806 sf, 60.98% Impervious, Inflow Depth > 2.70" for 10-YR event
Inflow = 1.39 cfs @ 12.00 hrs, Volume= 4,452 cf
Outflow = 0.04 cfs @ 16.62 hrs, Volume= 2,005 cf, Atten= 97%, Lag= 276.8 min
Discarded = 0.04 cfs @ 16.62 hrs, Volume= 2,005 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link B : NHDOT Easement

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.66' @ 16.62 hrs Surf.Area= 2,186 sf Storage= 2,818 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 161.5 min (937.6 - 776.1)

Volume	Invert	Avail.Storage	Storage Description
#1	228.00'	9,749 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.00	1,241	0	0
229.00	1,790	1,516	1,516
230.00	2,395	2,093	3,608
231.00	3,056	2,726	6,334
232.00	3,774	3,415	9,749

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.00'	**0.700 in/hr Exfiltration over Surface area**
#2	Primary	231.67'	**15.0' long + 20.0 '/' SideZ x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.04 cfs @ 16.62 hrs HW=229.66' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond CB2:

Inflow Area = 7,585 sf, 60.32% Impervious, Inflow Depth > 2.42" for 10-YR event
Inflow = 0.48 cfs @ 12.09 hrs, Volume= 1,532 cf
Outflow = 0.48 cfs @ 12.09 hrs, Volume= 1,532 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.48 cfs @ 12.09 hrs, Volume= 1,532 cf
Routed to Pond cB3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.89' @ 12.12 hrs
Flood Elev= 231.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.45'	**15.0" Round Culvert** L= 28.0' Ke= 0.500
			Inlet / Outlet Invert= 227.45' / 227.30' S= 0.0054 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.41 cfs @ 12.09 hrs HW=227.88' TW=227.77' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.41 cfs @ 1.64 fps)

Summary for Pond cB3:

Inflow Area = 14,049 sf, 75.98% Impervious, Inflow Depth > 3.01" for 10-YR event
Inflow = 1.06 cfs @ 12.09 hrs, Volume= 3,523 cf
Outflow = 1.06 cfs @ 12.09 hrs, Volume= 3,523 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.06 cfs @ 12.09 hrs, Volume= 3,523 cf
Routed to Pond ST3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.77' @ 12.09 hrs
Flood Elev= 231.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.20'	**15.0" Round Culvert** L= 13.0' Ke= 0.500 Inlet / Outlet Invert= 227.20' / 227.10' S= 0.0077 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.03 cfs @ 12.09 hrs HW=227.76' TW=227.31' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.03 cfs @ 2.83 fps)

Summary for Pond CB4:

Inflow Area = 7,848 sf, 81.27% Impervious, Inflow Depth > 3.15" for 10-YR event
Inflow = 0.62 cfs @ 12.09 hrs, Volume= 2,061 cf
Outflow = 0.62 cfs @ 12.09 hrs, Volume= 2,061 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.62 cfs @ 12.09 hrs, Volume= 2,061 cf
Routed to Pond ST3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.05' @ 12.09 hrs
Flood Elev= 231.12'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.57'	**12.0" Round Culvert** L= 93.0' Ke= 0.500 Inlet / Outlet Invert= 227.57' / 227.20' S= 0.0040 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.60 cfs @ 12.09 hrs HW=228.05' TW=227.31' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.60 cfs @ 2.39 fps)

Summary for Pond CB5:

Inflow Area = 5,024 sf, 71.56% Impervious, Inflow Depth > 2.78" for 10-YR event
Inflow = 0.36 cfs @ 12.09 hrs, Volume= 1,165 cf
Outflow = 0.36 cfs @ 12.09 hrs, Volume= 1,165 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 12.09 hrs, Volume= 1,165 cf
Routed to Pond CB4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 228.24' @ 12.11 hrs
Flood Elev= 231.66'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.86'	**12.0" Round Culvert** L= 39.0' Ke= 0.500 Inlet / Outlet Invert= 227.86' / 227.66' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.33 cfs @ 12.09 hrs HW=228.24' TW=228.05' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.33 cfs @ 1.82 fps)

Summary for Pond CB6:

Inflow Area = 10,218 sf,100.00% Impervious, Inflow Depth > 3.92" for 10-YR event
Inflow = 0.93 cfs @ 12.09 hrs, Volume= 3,340 cf
Outflow = 0.93 cfs @ 12.09 hrs, Volume= 3,340 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.93 cfs @ 12.09 hrs, Volume= 3,323 cf
Routed to Pond ST1 :
Secondary = 0.01 cfs @ 12.51 hrs, Volume= 17 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.62' @ 12.67 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.90 cfs @ 12.09 hrs HW=229.52' TW=229.19' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.90 cfs @ 3.20 fps)

Secondary OutFlow Max=0.00 cfs @ 12.51 hrs HW=229.60' TW=229.60' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond DCB 1:

Inflow Area = 19,211 sf, 84.32% Impervious, Inflow Depth > 3.27" for 10-YR event
Inflow = 1.59 cfs @ 12.09 hrs, Volume= 5,235 cf
Outflow = 1.59 cfs @ 12.09 hrs, Volume= 5,235 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.59 cfs @ 12.09 hrs, Volume= 5,235 cf
Routed to Pond DMH88 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.30' @ 12.09 hrs
Flood Elev= 233.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.65'	**15.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 229.65' / 229.34' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.55 cfs @ 12.09 hrs HW=230.29' TW=229.53' (Dynamic Tailwater)
↳**1=Culvert** (Barrel Controls 1.55 cfs @ 3.54 fps)

Summary for Pond DCB2:

Inflow Area = 19,922 sf, 73.75% Impervious, Inflow Depth > 2.87" for 10-YR event
Inflow = 1.41 cfs @ 12.11 hrs, Volume= 4,772 cf
Outflow = 1.41 cfs @ 12.11 hrs, Volume= 4,772 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.41 cfs @ 12.11 hrs, Volume= 4,772 cf
Routed to Pond DMH90 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.08' @ 12.13 hrs
Flood Elev= 233.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.50'	**15.0" Round Culvert** L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.10' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.31 cfs @ 12.11 hrs HW=230.07' TW=229.66' (Dynamic Tailwater)
↳**1=Culvert** (Outlet Controls 1.31 cfs @ 3.50 fps)

Summary for Pond DCB3:

Inflow Area = 17,312 sf, 57.56% Impervious, Inflow Depth > 2.58" for 10-YR event
Inflow = 1.01 cfs @ 12.09 hrs, Volume= 3,726 cf
Outflow = 1.01 cfs @ 12.09 hrs, Volume= 3,726 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.01 cfs @ 12.09 hrs, Volume= 3,700 cf
Routed to Pond ST1 :
Secondary = 0.01 cfs @ 12.51 hrs, Volume= 26 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.62' @ 12.67 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.99 cfs @ 12.09 hrs HW=229.55' TW=229.20' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.99 cfs @ 3.26 fps)

Secondary OutFlow Max=0.00 cfs @ 12.51 hrs HW=229.60' TW=229.60' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond DMH1:

Inflow Area = 90,275 sf, 82.31% Impervious, Inflow Depth = 0.79" for 10-YR event
Inflow = 1.04 cfs @ 12.49 hrs, Volume= 5,975 cf
Outflow = 1.04 cfs @ 12.49 hrs, Volume= 5,975 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.04 cfs @ 12.49 hrs, Volume= 5,975 cf
Routed to Pond DMH2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 226.97' @ 12.49 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	226.50'	**18.0" Round Culvert** L= 124.0' Ke= 0.500 Inlet / Outlet Invert= 226.50' / 225.50' S= 0.0081 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.04 cfs @ 12.49 hrs HW=226.97' TW=225.85' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.04 cfs @ 3.33 fps)

Summary for Pond DMH2:

Inflow Area = 112,172 sf, 81.44% Impervious, Inflow Depth = 0.88" for 10-YR event
Inflow = 1.40 cfs @ 12.49 hrs, Volume= 8,264 cf
Outflow = 1.40 cfs @ 12.49 hrs, Volume= 8,264 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.40 cfs @ 12.49 hrs, Volume= 8,264 cf
Routed to Link B : NHDOT Easement

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 225.85' @ 12.49 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	225.25'	**18.0" Round Culvert** L= 36.0' Ke= 0.500 Inlet / Outlet Invert= 225.25' / 225.00' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.40 cfs @ 12.49 hrs HW=225.85' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.40 cfs @ 3.15 fps)

Summary for Pond DMH88:

Inflow Area = 19,211 sf, 84.32% Impervious, Inflow Depth > 3.27" for 10-YR event
Inflow = 1.59 cfs @ 12.09 hrs, Volume= 5,235 cf
Outflow = 1.59 cfs @ 12.09 hrs, Volume= 5,235 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.95 cfs @ 12.09 hrs, Volume= 3,233 cf
Routed to Pond ST1 :
Secondary = 0.64 cfs @ 12.09 hrs, Volume= 2,002 cf
Routed to Pond DMH89 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.62' @ 12.70 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.00'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 229.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.94 cfs @ 12.09 hrs HW=229.53' TW=229.21' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 0.94 cfs @ 3.23 fps)

Secondary OutFlow Max=0.58 cfs @ 12.09 hrs HW=229.53' TW=229.41' (Dynamic Tailwater)
↑—**2=Culvert** (Outlet Controls 0.58 cfs @ 1.99 fps)

Summary for Pond DMH89:

Inflow = 0.64 cfs @ 12.09 hrs, Volume= 2,002 cf
Outflow = 0.64 cfs @ 12.09 hrs, Volume= 2,002 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.64 cfs @ 12.09 hrs, Volume= 1,988 cf
Routed to Pond ST1 :
Secondary = 0.01 cfs @ 12.52 hrs, Volume= 14 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.61' @ 12.66 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.56 cfs @ 12.09 hrs HW=229.41' TW=229.19' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.56 cfs @ 2.72 fps)

Secondary OutFlow Max=0.00 cfs @ 12.52 hrs HW=229.60' TW=229.60' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond DMH90:

Inflow Area = 19,922 sf, 73.75% Impervious, Inflow Depth > 2.87" for 10-YR event
Inflow = 1.41 cfs @ 12.11 hrs, Volume= 4,772 cf
Outflow = 1.41 cfs @ 12.11 hrs, Volume= 4,772 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.36 cfs @ 12.11 hrs, Volume= 4,711 cf
Routed to Pond ST1 :
Secondary = 0.05 cfs @ 12.11 hrs, Volume= 61 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.67' @ 12.11 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.33 cfs @ 12.11 hrs HW=229.66' TW=229.24' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.33 cfs @ 3.45 fps)

Secondary OutFlow Max=0.05 cfs @ 12.11 hrs HW=229.66' TW=229.24' (Dynamic Tailwater)
2=Culvert (Barrel Controls 0.05 cfs @ 0.92 fps)

Summary for Pond ST1:

Inflow Area = 66,663 sf, 76.62% Impervious, Inflow Depth > 3.07" for 10-YR event
Inflow = 4.92 cfs @ 12.09 hrs, Volume= 17,073 cf
Outflow = 0.73 cfs @ 12.63 hrs, Volume= 16,990 cf, Atten= 85%, Lag= 32.3 min
Discarded = 0.28 cfs @ 11.35 hrs, Volume= 14,125 cf
Primary = 0.44 cfs @ 12.63 hrs, Volume= 2,864 cf
Routed to Pond DMH1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.61' @ 12.63 hrs Surf.Area= 10,126 sf Storage= 6,845 cf

Plug-Flow detention time= 150.3 min calculated for 16,990 cf (100% of inflow)
Center-of-Mass det. time= 147.2 min (932.9 - 785.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	228.50'	7,045 cf	**58.17'W x 174.08'L x 2.33'H Field A** 23,627 cf Overall - 6,015 cf Embedded = 17,612 cf x 40.0% Voids
#2A	229.00'	6,015 cf	**ADS_StormTech SC-310 +Cap** x 408 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 408 Chambers in 17 Rows
		13,059 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.50'	**1.200 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'
#2	Primary	229.26'	**10.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.26' / 228.50' S= 0.0760 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.28 cfs @ 11.35 hrs HW=228.62' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.44 cfs @ 12.63 hrs HW=229.61' TW=226.95' (Dynamic Tailwater)
↑—**2=Culvert** (Inlet Controls 0.44 cfs @ 2.02 fps)

Summary for Pond ST2:

Inflow Area = 23,612 sf, 98.37% Impervious, Inflow Depth > 3.86" for 10-YR event
Inflow = 2.14 cfs @ 12.09 hrs, Volume= 7,595 cf
Outflow = 0.73 cfs @ 12.37 hrs, Volume= 6,234 cf, Atten= 66%, Lag= 16.7 min
Discarded = 0.05 cfs @ 12.37 hrs, Volume= 3,124 cf
Primary = 0.68 cfs @ 12.37 hrs, Volume= 3,110 cf
Routed to Pond DMH1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.39' @ 12.37 hrs Surf.Area= 3,938 sf Storage= 3,086 cf

Plug-Flow detention time= 164.3 min calculated for 6,234 cf (82% of inflow)
Center-of-Mass det. time= 92.7 min (848.1 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	227.10'	2,791 cf	**101.50'W x 38.80'L x 2.33'H Field A** 9,189 cf Overall - 2,211 cf Embedded = 6,978 cf x 40.0% Voids
#2A	227.60'	2,211 cf	**ADS_StormTech SC-310 +Cap** x 150 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 150 Chambers in 30 Rows
		5,002 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	227.10'	**0.500 in/hr Exfiltration over Wetted area** Phase-In= 0.10'
#2	Primary	227.89'	**8.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 227.89' / 227.00' S= 0.0890 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.05 cfs @ 12.37 hrs HW=228.39' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.67 cfs @ 12.37 hrs HW=228.39' TW=226.95' (Dynamic Tailwater)
2=Culvert (Inlet Controls 0.67 cfs @ 2.41 fps)

Summary for Pond ST3:

Inflow Area = 21,897 sf, 77.88% Impervious, Inflow Depth > 3.06" for 10-YR event
Inflow = 1.68 cfs @ 12.09 hrs, Volume= 5,584 cf
Outflow = 0.40 cfs @ 12.49 hrs, Volume= 4,394 cf, Atten= 76%, Lag= 24.0 min
Discarded = 0.04 cfs @ 12.49 hrs, Volume= 2,104 cf
Primary = 0.36 cfs @ 12.49 hrs, Volume= 2,289 cf
Routed to Pond DMH2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.60' @ 12.49 hrs Surf.Area= 3,700 sf Storage= 2,430 cf

Plug-Flow detention time= 178.8 min calculated for 4,394 cf (79% of inflow)
Center-of-Mass det. time= 99.6 min (888.3 - 788.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	226.50'	2,604 cf	**28.17'W x 131.36'L x 2.33'H Field A** 8,633 cf Overall - 2,123 cf Embedded = 6,510 cf x 40.0% Voids
#2A	227.00'	2,123 cf	**ADS_StormTech SC-310 +Cap** x 144 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 144 Chambers in 8 Rows
		4,727 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	226.50'	**0.400 in/hr Exfiltration over Wetted area** Phase-In= 0.10'
#2	Primary	227.20'	**6.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 227.20' / 226.00' S= 0.1200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.04 cfs @ 12.49 hrs HW=227.60' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.36 cfs @ 12.49 hrs HW=227.60' TW=225.85' (Dynamic Tailwater)
2=Culvert (Inlet Controls 0.36 cfs @ 2.14 fps)

Summary for Link A: NHDOT POND

Inflow Area = 56,280 sf, 53.73% Impervious, Inflow Depth > 1.39" for 10-YR event
Inflow = 1.34 cfs @ 12.10 hrs, Volume= 6,497 cf
Primary = 1.34 cfs @ 12.10 hrs, Volume= 6,497 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link B: NHDOT Easement

Inflow Area = 234,973 sf, 60.90% Impervious, Inflow Depth > 1.24" for 10-YR event
Inflow = 3.71 cfs @ 12.43 hrs, Volume= 24,218 cf
Primary = 3.71 cfs @ 12.43 hrs, Volume= 24,218 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link C: Southern Woods

Inflow Area = 42,175 sf, 42.55% Impervious, Inflow Depth > 1.94" for 10-YR event
Inflow = 2.15 cfs @ 12.10 hrs, Volume= 6,804 cf
Primary = 2.15 cfs @ 12.10 hrs, Volume= 6,804 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link f1: via Manch Drainage

Inflow Area = 20,741 sf, 54.32% Impervious, Inflow Depth > 2.50" for 10-YR event
Inflow = 1.19 cfs @ 12.09 hrs, Volume= 4,313 cf
Primary = 1.19 cfs @ 12.09 hrs, Volume= 4,313 cf, Atten= 0%, Lag= 0.0 min
Routed to Link A : NHDOT POND

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link f2: via BHR Drainage

Inflow Area = 11,280 sf, 54.68% Impervious, Inflow Depth > 2.32" for 10-YR event
Inflow = 0.37 cfs @ 12.46 hrs, Volume= 2,185 cf
Primary = 0.37 cfs @ 12.46 hrs, Volume= 2,185 cf, Atten= 0%, Lag= 0.0 min
Routed to Link A : NHDOT POND

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1APC: done Runoff Area=12,232 sf 18.26% Impervious Runoff Depth>1.71"
Tc=6.0 min UI Adjusted CN=64 Runoff=0.53 cfs 1,743 cf

Subcatchment 1PC: west side yard Runoff Area=10,013 sf 0.00% Impervious Runoff Depth>1.49"
Flow Length=45' Slope=0.0300 '/' Tc=10.5 min CN=61 Runoff=0.31 cfs 1,241 cf

Subcatchment 2APC: samll portion of BHR Runoff Area=3,785 sf 31.78% Impervious Runoff Depth>2.42"
Flow Length=135' Slope=0.0050 '/' Tc=41.8 min CN=73 Runoff=0.12 cfs 762 cf

Subcatchment 2PC: front of bank and Runoff Area=14,246 sf 89.87% Impervious Runoff Depth>4.50"
Tc=6.0 min CN=94 Runoff=1.56 cfs 5,345 cf

Subcatchment 3.5APC: landscape area Runoff Area=2,440 sf 0.00% Impervious Runoff Depth>1.49"
Flow Length=68' Slope=0.0200 '/' Tc=11.2 min CN=61 Runoff=0.07 cfs 302 cf

Subcatchment 3APC: side yard and BHR Runoff Area=7,495 sf 66.24% Impervious Runoff Depth>3.63"
Flow Length=111' Slope=0.0100 '/' Tc=31.1 min CN=86 Runoff=0.40 cfs 2,270 cf

Subcatchment 3PC: back of bank and Runoff Area=12,737 sf 94.82% Impervious Runoff Depth>4.73"
Tc=0.0 min CN=96 Runoff=1.68 cfs 5,022 cf

Subcatchment 4APC: front landscape area Runoff Area=5,356 sf 0.00% Impervious Runoff Depth>1.49"
Tc=6.0 min CN=61 Runoff=0.20 cfs 665 cf

Subcatchment 4PC: done Runoff Area=7,069 sf 0.00% Impervious Runoff Depth>1.49"
Tc=6.0 min CN=61 Runoff=0.26 cfs 877 cf

Subcatchment 5APC: enterprise front Runoff Area=3,136 sf 46.49% Impervious Runoff Depth>2.88"
Tc=6.0 min CN=78 Runoff=0.24 cfs 753 cf

Subcatchment 5PC: enterprise no change Runoff Area=44,417 sf 56.84% Impervious Runoff Depth>3.24"
Flow Length=168' Tc=33.8 min CN=82 Runoff=2.08 cfs 11,985 cf

Subcatchment 6APC: manchester street Runoff Area=11,208 sf 96.77% Impervious Runoff Depth>4.84"
Tc=6.0 min CN=97 Runoff=1.27 cfs 4,524 cf

Subcatchment 6BPC: no change Runoff Area=9,809 sf 100.00% Impervious Runoff Depth>4.96"
Tc=6.0 min CN=98 Runoff=1.12 cfs 4,054 cf

Subcatchment 6PC: east side yard Runoff Area=17,316 sf 7.79% Impervious Runoff Depth>1.63"
Flow Length=100' Slope=0.0050 '/' Tc=26.5 min CN=63 Runoff=0.43 cfs 2,346 cf

Subcatchment 7APC: east poition of Runoff Area=5,024 sf 71.56% Impervious Runoff Depth>3.75"
Tc=6.0 min CN=87 Runoff=0.49 cfs 1,571 cf

Subcatchment 7BPC: east poition of Runoff Area=2,824 sf 98.55% Impervious Runoff Depth>4.84"
Tc=6.0 min CN=97 Runoff=0.32 cfs 1,140 cf

Subcatchment 7CPC: east poition of Runoff Area=6,464 sf 94.37% Impervious Runoff Depth>4.73"
Tc=6.0 min CN=96 Runoff=0.73 cfs 2,547 cf

Subcatchment 7DPC: east poition of Runoff Area=7,585 sf 60.32% Impervious Runoff Depth>3.35"
Tc=6.0 min CN=83 Runoff=0.67 cfs 2,119 cf

Subcatchment 8PC: black hill road Runoff Area=42,175 sf 42.55% Impervious Runoff Depth>2.79"
Tc=6.0 min CN=77 Runoff=3.11 cfs 9,801 cf

Subcatchment 9PC: east parking area Runoff Area=12,923 sf 97.03% Impervious Runoff Depth>4.84"
Tc=6.0 min CN=97 Runoff=1.46 cfs 5,216 cf

Subcatchment 10APC: rear drive area Runoff Area=10,218 sf 100.00% Impervious Runoff Depth>4.96"
Tc=6.0 min CN=98 Runoff=1.17 cfs 4,223 cf

Subcatchment 10PC: parking area Runoff Area=19,211 sf 84.32% Impervious Runoff Depth>4.28"
Tc=6.0 min CN=92 Runoff=2.05 cfs 6,855 cf

Subcatchment 11PC: front parking lot Runoff Area=10,689 sf 100.00% Impervious Runoff Depth>4.96"
Tc=6.0 min CN=98 Runoff=1.22 cfs 4,418 cf

Subcatchment 12APC: car wash area Runoff Area=10,862 sf 91.74% Impervious Runoff Depth>4.61"
Flow Length=220' Tc=6.0 min CN=95 Runoff=1.21 cfs 4,177 cf

Subcatchment 12PC: car wash area Runoff Area=19,922 sf 73.75% Impervious Runoff Depth>3.86"
Flow Length=150' Tc=7.8 min CN=88 Runoff=1.87 cfs 6,400 cf

Subcatchment 13APC: south side yard Runoff Area=6,450 sf 0.00% Impervious Runoff Depth>1.49"
Flow Length=145' Tc=13.4 min CN=61 Runoff=0.19 cfs 799 cf

Subcatchment 13PC: east side yard Runoff Area=11,994 sf 0.00% Impervious Runoff Depth>1.41"
Flow Length=325' Slope=0.0300 '/' Tc=16.0 min CN=60 Runoff=0.30 cfs 1,413 cf

Subcatchment 14PC: front landscape area Runoff Area=5,828 sf 0.00% Impervious Runoff Depth>1.48"
Flow Length=150' Tc=16.2 min CN=61 Runoff=0.16 cfs 721 cf

Pond 10P: forebay model Peak Elev=0.00' Storage=0 cf

Pond BR1: BR 1 Peak Elev=230.43' Storage=4,348 cf Inflow=1.82 cfs 6,586 cf
Discarded=0.05 cfs 2,637 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 2,637 cf

Pond BR2: BR 2 Peak Elev=230.14' Storage=3,947 cf Inflow=1.81 cfs 5,899 cf
Discarded=0.04 cfs 2,293 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 2,293 cf

Pond CB2: Peak Elev=227.99' Inflow=0.67 cfs 2,119 cf
15.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.67 cfs 2,119 cf

Pond cB3: Peak Elev=227.87' Inflow=1.39 cfs 4,666 cf
15.0" Round Culvert n=0.013 L=13.0' S=0.0077 '/' Outflow=1.39 cfs 4,666 cf

Pond CB4: Peak Elev=228.13' Inflow=0.81 cfs 2,711 cf
12.0" Round Culvert n=0.013 L=93.0' S=0.0040 '/' Outflow=0.81 cfs 2,711 cf

Pond CB5: Peak Elev=228.32' Inflow=0.49 cfs 1,571 cf
12.0" Round Culvert n=0.013 L=39.0' S=0.0051 '/' Outflow=0.49 cfs 1,571 cf

Pond CB6: Peak Elev=229.87' Inflow=1.17 cfs 4,223 cf
Primary=1.15 cfs 4,058 cf Secondary=0.08 cfs 165 cf Outflow=1.17 cfs 4,223 cf

Pond DCB 1: Peak Elev=230.41' Inflow=2.05 cfs 6,855 cf
15.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=2.05 cfs 6,855 cf

Pond DCB2: Peak Elev=230.20' Inflow=1.87 cfs 6,400 cf
15.0" Round Culvert n=0.013 L=20.0' S=0.0200 '/' Outflow=1.87 cfs 6,400 cf

Pond DCB3: Peak Elev=229.87' Inflow=1.33 cfs 4,976 cf
Primary=1.29 cfs 4,728 cf Secondary=0.11 cfs 248 cf Outflow=1.33 cfs 4,976 cf

Pond DMH1: Peak Elev=227.20' Inflow=2.11 cfs 11,297 cf
18.0" Round Culvert n=0.013 L=124.0' S=0.0081 '/' Outflow=2.11 cfs 11,297 cf

Pond DMH2: Peak Elev=226.12' Inflow=2.70 cfs 15,144 cf
18.0" Round Culvert n=0.013 L=36.0' S=0.0069 '/' Outflow=2.70 cfs 15,144 cf

Pond DMH88: Peak Elev=229.87' Inflow=2.05 cfs 6,855 cf
Primary=1.22 cfs 4,000 cf Secondary=0.83 cfs 2,855 cf Outflow=2.05 cfs 6,855 cf

Pond DMH89: Peak Elev=229.87' Inflow=0.83 cfs 2,855 cf
Primary=0.83 cfs 2,691 cf Secondary=0.10 cfs 164 cf Outflow=0.83 cfs 2,855 cf

Pond DMH90: Peak Elev=229.88' Inflow=1.87 cfs 6,400 cf
Primary=1.71 cfs 6,004 cf Secondary=0.17 cfs 396 cf Outflow=1.87 cfs 6,400 cf

Pond ST1: Peak Elev=229.87' Storage=8,625 cf Inflow=6.39 cfs 22,454 cf
Discarded=0.28 cfs 15,780 cf Primary=1.14 cfs 6,473 cf Outflow=1.42 cfs 22,253 cf

Pond ST2: Peak Elev=228.62' Storage=3,647 cf Inflow=2.68 cfs 9,634 cf
Discarded=0.05 cfs 3,294 cf Primary=1.06 cfs 4,825 cf Outflow=1.11 cfs 8,119 cf

Pond ST3: Peak Elev=227.84' Storage=3,053 cf Inflow=2.20 cfs 7,377 cf
Discarded=0.04 cfs 2,224 cf Primary=0.59 cfs 3,847 cf Outflow=0.63 cfs 6,071 cf

Link A: NHDOT POND Inflow=1.82 cfs 8,806 cf
Primary=1.82 cfs 8,806 cf

Link B: NHDOT Easement Inflow=6.10 cfs 37,875 cf
Primary=6.10 cfs 37,875 cf

Link C: Southern Woods Inflow=3.11 cfs 9,801 cf
Primary=3.11 cfs 9,801 cf

Link f1: via Manch Drainage Inflow=1.61 cfs 5,774 cf
Primary=1.61 cfs 5,774 cf

Link f2: via BHR Drainage Inflow=0.51 cfs 3,032 cf
Primary=0.51 cfs 3,032 cf

Total Runoff Area = 333,428 sf Runoff Volume = 93,288 cf Average Runoff Depth = 3.36"
42.63% Pervious = 142,136 sf 57.37% Impervious = 191,292 sf

Summary for Subcatchment 1APC: done

Runoff = 0.53 cfs @ 12.10 hrs, Volume= 1,743 cf, Depth> 1.71"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Adj	Description
2,233	98		Unconnected pavement, HSG B
9,999	61		>75% Grass cover, Good, HSG B
12,232	68	64	Weighted Average, UI Adjusted
9,999			81.74% Pervious Area
2,233			18.26% Impervious Area
2,233			100.00% Unconnected

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

Summary for Subcatchment 1PC: west side yard

Runoff = 0.31 cfs @ 12.16 hrs, Volume= 1,241 cf, Depth> 1.49"
Routed to Pond BR1 : BR 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
10,013	61	>75% Grass cover, Good, HSG B
10,013		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	45	0.0300	0.07		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"

Summary for Subcatchment 2APC: samll portion of BHR

Runoff = 0.12 cfs @ 12.59 hrs, Volume= 762 cf, Depth> 2.42"
Routed to Link f2 : via BHR Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
1,203	98	Paved parking, HSG B
2,582	61	>75% Grass cover, Good, HSG B
3,785	73	Weighted Average
2,582		68.22% Pervious Area
1,203		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.6	100	0.0050	0.04		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
1.2	35	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
41.8	135	Total			

Summary for Subcatchment 2PC: front of bank and parking

Runoff = 1.56 cfs @ 12.09 hrs, Volume= 5,345 cf, Depth> 4.50"
Routed to Pond BR1 : BR 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
10,524	98	Paved parking, HSG B
1,784	98	Roofs, HSG B
495	98	Unconnected pavement, HSG B
1,443	61	>75% Grass cover, Good, HSG B
14,246	94	Weighted Average
1,443		10.13% Pervious Area
12,803		89.87% Impervious Area
495		3.87% Unconnected

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

Summary for Subcatchment 3.5APC: landscape area

Runoff = 0.07 cfs @ 12.17 hrs, Volume= 302 cf, Depth> 1.49"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
2,440	61	>75% Grass cover, Good, HSG B
2,440		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	68	0.0200	0.10		**Sheet Flow, gras** Grass: Dense n= 0.240 P2= 2.82"

Summary for Subcatchment 3APC: side yard and BHR

Runoff = 0.40 cfs @ 12.42 hrs, Volume= 2,270 cf, Depth> 3.63"
Routed to Link f2 : via BHR Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
4,965	98	Paved parking, HSG B
2,530	61	>75% Grass cover, Good, HSG B
7,495	86	Weighted Average
2,530		33.76% Pervious Area
4,965		66.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.8	100	0.0100	0.05		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
0.3	11	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
31.1	111	Total			

Summary for Subcatchment 3PC: back of bank and drive thru

Runoff = 1.68 cfs @ 12.00 hrs, Volume= 5,022 cf, Depth> 4.73"
Routed to Pond BR2 : BR 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
9,256	98	Paved parking, HSG B
2,821	98	Roofs, HSG B
660	61	>75% Grass cover, Good, HSG B
12,737	96	Weighted Average
660		5.18% Pervious Area
12,077		94.82% Impervious Area

Summary for Subcatchment 4APC: front landscape area

Runoff = 0.20 cfs @ 12.10 hrs, Volume= 665 cf, Depth> 1.49"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
5,356	61	>75% Grass cover, Good, HSG B
5,356		100.00% Pervious Area

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

Summary for Subcatchment 4PC: done

Runoff = 0.26 cfs @ 12.10 hrs, Volume= 877 cf, Depth> 1.49"
Routed to Pond BR2 : BR 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
7,069	61	>75% Grass cover, Good, HSG B
7,069		100.00% Pervious Area

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

Summary for Subcatchment 5APC: enterprise front entrance

Runoff = 0.24 cfs @ 12.09 hrs, Volume= 753 cf, Depth> 2.88"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
1,458	98	Paved parking, HSG B
1,678	61	>75% Grass cover, Good, HSG B
3,136	78	Weighted Average
1,678		53.51% Pervious Area
1,458		46.49% Impervious Area

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

Summary for Subcatchment 5PC: enterprise no change

Runoff = 2.08 cfs @ 12.46 hrs, Volume= 11,985 cf, Depth> 3.24"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
23,787	98	Paved parking, HSG B
1,545	55	Woods, Good, HSG B
1,460	98	Roofs, HSG B
17,625	61	>75% Grass cover, Good, HSG B
44,417	82	Weighted Average
19,170		43.16% Pervious Area
25,247		56.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2	100	0.0100	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.82"
3.6	68	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
33.8	168	Total			

Summary for Subcatchment 6APC: manchester street

Runoff = 1.27 cfs @ 12.09 hrs, Volume= 4,524 cf, Depth> 4.84"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
10,846	98	Paved parking, HSG B
362	61	>75% Grass cover, Good, HSG B
11,208	97	Weighted Average
362		3.23% Pervious Area
10,846		96.77% Impervious Area

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

Summary for Subcatchment 6BPC: no change

Runoff = 1.12 cfs @ 12.09 hrs, Volume= 4,054 cf, Depth> 4.96"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
9,809	98	Paved parking, HSG B
9,809		100.00% Impervious Area

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

Summary for Subcatchment 6PC: east side yard

Runoff = 0.43 cfs @ 12.40 hrs, Volume= 2,346 cf, Depth> 1.63"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
14,825	61	>75% Grass cover, Good, HSG B
1,349	98	Paved parking, HSG B
1,142	55	Woods, Good, HSG B
17,316	63	Weighted Average
15,967		92.21% Pervious Area
1,349		7.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.5	100	0.0050	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"

Summary for Subcatchment 7APC: east poition of parking area

Runoff = 0.49 cfs @ 12.09 hrs, Volume= 1,571 cf, Depth> 3.75"
Routed to Pond CB5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
1,429	61	>75% Grass cover, Good, HSG B
3,595	98	Paved parking, HSG B
5,024	87	Weighted Average
1,429		28.44% Pervious Area
3,595		71.56% Impervious Area

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

Summary for Subcatchment 7BPC: east poition of parking area

Runoff = 0.32 cfs @ 12.09 hrs, Volume= 1,140 cf, Depth> 4.84"
Routed to Pond CB4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
41	61	>75% Grass cover, Good, HSG B
2,783	98	Paved parking, HSG B
2,824	97	Weighted Average
41		1.45% Pervious Area
2,783		98.55% Impervious Area

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

Summary for Subcatchment 7CPC: east poition of parking area

Runoff = 0.73 cfs @ 12.09 hrs, Volume= 2,547 cf, Depth> 4.73"
Routed to Pond cB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
364	61	>75% Grass cover, Good, HSG B
0	98	Roofs, HSG B
6,100	98	Paved parking, HSG B
6,464	96	Weighted Average
364		5.63% Pervious Area
6,100		94.37% Impervious Area

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

Summary for Subcatchment 7DPC: east poition of parking area

Runoff = 0.67 cfs @ 12.09 hrs, Volume= 2,119 cf, Depth> 3.35"
Routed to Pond CB2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
3,010	61	>75% Grass cover, Good, HSG B
4,575	98	Paved parking, HSG B
7,585	83	Weighted Average
3,010		39.68% Pervious Area
4,575		60.32% Impervious Area

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

Summary for Subcatchment 8PC: black hill road

Runoff = 3.11 cfs @ 12.09 hrs, Volume= 9,801 cf, Depth> 2.79"
Routed to Link C : Southern Woods

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
24,228	61	>75% Grass cover, Good, HSG B
17,947	98	Paved parking, HSG B
42,175	77	Weighted Average
24,228		57.45% Pervious Area
17,947		42.55% Impervious Area

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

Summary for Subcatchment 9PC: east parking area

Runoff = 1.46 cfs @ 12.09 hrs, Volume= 5,216 cf, Depth> 4.84"
Routed to Pond ST2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
384	61	>75% Grass cover, Good, HSG B
1,452	98	Roofs, HSG B
11,087	98	Paved parking, HSG B
12,923	97	Weighted Average
384		2.97% Pervious Area
12,539		97.03% Impervious Area

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

Summary for Subcatchment 10APC: rear drive area and roof

Runoff = 1.17 cfs @ 12.09 hrs, Volume= 4,223 cf, Depth> 4.96"
Routed to Pond CB6 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
6,369	98	Paved parking, HSG B
3,849	98	Roofs, HSG B
0	61	>75% Grass cover, Good, HSG B
10,218	98	Weighted Average
10,218		100.00% Impervious Area

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

Summary for Subcatchment 10PC: parking area

Runoff = 2.05 cfs @ 12.09 hrs, Volume= 6,855 cf, Depth> 4.28"
Routed to Pond DCB 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
14,808	98	Paved parking, HSG B
1,391	98	Roofs, HSG B
3,012	61	>75% Grass cover, Good, HSG B
19,211	92	Weighted Average
3,012		15.68% Pervious Area
16,199		84.32% Impervious Area

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

Summary for Subcatchment 11PC: front parking lot

Runoff = 1.22 cfs @ 12.09 hrs, Volume= 4,418 cf, Depth> 4.96"
Routed to Pond ST2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
8,331	98	Paved parking, HSG B
2,358	98	Roofs, HSG B
10,689	98	Weighted Average
10,689		100.00% Impervious Area

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

Summary for Subcatchment 12APC: car wash area

Runoff = 1.21 cfs @ 12.09 hrs, Volume= 4,177 cf, Depth> 4.61"
Routed to Pond DCB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
9,965	98	Paved parking, HSG B
897	61	>75% Grass cover, Good, HSG B
10,862	95	Weighted Average
897		8.26% Pervious Area
9,965		91.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0300	1.32		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.82"
1.1	170	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.7	220	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 12PC: car wash area

Runoff = 1.87 cfs @ 12.11 hrs, Volume= 6,400 cf, Depth> 3.86"
Routed to Pond DCB2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
5,230	61	>75% Grass cover, Good, HSG B
3,254	98	Roofs, HSG B
11,438	98	Paved parking, HSG B
19,922	88	Weighted Average
5,230		26.25% Pervious Area
14,692		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	40	0.0200	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
0.5	110	0.0400	4.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
7.8	150	Total			

Summary for Subcatchment 13APC: south side yard

Runoff = 0.19 cfs @ 12.21 hrs, Volume= 799 cf, Depth> 1.49"
Routed to Pond DCB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
6,450	61	>75% Grass cover, Good, HSG B
0	98	Paved parking, HSG B
6,450	61	Weighted Average
6,450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0300	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
0.5	45	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.4	145	Total			

Summary for Subcatchment 13PC: east side yard

Runoff = 0.30 cfs @ 12.25 hrs, Volume= 1,413 cf, Depth> 1.41"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
9,562	61	>75% Grass cover, Good, HSG B
2,432	55	Woods, Good, HSG B
11,994	60	Weighted Average
11,994		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0300	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
3.1	225	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.0	325	Total			

Summary for Subcatchment 14PC: front landscape area

Runoff = 0.16 cfs @ 12.25 hrs, Volume= 721 cf, Depth> 1.48"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.20"

Area (sf)	CN	Description
5,828	61	>75% Grass cover, Good, HSG B
5,828		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0200	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
1.0	50	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.2	150	Total			

Summary for Pond 10P: forebay model

Volume	Invert	Avail.Storage	Storage Description
#1	229.50'	313 cf	**1.00'W x 5.00'L x 2.50'H Prismatoid Z=3.0**

Summary for Pond BR1: BR 1

Inflow Area = 24,259 sf, 52.78% Impervious, Inflow Depth > 3.26" for 25-YR event
Inflow = 1.82 cfs @ 12.10 hrs, Volume= 6,586 cf
Outflow = 0.05 cfs @ 17.29 hrs, Volume= 2,637 cf, Atten= 97%, Lag= 312.0 min
Discarded = 0.05 cfs @ 17.29 hrs, Volume= 2,637 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link A : NHDOT POND

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.43' @ 17.29 hrs Surf.Area= 2,961 sf Storage= 4,348 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 163.1 min (953.9 - 790.8)

Volume	Invert	Avail.Storage	Storage Description
#1	228.50'	9,971 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.50	1,576	0	0
229.00	1,913	872	872
230.00	2,628	2,271	3,143
231.00	3,400	3,014	6,157
232.00	4,229	3,815	9,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.50'	**0.700 in/hr Exfiltration over Surface area**
#2	Primary	231.67'	**15.0' long + 20.0 '/' SideZ x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.05 cfs @ 17.29 hrs HW=230.43' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.50' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond BR2: BR 2

Inflow Area = 19,806 sf, 60.98% Impervious, Inflow Depth > 3.57" for 25-YR event
Inflow = 1.81 cfs @ 12.00 hrs, Volume= 5,899 cf
Outflow = 0.04 cfs @ 17.22 hrs, Volume= 2,293 cf, Atten= 98%, Lag= 313.2 min
Discarded = 0.04 cfs @ 17.22 hrs, Volume= 2,293 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link B : NHDOT Easement

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.14' @ 17.22 hrs Surf.Area= 2,487 sf Storage= 3,947 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 158.1 min (930.8 - 772.7)

Volume	Invert	Avail.Storage	Storage Description
#1	228.00'	9,749 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.00	1,241	0	0
229.00	1,790	1,516	1,516
230.00	2,395	2,093	3,608
231.00	3,056	2,726	6,334
232.00	3,774	3,415	9,749

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.00'	**0.700 in/hr Exfiltration over Surface area**
#2	Primary	231.67'	**15.0' long + 20.0 '/' SideZ x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.04 cfs @ 17.22 hrs HW=230.14' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.00' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond CB2:

Inflow Area = 7,585 sf, 60.32% Impervious, Inflow Depth > 3.35" for 25-YR event
Inflow = 0.67 cfs @ 12.09 hrs, Volume= 2,119 cf
Outflow = 0.67 cfs @ 12.09 hrs, Volume= 2,119 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 12.09 hrs, Volume= 2,119 cf
Routed to Pond cB3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.99' @ 12.12 hrs
Flood Elev= 231.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.45'	**15.0" Round Culvert** L= 28.0' Ke= 0.500
			Inlet / Outlet Invert= 227.45' / 227.30' S= 0.0054 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.55 cfs @ 12.09 hrs HW=227.97' TW=227.86' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.55 cfs @ 1.68 fps)

Summary for Pond cB3:

Inflow Area = 14,049 sf, 75.98% Impervious, Inflow Depth > 3.99" for 25-YR event
Inflow = 1.39 cfs @ 12.09 hrs, Volume= 4,666 cf
Outflow = 1.39 cfs @ 12.09 hrs, Volume= 4,666 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.39 cfs @ 12.09 hrs, Volume= 4,666 cf
Routed to Pond ST3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.87' @ 12.09 hrs
Flood Elev= 231.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.20'	**15.0" Round Culvert** L= 13.0' Ke= 0.500 Inlet / Outlet Invert= 227.20' / 227.10' S= 0.0077 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.36 cfs @ 12.09 hrs HW=227.86' TW=227.54' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.36 cfs @ 3.01 fps)

Summary for Pond CB4:

Inflow Area = 7,848 sf, 81.27% Impervious, Inflow Depth > 4.15" for 25-YR event
Inflow = 0.81 cfs @ 12.09 hrs, Volume= 2,711 cf
Outflow = 0.81 cfs @ 12.09 hrs, Volume= 2,711 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.81 cfs @ 12.09 hrs, Volume= 2,711 cf
Routed to Pond ST3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.13' @ 12.09 hrs
Flood Elev= 231.12'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.57'	**12.0" Round Culvert** L= 93.0' Ke= 0.500 Inlet / Outlet Invert= 227.57' / 227.20' S= 0.0040 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.79 cfs @ 12.09 hrs HW=228.12' TW=227.54' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.79 cfs @ 2.56 fps)

Summary for Pond CB5:

Inflow Area = 5,024 sf, 71.56% Impervious, Inflow Depth > 3.75" for 25-YR event
Inflow = 0.49 cfs @ 12.09 hrs, Volume= 1,571 cf
Outflow = 0.49 cfs @ 12.09 hrs, Volume= 1,571 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.49 cfs @ 12.09 hrs, Volume= 1,571 cf
Routed to Pond CB4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 228.32' @ 12.11 hrs
Flood Elev= 231.66'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.86'	**12.0" Round Culvert** L= 39.0' Ke= 0.500 Inlet / Outlet Invert= 227.86' / 227.66' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.43 cfs @ 12.09 hrs HW=228.30' TW=228.12' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.43 cfs @ 1.89 fps)

Summary for Pond CB6:

Inflow Area = 10,218 sf,100.00% Impervious, Inflow Depth > 4.96" for 25-YR event
Inflow = 1.17 cfs @ 12.09 hrs, Volume= 4,223 cf
Outflow = 1.17 cfs @ 12.09 hrs, Volume= 4,223 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.15 cfs @ 12.09 hrs, Volume= 4,058 cf
Routed to Pond ST1 :
Secondary = 0.08 cfs @ 12.35 hrs, Volume= 165 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.87' @ 12.57 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.92 cfs @ 12.09 hrs HW=229.59' TW=229.39' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.92 cfs @ 2.73 fps)

Secondary OutFlow Max=0.00 cfs @ 12.35 hrs HW=229.79' TW=229.81' (Dynamic Tailwater)
↑—**2=Culvert** (Controls 0.00 cfs)

Summary for Pond DCB 1:

Inflow Area = 19,211 sf, 84.32% Impervious, Inflow Depth > 4.28" for 25-YR event
Inflow = 2.05 cfs @ 12.09 hrs, Volume= 6,855 cf
Outflow = 2.05 cfs @ 12.09 hrs, Volume= 6,855 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.05 cfs @ 12.09 hrs, Volume= 6,855 cf
Routed to Pond DMH88 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.41' @ 12.09 hrs
Flood Elev= 233.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.65'	**15.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 229.65' / 229.34' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.00 cfs @ 12.09 hrs HW=230.40' TW=229.61' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 2.00 cfs @ 3.74 fps)

Summary for Pond DCB2:

Inflow Area = 19,922 sf, 73.75% Impervious, Inflow Depth > 3.86" for 25-YR event
Inflow = 1.87 cfs @ 12.11 hrs, Volume= 6,400 cf
Outflow = 1.87 cfs @ 12.11 hrs, Volume= 6,400 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.87 cfs @ 12.11 hrs, Volume= 6,400 cf
Routed to Pond DMH90 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.20' @ 12.13 hrs
Flood Elev= 233.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.50'	**15.0" Round Culvert** L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.10' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.72 cfs @ 12.11 hrs HW=230.19' TW=229.77' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 1.72 cfs @ 3.62 fps)

Summary for Pond DCB3:

Inflow Area = 17,312 sf, 57.56% Impervious, Inflow Depth > 3.45" for 25-YR event
Inflow = 1.33 cfs @ 12.09 hrs, Volume= 4,976 cf
Outflow = 1.33 cfs @ 12.09 hrs, Volume= 4,976 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.29 cfs @ 12.09 hrs, Volume= 4,728 cf
Routed to Pond ST1 :
Secondary = 0.11 cfs @ 12.33 hrs, Volume= 248 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.87' @ 12.56 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.09 cfs @ 12.09 hrs HW=229.64' TW=229.40' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.09 cfs @ 2.94 fps)

Secondary OutFlow Max=0.00 cfs @ 12.33 hrs HW=229.79' TW=229.80' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond DMH1:

Inflow Area = 90,275 sf, 82.31% Impervious, Inflow Depth = 1.50" for 25-YR event
Inflow = 2.11 cfs @ 12.45 hrs, Volume= 11,297 cf
Outflow = 2.11 cfs @ 12.45 hrs, Volume= 11,297 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.11 cfs @ 12.45 hrs, Volume= 11,297 cf
Routed to Pond DMH2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.20' @ 12.46 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	226.50'	**18.0" Round Culvert** L= 124.0' Ke= 0.500 Inlet / Outlet Invert= 226.50' / 225.50' S= 0.0081 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.10 cfs @ 12.45 hrs HW=227.20' TW=226.12' (Dynamic Tailwater)
1=Culvert (Outlet Controls 2.10 cfs @ 3.84 fps)

Summary for Pond DMH2:

Inflow Area = 112,172 sf, 81.44% Impervious, Inflow Depth = 1.62" for 25-YR event
Inflow = 2.70 cfs @ 12.45 hrs, Volume= 15,144 cf
Outflow = 2.70 cfs @ 12.45 hrs, Volume= 15,144 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.70 cfs @ 12.45 hrs, Volume= 15,144 cf
Routed to Link B : NHDOT Easement

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 226.12' @ 12.45 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	225.25'	**18.0" Round Culvert** L= 36.0' Ke= 0.500 Inlet / Outlet Invert= 225.25' / 225.00' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.70 cfs @ 12.45 hrs HW=226.12' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 2.70 cfs @ 3.66 fps)

Summary for Pond DMH88:

Inflow Area = 19,211 sf, 84.32% Impervious, Inflow Depth > 4.28" for 25-YR event
Inflow = 2.05 cfs @ 12.09 hrs, Volume= 6,855 cf
Outflow = 2.05 cfs @ 12.09 hrs, Volume= 6,855 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.22 cfs @ 12.09 hrs, Volume= 4,000 cf
Routed to Pond ST1 :
Secondary = 0.83 cfs @ 12.09 hrs, Volume= 2,855 cf
Routed to Pond DMH89 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.87' @ 12.59 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.00'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 229.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.00 cfs @ 12.09 hrs HW=229.61' TW=229.39' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 1.00 cfs @ 2.83 fps)

Secondary OutFlow Max=0.67 cfs @ 12.09 hrs HW=229.61' TW=229.51' (Dynamic Tailwater)
↑—**2=Culvert** (Outlet Controls 0.67 cfs @ 1.89 fps)

Summary for Pond DMH89:

Inflow = 0.83 cfs @ 12.09 hrs, Volume= 2,855 cf
Outflow = 0.83 cfs @ 12.09 hrs, Volume= 2,855 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.83 cfs @ 12.09 hrs, Volume= 2,691 cf
Routed to Pond ST1 :
Secondary = 0.10 cfs @ 12.38 hrs, Volume= 164 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.87' @ 12.56 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.57 cfs @ 12.09 hrs HW=229.51' TW=229.39' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.57 cfs @ 2.05 fps)

Secondary OutFlow Max=0.00 cfs @ 12.38 hrs HW=229.82' TW=229.83' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond DMH90:

Inflow Area = 19,922 sf, 73.75% Impervious, Inflow Depth > 3.86" for 25-YR event
Inflow = 1.87 cfs @ 12.11 hrs, Volume= 6,400 cf
Outflow = 1.87 cfs @ 12.11 hrs, Volume= 6,400 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.71 cfs @ 12.11 hrs, Volume= 6,004 cf
Routed to Pond ST1 :
Secondary = 0.17 cfs @ 12.31 hrs, Volume= 396 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.88' @ 12.55 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.62 cfs @ 12.11 hrs HW=229.77' TW=229.45' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.62 cfs @ 3.46 fps)

Secondary OutFlow Max=0.06 cfs @ 12.31 hrs HW=229.79' TW=229.79' (Dynamic Tailwater)
2=Culvert (Outlet Controls 0.06 cfs @ 0.50 fps)

Summary for Pond ST1:

Inflow Area = 66,663 sf, 76.62% Impervious, Inflow Depth > 4.04" for 25-YR event
Inflow = 6.39 cfs @ 12.09 hrs, Volume= 22,454 cf
Outflow = 1.42 cfs @ 12.52 hrs, Volume= 22,253 cf, Atten= 78%, Lag= 25.6 min
Discarded = 0.28 cfs @ 10.85 hrs, Volume= 15,780 cf
Primary = 1.14 cfs @ 12.52 hrs, Volume= 6,473 cf
Routed to Pond DMH1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.87' @ 12.52 hrs Surf.Area= 10,126 sf Storage= 8,625 cf

Plug-Flow detention time= 139.8 min calculated for 22,207 cf (99% of inflow)
Center-of-Mass det. time= 133.9 min (913.8 - 780.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	228.50'	7,045 cf	**58.17'W x 174.08'L x 2.33'H Field A** 23,627 cf Overall - 6,015 cf Embedded = 17,612 cf x 40.0% Voids
#2A	229.00'	6,015 cf	**ADS_StormTech SC-310 +Cap** x 408 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 408 Chambers in 17 Rows
		13,059 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.50'	**1.200 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'
#2	Primary	229.26'	**10.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.26' / 228.50' S= 0.0760 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.28 cfs @ 10.85 hrs HW=228.62' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=1.14 cfs @ 12.52 hrs HW=229.87' TW=227.19' (Dynamic Tailwater)
↑—**2=Culvert** (Inlet Controls 1.14 cfs @ 2.66 fps)

Summary for Pond ST2:

Inflow Area = 23,612 sf, 98.37% Impervious, Inflow Depth > 4.90" for 25-YR event
Inflow = 2.68 cfs @ 12.09 hrs, Volume= 9,634 cf
Outflow = 1.11 cfs @ 12.29 hrs, Volume= 8,119 cf, Atten= 59%, Lag= 12.5 min
Discarded = 0.05 cfs @ 12.29 hrs, Volume= 3,294 cf
Primary = 1.06 cfs @ 12.29 hrs, Volume= 4,825 cf
Routed to Pond DMH1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.62' @ 12.29 hrs Surf.Area= 3,938 sf Storage= 3,647 cf

Plug-Flow detention time= 142.0 min calculated for 8,119 cf (84% of inflow)
Center-of-Mass det. time= 75.4 min (826.5 - 751.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	227.10'	2,791 cf	**101.50'W x 38.80'L x 2.33'H Field A** 9,189 cf Overall - 2,211 cf Embedded = 6,978 cf x 40.0% Voids
#2A	227.60'	2,211 cf	**ADS_StormTech SC-310 +Cap** x 150 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 150 Chambers in 30 Rows
		5,002 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	227.10'	**0.500 in/hr Exfiltration over Wetted area** Phase-In= 0.10'
#2	Primary	227.89'	**8.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 227.89' / 227.00' S= 0.0890 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.05 cfs @ 12.29 hrs HW=228.62' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=1.06 cfs @ 12.29 hrs HW=228.62' TW=227.15' (Dynamic Tailwater)
2=Culvert (Inlet Controls 1.06 cfs @ 3.04 fps)

Summary for Pond ST3:

Inflow Area = 21,897 sf, 77.88% Impervious, Inflow Depth > 4.04" for 25-YR event
Inflow = 2.20 cfs @ 12.09 hrs, Volume= 7,377 cf
Outflow = 0.63 cfs @ 12.43 hrs, Volume= 6,071 cf, Atten= 71%, Lag= 20.6 min
Discarded = 0.04 cfs @ 12.43 hrs, Volume= 2,224 cf
Primary = 0.59 cfs @ 12.43 hrs, Volume= 3,847 cf
Routed to Pond DMH2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.84' @ 12.43 hrs Surf.Area= 3,700 sf Storage= 3,053 cf

Plug-Flow detention time= 150.7 min calculated for 6,071 cf (82% of inflow)
Center-of-Mass det. time= 79.6 min (862.3 - 782.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	226.50'	2,604 cf	**28.17'W x 131.36'L x 2.33'H Field A** 8,633 cf Overall - 2,123 cf Embedded = 6,510 cf x 40.0% Voids
#2A	227.00'	2,123 cf	**ADS_StormTech SC-310 +Cap** x 144 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 144 Chambers in 8 Rows
		4,727 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	226.50'	**0.400 in/hr Exfiltration over Wetted area** Phase-In= 0.10'
#2	Primary	227.20'	**6.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 227.20' / 226.00' S= 0.1200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.04 cfs @ 12.43 hrs HW=227.84' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.59 cfs @ 12.43 hrs HW=227.84' TW=226.12' (Dynamic Tailwater)
2=Culvert (Inlet Controls 0.59 cfs @ 3.02 fps)

Summary for Link A: NHDOT POND

Inflow Area = 56,280 sf, 53.73% Impervious, Inflow Depth > 1.88" for 25-YR event
Inflow = 1.82 cfs @ 12.10 hrs, Volume= 8,806 cf
Primary = 1.82 cfs @ 12.10 hrs, Volume= 8,806 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link B: NHDOT Easement

Inflow Area = 234,973 sf, 60.90% Impervious, Inflow Depth > 1.93" for 25-YR event
Inflow = 6.10 cfs @ 12.40 hrs, Volume= 37,875 cf
Primary = 6.10 cfs @ 12.40 hrs, Volume= 37,875 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link C: Southern Woods

Inflow Area = 42,175 sf, 42.55% Impervious, Inflow Depth > 2.79" for 25-YR event
Inflow = 3.11 cfs @ 12.09 hrs, Volume= 9,801 cf
Primary = 3.11 cfs @ 12.09 hrs, Volume= 9,801 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link f1: via Manch Drainage

Inflow Area = 20,741 sf, 54.32% Impervious, Inflow Depth > 3.34" for 25-YR event
Inflow = 1.61 cfs @ 12.09 hrs, Volume= 5,774 cf
Primary = 1.61 cfs @ 12.09 hrs, Volume= 5,774 cf, Atten= 0%, Lag= 0.0 min
Routed to Link A : NHDOT POND

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link f2: via BHR Drainage

Inflow Area = 11,280 sf, 54.68% Impervious, Inflow Depth > 3.23" for 25-YR event
Inflow = 0.51 cfs @ 12.45 hrs, Volume= 3,032 cf
Primary = 0.51 cfs @ 12.45 hrs, Volume= 3,032 cf, Atten= 0%, Lag= 0.0 min
Routed to Link A : NHDOT POND

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1APC: done Runoff Area=12,232 sf 18.26% Impervious Runoff Depth>2.38"
Tc=6.0 min UI Adjusted CN=64 Runoff=0.75 cfs 2,422 cf

Subcatchment 1PC: west side yard Runoff Area=10,013 sf 0.00% Impervious Runoff Depth>2.11"
Flow Length=45' Slope=0.0300 '/' Tc=10.5 min CN=61 Runoff=0.46 cfs 1,759 cf

Subcatchment 2APC: samll portion of BHR Runoff Area=3,785 sf 31.78% Impervious Runoff Depth>3.19"
Flow Length=135' Slope=0.0050 '/' Tc=41.8 min CN=73 Runoff=0.16 cfs 1,007 cf

Subcatchment 2PC: front of bank and Runoff Area=14,246 sf 89.87% Impervious Runoff Depth>5.45"
Tc=6.0 min CN=94 Runoff=1.87 cfs 6,472 cf

Subcatchment 3.5APC: landscape area Runoff Area=2,440 sf 0.00% Impervious Runoff Depth>2.11"
Flow Length=68' Slope=0.0200 '/' Tc=11.2 min CN=61 Runoff=0.11 cfs 429 cf

Subcatchment 3APC: side yard and BHR Runoff Area=7,495 sf 66.24% Impervious Runoff Depth>4.54"
Flow Length=111' Slope=0.0100 '/' Tc=31.1 min CN=86 Runoff=0.50 cfs 2,834 cf

Subcatchment 3PC: back of bank and Runoff Area=12,737 sf 94.82% Impervious Runoff Depth>5.69"
Tc=0.0 min CN=96 Runoff=2.00 cfs 6,036 cf

Subcatchment 4APC: front landscape area Runoff Area=5,356 sf 0.00% Impervious Runoff Depth>2.11"
Tc=6.0 min CN=61 Runoff=0.29 cfs 942 cf

Subcatchment 4PC: done Runoff Area=7,069 sf 0.00% Impervious Runoff Depth>2.11"
Tc=6.0 min CN=61 Runoff=0.38 cfs 1,243 cf

Subcatchment 5APC: enterprise front Runoff Area=3,136 sf 46.49% Impervious Runoff Depth>3.72"
Tc=6.0 min CN=78 Runoff=0.31 cfs 971 cf

Subcatchment 5PC: enterprise no change Runoff Area=44,417 sf 56.84% Impervious Runoff Depth>4.11"
Flow Length=168' Tc=33.8 min CN=82 Runoff=2.62 cfs 15,211 cf

Subcatchment 6APC: manchester street Runoff Area=11,208 sf 96.77% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=1.51 cfs 5,417 cf

Subcatchment 6BPC: no change Runoff Area=9,809 sf 100.00% Impervious Runoff Depth>5.92"
Tc=6.0 min CN=98 Runoff=1.33 cfs 4,838 cf

Subcatchment 6PC: east side yard Runoff Area=17,316 sf 7.79% Impervious Runoff Depth>2.27"
Flow Length=100' Slope=0.0050 '/' Tc=26.5 min CN=63 Runoff=0.61 cfs 3,282 cf

Subcatchment 7APC: east poition of Runoff Area=5,024 sf 71.56% Impervious Runoff Depth>4.67"
Tc=6.0 min CN=87 Runoff=0.60 cfs 1,954 cf

Subcatchment 7BPC: east poition of Runoff Area=2,824 sf 98.55% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=0.38 cfs 1,365 cf

Subcatchment 7CPC: east poition of Runoff Area=6,464 sf 94.37% Impervious Runoff Depth>5.68"
Tc=6.0 min CN=96 Runoff=0.87 cfs 3,061 cf

Subcatchment 7DPC: east poition of Runoff Area=7,585 sf 60.32% Impervious Runoff Depth>4.24"
Tc=6.0 min CN=83 Runoff=0.84 cfs 2,678 cf

Subcatchment 8PC: black hill road Runoff Area=42,175 sf 42.55% Impervious Runoff Depth>3.62"
Tc=6.0 min CN=77 Runoff=4.02 cfs 12,709 cf

Subcatchment 9PC: east parking area Runoff Area=12,923 sf 97.03% Impervious Runoff Depth>5.80"
Tc=6.0 min CN=97 Runoff=1.74 cfs 6,246 cf

Subcatchment 10APC: rear drive area Runoff Area=10,218 sf 100.00% Impervious Runoff Depth>5.92"
Tc=6.0 min CN=98 Runoff=1.38 cfs 5,039 cf

Subcatchment 10PC: parking area Runoff Area=19,211 sf 84.32% Impervious Runoff Depth>5.22"
Tc=6.0 min CN=92 Runoff=2.47 cfs 8,362 cf

Subcatchment 11PC: front parking lot Runoff Area=10,689 sf 100.00% Impervious Runoff Depth>5.92"
Tc=6.0 min CN=98 Runoff=1.45 cfs 5,272 cf

Subcatchment 12APC: car wash area Runoff Area=10,862 sf 91.74% Impervious Runoff Depth>5.57"
Flow Length=220' Tc=6.0 min CN=95 Runoff=1.44 cfs 5,039 cf

Subcatchment 12PC: car wash area Runoff Area=19,922 sf 73.75% Impervious Runoff Depth>4.78"
Flow Length=150' Tc=7.8 min CN=88 Runoff=2.30 cfs 7,928 cf

Subcatchment 13APC: south side yard Runoff Area=6,450 sf 0.00% Impervious Runoff Depth>2.11"
Flow Length=145' Tc=13.4 min CN=61 Runoff=0.27 cfs 1,132 cf

Subcatchment 13PC: east side yard Runoff Area=11,994 sf 0.00% Impervious Runoff Depth>2.02"
Flow Length=325' Slope=0.0300 '/' Tc=16.0 min CN=60 Runoff=0.45 cfs 2,018 cf

Subcatchment 14PC: front landscape area Runoff Area=5,828 sf 0.00% Impervious Runoff Depth>2.11"
Flow Length=150' Tc=16.2 min CN=61 Runoff=0.23 cfs 1,022 cf

Pond 10P: forebay model Peak Elev=0.00' Storage=0 cf

Pond BR1: BR 1 Peak Elev=230.85' Storage=5,659 cf Inflow=2.26 cfs 8,231 cf
Discarded=0.05 cfs 2,938 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 2,938 cf

Pond BR2: BR 2 Peak Elev=230.56' Storage=5,048 cf Inflow=2.21 cfs 7,279 cf
Discarded=0.04 cfs 2,551 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 2,551 cf

Pond CB2: Peak Elev=228.15' Inflow=0.84 cfs 2,678 cf
15.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.84 cfs 2,678 cf

Pond cB3: Peak Elev=228.15' Inflow=1.70 cfs 5,739 cf
15.0" Round Culvert n=0.013 L=13.0' S=0.0077 '/' Outflow=1.70 cfs 5,739 cf

Pond CB4: Peak Elev=228.19' Inflow=0.98 cfs 3,319 cf
12.0" Round Culvert n=0.013 L=93.0' S=0.0040 '/' Outflow=0.98 cfs 3,319 cf

Pond CB5: Peak Elev=228.38' Inflow=0.60 cfs 1,954 cf
12.0" Round Culvert n=0.013 L=39.0' S=0.0051 '/' Outflow=0.60 cfs 1,954 cf

Pond CB6: Peak Elev=230.15' Inflow=1.38 cfs 5,039 cf
Primary=1.31 cfs 4,650 cf Secondary=0.17 cfs 389 cf Outflow=1.38 cfs 5,039 cf

Pond DCB 1: Peak Elev=230.50' Inflow=2.47 cfs 8,362 cf
15.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=2.47 cfs 8,362 cf

Pond DCB2: Peak Elev=230.29' Inflow=2.30 cfs 7,928 cf
15.0" Round Culvert n=0.013 L=20.0' S=0.0200 '/' Outflow=2.30 cfs 7,928 cf

Pond DCB3: Peak Elev=230.15' Inflow=1.63 cfs 6,171 cf
Primary=1.51 cfs 5,588 cf Secondary=0.25 cfs 583 cf Outflow=1.63 cfs 6,171 cf

Pond DMH1: Peak Elev=227.38' Inflow=3.08 cfs 16,620 cf
18.0" Round Culvert n=0.013 L=124.0' S=0.0081 '/' Outflow=3.08 cfs 16,620 cf

Pond DMH2: Peak Elev=226.33' Inflow=3.87 cfs 21,980 cf
18.0" Round Culvert n=0.013 L=36.0' S=0.0069 '/' Outflow=3.87 cfs 21,980 cf

Pond DMH88: Peak Elev=230.15' Inflow=2.47 cfs 8,362 cf
Primary=1.41 cfs 4,815 cf Secondary=1.06 cfs 3,547 cf Outflow=2.47 cfs 8,362 cf

Pond DMH89: Peak Elev=230.15' Inflow=1.06 cfs 3,547 cf
Primary=1.02 cfs 3,147 cf Secondary=0.26 cfs 401 cf Outflow=1.06 cfs 3,547 cf

Pond DMH90: Peak Elev=230.16' Inflow=2.30 cfs 7,928 cf
Primary=2.01 cfs 7,083 cf Secondary=0.39 cfs 845 cf Outflow=2.30 cfs 7,928 cf

Pond ST1: Peak Elev=230.15' Storage=10,227 cf Inflow=7.75 cfs 27,500 cf
Discarded=0.28 cfs 16,561 cf Primary=1.81 cfs 10,148 cf Outflow=2.09 cfs 26,709 cf

Pond ST2: Peak Elev=228.89' Storage=4,150 cf Inflow=3.19 cfs 11,518 cf
Discarded=0.05 cfs 3,424 cf Primary=1.38 cfs 6,472 cf Outflow=1.43 cfs 9,896 cf

Pond ST3: Peak Elev=228.14' Storage=3,667 cf Inflow=2.68 cfs 9,058 cf
Discarded=0.04 cfs 2,322 cf Primary=0.78 cfs 5,360 cf Outflow=0.82 cfs 7,682 cf

Link A: NHDOT POND Inflow=2.28 cfs 11,021 cf
Primary=2.28 cfs 11,021 cf

Link B: NHDOT Easement Inflow=8.34 cfs 51,352 cf
Primary=8.34 cfs 51,352 cf

Link C: Southern Woods Inflow=4.02 cfs 12,709 cf
Primary=4.02 cfs 12,709 cf

Link f1: via Manch Drainage Inflow=2.01 cfs 7,180 cf
Primary=2.01 cfs 7,180 cf

Link f2: via BHR Drainage Inflow=0.64 cfs 3,842 cf
Primary=0.64 cfs 3,842 cf

Total Runoff Area = 333,428 sf Runoff Volume = 116,690 cf Average Runoff Depth = 4.20"
42.63% Pervious = 142,136 sf 57.37% Impervious = 191,292 sf

Summary for Subcatchment 1APC: done

Runoff = 0.75 cfs @ 12.10 hrs, Volume= 2,422 cf, Depth> 2.38"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Adj	Description
2,233	98		Unconnected pavement, HSG B
9,999	61		>75% Grass cover, Good, HSG B
12,232	68	64	Weighted Average, UI Adjusted
9,999			81.74% Pervious Area
2,233			18.26% Impervious Area
2,233			100.00% Unconnected

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

Summary for Subcatchment 1PC: west side yard

Runoff = 0.46 cfs @ 12.16 hrs, Volume= 1,759 cf, Depth> 2.11"
Routed to Pond BR1 : BR 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
10,013	61	>75% Grass cover, Good, HSG B
10,013		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	45	0.0300	0.07		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"

Summary for Subcatchment 2APC: samll portion of BHR

Runoff = 0.16 cfs @ 12.59 hrs, Volume= 1,007 cf, Depth> 3.19"
Routed to Link f2 : via BHR Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
1,203	98	Paved parking, HSG B
2,582	61	>75% Grass cover, Good, HSG B
3,785	73	Weighted Average
2,582		68.22% Pervious Area
1,203		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.6	100	0.0050	0.04		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
1.2	35	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
41.8	135	Total			

Summary for Subcatchment 2PC: front of bank and parking

Runoff = 1.87 cfs @ 12.09 hrs, Volume= 6,472 cf, Depth> 5.45"
Routed to Pond BR1 : BR 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
10,524	98	Paved parking, HSG B
1,784	98	Roofs, HSG B
495	98	Unconnected pavement, HSG B
1,443	61	>75% Grass cover, Good, HSG B
14,246	94	Weighted Average
1,443		10.13% Pervious Area
12,803		89.87% Impervious Area
495		3.87% Unconnected

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

Summary for Subcatchment 3.5APC: landscape area

Runoff = 0.11 cfs @ 12.17 hrs, Volume= 429 cf, Depth> 2.11"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
2,440	61	>75% Grass cover, Good, HSG B
2,440		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	68	0.0200	0.10		**Sheet Flow, gras** Grass: Dense n= 0.240 P2= 2.82"

Summary for Subcatchment 3APC: side yard and BHR

Runoff = 0.50 cfs @ 12.42 hrs, Volume= 2,834 cf, Depth> 4.54"
Routed to Link f2 : via BHR Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
4,965	98	Paved parking, HSG B
2,530	61	>75% Grass cover, Good, HSG B
7,495	86	Weighted Average
2,530		33.76% Pervious Area
4,965		66.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.8	100	0.0100	0.05		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
0.3	11	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
31.1	111	Total			

Summary for Subcatchment 3PC: back of bank and drive thru

Runoff = 2.00 cfs @ 12.00 hrs, Volume= 6,036 cf, Depth> 5.69"
Routed to Pond BR2 : BR 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
9,256	98	Paved parking, HSG B
2,821	98	Roofs, HSG B
660	61	>75% Grass cover, Good, HSG B
12,737	96	Weighted Average
660		5.18% Pervious Area
12,077		94.82% Impervious Area

Summary for Subcatchment 4APC: front landscape area

Runoff = 0.29 cfs @ 12.10 hrs, Volume= 942 cf, Depth> 2.11"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
5,356	61	>75% Grass cover, Good, HSG B
5,356		100.00% Pervious Area

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

Summary for Subcatchment 4PC: done

Runoff = 0.38 cfs @ 12.10 hrs, Volume= 1,243 cf, Depth> 2.11"
Routed to Pond BR2 : BR 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
7,069	61	>75% Grass cover, Good, HSG B
7,069		100.00% Pervious Area

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

Summary for Subcatchment 5APC: enterprise front entrance

Runoff = 0.31 cfs @ 12.09 hrs, Volume= 971 cf, Depth> 3.72"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
1,458	98	Paved parking, HSG B
1,678	61	>75% Grass cover, Good, HSG B
3,136	78	Weighted Average
1,678		53.51% Pervious Area
1,458		46.49% Impervious Area

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

Summary for Subcatchment 5PC: enterprise no change

Runoff = 2.62 cfs @ 12.46 hrs, Volume= 15,211 cf, Depth> 4.11"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
23,787	98	Paved parking, HSG B
1,545	55	Woods, Good, HSG B
1,460	98	Roofs, HSG B
17,625	61	>75% Grass cover, Good, HSG B
44,417	82	Weighted Average
19,170		43.16% Pervious Area
25,247		56.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2	100	0.0100	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.82"
3.6	68	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
33.8	168	Total			

Summary for Subcatchment 6APC: manchester street

Runoff = 1.51 cfs @ 12.09 hrs, Volume= 5,417 cf, Depth> 5.80"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
10,846	98	Paved parking, HSG B
362	61	>75% Grass cover, Good, HSG B
11,208	97	Weighted Average
362		3.23% Pervious Area
10,846		96.77% Impervious Area

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

Summary for Subcatchment 6BPC: no change

Runoff = 1.33 cfs @ 12.09 hrs, Volume= 4,838 cf, Depth> 5.92"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
9,809	98	Paved parking, HSG B
9,809		100.00% Impervious Area

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

Summary for Subcatchment 6PC: east side yard

Runoff = 0.61 cfs @ 12.39 hrs, Volume= 3,282 cf, Depth> 2.27"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
14,825	61	>75% Grass cover, Good, HSG B
1,349	98	Paved parking, HSG B
1,142	55	Woods, Good, HSG B
17,316	63	Weighted Average
15,967		92.21% Pervious Area
1,349		7.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.5	100	0.0050	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"

Summary for Subcatchment 7APC: east poition of parking area

Runoff = 0.60 cfs @ 12.09 hrs, Volume= 1,954 cf, Depth> 4.67"
Routed to Pond CB5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
1,429	61	>75% Grass cover, Good, HSG B
3,595	98	Paved parking, HSG B
5,024	87	Weighted Average
1,429		28.44% Pervious Area
3,595		71.56% Impervious Area

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

Summary for Subcatchment 7BPC: east poition of parking area

Runoff = 0.38 cfs @ 12.09 hrs, Volume= 1,365 cf, Depth> 5.80"
Routed to Pond CB4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
41	61	>75% Grass cover, Good, HSG B
2,783	98	Paved parking, HSG B
2,824	97	Weighted Average
41		1.45% Pervious Area
2,783		98.55% Impervious Area

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

Summary for Subcatchment 7CPC: east poition of parking area

Runoff = 0.87 cfs @ 12.09 hrs, Volume= 3,061 cf, Depth> 5.68"
Routed to Pond cB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
364	61	>75% Grass cover, Good, HSG B
0	98	Roofs, HSG B
6,100	98	Paved parking, HSG B
6,464	96	Weighted Average
364		5.63% Pervious Area
6,100		94.37% Impervious Area

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

Summary for Subcatchment 7DPC: east poition of parking area

Runoff = 0.84 cfs @ 12.09 hrs, Volume= 2,678 cf, Depth> 4.24"
Routed to Pond CB2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
3,010	61	>75% Grass cover, Good, HSG B
4,575	98	Paved parking, HSG B
7,585	83	Weighted Average
3,010		39.68% Pervious Area
4,575		60.32% Impervious Area

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

Summary for Subcatchment 8PC: black hill road

Runoff = 4.02 cfs @ 12.09 hrs, Volume= 12,709 cf, Depth> 3.62"
Routed to Link C : Southern Woods

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
24,228	61	>75% Grass cover, Good, HSG B
17,947	98	Paved parking, HSG B
42,175	77	Weighted Average
24,228		57.45% Pervious Area
17,947		42.55% Impervious Area

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

Summary for Subcatchment 9PC: east parking area

Runoff = 1.74 cfs @ 12.09 hrs, Volume= 6,246 cf, Depth> 5.80"
Routed to Pond ST2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
384	61	>75% Grass cover, Good, HSG B
1,452	98	Roofs, HSG B
11,087	98	Paved parking, HSG B
12,923	97	Weighted Average
384		2.97% Pervious Area
12,539		97.03% Impervious Area

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

Summary for Subcatchment 10APC: rear drive area and roof

Runoff = 1.38 cfs @ 12.09 hrs, Volume= 5,039 cf, Depth> 5.92"
Routed to Pond CB6 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
6,369	98	Paved parking, HSG B
3,849	98	Roofs, HSG B
0	61	>75% Grass cover, Good, HSG B
10,218	98	Weighted Average
10,218		100.00% Impervious Area

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

Summary for Subcatchment 10PC: parking area

Runoff = 2.47 cfs @ 12.09 hrs, Volume= 8,362 cf, Depth> 5.22"
Routed to Pond DCB 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
14,808	98	Paved parking, HSG B
1,391	98	Roofs, HSG B
3,012	61	>75% Grass cover, Good, HSG B
19,211	92	Weighted Average
3,012		15.68% Pervious Area
16,199		84.32% Impervious Area

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

Summary for Subcatchment 11PC: front parking lot

Runoff = 1.45 cfs @ 12.09 hrs, Volume= 5,272 cf, Depth> 5.92"
Routed to Pond ST2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
8,331	98	Paved parking, HSG B
2,358	98	Roofs, HSG B
10,689	98	Weighted Average
10,689		100.00% Impervious Area

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

Summary for Subcatchment 12APC: car wash area

Runoff = 1.44 cfs @ 12.09 hrs, Volume= 5,039 cf, Depth> 5.57"
Routed to Pond DCB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
9,965	98	Paved parking, HSG B
897	61	>75% Grass cover, Good, HSG B
10,862	95	Weighted Average
897		8.26% Pervious Area
9,965		91.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0300	1.32		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.82"
1.1	170	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.7	220	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 12PC: car wash area

Runoff = 2.30 cfs @ 12.11 hrs, Volume= 7,928 cf, Depth> 4.78"
Routed to Pond DCB2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
5,230	61	>75% Grass cover, Good, HSG B
3,254	98	Roofs, HSG B
11,438	98	Paved parking, HSG B
19,922	88	Weighted Average
5,230		26.25% Pervious Area
14,692		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	40	0.0200	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
0.5	110	0.0400	4.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
7.8	150	Total			

Summary for Subcatchment 13APC: south side yard

Runoff = 0.27 cfs @ 12.20 hrs, Volume= 1,132 cf, Depth> 2.11"
Routed to Pond DCB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
6,450	61	>75% Grass cover, Good, HSG B
0	98	Paved parking, HSG B
6,450	61	Weighted Average
6,450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0300	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
0.5	45	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.4	145	Total			

Summary for Subcatchment 13PC: east side yard

Runoff = 0.45 cfs @ 12.24 hrs, Volume= 2,018 cf, Depth> 2.02"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
9,562	61	>75% Grass cover, Good, HSG B
2,432	55	Woods, Good, HSG B
11,994	60	Weighted Average
11,994		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0300	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
3.1	225	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.0	325	Total			

Summary for Subcatchment 14PC: front landscape area

Runoff = 0.23 cfs @ 12.24 hrs, Volume= 1,022 cf, Depth> 2.11"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.16"

Area (sf)	CN	Description
5,828	61	>75% Grass cover, Good, HSG B
5,828		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0200	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
1.0	50	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.2	150	Total			

Summary for Pond 10P: forebay model

Volume	Invert	Avail.Storage	Storage Description
#1	229.50'	313 cf	**1.00'W x 5.00'L x 2.50'H Prismatoid Z=3.0**

Summary for Pond BR1: BR 1

Inflow Area = 24,259 sf, 52.78% Impervious, Inflow Depth > 4.07" for 50-YR event
Inflow = 2.26 cfs @ 12.10 hrs, Volume= 8,231 cf
Outflow = 0.05 cfs @ 17.69 hrs, Volume= 2,938 cf, Atten= 98%, Lag= 335.5 min
Discarded = 0.05 cfs @ 17.69 hrs, Volume= 2,938 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link A : NHDOT POND

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.85' @ 17.69 hrs Surf.Area= 3,285 sf Storage= 5,659 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 161.5 min (949.0 - 787.5)

Volume	Invert	Avail.Storage	Storage Description
#1	228.50'	9,971 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.50	1,576	0	0
229.00	1,913	872	872
230.00	2,628	2,271	3,143
231.00	3,400	3,014	6,157
232.00	4,229	3,815	9,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.50'	**0.700 in/hr Exfiltration over Surface area**
#2	Primary	231.67'	**15.0' long + 20.0 '/' SideZ x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.05 cfs @ 17.69 hrs HW=230.85' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.50' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond BR2: BR 2

Inflow Area = 19,806 sf, 60.98% Impervious, Inflow Depth > 4.41" for 50-YR event
Inflow = 2.21 cfs @ 12.01 hrs, Volume= 7,279 cf
Outflow = 0.04 cfs @ 17.58 hrs, Volume= 2,551 cf, Atten= 98%, Lag= 334.7 min
Discarded = 0.04 cfs @ 17.58 hrs, Volume= 2,551 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link B : NHDOT Easement

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.56' @ 17.58 hrs Surf.Area= 2,764 sf Storage= 5,048 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 157.0 min (927.2 - 770.2)

Volume	Invert	Avail.Storage	Storage Description
#1	228.00'	9,749 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.00	1,241	0	0
229.00	1,790	1,516	1,516
230.00	2,395	2,093	3,608
231.00	3,056	2,726	6,334
232.00	3,774	3,415	9,749

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.00'	**0.700 in/hr Exfiltration over Surface area**
#2	Primary	231.67'	**15.0' long + 20.0 '/' SideZ x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.04 cfs @ 17.58 hrs HW=230.56' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond CB2:

Inflow Area = 7,585 sf, 60.32% Impervious, Inflow Depth > 4.24" for 50-YR event
Inflow = 0.84 cfs @ 12.09 hrs, Volume= 2,678 cf
Outflow = 0.84 cfs @ 12.09 hrs, Volume= 2,678 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 12.09 hrs, Volume= 2,678 cf
Routed to Pond cB3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.15' @ 12.48 hrs
Flood Elev= 231.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.45'	**15.0" Round Culvert** L= 28.0' Ke= 0.500
			Inlet / Outlet Invert= 227.45' / 227.30' S= 0.0054 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.67 cfs @ 12.09 hrs HW=228.05' TW=227.94' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.67 cfs @ 1.70 fps)

Summary for Pond cB3:

Inflow Area = 14,049 sf, 75.98% Impervious, Inflow Depth > 4.90" for 50-YR event
Inflow = 1.70 cfs @ 12.09 hrs, Volume= 5,739 cf
Outflow = 1.70 cfs @ 12.09 hrs, Volume= 5,739 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.70 cfs @ 12.09 hrs, Volume= 5,739 cf
Routed to Pond ST3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.15' @ 12.44 hrs
Flood Elev= 231.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.20'	**15.0" Round Culvert** L= 13.0' Ke= 0.500 Inlet / Outlet Invert= 227.20' / 227.10' S= 0.0077 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.36 cfs @ 12.09 hrs HW=227.94' TW=227.75' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.36 cfs @ 2.59 fps)

Summary for Pond CB4:

Inflow Area = 7,848 sf, 81.27% Impervious, Inflow Depth > 5.07" for 50-YR event
Inflow = 0.98 cfs @ 12.09 hrs, Volume= 3,319 cf
Outflow = 0.98 cfs @ 12.09 hrs, Volume= 3,319 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.98 cfs @ 12.09 hrs, Volume= 3,319 cf
Routed to Pond ST3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.19' @ 12.10 hrs
Flood Elev= 231.12'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.57'	**12.0" Round Culvert** L= 93.0' Ke= 0.500 Inlet / Outlet Invert= 227.57' / 227.20' S= 0.0040 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.87 cfs @ 12.09 hrs HW=228.18' TW=227.75' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.87 cfs @ 2.47 fps)

Summary for Pond CB5:

Inflow Area = 5,024 sf, 71.56% Impervious, Inflow Depth > 4.67" for 50-YR event
Inflow = 0.60 cfs @ 12.09 hrs, Volume= 1,954 cf
Outflow = 0.60 cfs @ 12.09 hrs, Volume= 1,954 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.60 cfs @ 12.09 hrs, Volume= 1,954 cf
Routed to Pond CB4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 228.38' @ 12.11 hrs
Flood Elev= 231.66'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.86'	**12.0" Round Culvert** L= 39.0' Ke= 0.500 Inlet / Outlet Invert= 227.86' / 227.66' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.53 cfs @ 12.09 hrs HW=228.36' TW=228.19' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.53 cfs @ 1.93 fps)

Summary for Pond CB6:

Inflow Area = 10,218 sf,100.00% Impervious, Inflow Depth > 5.92" for 50-YR event
Inflow = 1.38 cfs @ 12.09 hrs, Volume= 5,039 cf
Outflow = 1.38 cfs @ 12.09 hrs, Volume= 5,039 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.31 cfs @ 12.08 hrs, Volume= 4,650 cf
Routed to Pond ST1 :
Secondary = 0.17 cfs @ 12.24 hrs, Volume= 389 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.15' @ 12.52 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.84 cfs @ 12.08 hrs HW=229.69' TW=229.57' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.84 cfs @ 2.06 fps)

Secondary OutFlow Max=0.00 cfs @ 12.24 hrs HW=229.91' TW=229.98' (Dynamic Tailwater)
↑—**2=Culvert** (Controls 0.00 cfs)

Summary for Pond DCB 1:

Inflow Area = 19,211 sf, 84.32% Impervious, Inflow Depth > 5.22" for 50-YR event
Inflow = 2.47 cfs @ 12.09 hrs, Volume= 8,362 cf
Outflow = 2.47 cfs @ 12.09 hrs, Volume= 8,362 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.47 cfs @ 12.09 hrs, Volume= 8,362 cf
Routed to Pond DMH88 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.50' @ 12.09 hrs
Flood Elev= 233.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.65'	**15.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 229.65' / 229.34' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.41 cfs @ 12.09 hrs HW=230.49' TW=229.72' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 2.41 cfs @ 3.88 fps)

Summary for Pond DCB2:

Inflow Area = 19,922 sf, 73.75% Impervious, Inflow Depth > 4.78" for 50-YR event
Inflow = 2.30 cfs @ 12.11 hrs, Volume= 7,928 cf
Outflow = 2.30 cfs @ 12.11 hrs, Volume= 7,928 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.30 cfs @ 12.11 hrs, Volume= 7,928 cf
Routed to Pond DMH90 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.29' @ 12.13 hrs
Flood Elev= 233.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.50'	**15.0" Round Culvert** L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.10' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.07 cfs @ 12.11 hrs HW=230.28' TW=229.86' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 2.07 cfs @ 3.67 fps)

Summary for Pond DCB3:

Inflow Area = 17,312 sf, 57.56% Impervious, Inflow Depth > 4.28" for 50-YR event
Inflow = 1.63 cfs @ 12.09 hrs, Volume= 6,171 cf
Outflow = 1.63 cfs @ 12.09 hrs, Volume= 6,171 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.51 cfs @ 12.09 hrs, Volume= 5,588 cf
Routed to Pond ST1 :
Secondary = 0.25 cfs @ 12.20 hrs, Volume= 583 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.15' @ 12.52 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.03 cfs @ 12.09 hrs HW=229.73' TW=229.59' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.03 cfs @ 2.31 fps)

Secondary OutFlow Max=0.00 cfs @ 12.20 hrs HW=229.86' TW=229.91' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond DMH1:

Inflow Area = 90,275 sf, 82.31% Impervious, Inflow Depth = 2.21" for 50-YR event
Inflow = 3.08 cfs @ 12.40 hrs, Volume= 16,620 cf
Outflow = 3.08 cfs @ 12.40 hrs, Volume= 16,620 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.08 cfs @ 12.40 hrs, Volume= 16,620 cf
Routed to Pond DMH2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.38' @ 12.41 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	226.50'	**18.0" Round Culvert** L= 124.0' Ke= 0.500 Inlet / Outlet Invert= 226.50' / 225.50' S= 0.0081 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.08 cfs @ 12.40 hrs HW=227.38' TW=226.33' (Dynamic Tailwater)
1=Culvert (Outlet Controls 3.08 cfs @ 4.10 fps)

Summary for Pond DMH2:

Inflow Area = 112,172 sf, 81.44% Impervious, Inflow Depth > 2.35" for 50-YR event
Inflow = 3.87 cfs @ 12.40 hrs, Volume= 21,980 cf
Outflow = 3.87 cfs @ 12.40 hrs, Volume= 21,980 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.87 cfs @ 12.40 hrs, Volume= 21,980 cf
Routed to Link B : NHDOT Easement

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 226.33' @ 12.40 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	225.25'	**18.0" Round Culvert** L= 36.0' Ke= 0.500 Inlet / Outlet Invert= 225.25' / 225.00' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.87 cfs @ 12.40 hrs HW=226.33' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 3.87 cfs @ 3.98 fps)

Summary for Pond DMH88:

Inflow Area = 19,211 sf, 84.32% Impervious, Inflow Depth > 5.22" for 50-YR event
Inflow = 2.47 cfs @ 12.09 hrs, Volume= 8,362 cf
Outflow = 2.47 cfs @ 12.09 hrs, Volume= 8,362 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.41 cfs @ 12.08 hrs, Volume= 4,815 cf
Routed to Pond ST1 :
Secondary = 1.06 cfs @ 12.10 hrs, Volume= 3,547 cf
Routed to Pond DMH89 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.15' @ 12.53 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.00'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 229.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.94 cfs @ 12.08 hrs HW=229.71' TW=229.58' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.94 cfs @ 2.21 fps)

Secondary OutFlow Max=0.73 cfs @ 12.10 hrs HW=229.73' TW=229.66' (Dynamic Tailwater)
↑—**2=Culvert** (Outlet Controls 0.73 cfs @ 1.66 fps)

Summary for Pond DMH89:

Inflow = 1.06 cfs @ 12.10 hrs, Volume= 3,547 cf
Outflow = 1.06 cfs @ 12.10 hrs, Volume= 3,547 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.02 cfs @ 12.09 hrs, Volume= 3,147 cf
Routed to Pond ST1 :
Secondary = 0.26 cfs @ 12.30 hrs, Volume= 401 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.15' @ 12.51 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.46 cfs @ 12.09 hrs HW=229.64' TW=229.60' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.46 cfs @ 1.23 fps)

Secondary OutFlow Max=0.00 cfs @ 12.30 hrs HW=230.02' TW=230.06' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond DMH90:

Inflow Area = 19,922 sf, 73.75% Impervious, Inflow Depth > 4.78" for 50-YR event
Inflow = 2.30 cfs @ 12.11 hrs, Volume= 7,928 cf
Outflow = 2.30 cfs @ 12.11 hrs, Volume= 7,928 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.01 cfs @ 12.10 hrs, Volume= 7,083 cf
Routed to Pond ST1 :
Secondary = 0.39 cfs @ 12.21 hrs, Volume= 845 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.16' @ 12.51 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.53 cfs @ 12.10 hrs HW=229.86' TW=229.64' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.53 cfs @ 2.86 fps)

Secondary OutFlow Max=0.01 cfs @ 12.21 hrs HW=229.93' TW=229.93' (Dynamic Tailwater)
2=Culvert (Outlet Controls 0.01 cfs @ 0.06 fps)

Summary for Pond ST1:

Inflow Area = 66,663 sf, 76.62% Impervious, Inflow Depth > 4.95" for 50-YR event
Inflow = 7.75 cfs @ 12.09 hrs, Volume= 27,500 cf
Outflow = 2.09 cfs @ 12.47 hrs, Volume= 26,709 cf, Atten= 73%, Lag= 22.6 min
Discarded = 0.28 cfs @ 10.35 hrs, Volume= 16,561 cf
Primary = 1.81 cfs @ 12.47 hrs, Volume= 10,148 cf
Routed to Pond DMH1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.15' @ 12.47 hrs Surf.Area= 10,126 sf Storage= 10,227 cf

Plug-Flow detention time= 131.3 min calculated for 26,709 cf (97% of inflow)
Center-of-Mass det. time= 113.9 min (889.7 - 775.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	228.50'	7,045 cf	**58.17'W x 174.08'L x 2.33'H Field A** 23,627 cf Overall - 6,015 cf Embedded = 17,612 cf x 40.0% Voids
#2A	229.00'	6,015 cf	**ADS_StormTech SC-310 +Cap** x 408 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 408 Chambers in 17 Rows
		13,059 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.50'	**1.200 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'
#2	Primary	229.26'	**10.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.26' / 228.50' S= 0.0760 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.28 cfs @ 10.35 hrs HW=228.62' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=1.80 cfs @ 12.47 hrs HW=230.15' TW=227.38' (Dynamic Tailwater)
↑—**2=Culvert** (Inlet Controls 1.80 cfs @ 3.31 fps)

Summary for Pond ST2:

Inflow Area = 23,612 sf, 98.37% Impervious, Inflow Depth > 5.85" for 50-YR event
Inflow = 3.19 cfs @ 12.09 hrs, Volume= 11,518 cf
Outflow = 1.43 cfs @ 12.27 hrs, Volume= 9,896 cf, Atten= 55%, Lag= 10.9 min
Discarded = 0.05 cfs @ 12.27 hrs, Volume= 3,424 cf
Primary = 1.38 cfs @ 12.27 hrs, Volume= 6,472 cf
Routed to Pond DMH1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.89' @ 12.27 hrs Surf.Area= 3,938 sf Storage= 4,150 cf

Plug-Flow detention time= 129.5 min calculated for 9,896 cf (86% of inflow)
Center-of-Mass det. time= 67.1 min (815.2 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	227.10'	2,791 cf	**101.50'W x 38.80'L x 2.33'H Field A** 9,189 cf Overall - 2,211 cf Embedded = 6,978 cf x 40.0% Voids
#2A	227.60'	2,211 cf	**ADS_StormTech SC-310 +Cap** x 150 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 150 Chambers in 30 Rows
		5,002 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	227.10'	**0.500 in/hr Exfiltration over Wetted area** Phase-In= 0.10'
#2	Primary	227.89'	**8.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 227.89' / 227.00' S= 0.0890 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.05 cfs @ 12.27 hrs HW=228.89' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=1.37 cfs @ 12.27 hrs HW=228.89' TW=227.34' (Dynamic Tailwater)
└**2=Culvert** (Inlet Controls 1.37 cfs @ 3.93 fps)

Summary for Pond ST3:

Inflow Area = 21,897 sf, 77.88% Impervious, Inflow Depth > 4.96" for 50-YR event
Inflow = 2.68 cfs @ 12.09 hrs, Volume= 9,058 cf
Outflow = 0.82 cfs @ 12.41 hrs, Volume= 7,682 cf, Atten= 69%, Lag= 19.2 min
Discarded = 0.04 cfs @ 12.41 hrs, Volume= 2,322 cf
Primary = 0.78 cfs @ 12.41 hrs, Volume= 5,360 cf
Routed to Pond DMH2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.14' @ 12.41 hrs Surf.Area= 3,700 sf Storage= 3,667 cf

Plug-Flow detention time= 136.8 min calculated for 7,682 cf (85% of inflow)
Center-of-Mass det. time= 72.1 min (850.3 - 778.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	226.50'	2,604 cf	**28.17'W x 131.36'L x 2.33'H Field A** 8,633 cf Overall - 2,123 cf Embedded = 6,510 cf x 40.0% Voids
#2A	227.00'	2,123 cf	**ADS_StormTech SC-310 +Cap** x 144 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 144 Chambers in 8 Rows
		4,727 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	226.50'	**0.400 in/hr Exfiltration over Wetted area** Phase-In= 0.10'
#2	Primary	227.20'	**6.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 227.20' / 226.00' S= 0.1200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.04 cfs @ 12.41 hrs HW=228.13' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.78 cfs @ 12.41 hrs HW=228.13' TW=226.33' (Dynamic Tailwater)
└**2=Culvert** (Inlet Controls 0.78 cfs @ 3.98 fps)

Summary for Link A: NHDOT POND

Inflow Area = 56,280 sf, 53.73% Impervious, Inflow Depth > 2.35" for 50-YR event
Inflow = 2.28 cfs @ 12.10 hrs, Volume= 11,021 cf
Primary = 2.28 cfs @ 12.10 hrs, Volume= 11,021 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link B: NHDOT Easement

Inflow Area = 234,973 sf, 60.90% Impervious, Inflow Depth > 2.62" for 50-YR event
Inflow = 8.34 cfs @ 12.38 hrs, Volume= 51,352 cf
Primary = 8.34 cfs @ 12.38 hrs, Volume= 51,352 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link C: Southern Woods

Inflow Area = 42,175 sf, 42.55% Impervious, Inflow Depth > 3.62" for 50-YR event
Inflow = 4.02 cfs @ 12.09 hrs, Volume= 12,709 cf
Primary = 4.02 cfs @ 12.09 hrs, Volume= 12,709 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link f1: via Manch Drainage

Inflow Area = 20,741 sf, 54.32% Impervious, Inflow Depth > 4.15" for 50-YR event
Inflow = 2.01 cfs @ 12.09 hrs, Volume= 7,180 cf
Primary = 2.01 cfs @ 12.09 hrs, Volume= 7,180 cf, Atten= 0%, Lag= 0.0 min
Routed to Link A : NHDOT POND

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link f2: via BHR Drainage

Inflow Area = 11,280 sf, 54.68% Impervious, Inflow Depth > 4.09" for 50-YR event
Inflow = 0.64 cfs @ 12.45 hrs, Volume= 3,842 cf
Primary = 0.64 cfs @ 12.45 hrs, Volume= 3,842 cf, Atten= 0%, Lag= 0.0 min
Routed to Link A : NHDOT POND

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1APC: done Runoff Area=12,232 sf 18.26% Impervious Runoff Depth>3.24"
Tc=6.0 min UI Adjusted CN=64 Runoff=1.04 cfs 3,298 cf

Subcatchment 1PC: west side yard Runoff Area=10,013 sf 0.00% Impervious Runoff Depth>2.92"
Flow Length=45' Slope=0.0300 '/' Tc=10.5 min CN=61 Runoff=0.66 cfs 2,438 cf

Subcatchment 2APC: samll portion of BHR Runoff Area=3,785 sf 31.78% Impervious Runoff Depth>4.17"
Flow Length=135' Slope=0.0050 '/' Tc=41.8 min CN=73 Runoff=0.21 cfs 1,315 cf

Subcatchment 2PC: front of bank and Runoff Area=14,246 sf 89.87% Impervious Runoff Depth>6.59"
Tc=6.0 min CN=94 Runoff=2.24 cfs 7,826 cf

Subcatchment 3.5APC: landscape area Runoff Area=2,440 sf 0.00% Impervious Runoff Depth>2.92"
Flow Length=68' Slope=0.0200 '/' Tc=11.2 min CN=61 Runoff=0.16 cfs 594 cf

Subcatchment 3APC: side yard and BHR Runoff Area=7,495 sf 66.24% Impervious Runoff Depth>5.64"
Flow Length=111' Slope=0.0100 '/' Tc=31.1 min CN=86 Runoff=0.62 cfs 3,520 cf

Subcatchment 3PC: back of bank and Runoff Area=12,737 sf 94.82% Impervious Runoff Depth>6.83"
Tc=0.0 min CN=96 Runoff=2.38 cfs 7,252 cf

Subcatchment 4APC: front landscape area Runoff Area=5,356 sf 0.00% Impervious Runoff Depth>2.92"
Tc=6.0 min CN=61 Runoff=0.41 cfs 1,305 cf

Subcatchment 4PC: done Runoff Area=7,069 sf 0.00% Impervious Runoff Depth>2.92"
Tc=6.0 min CN=61 Runoff=0.54 cfs 1,723 cf

Subcatchment 5APC: enterprise front Runoff Area=3,136 sf 46.49% Impervious Runoff Depth>4.75"
Tc=6.0 min CN=78 Runoff=0.39 cfs 1,242 cf

Subcatchment 5PC: enterprise no change Runoff Area=44,417 sf 56.84% Impervious Runoff Depth>5.18"
Flow Length=168' Tc=33.8 min CN=82 Runoff=3.28 cfs 19,162 cf

Subcatchment 6APC: manchester street Runoff Area=11,208 sf 96.77% Impervious Runoff Depth>6.95"
Tc=6.0 min CN=97 Runoff=1.80 cfs 6,489 cf

Subcatchment 6BPC: no change Runoff Area=9,809 sf 100.00% Impervious Runoff Depth>7.07"
Tc=6.0 min CN=98 Runoff=1.58 cfs 5,776 cf

Subcatchment 6PC: east side yard Runoff Area=17,316 sf 7.79% Impervious Runoff Depth>3.12"
Flow Length=100' Slope=0.0050 '/' Tc=26.5 min CN=63 Runoff=0.86 cfs 4,496 cf

Subcatchment 7APC: east poition of Runoff Area=5,024 sf 71.56% Impervious Runoff Depth>5.78"
Tc=6.0 min CN=87 Runoff=0.73 cfs 2,418 cf

Subcatchment 7BPC: east poition of Runoff Area=2,824 sf 98.55% Impervious Runoff Depth>6.95"
Tc=6.0 min CN=97 Runoff=0.45 cfs 1,635 cf

Subcatchment 7CPC: east poition of Runoff Area=6,464 sf 94.37% Impervious Runoff Depth>6.83"
Tc=6.0 min CN=96 Runoff=1.03 cfs 3,678 cf

Subcatchment 7DPC: east poition of Runoff Area=7,585 sf 60.32% Impervious Runoff Depth>5.32"
Tc=6.0 min CN=83 Runoff=1.04 cfs 3,361 cf

Subcatchment 8PC: black hill road Runoff Area=42,175 sf 42.55% Impervious Runoff Depth>4.64"
Tc=6.0 min CN=77 Runoff=5.14 cfs 16,313 cf

Subcatchment 9PC: east parking area Runoff Area=12,923 sf 97.03% Impervious Runoff Depth>6.95"
Tc=6.0 min CN=97 Runoff=2.07 cfs 7,482 cf

Subcatchment 10APC: rear drive area Runoff Area=10,218 sf 100.00% Impervious Runoff Depth>7.07"
Tc=6.0 min CN=98 Runoff=1.64 cfs 6,017 cf

Subcatchment 10PC: parking area Runoff Area=19,211 sf 84.32% Impervious Runoff Depth>6.36"
Tc=6.0 min CN=92 Runoff=2.97 cfs 10,177 cf

Subcatchment 11PC: front parking lot Runoff Area=10,689 sf 100.00% Impervious Runoff Depth>7.07"
Tc=6.0 min CN=98 Runoff=1.72 cfs 6,294 cf

Subcatchment 12APC: car wash area Runoff Area=10,862 sf 91.74% Impervious Runoff Depth>6.71"
Flow Length=220' Tc=6.0 min CN=95 Runoff=1.72 cfs 6,074 cf

Subcatchment 12PC: car wash area Runoff Area=19,922 sf 73.75% Impervious Runoff Depth>5.89"
Flow Length=150' Tc=7.8 min CN=88 Runoff=2.80 cfs 9,777 cf

Subcatchment 13APC: south side yard Runoff Area=6,450 sf 0.00% Impervious Runoff Depth>2.92"
Flow Length=145' Tc=13.4 min CN=61 Runoff=0.39 cfs 1,569 cf

Subcatchment 13PC: east side yard Runoff Area=11,994 sf 0.00% Impervious Runoff Depth>2.82"
Flow Length=325' Slope=0.0300 '/' Tc=16.0 min CN=60 Runoff=0.65 cfs 2,814 cf

Subcatchment 14PC: front landscape area Runoff Area=5,828 sf 0.00% Impervious Runoff Depth>2.92"
Flow Length=150' Tc=16.2 min CN=61 Runoff=0.33 cfs 1,417 cf

Pond 10P: forebay model Peak Elev=0.00' Storage=0 cf

Pond BR1: BR 1 Peak Elev=231.33' Storage=7,308 cf Inflow=2.80 cfs 10,263 cf
Discarded=0.06 cfs 3,284 cf Primary=0.00 cfs 0 cf Outflow=0.06 cfs 3,284 cf

Pond BR2: BR 2 Peak Elev=231.03' Storage=6,430 cf Inflow=2.69 cfs 8,975 cf
Discarded=0.05 cfs 2,835 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 2,835 cf

Pond CB2: Peak Elev=228.60' Inflow=1.04 cfs 3,361 cf
15.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=1.04 cfs 3,361 cf

Pond cB3: Peak Elev=228.60' Inflow=2.07 cfs 7,039 cf
15.0" Round Culvert n=0.013 L=13.0' S=0.0077 '/' Outflow=2.07 cfs 7,039 cf

Pond CB4: Peak Elev=228.60' Inflow=1.19 cfs 4,053 cf
12.0" Round Culvert n=0.013 L=93.0' S=0.0040 '/' Outflow=1.19 cfs 4,053 cf

Pond CB5: Peak Elev=228.61' Inflow=0.73 cfs 2,418 cf
12.0" Round Culvert n=0.013 L=39.0' S=0.0051 '/' Outflow=0.73 cfs 2,418 cf

Pond CB6: Peak Elev=230.63' Inflow=1.64 cfs 6,017 cf
Primary=1.39 cfs 5,240 cf Secondary=0.37 cfs 777 cf Outflow=1.64 cfs 6,017 cf

Pond DCB 1: Peak Elev=230.65' Inflow=2.97 cfs 10,177 cf
15.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=2.97 cfs 10,177 cf

Pond DCB2: Peak Elev=230.66' Inflow=2.80 cfs 9,777 cf
15.0" Round Culvert n=0.013 L=20.0' S=0.0200 '/' Outflow=2.80 cfs 9,777 cf

Pond DCB3: Peak Elev=230.64' Inflow=2.00 cfs 7,643 cf
Primary=1.65 cfs 6,464 cf Secondary=0.54 cfs 1,178 cf Outflow=2.00 cfs 7,643 cf

Pond DMH1: Peak Elev=227.58' Inflow=4.18 cfs 23,366 cf
18.0" Round Culvert n=0.013 L=124.0' S=0.0081 '/' Outflow=4.18 cfs 23,366 cf

Pond DMH2: Peak Elev=226.55' Inflow=5.19 cfs 30,597 cf
18.0" Round Culvert n=0.013 L=36.0' S=0.0069 '/' Outflow=5.19 cfs 30,597 cf

Pond DMH88: Peak Elev=230.64' Inflow=2.97 cfs 10,177 cf
Primary=1.59 cfs 5,687 cf Secondary=1.47 cfs 4,489 cf Outflow=2.97 cfs 10,177 cf

Pond DMH89: Peak Elev=230.63' Inflow=1.47 cfs 4,489 cf
Primary=1.19 cfs 3,676 cf Secondary=0.65 cfs 813 cf Outflow=1.47 cfs 4,489 cf

Pond DMH90: Peak Elev=230.64' Inflow=2.80 cfs 9,777 cf
Primary=2.17 cfs 8,153 cf Secondary=0.86 cfs 1,624 cf Outflow=2.80 cfs 9,777 cf

Pond ST1: Peak Elev=230.63' Storage=12,244 cf Inflow=9.37 cfs 33,614 cf
Discarded=0.28 cfs 17,233 cf Primary=2.57 cfs 14,854 cf Outflow=2.85 cfs 32,086 cf

Pond ST2: Peak Elev=229.23' Storage=4,687 cf Inflow=3.79 cfs 13,776 cf
Discarded=0.05 cfs 3,553 cf Primary=1.69 cfs 8,513 cf Outflow=1.74 cfs 12,065 cf

Pond ST3: Peak Elev=228.59' Storage=4,367 cf Inflow=3.26 cfs 11,092 cf
Discarded=0.04 cfs 2,425 cf Primary=1.01 cfs 7,231 cf Outflow=1.05 cfs 9,656 cf

Link A: NHDOT POND Inflow=2.85 cfs 13,753 cf
Primary=2.85 cfs 13,753 cf

Link B: NHDOT Easement Inflow=10.98 cfs 68,274 cf
Primary=10.98 cfs 68,274 cf

Link C: Southern Woods Inflow=5.14 cfs 16,313 cf
Primary=5.14 cfs 16,313 cf

Link f1: via Manch Drainage Inflow=2.50 cfs 8,918 cf
Primary=2.50 cfs 8,918 cf

Link f2: via BHR Drainage Inflow=0.80 cfs 4,835 cf
Primary=0.80 cfs 4,835 cf

Total Runoff Area = 333,428 sf Runoff Volume = 145,463 cf Average Runoff Depth = 5.24"
42.63% Pervious = 142,136 sf 57.37% Impervious = 191,292 sf

Summary for Subcatchment 1APC: done

Runoff = 1.04 cfs @ 12.10 hrs, Volume= 3,298 cf, Depth> 3.24"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Adj	Description
2,233	98		Unconnected pavement, HSG B
9,999	61		>75% Grass cover, Good, HSG B
12,232	68	64	Weighted Average, UI Adjusted
9,999			81.74% Pervious Area
2,233			18.26% Impervious Area
2,233			100.00% Unconnected

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

Summary for Subcatchment 1PC: west side yard

Runoff = 0.66 cfs @ 12.16 hrs, Volume= 2,438 cf, Depth> 2.92"
Routed to Pond BR1 : BR 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
10,013	61	>75% Grass cover, Good, HSG B
10,013		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	45	0.0300	0.07		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"

Summary for Subcatchment 2APC: samll portion of BHR

Runoff = 0.21 cfs @ 12.58 hrs, Volume= 1,315 cf, Depth> 4.17"
Routed to Link f2 : via BHR Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
1,203	98	Paved parking, HSG B
2,582	61	>75% Grass cover, Good, HSG B
3,785	73	Weighted Average
2,582		68.22% Pervious Area
1,203		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.6	100	0.0050	0.04		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
1.2	35	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
41.8	135	Total			

Summary for Subcatchment 2PC: front of bank and parking

Runoff = 2.24 cfs @ 12.09 hrs, Volume= 7,826 cf, Depth> 6.59"
Routed to Pond BR1 : BR 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
10,524	98	Paved parking, HSG B
1,784	98	Roofs, HSG B
495	98	Unconnected pavement, HSG B
1,443	61	>75% Grass cover, Good, HSG B
14,246	94	Weighted Average
1,443		10.13% Pervious Area
12,803		89.87% Impervious Area
495		3.87% Unconnected

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

Summary for Subcatchment 3.5APC: landscape area

Runoff = 0.16 cfs @ 12.16 hrs, Volume= 594 cf, Depth> 2.92"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
2,440	61	>75% Grass cover, Good, HSG B
2,440		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	68	0.0200	0.10		**Sheet Flow, gras** Grass: Dense n= 0.240 P2= 2.82"

Summary for Subcatchment 3APC: side yard and BHR

Runoff = 0.62 cfs @ 12.41 hrs, Volume= 3,520 cf, Depth> 5.64"
Routed to Link f2 : via BHR Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
4,965	98	Paved parking, HSG B
2,530	61	>75% Grass cover, Good, HSG B
7,495	86	Weighted Average
2,530		33.76% Pervious Area
4,965		66.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.8	100	0.0100	0.05		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
0.3	11	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
31.1	111	Total			

Summary for Subcatchment 3PC: back of bank and drive thru

Runoff = 2.38 cfs @ 12.00 hrs, Volume= 7,252 cf, Depth> 6.83"
Routed to Pond BR2 : BR 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
9,256	98	Paved parking, HSG B
2,821	98	Roofs, HSG B
660	61	>75% Grass cover, Good, HSG B
12,737	96	Weighted Average
660		5.18% Pervious Area
12,077		94.82% Impervious Area

Summary for Subcatchment 4APC: front landscape area

Runoff = 0.41 cfs @ 12.10 hrs, Volume= 1,305 cf, Depth> 2.92"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
5,356	61	>75% Grass cover, Good, HSG B
5,356		100.00% Pervious Area

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

Summary for Subcatchment 4PC: done

Runoff = 0.54 cfs @ 12.10 hrs, Volume= 1,723 cf, Depth> 2.92"
Routed to Pond BR2 : BR 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
7,069	61	>75% Grass cover, Good, HSG B
7,069		100.00% Pervious Area

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

Summary for Subcatchment 5APC: enterprise front entrance

Runoff = 0.39 cfs @ 12.09 hrs, Volume= 1,242 cf, Depth> 4.75"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
1,458	98	Paved parking, HSG B
1,678	61	>75% Grass cover, Good, HSG B
3,136	78	Weighted Average
1,678		53.51% Pervious Area
1,458		46.49% Impervious Area

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

Summary for Subcatchment 5PC: enterprise no change

Runoff = 3.28 cfs @ 12.46 hrs, Volume= 19,162 cf, Depth> 5.18"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
23,787	98	Paved parking, HSG B
1,545	55	Woods, Good, HSG B
1,460	98	Roofs, HSG B
17,625	61	>75% Grass cover, Good, HSG B
44,417	82	Weighted Average
19,170		43.16% Pervious Area
25,247		56.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2	100	0.0100	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.82"
3.6	68	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
33.8	168	Total			

Summary for Subcatchment 6APC: manchester street

Runoff = 1.80 cfs @ 12.09 hrs, Volume= 6,489 cf, Depth> 6.95"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
10,846	98	Paved parking, HSG B
362	61	>75% Grass cover, Good, HSG B
11,208	97	Weighted Average
362		3.23% Pervious Area
10,846		96.77% Impervious Area

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

Summary for Subcatchment 6BPC: no change

Runoff = 1.58 cfs @ 12.09 hrs, Volume= 5,776 cf, Depth> 7.07"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
9,809	98	Paved parking, HSG B
9,809		100.00% Impervious Area

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

Summary for Subcatchment 6PC: east side yard

Runoff = 0.86 cfs @ 12.38 hrs, Volume= 4,496 cf, Depth> 3.12"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
14,825	61	>75% Grass cover, Good, HSG B
1,349	98	Paved parking, HSG B
1,142	55	Woods, Good, HSG B
17,316	63	Weighted Average
15,967		92.21% Pervious Area
1,349		7.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.5	100	0.0050	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"

Summary for Subcatchment 7APC: east poition of parking area

Runoff = 0.73 cfs @ 12.09 hrs, Volume= 2,418 cf, Depth> 5.78"
Routed to Pond CB5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
1,429	61	>75% Grass cover, Good, HSG B
3,595	98	Paved parking, HSG B
5,024	87	Weighted Average
1,429		28.44% Pervious Area
3,595		71.56% Impervious Area

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

Summary for Subcatchment 7BPC: east poition of parking area

Runoff = 0.45 cfs @ 12.09 hrs, Volume= 1,635 cf, Depth> 6.95"
Routed to Pond CB4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
41	61	>75% Grass cover, Good, HSG B
2,783	98	Paved parking, HSG B
2,824	97	Weighted Average
41		1.45% Pervious Area
2,783		98.55% Impervious Area

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

Summary for Subcatchment 7CPC: east poition of parking area

Runoff = 1.03 cfs @ 12.09 hrs, Volume= 3,678 cf, Depth> 6.83"
Routed to Pond cB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
364	61	>75% Grass cover, Good, HSG B
0	98	Roofs, HSG B
6,100	98	Paved parking, HSG B
6,464	96	Weighted Average
364		5.63% Pervious Area
6,100		94.37% Impervious Area

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

Summary for Subcatchment 7DPC: east poition of parking area

Runoff = 1.04 cfs @ 12.09 hrs, Volume= 3,361 cf, Depth> 5.32"
Routed to Pond CB2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
3,010	61	>75% Grass cover, Good, HSG B
4,575	98	Paved parking, HSG B
7,585	83	Weighted Average
3,010		39.68% Pervious Area
4,575		60.32% Impervious Area

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

Summary for Subcatchment 8PC: black hill road

Runoff = 5.14 cfs @ 12.09 hrs, Volume= 16,313 cf, Depth> 4.64"
Routed to Link C : Southern Woods

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
24,228	61	>75% Grass cover, Good, HSG B
17,947	98	Paved parking, HSG B
42,175	77	Weighted Average
24,228		57.45% Pervious Area
17,947		42.55% Impervious Area

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

Summary for Subcatchment 9PC: east parking area

Runoff = 2.07 cfs @ 12.09 hrs, Volume= 7,482 cf, Depth> 6.95"
Routed to Pond ST2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
384	61	>75% Grass cover, Good, HSG B
1,452	98	Roofs, HSG B
11,087	98	Paved parking, HSG B
12,923	97	Weighted Average
384		2.97% Pervious Area
12,539		97.03% Impervious Area

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

Summary for Subcatchment 10APC: rear drive area and roof

Runoff = 1.64 cfs @ 12.09 hrs, Volume= 6,017 cf, Depth> 7.07"
Routed to Pond CB6 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
6,369	98	Paved parking, HSG B
3,849	98	Roofs, HSG B
0	61	>75% Grass cover, Good, HSG B
10,218	98	Weighted Average
10,218		100.00% Impervious Area

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

Summary for Subcatchment 10PC: parking area

Runoff = 2.97 cfs @ 12.09 hrs, Volume= 10,177 cf, Depth> 6.36"
Routed to Pond DCB 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
14,808	98	Paved parking, HSG B
1,391	98	Roofs, HSG B
3,012	61	>75% Grass cover, Good, HSG B
19,211	92	Weighted Average
3,012		15.68% Pervious Area
16,199		84.32% Impervious Area

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

Summary for Subcatchment 11PC: front parking lot

Runoff = 1.72 cfs @ 12.09 hrs, Volume= 6,294 cf, Depth> 7.07"
Routed to Pond ST2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
8,331	98	Paved parking, HSG B
2,358	98	Roofs, HSG B
10,689	98	Weighted Average
10,689		100.00% Impervious Area

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

Summary for Subcatchment 12APC: car wash area

Runoff = 1.72 cfs @ 12.09 hrs, Volume= 6,074 cf, Depth> 6.71"
Routed to Pond DCB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
9,965	98	Paved parking, HSG B
897	61	>75% Grass cover, Good, HSG B
10,862	95	Weighted Average
897		8.26% Pervious Area
9,965		91.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0300	1.32		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.82"
1.1	170	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.7	220	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 12PC: car wash area

Runoff = 2.80 cfs @ 12.11 hrs, Volume= 9,777 cf, Depth> 5.89"
Routed to Pond DCB2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
5,230	61	>75% Grass cover, Good, HSG B
3,254	98	Roofs, HSG B
11,438	98	Paved parking, HSG B
19,922	88	Weighted Average
5,230		26.25% Pervious Area
14,692		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	40	0.0200	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
0.5	110	0.0400	4.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
7.8	150	Total			

Summary for Subcatchment 13APC: south side yard

Runoff = 0.39 cfs @ 12.20 hrs, Volume= 1,569 cf, Depth> 2.92"
Routed to Pond DCB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
6,450	61	>75% Grass cover, Good, HSG B
0	98	Paved parking, HSG B
6,450	61	Weighted Average
6,450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0300	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
0.5	45	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.4	145	Total			

Summary for Subcatchment 13PC: east side yard

Runoff = 0.65 cfs @ 12.23 hrs, Volume= 2,814 cf, Depth> 2.82"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
9,562	61	>75% Grass cover, Good, HSG B
2,432	55	Woods, Good, HSG B
11,994	60	Weighted Average
11,994		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0300	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
3.1	225	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.0	325	Total			

Summary for Subcatchment 14PC: front landscape area

Runoff = 0.33 cfs @ 12.24 hrs, Volume= 1,417 cf, Depth> 2.92"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.31"

Area (sf)	CN	Description
5,828	61	>75% Grass cover, Good, HSG B
5,828		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0200	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
1.0	50	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.2	150	Total			

Summary for Pond 10P: forebay model

Volume	Invert	Avail.Storage	Storage Description
#1	229.50'	313 cf	**1.00'W x 5.00'L x 2.50'H Prismatoid Z=3.0**

Summary for Pond BR1: BR 1

Inflow Area = 24,259 sf, 52.78% Impervious, Inflow Depth > 5.08" for 100-YR event
Inflow = 2.80 cfs @ 12.10 hrs, Volume= 10,263 cf
Outflow = 0.06 cfs @ 18.01 hrs, Volume= 3,284 cf, Atten= 98%, Lag= 354.7 min
Discarded = 0.06 cfs @ 18.01 hrs, Volume= 3,284 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link A : NHDOT POND

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 231.33' @ 18.01 hrs Surf.Area= 3,670 sf Storage= 7,308 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 161.1 min (945.2 - 784.1)

Volume	Invert	Avail.Storage	Storage Description
#1	228.50'	9,971 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.50	1,576	0	0
229.00	1,913	872	872
230.00	2,628	2,271	3,143
231.00	3,400	3,014	6,157
232.00	4,229	3,815	9,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.50'	**0.700 in/hr Exfiltration over Surface area**
#2	Primary	231.67'	**15.0' long + 20.0 '/' SideZ x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.06 cfs @ 18.01 hrs HW=231.33' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.50' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond BR2: BR 2

Inflow Area = 19,806 sf, 60.98% Impervious, Inflow Depth > 5.44" for 100-YR event
Inflow = 2.69 cfs @ 12.01 hrs, Volume= 8,975 cf
Outflow = 0.05 cfs @ 17.90 hrs, Volume= 2,835 cf, Atten= 98%, Lag= 353.5 min
Discarded = 0.05 cfs @ 17.90 hrs, Volume= 2,835 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link B : NHDOT Easement

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 231.03' @ 17.90 hrs Surf.Area= 3,079 sf Storage= 6,430 cf

Plug-Flow detention time= 330.8 min calculated for 2,835 cf (32% of inflow)

Center-of-Mass det. time= 157.5 min (925.1 - 767.7)

Volume	Invert	Avail.Storage	Storage Description
#1	228.00'	9,749 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.00	1,241	0	0
229.00	1,790	1,516	1,516
230.00	2,395	2,093	3,608
231.00	3,056	2,726	6,334
232.00	3,774	3,415	9,749

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.00'	**0.700 in/hr Exfiltration over Surface area**
#2	Primary	231.67'	**15.0' long + 20.0 '/' SideZ x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.05 cfs @ 17.90 hrs HW=231.03' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.00' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond CB2:

Inflow Area = 7,585 sf, 60.32% Impervious, Inflow Depth > 5.32" for 100-YR event
Inflow = 1.04 cfs @ 12.09 hrs, Volume= 3,361 cf
Outflow = 1.04 cfs @ 12.09 hrs, Volume= 3,361 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.04 cfs @ 12.09 hrs, Volume= 3,361 cf
Routed to Pond cB3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.60' @ 12.48 hrs
Flood Elev= 231.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.45'	**15.0" Round Culvert** L= 28.0' Ke= 0.500
			Inlet / Outlet Invert= 227.45' / 227.30' S= 0.0054 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.58 cfs @ 12.09 hrs HW=228.14' TW=228.08' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.58 cfs @ 1.22 fps)

Summary for Pond cB3:

Inflow Area = 14,049 sf, 75.98% Impervious, Inflow Depth > 6.01" for 100-YR event
Inflow = 2.07 cfs @ 12.09 hrs, Volume= 7,039 cf
Outflow = 2.07 cfs @ 12.09 hrs, Volume= 7,039 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.07 cfs @ 12.09 hrs, Volume= 7,039 cf
Routed to Pond ST3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.60' @ 12.43 hrs
Flood Elev= 231.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.20'	**15.0" Round Culvert** L= 13.0' Ke= 0.500 Inlet / Outlet Invert= 227.20' / 227.10' S= 0.0077 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.10 cfs @ 12.09 hrs HW=228.08' TW=228.00' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.10 cfs @ 1.68 fps)

Summary for Pond CB4:

Inflow Area = 7,848 sf, 81.27% Impervious, Inflow Depth > 6.20" for 100-YR event
Inflow = 1.19 cfs @ 12.09 hrs, Volume= 4,053 cf
Outflow = 1.19 cfs @ 12.09 hrs, Volume= 4,053 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.19 cfs @ 12.09 hrs, Volume= 4,053 cf
Routed to Pond ST3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.60' @ 12.43 hrs
Flood Elev= 231.12'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.57'	**12.0" Round Culvert** L= 93.0' Ke= 0.500 Inlet / Outlet Invert= 227.57' / 227.20' S= 0.0040 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.90 cfs @ 12.09 hrs HW=228.29' TW=228.00' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.90 cfs @ 2.09 fps)

Summary for Pond CB5:

Inflow Area = 5,024 sf, 71.56% Impervious, Inflow Depth > 5.78" for 100-YR event
Inflow = 0.73 cfs @ 12.09 hrs, Volume= 2,418 cf
Outflow = 0.73 cfs @ 12.09 hrs, Volume= 2,418 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.73 cfs @ 12.09 hrs, Volume= 2,418 cf
Routed to Pond CB4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 228.61' @ 12.47 hrs
Flood Elev= 231.66'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.86'	**12.0" Round Culvert** L= 39.0' Ke= 0.500 Inlet / Outlet Invert= 227.86' / 227.66' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.57 cfs @ 12.09 hrs HW=228.43' TW=228.29' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.57 cfs @ 1.77 fps)

Summary for Pond CB6:

Inflow Area = 10,218 sf,100.00% Impervious, Inflow Depth > 7.07" for 100-YR event
Inflow = 1.64 cfs @ 12.09 hrs, Volume= 6,017 cf
Outflow = 1.64 cfs @ 12.09 hrs, Volume= 6,017 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.39 cfs @ 12.07 hrs, Volume= 5,240 cf
Routed to Pond ST1 :
Secondary = 0.37 cfs @ 12.17 hrs, Volume= 777 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.63' @ 12.49 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.42 cfs @ 12.07 hrs HW=229.81' TW=229.80' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.42 cfs @ 0.83 fps)

Secondary OutFlow Max=0.00 cfs @ 12.17 hrs HW=230.06' TW=230.23' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond DCB 1:

Inflow Area = 19,211 sf, 84.32% Impervious, Inflow Depth > 6.36" for 100-YR event
Inflow = 2.97 cfs @ 12.09 hrs, Volume= 10,177 cf
Outflow = 2.97 cfs @ 12.09 hrs, Volume= 10,177 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.97 cfs @ 12.09 hrs, Volume= 10,177 cf
Routed to Pond DMH88 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.65' @ 12.53 hrs
Flood Elev= 233.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.65'	**15.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 229.65' / 229.34' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.89 cfs @ 12.09 hrs HW=230.59' TW=229.88' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 2.89 cfs @ 4.04 fps)

Summary for Pond DCB2:

Inflow Area = 19,922 sf, 73.75% Impervious, Inflow Depth > 5.89" for 100-YR event
Inflow = 2.80 cfs @ 12.11 hrs, Volume= 9,777 cf
Outflow = 2.80 cfs @ 12.11 hrs, Volume= 9,777 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.80 cfs @ 12.11 hrs, Volume= 9,777 cf
Routed to Pond DMH90 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.66' @ 12.51 hrs
Flood Elev= 233.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.50'	**15.0" Round Culvert** L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.10' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.33 cfs @ 12.11 hrs HW=230.41' TW=230.05' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 2.33 cfs @ 3.42 fps)

Summary for Pond DCB3:

Inflow Area = 17,312 sf, 57.56% Impervious, Inflow Depth > 5.30" for 100-YR event
Inflow = 2.00 cfs @ 12.10 hrs, Volume= 7,643 cf
Outflow = 2.00 cfs @ 12.10 hrs, Volume= 7,643 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.65 cfs @ 12.08 hrs, Volume= 6,464 cf
Routed to Pond ST1 :
Secondary = 0.54 cfs @ 12.22 hrs, Volume= 1,178 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.64' @ 12.48 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.72 cfs @ 12.08 hrs HW=229.87' TW=229.83' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.72 cfs @ 1.31 fps)

Secondary OutFlow Max=0.00 cfs @ 12.22 hrs HW=230.26' TW=230.39' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond DMH1:

Inflow Area = 90,275 sf, 82.31% Impervious, Inflow Depth > 3.11" for 100-YR event
Inflow = 4.18 cfs @ 12.37 hrs, Volume= 23,366 cf
Outflow = 4.18 cfs @ 12.37 hrs, Volume= 23,366 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.18 cfs @ 12.37 hrs, Volume= 23,366 cf
Routed to Pond DMH2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.58' @ 12.39 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	226.50'	**18.0" Round Culvert** L= 124.0' Ke= 0.500 Inlet / Outlet Invert= 226.50' / 225.50' S= 0.0081 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.16 cfs @ 12.37 hrs HW=227.58' TW=226.55' (Dynamic Tailwater)
1=Culvert (Outlet Controls 4.16 cfs @ 4.27 fps)

Summary for Pond DMH2:

Inflow Area = 112,172 sf, 81.44% Impervious, Inflow Depth > 3.27" for 100-YR event
Inflow = 5.19 cfs @ 12.37 hrs, Volume= 30,597 cf
Outflow = 5.19 cfs @ 12.37 hrs, Volume= 30,597 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.19 cfs @ 12.37 hrs, Volume= 30,597 cf
Routed to Link B : NHDOT Easement

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 226.55' @ 12.37 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	225.25'	**18.0" Round Culvert** L= 36.0' Ke= 0.500 Inlet / Outlet Invert= 225.25' / 225.00' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.18 cfs @ 12.37 hrs HW=226.55' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 5.18 cfs @ 4.26 fps)

Summary for Pond DMH88:

Inflow Area = 19,211 sf, 84.32% Impervious, Inflow Depth > 6.36" for 100-YR event
Inflow = 2.97 cfs @ 12.09 hrs, Volume= 10,177 cf
Outflow = 2.97 cfs @ 12.09 hrs, Volume= 10,177 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.59 cfs @ 12.08 hrs, Volume= 5,687 cf
Routed to Pond ST1 :
Secondary = 1.47 cfs @ 12.20 hrs, Volume= 4,489 cf
Routed to Pond DMH89 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.64' @ 12.51 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.00'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 229.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.53 cfs @ 12.08 hrs HW=229.86' TW=229.84' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.53 cfs @ 0.99 fps)

Secondary OutFlow Max=0.00 cfs @ 12.20 hrs HW=230.14' TW=230.19' (Dynamic Tailwater)
↑—**2=Culvert** (Controls 0.00 cfs)

Summary for Pond DMH89:

Inflow = 1.47 cfs @ 12.20 hrs, Volume= 4,489 cf
Outflow = 1.47 cfs @ 12.20 hrs, Volume= 4,489 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.19 cfs @ 12.07 hrs, Volume= 3,676 cf
Routed to Pond ST1 :
Secondary = 0.65 cfs @ 12.25 hrs, Volume= 813 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.63' @ 12.48 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=229.79' TW=229.82' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 12.25 hrs HW=230.36' TW=230.46' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond DMH90:

Inflow Area = 19,922 sf, 73.75% Impervious, Inflow Depth > 5.89" for 100-YR event
Inflow = 2.80 cfs @ 12.11 hrs, Volume= 9,777 cf
Outflow = 2.80 cfs @ 12.11 hrs, Volume= 9,777 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.17 cfs @ 12.09 hrs, Volume= 8,153 cf
Routed to Pond ST1 :
Secondary = 0.86 cfs @ 12.17 hrs, Volume= 1,624 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.64' @ 12.48 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.36 cfs @ 12.09 hrs HW=230.01' TW=229.88' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.36 cfs @ 1.74 fps)

Secondary OutFlow Max=0.00 cfs @ 12.17 hrs HW=230.17' TW=230.21' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond ST1:

Inflow Area = 66,663 sf, 76.62% Impervious, Inflow Depth > 6.05" for 100-YR event
Inflow = 9.37 cfs @ 12.09 hrs, Volume= 33,614 cf
Outflow = 2.85 cfs @ 12.44 hrs, Volume= 32,086 cf, Atten= 70%, Lag= 20.6 min
Discarded = 0.28 cfs @ 9.70 hrs, Volume= 17,233 cf
Primary = 2.57 cfs @ 12.44 hrs, Volume= 14,854 cf
Routed to Pond DMH1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.63' @ 12.44 hrs Surf.Area= 10,126 sf Storage= 12,244 cf

Plug-Flow detention time= 121.7 min calculated for 32,086 cf (95% of inflow)
Center-of-Mass det. time= 95.4 min (867.2 - 771.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	228.50'	7,045 cf	**58.17'W x 174.08'L x 2.33'H Field A** 23,627 cf Overall - 6,015 cf Embedded = 17,612 cf x 40.0% Voids
#2A	229.00'	6,015 cf	**ADS_StormTech SC-310 +Cap** x 408 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 408 Chambers in 17 Rows
		13,059 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.50'	**1.200 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'
#2	Primary	229.26'	**10.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.26' / 228.50' S= 0.0760 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.28 cfs @ 9.70 hrs HW=228.62' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=2.56 cfs @ 12.44 hrs HW=230.63' TW=227.58' (Dynamic Tailwater)
↑—**2=Culvert** (Inlet Controls 2.56 cfs @ 4.70 fps)

Summary for Pond ST2:

Inflow Area = 23,612 sf, 98.37% Impervious, Inflow Depth > 7.00" for 100-YR event
Inflow = 3.79 cfs @ 12.09 hrs, Volume= 13,776 cf
Outflow = 1.74 cfs @ 12.26 hrs, Volume= 12,065 cf, Atten= 54%, Lag= 10.5 min
Discarded = 0.05 cfs @ 12.26 hrs, Volume= 3,553 cf
Primary = 1.69 cfs @ 12.26 hrs, Volume= 8,513 cf
Routed to Pond DMH1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.23' @ 12.26 hrs Surf.Area= 3,938 sf Storage= 4,687 cf

Plug-Flow detention time= 119.7 min calculated for 12,065 cf (88% of inflow)
Center-of-Mass det. time= 61.9 min (807.3 - 745.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	227.10'	2,791 cf	**101.50'W x 38.80'L x 2.33'H Field A** 9,189 cf Overall - 2,211 cf Embedded = 6,978 cf x 40.0% Voids
#2A	227.60'	2,211 cf	**ADS_StormTech SC-310 +Cap** x 150 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 150 Chambers in 30 Rows
		5,002 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	227.10'	**0.500 in/hr Exfiltration over Wetted area** Phase-In= 0.10'
#2	Primary	227.89'	**8.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 227.89' / 227.00' S= 0.0890 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.05 cfs @ 12.26 hrs HW=229.23' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=1.69 cfs @ 12.26 hrs HW=229.23' TW=227.55' (Dynamic Tailwater)
2=Culvert (Inlet Controls 1.69 cfs @ 4.83 fps)

Summary for Pond ST3:

Inflow Area = 21,897 sf, 77.88% Impervious, Inflow Depth > 6.08" for 100-YR event
Inflow = 3.26 cfs @ 12.09 hrs, Volume= 11,092 cf
Outflow = 1.05 cfs @ 12.39 hrs, Volume= 9,656 cf, Atten= 68%, Lag= 18.1 min
Discarded = 0.04 cfs @ 12.39 hrs, Volume= 2,425 cf
Primary = 1.01 cfs @ 12.39 hrs, Volume= 7,231 cf
Routed to Pond DMH2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.59' @ 12.39 hrs Surf.Area= 3,700 sf Storage= 4,367 cf

Plug-Flow detention time= 125.7 min calculated for 9,636 cf (87% of inflow)
Center-of-Mass det. time= 67.9 min (841.7 - 773.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	226.50'	2,604 cf	**28.17'W x 131.36'L x 2.33'H Field A** 8,633 cf Overall - 2,123 cf Embedded = 6,510 cf x 40.0% Voids
#2A	227.00'	2,123 cf	**ADS_StormTech SC-310 +Cap** x 144 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 144 Chambers in 8 Rows
		4,727 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	226.50'	**0.400 in/hr Exfiltration over Wetted area** Phase-In= 0.10'
#2	Primary	227.20'	**6.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 227.20' / 226.00' S= 0.1200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.04 cfs @ 12.39 hrs HW=228.59' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=1.01 cfs @ 12.39 hrs HW=228.59' TW=226.55' (Dynamic Tailwater)
2=Culvert (Inlet Controls 1.01 cfs @ 5.14 fps)

Summary for Link A: NHDOT POND

Inflow Area = 56,280 sf, 53.73% Impervious, Inflow Depth > 2.93" for 100-YR event
Inflow = 2.85 cfs @ 12.10 hrs, Volume= 13,753 cf
Primary = 2.85 cfs @ 12.10 hrs, Volume= 13,753 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link B: NHDOT Easement

Inflow Area = 234,973 sf, 60.90% Impervious, Inflow Depth > 3.49" for 100-YR event
Inflow = 10.98 cfs @ 12.36 hrs, Volume= 68,274 cf
Primary = 10.98 cfs @ 12.36 hrs, Volume= 68,274 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link C: Southern Woods

Inflow Area = 42,175 sf, 42.55% Impervious, Inflow Depth > 4.64" for 100-YR event
Inflow = 5.14 cfs @ 12.09 hrs, Volume= 16,313 cf
Primary = 5.14 cfs @ 12.09 hrs, Volume= 16,313 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link f1: via Manch Drainage

Inflow Area = 20,741 sf, 54.32% Impervious, Inflow Depth > 5.16" for 100-YR event
Inflow = 2.50 cfs @ 12.09 hrs, Volume= 8,918 cf
Primary = 2.50 cfs @ 12.09 hrs, Volume= 8,918 cf, Atten= 0%, Lag= 0.0 min
Routed to Link A : NHDOT POND

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link f2: via BHR Drainage

Inflow Area = 11,280 sf, 54.68% Impervious, Inflow Depth > 5.14" for 100-YR event
Inflow = 0.80 cfs @ 12.45 hrs, Volume= 4,835 cf
Primary = 0.80 cfs @ 12.45 hrs, Volume= 4,835 cf, Atten= 0%, Lag= 0.0 min
Routed to Link A : NHDOT POND

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

APPROVED
ORIGINAL
COPY

STORMWATER MANAGEMENT REPORT

Gas Station and Convenience and St Mary's Bank Projects

Tax Map 781Z Lots 29,30, & 32 and Tax Map 792Z Lot 2

30 Manchester Street

16-20 Manchester Street

Concord, NH

Prepared On:

~~March 20, 2024~~

~~Revised July 17, 2024~~

~~Revised December 17, 2024~~

Revised January 20, 2025

Prepared for:

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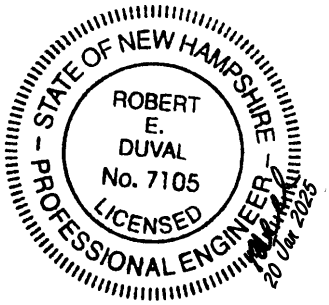
95486.11



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Gas Station and Convenience and St Mary's Bank Projects

30 & 32 Manchester Street & 33-35 Black Hill Road
and 16-20 Manchester Street Concord, NH
~~March 20, 2024~~
~~July 12, 2024~~
December 17, 2024

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Executive Summary

The proposed project is phase 1A of the ROI Mixed-Use Comprehension Development Plan. Phase 1A is outside of the 100-year flood hazard area. Phase 1A will be filed under its own Alteration of Terrain Permit application while the other phases of the project will be filed under a separate permit application. A preapplication meeting with AoT was held on February 6th where this was discussed and confirmed (Submission# HQ0-JWP3-BEPRS).

Phase 1A consists of two proposed projects, a 3,691± sf banking development and a 5,750± sf gas station and convenience development with associated access, parking, landscaping, and stormwater management. The proposed banking site is located at 16-22 Manchester Street and the parcel Tax Map 792 Block Z Lot 2, which is approximately 1.42 ± acres. The proposed gas station/convenience site is located at 30 Manchester and consists of three parcels Tax Map 781 Block Z Lots 29,30, and 32, which will be consolidated into one lot - approximately 3.42 ± acres. An access drive will be constructed within the consolidated lot to connect Manchester Street and Black Hill Road and for future phases of development. Both developments are zoned within the Gateway Performance District. In between the two projects is an office building. The projects are abutted by commercial properties north across Manchester Street, an industrial property east, vacant land and a commercial property south across Black Hill Road, and utilities west of the sites.

An open and closed drainage system is proposed to capture runoff from the site for this phase of the project. The bank site will be sited with two (2) proposed bio-retention areas with sediment forebays to manage runoff and provide the pretreatment/treatment. Three (3) Underground storage chambers (ADS SC-310) will be used for the gas station site. These systems provide pre-treatment and treatment.

The system has been designed to maintain peak flows during all storm conditions up to and including a 100-year storm event.

- Best Management Practices are proposed to manage stormwater from the development and provide treatment, groundwater recharge and maintain existing flow rates leaving the site.
    - Two (2) bio-retention areas are proposed to maintain existing recharge rates to preserve groundwater levels and pollutant removal is achieved by the filtering media as well as biological uptake from the specified plantings. The sediment forebay provides pretreatment to allow sediment to settle out of the stormwater prior to entering the main cell of the basin. A volume of crushed stone is provided below the filtering media to provide additional storage for stormwater runoff as necessary.
    - Three (3) underground storage chambers are proposed to collect, treat, and recharge stormwater from the gas station and convenience development. Isolator rows will provide pretreatment by allowing sediment to settle out prior to stormwater entering the main cells of the treatment practices. The stormwater treatment occurs as runoff infiltrates into the existing substrate material. There is no increase in the peak rate of runoff at the discharge points from the project site and the volume of runoff recharged to the aquifer has been maintained for the total site.

- There is no increase on the peak rate of runoff at the discharge points from the project site.
- The Water Quantity Volume (WQV) has been met by providing the required storage below the lowest orifice of the stormwater management area.

Description of Project

The proposed project is phase 1A of the ROI Mixed-Use Comprehension Development Plan. The 3,691± sf banking development along with associated access, a drive-through, parking, and stormwater management will be located in the northwest of the overall development. The 5,750± sf gas station and convenience development with associated amenities such as an access driveway connecting Manchester Street and Black Hill Road, a bus stop, a drive-through, outdoor dining areas, parking, and stormwater management is located in the northeast of the overall development.

16-22 Manchester Street were formerly two single family houses and 30 Manchester Street was formerly a strip mall, dog grooming facility, and roofing materials warehouse. As part of this project, all of the buildings on the subject lots have been razed. The project area is currently vacant, consisting of primarily woods and paved or gravel parking. A wetlands complex is located northeast of the gas station convenience development. The wetland is approximately 850 SF. There are no wetlands impacts. Photographs of the existing site features can be found in section 2 of this report.

Access to the banking site is proposed via two (2) paved driveways, one right-in only (1) from Manchester Street along the northern property line and one full service (1) from Black Hill Road along the southern property line. Access to the gas station development is proposed via (2) full-service driveways connecting the proposed access way and Black Hill Road. The gas station will have a right out onto Manchester Street.

Existing drainage discharge points will be maintained throughout the site. Two (2) bio-retention areas with associated forebays and three (3) Underground storage chambers are proposed for the stormwater management. An open and closed drainage system will route the stormwater runoff to the management areas.

The existing lot for the banking development is 1.42± acres and approximately 1.38± acres will be disturbed. The proposed consolidated lot for the gas store site is 3.42± acres and approximately 3.27± acres will be disturbed. In total approximately 4.65± acres for phase 1A of the project will be disturbed.

A NHDES Alteration of Terrain Permit, NHDES Sewer, and City Site Plan approval will be required for the site development project.

The objectives for the post-development drainage design are to use best management practices to attenuate the flow, provide treatment and or pretreatment to collected stormwater and maintain groundwater recharge.

The intent of this report is: 1) to analyze the rate of runoff from the site for the pre-development conditions and for the post-development conditions. The drainage system will be designed to maintain the current peak rate of runoff from the site, and 2) to provide stormwater treatment and groundwater recharge for the runoff from the sites in accordance with the requirements of the State of New Hampshire and the City of Concord.

Storm Water Methodology

Pre-Development Conditions

Based on existing topography ten (10) sub catchments and three (3) points of interest were identified.

The project area is currently vacant, consisting of primarily woods and paved or gravel parking. A wetlands complex is located northeast of the restaurant development. NHRPR 13260 was filed November 22, 2021, for this project and determined to have "No Historic Properties Affected", including the existing buildings located on the site. Photographs of the existing site features can be found in section 2 of this report.

Evaluation points have been defined by abutting parcels, with identifying HydroCAD Links as follows:

- The northwestern NHDOT pond is denoted as POI-A.
    - Most of Manchester Street east of this pond is tributary
    - There are multiple connection points to this basin all piped from Manchester Street and Black Hill Road
        - #1232
        - #1176
        - #2119
    - The pond has multiple inlets identified by infield survey performed by this office and researching NHDOT ASB 12221 Sheets 87-93
- The southwestern NHDOT easement is denoted as POI-B.
    - Some of Manchester Street is tributary
        - See SubCat 6ASC and 6BSC as the two areas encompassing work as part of this project
    - A 24" and 30" CMP run cross country though the subject parcels and drain into the bank of the Merrimack offsite
    - The easement and drain lines have multiple structures tributary to it as identified by infield survey, performed by this office, and researching NHDOT ASB 12221 Sheets 87-93
    -
- The southern woodlands across Black Hill Road are denoted as POI-C.
    - This point is to represent the down stream end of a box culvert beneath Black Hill Road and well as some surface flow from Black Hill Road that sheets into the woods south of the development

A SSS Soils Report was conducted by a Certified Soil Scientist at TES Environmental Consultants, LLC for the overall Nault Mixed-Use Development, to determine on-site soil types. This mapping resulted in hydrologic soils group (HSG) type B within the area for phase 1A. Rainfall amounts were obtained from the Northeast Regional Climate Center and NRCS Storm Type-III was utilized for the HydroCAD Analysis. An Extreme Precipitation Table has been provided in Section 2 of this Report.

To model the site drainage, the HydroCAD Version 10.10-7a program has been used. The software is based on the SCS TR-20 technique used for modeling the hydrology and hydraulics of storm water runoff. The 2-year, 5-year, 10-year, 25-year, 50-year, and 100-year calculations are included per the requirements of the NHDES and the City of Concord.

Post-Development Conditions

The project proposes to construct a banking site and restaurant site with associated parking, access, and stormwater management systems constituting Phase 1A of a larger future phased development off Manchester Street and Black Hill Road. Two (2) bio-retention areas will treat the runoff for the banking site. Three (3) Underground storage chambers will be used for the gas station site.

Bank site (1.42 acres)

The bank site takes advantage of surface flow to route the newly generated stormwater into two separate bio-retention areas. These areas allow for infiltration of treated stormwater into the soils below. Pretreatment is provided via sediment forebay which receives the surface flow prior to entering the bio-retention areas. The bio-retention areas have been designed to have approximately .25' of freeboard during the 100-yr storm. Infiltration testing provided an infiltration rate of 1.6 inches per hour, so a rate of inches/hour was used (FS2).

Access Drive and Gas Station Convenience Site 3.42

The gas station and access drive and convenience store will use a standard catch basin and pipe network to capture and route stormwater into sub-surface chambers to pretreat and treat the newly generated stormwater. The access drive is approximately 335' of new pavement of vary width. This roadway is captured by four catch basins linked to an underground stormtech system (ST3 – 162 chambers). This system infiltrates treated water.

The gas station site is captured by multiple catch basins and linked to two separate systems, ST2 and ST1. ST1 is 432 chambers while ST2 is 150 chambers – both of these system infiltrate.

All three of the systems' outlets are linked and routed to the NHDOT drainage easement via a proposed "doghouse" or inline structure that will link the two networks.

The objectives for the post-development drainage design are to use best management practices to attenuate the flow, provide pre-treatment and treatment to collected stormwater and maintain groundwater recharge.

There is no proposed increase in discharge from the site up to and including the 100-year storm event.

The post-development drainage model represents the site divided into multiple subcatchments based on the layout of the proposed stormwater collection system.

The groundwater recharge volume (GRV) has been met via the proposed filtration systems.

All pre-development discharge points have been analyzed in post-development conditions.

Groundwater Recharge

The required Groundwater Recharge (GRV) for the Type B soils which has been replaced by impervious cover per AoT regulations has been provided within the proposed two (2) bio-retention areas. Supporting calculations have been provided on the GRV and Best Management Practices (BMP) Worksheet, Section 3 of this Report.

Stormwater Treatment

Best Management Practices are proposed to manage the stormwater from the development and provide treatment, recharge and maintain existing flow rates leaving the development.

Bio-retention basins are required to have pre-treatment prior to stormwater entering the main cell of the basin. The sediment forebays allow sediment to settle out of the stormwater. Filtration systems remove pollutants, reduce the peak rates of flow and reduce flow volume by allowing evaporation and infiltration of the stormwater. The stormwater receives treatment as it percolates through the soil allowing for filtration and absorption by the organic matter and mineral complexes. Infiltration also provides groundwater recharge.

The underground storage systems are proposed to maintain existing recharge rates and to preserve groundwater levels. Pollutant removal is achieved as stormwater percolates through the substrata below the systems. Pretreatment is provided prior to stormwater entering the main cell of the basin by isolator rows, which allow sediment to settle out of the stormwater. The additional catch basins will prevent pollutants from entering the groundwater.

The Water Quality Volume (WQV) is detained completely within the two (2) bio-retention areas providing the storm water treatment for the bank site and three (3) underground storage chambers will be used for the gas station.

Test pits and infiltration tests were performed as part of the project design. The rates and depth to seasonal high groundwater used in these calculations are based on those values obtained, with a factor of safety.

18-inches of filter media will be installed within the bottom of two (2) bio-retention areas per NHDES AoT regulations. Specifications have been included on the Site Plan Detail Sheets.

The Natural Resources Conservation Service's (NRCS) Web Soil Survey was utilized to determine the on-site soil characteristics, and the rates used in the calculations are based on the values obtained from the soil mapping, with factor of safety.

Erosion Control Measures

Erosion Control Measures are found on the Storm Water Management Plan within the plan set. The erosion control notes and construction sequence notes on the Detail Sheets contain specifications for stabilizing disturbed areas and limiting the length of time these areas are exposed.

Temporary Erosion Control Measures

Silt Sock or a stump grindings berm is proposed along the edges of down slope site work to prevent sediment from leaving the project area. A double silt sock is posed on the northeast end of the site to protect the wetlands complex. A stabilized construction entrance is proposed at all driveway entrances to keep sediment from being tracked onto the street during construction. Catch basin erosion protection is also proposed to keep sediment out of the closed drainage system until the site is stabilized.

Permanent Erosion Control Measures

An open and closed drainage systems are proposed on the site to capture the runoff from the projects. All disturbed earth will be stabilized with permanent vegetation.

Flood Protection

Examination of the Flood Insurance Rate Map for Merrimack County (All Jurisdictions), New Hampshire, Map Numbered 33013C0534E, Effective Date: April 19, 2010, indicates that the proposed work is not located within a 100-year flood hazard area.

Conclusion

Peak Rate Flows

There is no increase in the off-site peak rate of runoff from the project site.

FLOW (CFS)	2-YR		10-YR		25-YR		50-YR		100-YR	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
A	0.85	0.77	1.60	1.34	2.24	1.82	2.86	2.28	3.63	2.85
B	2.78	1.16	5.31	3.54	7.38	5.99	9.33	8.23	11.69	10.88
C	1.75	1.01	3.36	2.15	4.67	3.10	5.89	4.02	7.38	5.14

VOLUME (AF)	2-YR		10-YR	
	Pre	Post	Pre	Post
A	0.09	0.08	0.17	0.15
B	0.35	0.21	0.67	0.54
C	0.24	0.08	0.45	0.16

Treatment

The proposed two (2) bio-retention areas with sediment forebays and three (3) underground storage chambers with isolator rows have been designed to provide adequate treatment for stormwater runoff.

GROUNDWATER RECHARGE VOLULME (GRV) CALCULATION (Env-Wq 1507.04)

-	ac	Area of HSG A soil that was replaced by impervious cover	0.40"
0.48	ac	Area of HSG B soil that was replaced by impervious cover	0.25"
-	ac	Area of HSG C soil that was replaced by impervious cover	0.10"
-	ac	Area of HSG D soil or impervious cover that was replaced by impervious cover	0.0"
0.25	inches	Rd = Weighted groundwater recharge depth	
0.1199	ac-in	GRV = AI * Rd	
435	cf	GRV conversion (ac-in x 43,560 sf/ac x 1ft/12”)	

Provide calculations below showing that the project meets the groundwater recharge requirements (Env-Wq 1507.04):

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	50-YR	Type III 24-hr		Default	24.00	1	6.16	2

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name: **Bio-Retention Area 1 (BR1)**

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.56	ac	A = Area draining to the practice	
0.30	ac	A_I = Impervious area draining to the practice	
0.53	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.53	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.29	ac-in	WQV= 1" x Rv x A	
1,065	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
266	cf	25% x WQV (check calc for sediment forebay volume)	
799	cf	75% x WQV (check calc for surface sand filter volume)	
Sediment forebay		Method of Pretreatment? (not required for clean or roof runoff)	
306	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
Calculate time to drain if system IS NOT underdrained:			
1,576	sf	A_{SA} = Surface area of the practice	
0.80	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
no	Yes/No	If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided? (Use the calculations below)	
10.1	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
Calculate time to drain if system IS underdrained:			
229.09	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
0.03	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
19.73	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	**≤ 72-hrs**
227.00	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
-	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
225.63	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
222.63	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
227.00	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	**≥ 1'**
4.37	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	**≥ 1'**
1.37	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	**≥ 1'**
230.79	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
232.50	ft	Elevation of the top of the practice	
YES		50 peak elevation ≤ Elevation of the top of the practice	**← yes**
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	**< 10 ac**
-	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 75%WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet	-	Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	**← yes**

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
8,346	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
18.0	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet	23	Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	**≥ 3:1**
Sheet	23	Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	**≤ 5:1**
	inches	D_{FC} = Filter course thickness	**12", or 18" if within GPA mod. 304.1 (see spec)**
Sheet		Note what sheet in the plan set contains the filter course spec.	

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

Stage-Discharge for Pond BR1: BR 1

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
228.50	0.00	0.00	0.00
228.55	0.03	0.03	0.00
228.60	0.03	0.03	0.00
228.65	0.03	0.03	0.00
228.70	0.03	0.03	0.00
228.75	0.03	0.03	0.00
228.80	0.03	0.03	0.00
228.85	0.03	0.03	0.00
228.90	0.03	0.03	0.00
228.95	0.03	0.03	0.00
229.00	0.04	0.04	0.00
229.05	0.04	0.04	0.00
229.10	0.04	0.04	0.00
229.15	0.04	0.04	0.00
229.20	0.04	0.04	0.00
229.25	0.04	0.04	0.00
229.30	0.04	0.04	0.00
229.35	0.04	0.04	0.00
229.40	0.04	0.04	0.00
229.45	0.04	0.04	0.00
229.50	0.04	0.04	0.00
229.55	0.04	0.04	0.00
229.60	0.04	0.04	0.00
229.65	0.04	0.04	0.00
229.70	0.04	0.04	0.00
229.75	0.05	0.05	0.00
229.80	0.05	0.05	0.00
229.85	0.05	0.05	0.00
229.90	0.05	0.05	0.00
229.95	0.05	0.05	0.00
230.00	0.05	0.05	0.00
230.05	0.05	0.05	0.00
230.10	0.05	0.05	0.00
230.15	0.05	0.05	0.00
230.20	0.05	0.05	0.00
230.25	0.05	0.05	0.00
230.30	0.05	0.05	0.00
230.35	0.05	0.05	0.00
230.40	0.05	0.05	0.00
230.45	0.06	0.06	0.00
230.50	0.06	0.06	0.00
230.55	0.06	0.06	0.00
230.60	0.06	0.06	0.00
230.65	0.06	0.06	0.00
230.70	0.06	0.06	0.00
230.75	0.06	0.06	0.00
230.80	0.06	0.06	0.00
230.85	0.06	0.06	0.00
230.90	0.06	0.06	0.00
230.95	0.06	0.06	0.00
231.00	0.06	0.06	0.00
231.05	0.06	0.06	0.00
231.10	0.06	0.06	0.00
231.15	0.07	0.07	0.00
231.20	0.07	0.07	0.00
231.25	0.07	0.07	0.00
231.30	0.07	0.07	0.00
231.35	0.07	0.07	0.00
231.40	0.07	0.07	0.00
231.45	0.07	0.07	0.00
231.50	0.07	0.07	0.00
231.55	0.07	0.07	0.00
231.60	0.07	0.07	0.00
231.65	0.07	0.07	0.00
231.70	0.30	0.07	0.23
231.75	1.11	0.07	1.03
231.80	2.32	0.08	2.24
231.85	3.90	0.08	3.82
231.90	5.88	0.08	5.81
231.95	8.30	0.08	8.22
232.00	**11.14**	**0.08**	**11.06**

Stage-Area-Storage for Pond BR1: BR 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
228.50	1,576	0
228.55	1,610	80
228.60	1,643	161
228.65	1,677	244
228.70	1,711	329
228.75	1,745	415
228.80	1,778	503
228.85	1,812	593
228.90	1,846	684
228.95	1,879	777
229.00	1,913	872
229.05	1,949	969
229.10	1,984	1,067
229.15	2,020	1,167
229.20	2,056	1,269
229.25	2,092	1,373
229.30	2,128	1,478
229.35	2,163	1,586
229.40	2,199	1,695
229.45	2,235	1,805
229.50	2,271	1,918
229.55	2,306	2,033
229.60	2,342	2,149
229.65	2,378	2,267
229.70	2,413	2,387
229.75	2,449	2,508
229.80	2,485	2,631
229.85	2,521	2,757
229.90	2,557	2,884
229.95	2,592	3,012
230.00	2,628	3,143
230.05	2,667	3,275
230.10	2,705	3,409
230.15	2,744	3,546
230.20	2,782	3,684
230.25	2,821	3,824
230.30	2,860	3,966
230.35	2,898	4,110
230.40	2,937	4,256
230.45	2,975	4,404
230.50	3,014	4,553
230.55	3,053	4,705
230.60	3,091	4,859
230.65	3,130	5,014
230.70	3,168	5,171
230.75	3,207	5,331
230.80	3,246	5,492
230.85	3,284	5,655
230.90	3,323	5,821
230.95	3,361	5,988
231.00	3,400	6,157
231.05	3,441	6,328
231.10	3,483	6,501
231.15	3,524	6,676
231.20	3,566	6,853
231.25	3,607	7,033
231.30	3,649	7,214
231.35	3,690	7,398
231.40	3,732	7,583
231.45	3,773	7,771
231.50	3,815	7,960
231.55	3,856	8,152
231.60	3,897	8,346
231.65	3,939	8,542
231.70	3,980	8,740
231.75	4,022	8,940
231.80	4,063	9,142
231.85	4,105	9,346
231.90	4,146	9,552
231.95	4,188	9,761
232.00	**4,229**	**9,971**

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name: **Bio-Retention Area 2 (BR2)**

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.45	ac	A = Area draining to the practice	
0.28	ac	A_I = Impervious area draining to the practice	
0.61	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.60	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.27	ac-in	WQV= 1" x Rv x A	
989	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
247	cf	25% x WQV (check calc for sediment forebay volume)	
741	cf	75% x WQV (check calc for surface sand filter volume)	
Sediment forebay		Method of Pretreatment? (not required for clean or roof runoff)	
306	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
Calculate time to drain if system IS NOT underdrained:			
1,241	sf	A_{SA} = Surface area of the practice	
0.80	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
no	Yes/No	If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided? (Use the calculations below)	
11.9	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
Calculate time to drain if system IS underdrained:			
228.65	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
0.03	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
18.31	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	**≤ 72-hrs**
226.50	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
-	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
224.99	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
224.99	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
226.50	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	**≥ 1'**
1.51	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	**≥ 1'**
1.51	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	**≥ 1'**
230.50	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
232.00	ft	Elevation of the top of the practice	
YES		50 peak elevation ≤ Elevation of the top of the practice	**← yes**
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	**< 10 ac**
-	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 75%WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet	-	Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	**← yes**

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
8,600	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
18.0	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet	23	Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	**≥ 3:1**
Sheet	23	Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	**≤ 5:1**
	inches	D_{FC} = Filter course thickness	**12", or 18" if within GPA mod. 304.1 (see spec)**
Sheet		Note what sheet in the plan set contains the filter course spec.	

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

Stage-Discharge for Pond BR2: BR 2

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
228.00	0.00	0.00	0.00
228.05	0.02	0.02	0.00
228.10	0.02	0.02	0.00
228.15	0.02	0.02	0.00
228.20	0.03	0.03	0.00
228.25	0.03	0.03	0.00
228.30	0.03	0.03	0.00
228.35	0.03	0.03	0.00
228.40	0.03	0.03	0.00
228.45	0.03	0.03	0.00
228.50	0.03	0.03	0.00
228.55	0.03	0.03	0.00
228.60	0.03	0.03	0.00
228.65	0.03	0.03	0.00
228.70	0.03	0.03	0.00
228.75	0.03	0.03	0.00
228.80	0.03	0.03	0.00
228.85	0.03	0.03	0.00
228.90	0.03	0.03	0.00
228.95	0.03	0.03	0.00
229.00	0.03	0.03	0.00
229.05	0.03	0.03	0.00
229.10	0.03	0.03	0.00
229.15	0.03	0.03	0.00
229.20	0.04	0.04	0.00
229.25	0.04	0.04	0.00
229.30	0.04	0.04	0.00
229.35	0.04	0.04	0.00
229.40	0.04	0.04	0.00
229.45	0.04	0.04	0.00
229.50	0.04	0.04	0.00
229.55	0.04	0.04	0.00
229.60	0.04	0.04	0.00
229.65	0.04	0.04	0.00
229.70	0.04	0.04	0.00
229.75	0.04	0.04	0.00
229.80	0.04	0.04	0.00
229.85	0.04	0.04	0.00
229.90	0.04	0.04	0.00
229.95	0.04	0.04	0.00
230.00	0.04	0.04	0.00
230.05	0.04	0.04	0.00
230.10	0.05	0.05	0.00
230.15	0.05	0.05	0.00
230.20	0.05	0.05	0.00
230.25	0.05	0.05	0.00
230.30	0.05	0.05	0.00
230.35	0.05	0.05	0.00
230.40	0.05	0.05	0.00
230.45	0.05	0.05	0.00
230.50	0.05	0.05	0.00
230.55	0.05	0.05	0.00
230.60	0.05	0.05	0.00
230.65	0.05	0.05	0.00
230.70	0.05	0.05	0.00
230.75	0.05	0.05	0.00
230.80	0.05	0.05	0.00
230.85	0.05	0.05	0.00
230.90	0.06	0.06	0.00
230.95	0.06	0.06	0.00
231.00	0.06	0.06	0.00
231.05	0.06	0.06	0.00
231.10	0.06	0.06	0.00
231.15	0.06	0.06	0.00
231.20	0.06	0.06	0.00
231.25	0.06	0.06	0.00
231.30	0.06	0.06	0.00
231.35	0.06	0.06	0.00
231.40	0.06	0.06	0.00
231.45	0.06	0.06	0.00
231.50	0.06	0.06	0.00
231.55	0.06	0.06	0.00
231.60	0.06	0.06	0.00
231.65	0.07	0.07	0.00
231.70	0.29	0.07	0.23
231.75	1.10	0.07	1.03
231.80	2.31	0.07	2.24
231.85	3.89	0.07	3.82
231.90	5.87	0.07	5.81
231.95	8.29	0.07	8.22
232.00	**11.13**	**0.07**	**11.06**

Stage-Area-Storage for Pond BR2: BR 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
228.00	1,241	0
228.05	1,268	63
228.10	1,296	127
228.15	1,323	192
228.20	1,351	259
228.25	1,378	327
228.30	1,406	397
228.35	1,433	468
228.40	1,461	540
228.45	1,488	614
228.50	1,516	689
228.55	1,543	766
228.60	1,570	843
228.65	1,598	923
228.70	1,625	1,003
228.75	1,653	1,085
228.80	1,680	1,168
228.85	1,708	1,253
228.90	1,735	1,339
228.95	1,763	1,427
229.00	1,790	1,516
229.05	1,820	1,606
229.10	1,850	1,698
229.15	1,881	1,791
229.20	1,911	1,886
229.25	1,941	1,982
229.30	1,972	2,080
229.35	2,002	2,179
229.40	2,032	2,280
229.45	2,062	2,382
229.50	2,093	2,486
229.55	2,123	2,592
229.60	2,153	2,698
229.65	2,183	2,807
229.70	2,213	2,917
229.75	2,244	3,028
229.80	2,274	3,141
229.85	2,304	3,256
229.90	2,335	3,372
229.95	2,365	3,489
230.00	2,395	3,608
230.05	2,428	3,729
230.10	2,461	3,851
230.15	2,494	3,975
230.20	2,527	4,100
230.25	2,560	4,227
230.30	2,593	4,356
230.35	2,626	4,487
230.40	2,659	4,619
230.45	2,692	4,753
230.50	2,726	4,888
230.55	2,759	5,025
230.60	2,792	5,164
230.65	2,825	5,304
230.70	2,858	5,446
230.75	2,891	5,590
230.80	2,924	5,736
230.85	2,957	5,883
230.90	2,990	6,031
230.95	3,023	6,182
231.00	3,056	6,334
231.05	3,092	6,487
231.10	3,128	6,643
231.15	3,164	6,800
231.20	3,200	6,959
231.25	3,236	7,120
231.30	3,271	7,283
231.35	3,307	7,447
231.40	3,343	7,613
231.45	3,379	7,781
231.50	3,415	7,951
231.55	3,451	8,123
231.60	3,487	8,296
231.65	3,523	8,472
231.70	3,559	8,649
231.75	3,595	8,827
231.80	3,630	9,008
231.85	3,666	9,190
231.90	3,702	9,375
231.95	3,738	9,561
232.00	**3,774**	**9,749**

INFILTRATION PRACTICE CRITERIA
(Env-Wq 1508.06)

Type/Node Name: **ADS Stormtech Infiltration Chamber System 1 (ST1)**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	← **yes**
1.62	ac	A = Area draining to the practice	
1.18	ac	A_I = Impervious area draining to the practice	
0.73	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.70	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
1.14	ac-in	WQV= 1" x Rv x A	
4,133	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
1,033	cf	25% x WQV (check calc for sediment forebay volume)	
Isolator Row		Method of pretreatment? (not required for clean or roof runoff)	
2,968	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ **25%WQV**
4,143	cf	V = Volume[1] (attach a stage-storage table)	≥ **WQV**
10,701	sf	A_{SA} = Surface area of the bottom of the pond	
1.50	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
3.1	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ **72-hrs**
228.50	feet	E_{BTM} = Elevation of the bottom of the basin	
225.50	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
224.50	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
3.00	feet	D_{SHWT} = Separation from SHWT	≥ *[3]
4.0	feet	D_{ROCK} = Separation from bedrock	≥ *[3]
-	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	≥ **24"**
-	ft	D_T = Depth of trench, if trench proposed	**4 - 10 ft**
no	Yes/No	If a trench or underground system is proposed, has observation well been provided?	←**yes**
		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	← **yes**
No	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	← **yes**
0.0	:1	If a basin is proposed, pond side slopes.	≥**3:1**
229.59	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
230.21	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
230.83	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	← **yes**
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← **yes**

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Stage-Discharge for Pond ST1:

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
228.50	0.00	0.00	0.00
228.55	0.18	0.18	0.00
228.60	0.35	**0.35**	0.00
228.65	0.35	**0.35**	0.00
228.70	0.35	0.35	0.00
228.75	0.35	0.35	0.00
228.80	0.35	0.35	0.00
228.85	0.35	0.35	0.00
228.90	0.35	0.35	0.00
228.95	0.35	0.35	0.00
229.00	0.35	0.35	0.00
229.05	0.35	0.35	0.00
229.10	0.35	0.35	0.00
229.15	0.35	0.35	0.00
229.20	0.35	0.35	0.00
229.25	0.35	0.35	0.00
229.30	0.36	0.35	0.01
229.35	0.38	0.35	0.03
229.40	0.42	0.35	0.07
229.45	0.47	0.35	0.12
229.50	0.54	0.35	0.19
229.55	0.62	0.35	0.27
229.60	0.71	0.35	0.36
229.65	0.80	0.35	0.45
229.70	0.90	0.35	0.55
229.75	1.01	0.35	0.66
229.80	1.11	0.35	0.76
229.85	1.21	0.35	0.85
229.90	1.29	0.35	0.94
229.95	1.36	0.35	1.00
230.00	1.42	0.35	1.07
230.05	1.49	0.35	1.14
230.10	1.55	0.35	1.20
230.15	1.61	0.35	1.25
230.20	1.66	0.35	1.31
230.25	1.71	0.35	1.36
230.30	1.76	0.35	1.41
230.35	1.81	0.35	1.46
230.40	1.86	0.35	1.51
230.45	1.91	0.35	1.56
230.50	1.95	0.35	1.60
230.55	2.00	0.35	1.64
230.60	2.04	0.35	1.69
230.65	2.08	0.35	1.73
230.70	2.12	0.35	1.77
230.75	2.16	0.35	1.81
230.80	**2.20**	0.35	**1.85**

Stage-Area-Storage for Pond ST1:

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
228.50	**10,126**	0
228.55	10,126	203
228.60	10,126	405
228.65	10,126	608
228.70	10,126	810
228.75	10,126	1,013
228.80	10,126	1,215
228.85	10,126	1,418
228.90	10,126	1,620
228.95	10,126	1,823
229.00	10,126	2,025
229.05	10,126	2,437
229.10	10,126	2,848
229.15	10,126	3,256
229.20	10,126	3,662
229.25	10,126	4,063
229.30	10,126	4,462
229.35	10,126	4,856
229.40	10,126	5,245
229.45	10,126	5,630
229.50	10,126	6,009
229.55	10,126	6,383
229.60	10,126	6,752
229.65	10,126	7,114
229.70	10,126	7,471
229.75	10,126	7,820
229.80	10,126	8,161
229.85	10,126	8,493
229.90	10,126	8,816
229.95	10,126	9,129
230.00	10,126	9,430
230.05	10,126	9,715
230.10	10,126	9,980
230.15	10,126	10,228
230.20	10,126	10,460
230.25	10,126	10,683
230.30	10,126	10,897
230.35	10,126	11,102
230.40	10,126	11,304
230.45	10,126	11,507
230.50	10,126	11,709
230.55	10,126	11,912
230.60	10,126	12,114
230.65	10,126	12,317
230.70	10,126	12,519
230.75	10,126	12,722
230.80	10,126	**12,924**

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

INFILTRATION PRACTICE CRITERIA (Env-Wq 1508.06)

Type/Node Name: **ADS Stormtech Infiltration Chamber System 2 (ST2)**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	← **yes**
0.51	ac	A = Area draining to the practice	
0.48	ac	A_I = Impervious area draining to the practice	
0.96	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.91	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.46	ac-in	WQV= 1" x Rv x A	
1,674	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
419	cf	25% x WQV (check calc for sediment forebay volume)	
Isolator Row		Method of pretreatment? (not required for clean or roof runoff)	
560	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ **25%WQV**
1,679	cf	V = Volume[1] (attach a stage-storage table)	≥ **WQV**
3,938	sf	A_{SA} = Surface area of the bottom of the pond	
0.75	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
6.8	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ **72-hrs**
227.10	feet	E_{BTM} = Elevation of the bottom of the basin	
224.10	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
223.11	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
3.00	feet	D_{SHWT} = Separation from SHWT	≥ *[3]
4.0	feet	D_{ROCK} = Separation from bedrock	≥ *[3]
-	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	≥ **24"**
-	ft	D_T = Depth of trench, if trench proposed	**4 - 10 ft**
-	Yes/No	If a trench or underground system is proposed, has observation well been provided?	←**yes**
		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	← **yes**
No	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	← **yes**
0.0	:1	If a basin is proposed, pond side slopes.	≥**3:1**
228.27	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
228.67	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
229.43	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	← **yes**
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← **yes**

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Stage-Discharge for Pond ST2:

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
227.10	0.00	0.00	0.00
227.15	0.03	0.03	0.00
227.20	0.07	0.07	0.00
227.25	0.07	0.07	0.00
227.30	0.07	0.07	0.00
227.35	0.07	0.07	0.00
227.40	0.07	0.07	0.00
227.45	0.07	0.07	0.00
227.50	0.07	0.07	0.00
227.55	0.07	0.07	0.00
227.60	0.07	0.07	0.00
227.65	0.07	0.07	0.00
227.70	0.07	0.07	0.00
227.75	0.07	0.07	0.00
227.80	0.07	0.07	0.00
227.85	0.07	0.07	0.00
227.90	0.07	0.07	0.00
227.95	0.09	0.07	0.01
228.00	0.12	0.07	0.04
228.05	0.16	0.07	0.09
228.10	0.22	0.07	0.15
228.15	0.29	0.07	0.22
228.20	0.38	0.07	0.30
228.25	0.47	0.07	0.39
228.30	0.57	0.07	0.49
228.35	0.67	0.07	0.59
228.40	0.77	0.07	0.70
228.45	0.87	0.07	0.80
228.50	0.97	0.08	0.89
228.55	1.04	0.08	0.96
228.60	1.11	0.08	1.03
228.65	1.17	0.08	1.10
228.70	1.24	0.08	1.16
228.75	1.30	0.08	1.22
228.80	1.35	0.08	1.28
228.85	1.41	0.08	1.33
228.90	1.46	0.08	1.38
228.95	1.51	0.08	1.43
229.00	1.56	0.08	1.48
229.05	1.61	0.08	1.53
229.10	1.65	0.08	1.57
229.15	1.70	0.08	1.62
229.20	1.74	0.08	1.66
229.25	1.78	0.08	1.70
229.30	1.82	0.08	1.74
229.35	1.86	0.08	1.78
229.40	**1.90**	**0.08**	**1.82**

Stage-Area-Storage for Pond ST2:

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
227.10	3,938	0
227.15	3,952	79
227.20	3,966	158
227.25	3,980	236
227.30	3,994	315
227.35	4,008	394
227.40	4,022	473
227.45	4,036	551
227.50	4,050	630
227.55	4,064	709
227.60	4,079	788
227.65	4,093	943
227.70	4,107	1,099
227.75	4,121	1,253
227.80	4,135	1,407
227.85	4,149	1,559
227.90	4,163	1,709
227.95	4,177	1,858
228.00	4,191	2,006
228.05	4,205	2,152
228.10	4,219	2,295
228.15	4,233	2,437
228.20	4,247	2,577
228.25	4,261	2,715
228.30	4,275	2,850
228.35	4,289	2,983
228.40	4,303	3,112
228.45	4,317	3,239
228.50	4,331	3,362
228.55	4,345	3,481
228.60	4,359	3,596
228.65	4,373	3,705
228.70	4,387	3,807
228.75	4,401	3,902
228.80	4,415	3,992
228.85	4,429	4,078
228.90	4,443	4,161
228.95	4,457	4,241
229.00	4,471	4,320
229.05	4,485	4,399
229.10	4,499	4,477
229.15	4,513	4,556
229.20	4,527	4,635
229.25	4,541	4,714
229.30	4,556	4,792
229.35	4,570	4,871
229.40	**4,584**	**4,950**

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

INFILTRATION PRACTICE CRITERIA (Env-Wq 1508.06)

Type/Node Name: **ADS Stormtech Infiltration Chamber System 3 (ST3)**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	← **yes**
0.51	ac	A = Area draining to the practice	
0.36	ac	A_I = Impervious area draining to the practice	
0.71	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.69	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.35	ac-in	WQV= 1" x Rv x A	
1,269	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
317	cf	25% x WQV (check calc for sediment forebay volume)	
Isolator Row		Method of pretreatment? (not required for clean or roof runoff)	
2,016	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ **25%WQV**
1,323	cf	V = Volume[1] (attach a stage-storage table)	≥ **WQV**
4,137	sf	A_{SA} = Surface area of the bottom of the pond	
0.75	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
4.9	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ **72-hrs**
227.00	feet	E_{BTM} = Elevation of the bottom of the basin	
223.89	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
222.89	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
3.11	feet	D_{SHWT} = Separation from SHWT	≥ *[3]
4.1	feet	D_{ROCK} = Separation from bedrock	≥ *[3]
-	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	≥ **24"**
-	ft	D_T = Depth of trench, if trench proposed	**4 - 10 ft**
yes	Yes/No	If a trench or underground system is proposed, has observation well been provided?	←**yes**
-		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	← **yes**
No	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	← **yes**
0.0	:1	If a basin is proposed, pond side slopes.	≥**3:1**
227.42	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
227.81	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
228.83	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	← **yes**
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← **yes**

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

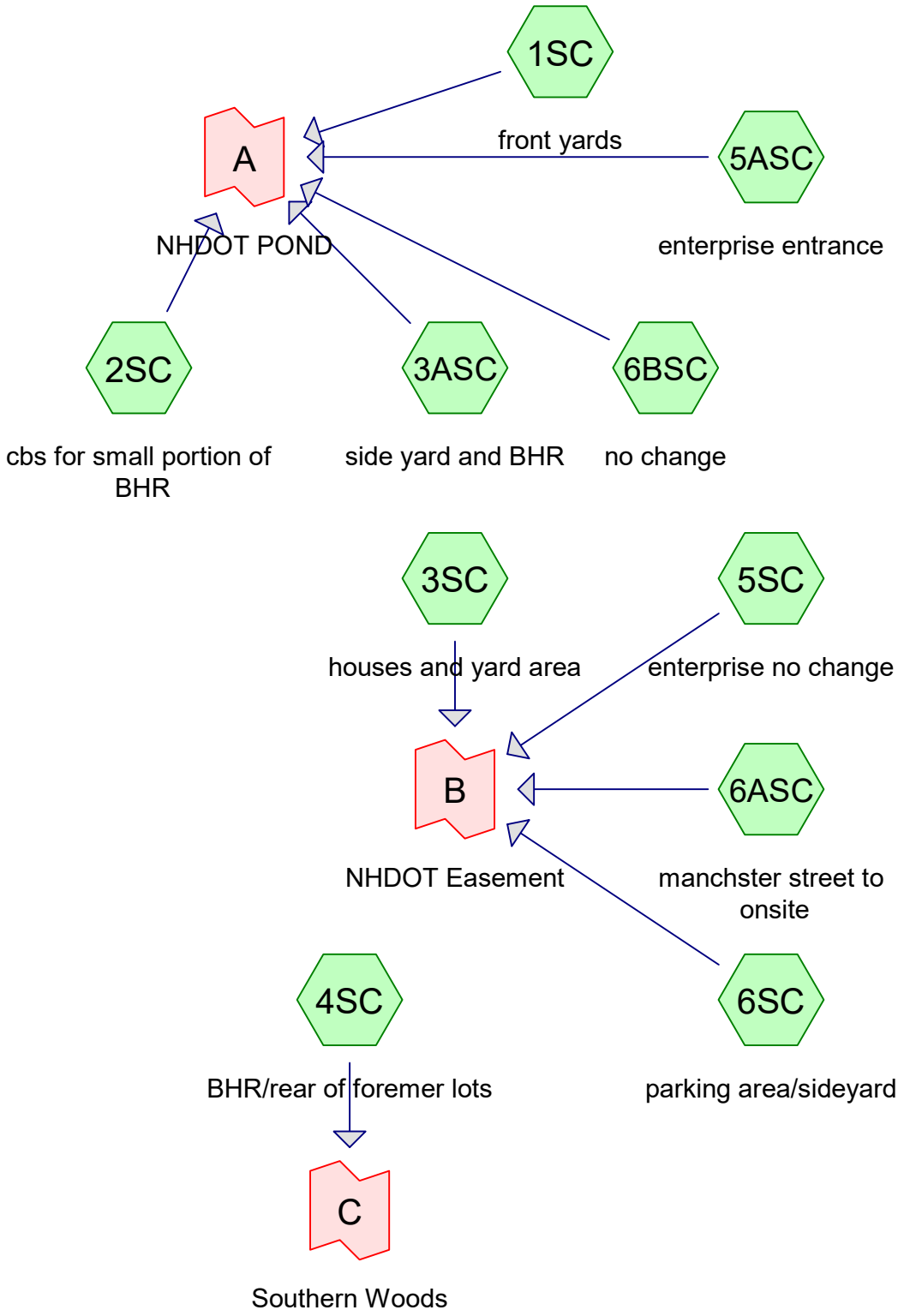
Designer's Notes:

Stage-Discharge for Pond ST3:

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
226.50	0.00	0.00	0.00
226.55	0.04	0.04	0.00
226.60	0.07	0.07	0.00
226.65	0.07	0.07	0.00
226.70	0.07	0.07	0.00
226.75	0.07	0.07	0.00
226.80	0.07	0.07	0.00
226.85	0.07	0.07	0.00
226.90	0.07	0.07	0.00
226.95	0.07	0.07	0.00
227.00	0.07	0.07	0.00
227.05	0.07	0.07	0.00
227.10	0.08	0.08	0.00
227.15	0.08	0.08	0.00
227.20	0.08	0.08	0.01
227.25	0.11	0.08	0.03
227.30	0.14	0.08	0.07
227.35	0.19	0.08	0.11
227.40	0.24	0.08	0.17
227.45	0.31	0.08	0.23
227.50	0.37	0.08	0.30
227.55	0.44	0.08	0.36
227.60	0.50	0.08	0.43
227.65	0.55	0.08	0.47
227.70	0.60	0.08	0.52
227.75	0.64	0.08	0.56
227.80	0.68	0.08	0.60
227.85	0.71	0.08	0.63
227.90	0.75	0.08	0.67
227.95	0.78	0.08	0.70
228.00	0.81	0.08	0.73
228.05	0.84	0.08	0.76
228.10	0.87	0.08	0.79
228.15	0.90	0.08	0.82
228.20	0.93	0.08	0.85
228.25	0.95	0.08	0.87
228.30	0.98	0.08	0.90
228.35	1.00	0.08	0.92
228.40	1.03	0.08	0.95
228.45	1.05	0.08	0.97
228.50	1.07	0.08	0.99
228.55	1.10	0.08	1.01
228.60	1.12	0.08	1.04
228.65	1.14	0.08	1.06
228.70	1.16	0.08	1.08
228.75	1.18	0.08	1.10
228.80	**1.20**	**0.08**	**1.12**

Stage-Area-Storage for Pond ST3:

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
226.50	4,138	0
226.55	4,154	83
226.60	4,170	166
226.65	4,187	248
226.70	4,203	331
226.75	4,219	414
226.80	4,236	497
226.85	4,252	579
226.90	4,268	662
226.95	4,284	745
227.00	4,301	828
227.05	4,317	994
227.10	4,333	1,159
227.15	4,350	1,323
227.20	4,366	1,487
227.25	4,382	1,649
227.30	4,398	1,809
227.35	4,415	1,968
227.40	4,431	2,125
227.45	4,447	2,280
227.50	4,464	2,433
227.55	4,480	2,584
227.60	4,496	2,732
227.65	4,512	2,879
227.70	4,529	3,023
227.75	4,545	3,164
227.80	4,561	3,301
227.85	4,578	3,436
227.90	4,594	3,566
227.95	4,610	3,693
228.00	4,626	3,815
228.05	4,643	3,930
228.10	4,659	4,038
228.15	4,675	4,138
228.20	4,692	4,233
228.25	4,708	4,324
228.30	4,724	4,411
228.35	4,740	4,495
228.40	4,757	4,578
228.45	4,773	4,660
228.50	4,789	4,743
228.55	4,806	4,826
228.60	4,822	4,909
228.65	4,838	4,991
228.70	4,854	5,074
228.75	4,871	5,157
228.80	**4,887**	**5,240**



Subcat Reach Pond Link

Routing Diagram for nault pre PHASE 1
Prepared by T F Moran Inc, Printed 7/11/2024
HydroCAD® 10.20-4a s/n 00866 © 2023 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-YR	Type III 24-hr		Default	24.00	1	2.82	2
2	10-YR	Type III 24-hr		Default	24.00	1	4.16	2
3	25-YR	Type III 24-hr		Default	24.00	1	5.20	2
4	50-YR	Type III 24-hr		Default	24.00	1	6.16	2
5	100-YR	Type III 24-hr		Default	24.00	1	7.31	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
127,714	61	>75% Grass cover, Good, HSG B (1SC, 2SC, 3ASC, 3SC, 4SC, 5ASC, 5SC, 6SC)
153,351	98	Paved parking, HSG B (1SC, 2SC, 3ASC, 3SC, 4SC, 5ASC, 5SC, 6ASC, 6BSC, 6SC)
14,020	98	Roofs, HSG B (1SC, 3SC, 4SC, 5SC, 6SC)
40,404	55	Woods, Good, HSG B (1SC, 3ASC, 3SC, 4SC, 5SC, 6SC)
335,489	**79**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
335,489	HSG B	1SC, 2SC, 3ASC, 3SC, 4SC, 5ASC, 5SC, 6ASC, 6BSC, 6SC
0	HSG C	
0	HSG D	
0	Other	
335,489		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Su Nu
0	127,714	0	0	0	127,714	>75% Grass cover, Good	
0	153,351	0	0	0	153,351	Paved parking	
0	14,020	0	0	0	14,020	Roofs	
0	40,404	0	0	0	40,404	Woods, Good	
0	**335,489**	**0**	**0**	**0**	**335,489**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1SC: front yards Runoff Area=21,591 sf 10.92% Impervious Runoff Depth>0.39"
Flow Length=100' Slope=0.0100 '/' Tc=30.8 min CN=64 Runoff=0.09 cfs 698 cf

Subcatchment 2SC: cbs for small portion of Runoff Area=3,785 sf 31.78% Impervious Runoff Depth>0.74"
Flow Length=135' Slope=0.0050 '/' Tc=41.8 min CN=73 Runoff=0.03 cfs 233 cf

Subcatchment 3ASC: side yard and BHR Runoff Area=6,569 sf 75.58% Impervious Runoff Depth>1.65"
Flow Length=64' Slope=0.0100 '/' Tc=21.5 min CN=88 Runoff=0.19 cfs 905 cf

Subcatchment 3SC: houses and yard area Runoff Area=43,814 sf 8.31% Impervious Runoff Depth>0.32"
Flow Length=293' Slope=0.0100 '/' Tc=35.4 min CN=62 Runoff=0.12 cfs 1,184 cf

Subcatchment 4SC: BHR/rear of foremer Runoff Area=100,354 sf 58.93% Impervious Runoff Depth>1.23"
Flow Length=198' Tc=34.2 min CN=82 Runoff=1.75 cfs 10,279 cf

Subcatchment 5ASC: enterprise entrance Runoff Area=3,136 sf 46.49% Impervious Runoff Depth>1.00"
Tc=6.0 min CN=78 Runoff=0.08 cfs 262 cf

Subcatchment 5SC: enterprise no change Runoff Area=44,417 sf 56.84% Impervious Runoff Depth>1.23"
Flow Length=168' Tc=33.8 min CN=82 Runoff=0.78 cfs 4,550 cf

Subcatchment 6ASC: manchster street to Runoff Area=10,032 sf 100.00% Impervious Runoff Depth>2.58"
Flow Length=376' Slope=0.0300 '/' Tc=23.6 min CN=98 Runoff=0.40 cfs 2,157 cf

Subcatchment 6BSC: no change Runoff Area=9,809 sf 100.00% Impervious Runoff Depth>2.59"
Tc=6.0 min CN=98 Runoff=0.60 cfs 2,115 cf

Subcatchment 6SC: parking area/sideyard Runoff Area=91,982 sf 53.84% Impervious Runoff Depth>1.11"
Flow Length=376' Slope=0.0300 '/' Tc=23.6 min CN=80 Runoff=1.69 cfs 8,513 cf

Link A: NHDOT POND Inflow=0.79 cfs 4,213 cf
Primary=0.79 cfs 4,213 cf

Link B: NHDOT Easement Inflow=2.84 cfs 16,404 cf
Primary=2.84 cfs 16,404 cf

Link C: Southern Woods Inflow=1.75 cfs 10,279 cf
Primary=1.75 cfs 10,279 cf

Total Runoff Area = 335,489 sf Runoff Volume = 30,896 cf Average Runoff Depth = 1.11"
50.11% Pervious = 168,118 sf 49.89% Impervious = 167,371 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1SC: front yards Runoff Area=21,591 sf 10.92% Impervious Runoff Depth>1.05"
Flow Length=100' Slope=0.0100 '/' Tc=30.8 min CN=64 Runoff=0.31 cfs 1,897 cf

Subcatchment 2SC: cbs for small portion of Runoff Area=3,785 sf 31.78% Impervious Runoff Depth>1.63"
Flow Length=135' Slope=0.0050 '/' Tc=41.8 min CN=73 Runoff=0.08 cfs 513 cf

Subcatchment 3ASC: side yard and BHR Runoff Area=6,569 sf 75.58% Impervious Runoff Depth>2.87"
Flow Length=64' Slope=0.0100 '/' Tc=21.5 min CN=88 Runoff=0.33 cfs 1,570 cf

Subcatchment 3SC: houses and yard area Runoff Area=43,814 sf 8.31% Impervious Runoff Depth>0.94"
Flow Length=293' Slope=0.0100 '/' Tc=35.4 min CN=62 Runoff=0.50 cfs 3,430 cf

Subcatchment 4SC: BHR/rear of foremer Runoff Area=100,354 sf 58.93% Impervious Runoff Depth>2.32"
Flow Length=198' Tc=34.2 min CN=82 Runoff=3.36 cfs 19,438 cf

Subcatchment 5ASC: enterprise entrance Runoff Area=3,136 sf 46.49% Impervious Runoff Depth>2.01"
Tc=6.0 min CN=78 Runoff=0.17 cfs 526 cf

Subcatchment 5SC: enterprise no change Runoff Area=44,417 sf 56.84% Impervious Runoff Depth>2.32"
Flow Length=168' Tc=33.8 min CN=82 Runoff=1.50 cfs 8,604 cf

Subcatchment 6ASC: manchster street to Runoff Area=10,032 sf 100.00% Impervious Runoff Depth>3.91"
Flow Length=376' Slope=0.0300 '/' Tc=23.6 min CN=98 Runoff=0.59 cfs 3,271 cf

Subcatchment 6BSC: no change Runoff Area=9,809 sf 100.00% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=98 Runoff=0.89 cfs 3,206 cf

Subcatchment 6SC: parking area/sideyard Runoff Area=91,982 sf 53.84% Impervious Runoff Depth>2.16"
Flow Length=376' Slope=0.0300 '/' Tc=23.6 min CN=80 Runoff=3.37 cfs 16,590 cf

Link A: NHDOT POND Inflow=1.34 cfs 7,712 cf
Primary=1.34 cfs 7,712 cf

Link B: NHDOT Easement Inflow=5.69 cfs 31,895 cf
Primary=5.69 cfs 31,895 cf

Link C: Southern Woods Inflow=3.36 cfs 19,438 cf
Primary=3.36 cfs 19,438 cf

Total Runoff Area = 335,489 sf Runoff Volume = 59,045 cf Average Runoff Depth = 2.11"
50.11% Pervious = 168,118 sf 49.89% Impervious = 167,371 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1SC: front yards Runoff Area=21,591 sf 10.92% Impervious Runoff Depth>1.70"
Flow Length=100' Slope=0.0100 '/' Tc=30.8 min CN=64 Runoff=0.53 cfs 3,056 cf

Subcatchment 2SC: cbs for small portion of Runoff Area=3,785 sf 31.78% Impervious Runoff Depth>2.42"
Flow Length=135' Slope=0.0050 '/' Tc=41.8 min CN=73 Runoff=0.12 cfs 762 cf

Subcatchment 3ASC: side yard and BHR Runoff Area=6,569 sf 75.58% Impervious Runoff Depth>3.85"
Flow Length=64' Slope=0.0100 '/' Tc=21.5 min CN=88 Runoff=0.44 cfs 2,105 cf

Subcatchment 3SC: houses and yard area Runoff Area=43,814 sf 8.31% Impervious Runoff Depth>1.55"
Flow Length=293' Slope=0.0100 '/' Tc=35.4 min CN=62 Runoff=0.90 cfs 5,652 cf

Subcatchment 4SC: BHR/rear of foremer Runoff Area=100,354 sf 58.93% Impervious Runoff Depth>3.24"
Flow Length=198' Tc=34.2 min CN=82 Runoff=4.67 cfs 27,076 cf

Subcatchment 5ASC: enterprise entrance Runoff Area=3,136 sf 46.49% Impervious Runoff Depth>2.88"
Tc=6.0 min CN=78 Runoff=0.24 cfs 753 cf

Subcatchment 5SC: enterprise no change Runoff Area=44,417 sf 56.84% Impervious Runoff Depth>3.24"
Flow Length=168' Tc=33.8 min CN=82 Runoff=2.08 cfs 11,985 cf

Subcatchment 6ASC: manchster street to Runoff Area=10,032 sf 100.00% Impervious Runoff Depth>4.95"
Flow Length=376' Slope=0.0300 '/' Tc=23.6 min CN=98 Runoff=0.75 cfs 4,136 cf

Subcatchment 6BSC: no change Runoff Area=9,809 sf 100.00% Impervious Runoff Depth>4.96"
Tc=6.0 min CN=98 Runoff=1.12 cfs 4,054 cf

Subcatchment 6SC: parking area/sideyard Runoff Area=91,982 sf 53.84% Impervious Runoff Depth>3.05"
Flow Length=376' Slope=0.0300 '/' Tc=23.6 min CN=80 Runoff=4.76 cfs 23,413 cf

Link A: NHDOT POND Inflow=1.81 cfs 10,730 cf
Primary=1.81 cfs 10,730 cf

Link B: NHDOT Easement Inflow=8.11 cfs 45,187 cf
Primary=8.11 cfs 45,187 cf

Link C: Southern Woods Inflow=4.67 cfs 27,076 cf
Primary=4.67 cfs 27,076 cf

Total Runoff Area = 335,489 sf Runoff Volume = 82,992 cf Average Runoff Depth = 2.97"
50.11% Pervious = 168,118 sf 49.89% Impervious = 167,371 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1SC: front yards Runoff Area=21,591 sf 10.92% Impervious Runoff Depth>2.36"
Flow Length=100' Slope=0.0100 '/' Tc=30.8 min CN=64 Runoff=0.75 cfs 4,247 cf

Subcatchment 2SC: cbs for small portion of Runoff Area=3,785 sf 31.78% Impervious Runoff Depth>3.19"
Flow Length=135' Slope=0.0050 '/' Tc=41.8 min CN=73 Runoff=0.16 cfs 1,007 cf

Subcatchment 3ASC: side yard and BHR Runoff Area=6,569 sf 75.58% Impervious Runoff Depth>4.76"
Flow Length=64' Slope=0.0100 '/' Tc=21.5 min CN=88 Runoff=0.54 cfs 2,608 cf

Subcatchment 3SC: houses and yard area Runoff Area=43,814 sf 8.31% Impervious Runoff Depth>2.18"
Flow Length=293' Slope=0.0100 '/' Tc=35.4 min CN=62 Runoff=1.30 cfs 7,963 cf

Subcatchment 4SC: BHR/rear of foremer Runoff Area=100,354 sf 58.93% Impervious Runoff Depth>4.11"
Flow Length=198' Tc=34.2 min CN=82 Runoff=5.89 cfs 34,365 cf

Subcatchment 5ASC: enterprise entrance Runoff Area=3,136 sf 46.49% Impervious Runoff Depth>3.72"
Tc=6.0 min CN=78 Runoff=0.31 cfs 971 cf

Subcatchment 5SC: enterprise no change Runoff Area=44,417 sf 56.84% Impervious Runoff Depth>4.11"
Flow Length=168' Tc=33.8 min CN=82 Runoff=2.62 cfs 15,211 cf

Subcatchment 6ASC: manchster street to Runoff Area=10,032 sf 100.00% Impervious Runoff Depth>5.90"
Flow Length=376' Slope=0.0300 '/' Tc=23.6 min CN=98 Runoff=0.88 cfs 4,935 cf

Subcatchment 6BSC: no change Runoff Area=9,809 sf 100.00% Impervious Runoff Depth>5.92"
Tc=6.0 min CN=98 Runoff=1.33 cfs 4,838 cf

Subcatchment 6SC: parking area/sideyard Runoff Area=91,982 sf 53.84% Impervious Runoff Depth>3.91"
Flow Length=376' Slope=0.0300 '/' Tc=23.6 min CN=80 Runoff=6.08 cfs 29,966 cf

Link A: NHDOT POND Inflow=2.26 cfs 13,671 cf
Primary=2.26 cfs 13,671 cf

Link B: NHDOT Easement Inflow=10.43 cfs 58,075 cf
Primary=10.43 cfs 58,075 cf

Link C: Southern Woods Inflow=5.89 cfs 34,365 cf
Primary=5.89 cfs 34,365 cf

Total Runoff Area = 335,489 sf Runoff Volume = 106,111 cf Average Runoff Depth = 3.80"
50.11% Pervious = 168,118 sf 49.89% Impervious = 167,371 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1SC: front yards Runoff Area=21,591 sf 10.92% Impervious Runoff Depth>3.22"
Flow Length=100' Slope=0.0100 '/' Tc=30.8 min CN=64 Runoff=1.04 cfs 5,788 cf

Subcatchment 2SC: cbs for small portion of Runoff Area=3,785 sf 31.78% Impervious Runoff Depth>4.17"
Flow Length=135' Slope=0.0050 '/' Tc=41.8 min CN=73 Runoff=0.21 cfs 1,315 cf

Subcatchment 3ASC: side yard and BHR Runoff Area=6,569 sf 75.58% Impervious Runoff Depth>5.88"
Flow Length=64' Slope=0.0100 '/' Tc=21.5 min CN=88 Runoff=0.65 cfs 3,217 cf

Subcatchment 3SC: houses and yard area Runoff Area=43,814 sf 8.31% Impervious Runoff Depth>3.01"
Flow Length=293' Slope=0.0100 '/' Tc=35.4 min CN=62 Runoff=1.83 cfs 10,974 cf

Subcatchment 4SC: BHR/rear of foremer Runoff Area=100,354 sf 58.93% Impervious Runoff Depth>5.18"
Flow Length=198' Tc=34.2 min CN=82 Runoff=7.38 cfs 43,292 cf

Subcatchment 5ASC: enterprise entrance Runoff Area=3,136 sf 46.49% Impervious Runoff Depth>4.75"
Tc=6.0 min CN=78 Runoff=0.39 cfs 1,242 cf

Subcatchment 5SC: enterprise no change Runoff Area=44,417 sf 56.84% Impervious Runoff Depth>5.18"
Flow Length=168' Tc=33.8 min CN=82 Runoff=3.28 cfs 19,162 cf

Subcatchment 6ASC: manchster street to Runoff Area=10,032 sf 100.00% Impervious Runoff Depth>7.05"
Flow Length=376' Slope=0.0300 '/' Tc=23.6 min CN=98 Runoff=1.05 cfs 5,893 cf

Subcatchment 6BSC: no change Runoff Area=9,809 sf 100.00% Impervious Runoff Depth>7.07"
Tc=6.0 min CN=98 Runoff=1.58 cfs 5,776 cf

Subcatchment 6SC: parking area/sideyard Runoff Area=91,982 sf 53.84% Impervious Runoff Depth>4.96"
Flow Length=376' Slope=0.0300 '/' Tc=23.6 min CN=80 Runoff=7.68 cfs 38,028 cf

Link A: NHDOT POND Inflow=2.82 cfs 17,337 cf
Primary=2.82 cfs 17,337 cf

Link B: NHDOT Easement Inflow=13.26 cfs 74,058 cf
Primary=13.26 cfs 74,058 cf

Link C: Southern Woods Inflow=7.38 cfs 43,292 cf
Primary=7.38 cfs 43,292 cf

Total Runoff Area = 335,489 sf Runoff Volume = 134,687 cf Average Runoff Depth = 4.82"
50.11% Pervious = 168,118 sf 49.89% Impervious = 167,371 sf

Summary for Subcatchment 1SC: front yards

Runoff = 0.31 cfs @ 12.49 hrs, Volume= 1,897 cf, Depth> 1.05"
Routed to Link A : NHDOT POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
874	98	Roofs, HSG B
13,847	61	>75% Grass cover, Good, HSG B
1,483	98	Paved parking, HSG B
5,387	55	Woods, Good, HSG B
21,591	64	Weighted Average
19,234		89.08% Pervious Area
2,357		10.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.8	100	0.0100	0.05		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"

Summary for Subcatchment 2SC: cbs for small portion of BHR

Runoff = 0.08 cfs @ 12.61 hrs, Volume= 513 cf, Depth> 1.63"
Routed to Link A : NHDOT POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
1,203	98	Paved parking, HSG B
2,582	61	>75% Grass cover, Good, HSG B
3,785	73	Weighted Average
2,582		68.22% Pervious Area
1,203		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.6	100	0.0050	0.04		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
1.2	35	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
41.8	135	Total			

Summary for Subcatchment 3ASC: side yard and BHR

Runoff = 0.33 cfs @ 12.29 hrs, Volume= 1,570 cf, Depth> 2.87"
Routed to Link A : NHDOT POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
4,965	98	Paved parking, HSG B
795	61	>75% Grass cover, Good, HSG B
809	55	Woods, Good, HSG B
6,569	88	Weighted Average
1,604		24.42% Pervious Area
4,965		75.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	64	0.0100	0.05		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"

Summary for Subcatchment 3SC: houses and yard area

Runoff = 0.50 cfs @ 12.57 hrs, Volume= 3,430 cf, Depth> 0.94"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
2,148	98	Paved parking, HSG B
1,493	98	Roofs, HSG B
21,941	61	>75% Grass cover, Good, HSG B
18,232	55	Woods, Good, HSG B
43,814	62	Weighted Average
40,173		91.69% Pervious Area
3,641		8.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.8	100	0.0100	0.05		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
4.6	193	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
35.4	293	Total			

Summary for Subcatchment 4SC: BHR/rear of foremer lots

Runoff = 3.36 cfs @ 12.48 hrs, Volume= 19,438 cf, Depth> 2.32"
Routed to Link C : Southern Woods

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
53,782	98	Paved parking, HSG B
5,357	98	Roofs, HSG B
33,322	61	>75% Grass cover, Good, HSG B
7,893	55	Woods, Good, HSG B
100,354	82	Weighted Average
41,215		41.07% Pervious Area
59,139		58.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.8	100	0.0100	0.05		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
3.4	98	0.0090	0.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
34.2	198	Total			

Summary for Subcatchment 5ASC: enterprise entrance

Runoff = 0.17 cfs @ 12.09 hrs, Volume= 526 cf, Depth> 2.01"
Routed to Link A : NHDOT POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
1,458	98	Paved parking, HSG B
1,678	61	>75% Grass cover, Good, HSG B
3,136	78	Weighted Average
1,678		53.51% Pervious Area
1,458		46.49% Impervious Area

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

Summary for Subcatchment 5SC: enterprise no change

Runoff = 1.50 cfs @ 12.47 hrs, Volume= 8,604 cf, Depth> 2.32"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
23,787	98	Paved parking, HSG B
1,545	55	Woods, Good, HSG B
1,460	98	Roofs, HSG B
17,625	61	>75% Grass cover, Good, HSG B
44,417	82	Weighted Average
19,170		43.16% Pervious Area
25,247		56.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2	100	0.0100	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.82"
3.6	68	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
33.8	168	Total			

Summary for Subcatchment 6ASC: manchster street to onsite

Runoff = 0.59 cfs @ 12.31 hrs, Volume= 3,271 cf, Depth> 3.91"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
10,032	98	Paved parking, HSG B
10,032		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	100	0.0300	0.08		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
3.8	276	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
23.6	376	Total			

Summary for Subcatchment 6BSC: no change

Runoff = 0.89 cfs @ 12.09 hrs, Volume= 3,206 cf, Depth> 3.92"
Routed to Link A : NHDOT POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
9,809	98	Paved parking, HSG B
9,809		100.00% Impervious Area

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

Summary for Subcatchment 6SC: parking area/sideyard

Runoff = 3.37 cfs @ 12.33 hrs, Volume= 16,590 cf, Depth> 2.16"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
44,684	98	Paved parking, HSG B
4,836	98	Roofs, HSG B
35,924	61	>75% Grass cover, Good, HSG B
6,538	55	Woods, Good, HSG B
91,982	80	Weighted Average
42,462		46.16% Pervious Area
49,520		53.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	100	0.0300	0.08		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
3.8	276	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
23.6	376	Total			

Summary for Link A: NHDOT POND

Inflow Area = 44,890 sf, 44.09% Impervious, Inflow Depth > 2.06" for 10-YR event
Inflow = 1.34 cfs @ 12.10 hrs, Volume= 7,712 cf
Primary = 1.34 cfs @ 12.10 hrs, Volume= 7,712 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link B: NHDOT Easement

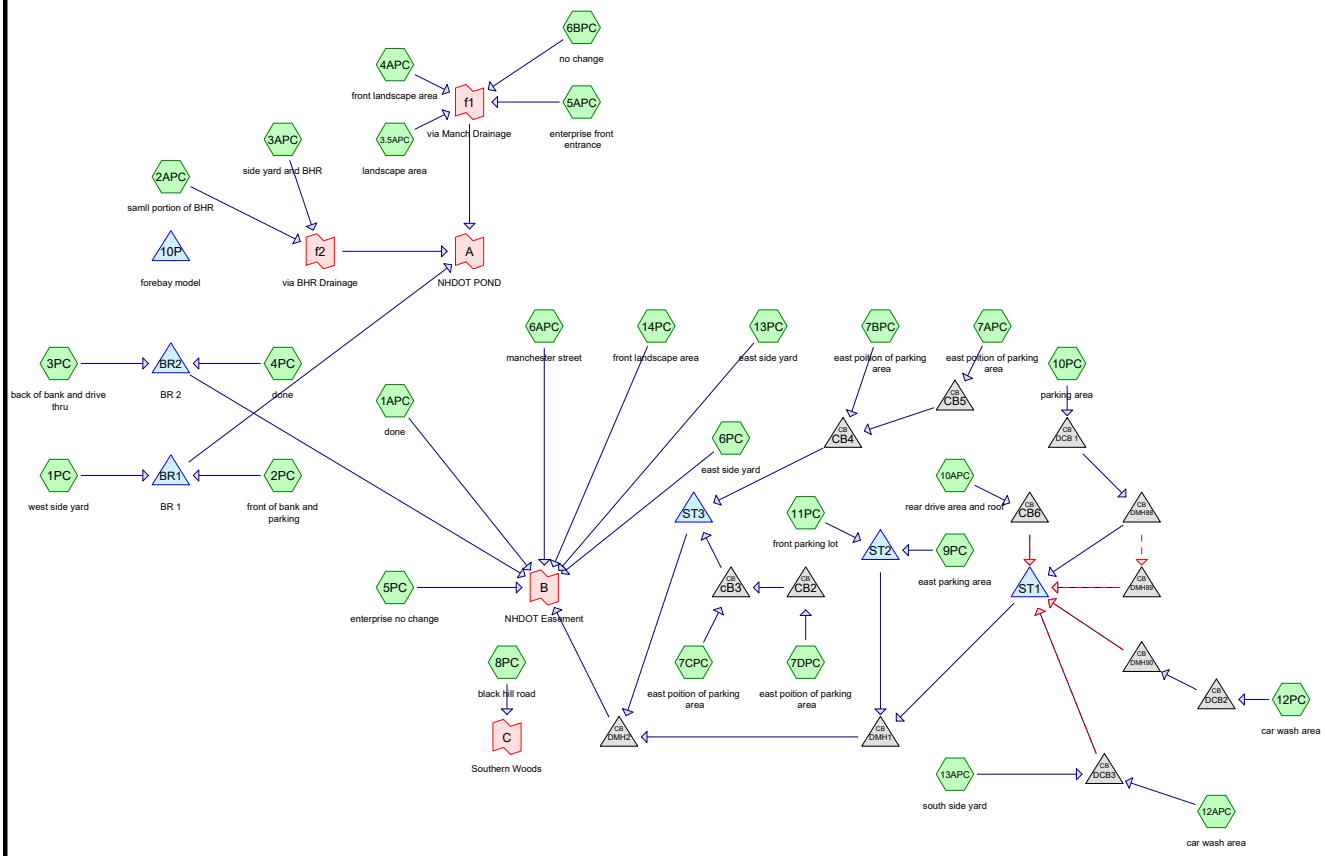
Inflow Area = 190,245 sf, 46.49% Impervious, Inflow Depth > 2.01" for 10-YR event
Inflow = 5.69 cfs @ 12.37 hrs, Volume= 31,895 cf
Primary = 5.69 cfs @ 12.37 hrs, Volume= 31,895 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link C: Southern Woods

Inflow Area = 100,354 sf, 58.93% Impervious, Inflow Depth > 2.32" for 10-YR event
Inflow = 3.36 cfs @ 12.48 hrs, Volume= 19,438 cf
Primary = 3.36 cfs @ 12.48 hrs, Volume= 19,438 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs



Routing Diagram for nault post PHASE 1

Prepared by TF Moran, INC , Printed 1/20/2025

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-YR	Type III 24-hr		Default	24.00	1	2.82	2
2	10-YR	Type III 24-hr		Default	24.00	1	4.16	2
3	25-YR	Type III 24-hr		Default	24.00	1	5.20	2
4	50-YR	Type III 24-hr		Default	24.00	1	6.16	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
142,099	61	>75% Grass cover, Good, HSG B (1APC, 1PC, 2APC, 2PC, 3.5APC, 3APC, 3PC, 4APC, 4PC, 5APC, 5PC, 6PC, 7APC, 7BPC, 7CPC, 7DPC, 8PC, 9PC, 10APC, 10PC, 12APC, 12PC, 13APC, 13PC, 14PC)
166,090	98	Paved parking, HSG B (2APC, 2PC, 3APC, 3PC, 5APC, 5PC, 6APC, 6BPC, 6PC, 7APC, 7BPC, 7CPC, 7DPC, 8PC, 9PC, 10APC, 10PC, 11PC, 12APC, 12PC)
19,453	98	Roofs, HSG B (2PC, 3PC, 5PC, 7CPC, 9PC, 10APC, 10PC, 11PC, 12PC)
2,728	98	Unconnected pavement, HSG B (1APC, 2PC)
5,119	55	Woods, Good, HSG B (5PC, 6PC, 13PC)
335,489	**82**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
335,489	HSG B	1APC, 1PC, 2APC, 2PC, 3.5APC, 3APC, 3PC, 4APC, 4PC, 5APC, 5PC, 6APC, 6BPC, 6PC, 7APC, 7BPC, 7CPC, 7DPC, 8PC, 9PC, 10APC, 10PC, 11PC, 12APC, 12PC, 13APC, 13PC, 14PC
0	HSG C	
0	HSG D	
0	Other	
335,489		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
0	142,099	0	0	0	142,099	>75% Grass cover, Good	
0	166,090	0	0	0	166,090	Paved parking	
0	19,453	0	0	0	19,453	Roofs	
0	2,728	0	0	0	2,728	Unconnected pavement	
0	5,119	0	0	0	5,119	Woods, Good	
0	**335,489**	**0**	**0**	**0**	**335,489**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	CB2	227.45	227.30	28.0	0.0054	0.013	0.0	15.0	0.0
2	cB3	227.20	227.10	13.0	0.0077	0.013	0.0	15.0	0.0
3	CB4	227.57	227.20	93.0	0.0040	0.013	0.0	12.0	0.0
4	CB5	227.86	227.66	39.0	0.0051	0.013	0.0	12.0	0.0
5	CB6	229.00	228.84	8.0	0.0200	0.013	0.0	12.0	0.0
6	CB6	229.50	229.50	10.0	0.0000	0.013	0.0	12.0	0.0
7	DCB 1	229.65	229.34	31.0	0.0100	0.013	0.0	15.0	0.0
8	DCB2	229.50	229.10	20.0	0.0200	0.013	0.0	15.0	0.0
9	DCB3	229.00	228.84	8.0	0.0200	0.013	0.0	12.0	0.0
10	DCB3	229.50	229.50	10.0	0.0000	0.013	0.0	12.0	0.0
11	DMH1	226.50	225.50	124.0	0.0081	0.013	0.0	18.0	0.0
12	DMH2	225.25	225.00	36.0	0.0069	0.013	0.0	18.0	0.0
13	DMH88	229.00	228.84	8.0	0.0200	0.013	0.0	12.0	0.0
14	DMH88	229.00	229.00	10.0	0.0000	0.013	0.0	12.0	0.0
15	DMH89	229.00	228.84	8.0	0.0200	0.013	0.0	12.0	0.0
16	DMH89	229.50	229.50	10.0	0.0000	0.013	0.0	12.0	0.0
17	DMH90	229.00	228.84	8.0	0.0200	0.013	0.0	12.0	0.0
18	DMH90	229.50	229.50	10.0	0.0000	0.013	0.0	12.0	0.0
19	ST1	229.26	228.50	10.0	0.0760	0.013	0.0	10.0	0.0
20	ST2	227.89	227.00	10.0	0.0890	0.013	0.0	8.0	0.0
21	ST3	227.20	226.00	10.0	0.1200	0.013	0.0	6.0	0.0

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1APC: done Runoff Area=12,232 sf 18.26% Impervious Runoff Depth>0.39"
Tc=6.0 min UI Adjusted CN=64 Runoff=0.08 cfs 399 cf

Subcatchment 1PC: west side yard Runoff Area=10,013 sf 0.00% Impervious Runoff Depth>0.30"
Flow Length=45' Slope=0.0300 '/' Tc=10.5 min CN=61 Runoff=0.03 cfs 249 cf

Subcatchment 2APC: samll portion of BHR Runoff Area=3,785 sf 31.78% Impervious Runoff Depth>0.74"
Flow Length=135' Slope=0.0050 '/' Tc=41.8 min CN=73 Runoff=0.03 cfs 233 cf

Subcatchment 2PC: front of bank and Runoff Area=14,246 sf 89.87% Impervious Runoff Depth>2.17"
Tc=6.0 min CN=94 Runoff=0.79 cfs 2,582 cf

Subcatchment 3.5APC: landscape area Runoff Area=2,440 sf 0.00% Impervious Runoff Depth>0.30"
Flow Length=68' Slope=0.0200 '/' Tc=11.2 min CN=61 Runoff=0.01 cfs 61 cf

Subcatchment 3APC: side yard and BHR Runoff Area=7,495 sf 66.24% Impervious Runoff Depth>1.50"
Flow Length=111' Slope=0.0100 '/' Tc=31.1 min CN=86 Runoff=0.17 cfs 937 cf

Subcatchment 3PC: back of bank and Runoff Area=12,737 sf 94.82% Impervious Runoff Depth>2.38"
Tc=0.0 min CN=96 Runoff=0.88 cfs 2,521 cf

Subcatchment 4APC: front landscape area Runoff Area=5,356 sf 0.00% Impervious Runoff Depth>0.30"
Tc=6.0 min CN=61 Runoff=0.02 cfs 133 cf

Subcatchment 4PC: done Runoff Area=7,069 sf 0.00% Impervious Runoff Depth>0.30"
Tc=6.0 min CN=61 Runoff=0.03 cfs 176 cf

Subcatchment 5APC: enterprise front Runoff Area=3,136 sf 46.49% Impervious Runoff Depth>1.00"
Tc=6.0 min CN=78 Runoff=0.08 cfs 262 cf

Subcatchment 5PC: enterprise no change Runoff Area=44,417 sf 56.84% Impervious Runoff Depth>1.23"
Flow Length=168' Tc=33.8 min CN=82 Runoff=0.78 cfs 4,550 cf

Subcatchment 6APC: manchester street Runoff Area=11,184 sf 100.00% Impervious Runoff Depth>2.59"
Tc=6.0 min CN=98 Runoff=0.68 cfs 2,411 cf

Subcatchment 6BPC: no change Runoff Area=9,809 sf 100.00% Impervious Runoff Depth>2.59"
Tc=6.0 min CN=98 Runoff=0.60 cfs 2,115 cf

Subcatchment 6PC: east side yard Runoff Area=17,321 sf 7.79% Impervious Runoff Depth>0.36"
Flow Length=100' Slope=0.0050 '/' Tc=26.5 min CN=63 Runoff=0.06 cfs 514 cf

Subcatchment 7APC: east poition of Runoff Area=4,682 sf 65.83% Impervious Runoff Depth>1.44"
Tc=6.0 min CN=85 Runoff=0.18 cfs 561 cf

Subcatchment 7BPC: east poition of Runoff Area=2,900 sf 91.21% Impervious Runoff Depth>2.27"
Tc=6.0 min CN=95 Runoff=0.17 cfs 549 cf

Subcatchment 7CPC: east poition of Runoff Area=5,945 sf 93.88% Impervious Runoff Depth>2.37"
Tc=6.0 min CN=96 Runoff=0.35 cfs 1,176 cf

Subcatchment 7DPC: east poition of Runoff Area=8,568 sf 51.76% Impervious Runoff Depth>1.12"
Tc=6.0 min CN=80 Runoff=0.25 cfs 796 cf

Subcatchment 8PC: black hill road Runoff Area=42,145 sf 42.51% Impervious Runoff Depth>0.95"
Tc=6.0 min CN=77 Runoff=1.01 cfs 3,326 cf

Subcatchment 9PC: east parking area Runoff Area=11,303 sf 91.20% Impervious Runoff Depth>2.27"
Tc=6.0 min CN=95 Runoff=0.64 cfs 2,140 cf

Subcatchment 10APC: rear drive area and Runoff Area=10,167 sf 91.62% Impervious Runoff Depth>2.27"
Tc=6.0 min CN=95 Runoff=0.58 cfs 1,925 cf

Subcatchment 10PC: parking area Runoff Area=23,359 sf 86.72% Impervious Runoff Depth>2.08"
Tc=6.0 min CN=93 Runoff=1.25 cfs 4,050 cf

Subcatchment 11PC: front parking lot Runoff Area=10,788 sf 100.00% Impervious Runoff Depth>2.59"
Tc=6.0 min CN=98 Runoff=0.66 cfs 2,326 cf

Subcatchment 12APC: car wash area Runoff Area=8,096 sf 94.80% Impervious Runoff Depth>2.37"
Flow Length=220' Tc=6.0 min CN=96 Runoff=0.47 cfs 1,601 cf

Subcatchment 12PC: car wash area Runoff Area=19,566 sf 71.25% Impervious Runoff Depth>1.58"
Flow Length=150' Tc=7.8 min CN=87 Runoff=0.77 cfs 2,578 cf

Subcatchment 13APC: south side yard Runoff Area=9,317 sf 0.00% Impervious Runoff Depth>0.30"
Flow Length=145' Tc=13.4 min CN=61 Runoff=0.03 cfs 231 cf

Subcatchment 13PC: east side yard Runoff Area=11,630 sf 0.00% Impervious Runoff Depth>0.27"
Flow Length=325' Slope=0.0300 '/' Tc=16.0 min CN=60 Runoff=0.03 cfs 261 cf

Subcatchment 14PC: front landscape area Runoff Area=5,783 sf 0.00% Impervious Runoff Depth>0.30"
Flow Length=150' Tc=16.2 min CN=61 Runoff=0.02 cfs 143 cf

Pond 10P: forebay model Peak Elev=0.00' Storage=0 cf

Pond BR1: BR 1 Peak Elev=229.32' Storage=1,521 cf Inflow=0.80 cfs 2,831 cf
Discarded=0.03 cfs 1,820 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 1,820 cf

Pond BR2: BR 2 Peak Elev=229.00' Storage=1,516 cf Inflow=0.88 cfs 2,697 cf
Discarded=0.03 cfs 1,598 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 1,598 cf

Pond CB2: Peak Elev=227.75' Inflow=0.25 cfs 796 cf
15.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.25 cfs 796 cf

Pond cB3: Peak Elev=227.62' Inflow=0.60 cfs 1,972 cf
15.0" Round Culvert n=0.013 L=13.0' S=0.0077 '/' Outflow=0.60 cfs 1,972 cf

Pond CB4: Peak Elev=227.92' Inflow=0.34 cfs 1,110 cf
12.0" Round Culvert n=0.013 L=93.0' S=0.0040 '/' Outflow=0.34 cfs 1,110 cf

Pond CB5: Peak Elev=228.12' Inflow=0.18 cfs 561 cf
12.0" Round Culvert n=0.013 L=39.0' S=0.0051 '/' Outflow=0.18 cfs 561 cf

Pond CB6: Peak Elev=229.40' Inflow=0.58 cfs 1,925 cf
Primary=0.58 cfs 1,925 cf Secondary=0.00 cfs 0 cf Outflow=0.58 cfs 1,925 cf

Pond DCB 1: Peak Elev=230.22' Inflow=1.25 cfs 4,050 cf
15.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=1.25 cfs 4,050 cf

Pond DCB2: Peak Elev=229.91' Inflow=0.77 cfs 2,578 cf
15.0" Round Culvert n=0.013 L=20.0' S=0.0200 '/' Outflow=0.77 cfs 2,578 cf

Pond DCB3: Peak Elev=229.36' Inflow=0.48 cfs 1,833 cf
Primary=0.48 cfs 1,833 cf Secondary=0.00 cfs 0 cf Outflow=0.48 cfs 1,833 cf

Pond DMH1: Peak Elev=226.64' Inflow=0.09 cfs 685 cf
18.0" Round Culvert n=0.013 L=124.0' S=0.0081 '/' Outflow=0.09 cfs 685 cf

Pond DMH2: Peak Elev=225.41' Inflow=0.10 cfs 984 cf
18.0" Round Culvert n=0.013 L=36.0' S=0.0069 '/' Outflow=0.10 cfs 984 cf

Pond DMH88: Peak Elev=229.47' Inflow=1.25 cfs 4,050 cf
Primary=0.76 cfs 2,696 cf Secondary=0.49 cfs 1,355 cf Outflow=1.25 cfs 4,050 cf

Pond DMH89: Peak Elev=229.36' Inflow=0.49 cfs 1,355 cf
Primary=0.49 cfs 1,355 cf Secondary=0.00 cfs 0 cf Outflow=0.49 cfs 1,355 cf

Pond DMH90: Peak Elev=229.47' Inflow=0.77 cfs 2,578 cf
Primary=0.77 cfs 2,578 cf Secondary=0.00 cfs 0 cf Outflow=0.77 cfs 2,578 cf

Pond ST1: Peak Elev=229.27' Storage=4,195 cf Inflow=3.06 cfs 10,386 cf
Discarded=0.28 cfs 10,335 cf Primary=0.00 cfs 0 cf Outflow=0.28 cfs 10,335 cf

Pond ST2: Peak Elev=228.05' Storage=2,147 cf Inflow=1.30 cfs 4,466 cf
Discarded=0.05 cfs 2,748 cf Primary=0.09 cfs 685 cf Outflow=0.13 cfs 3,432 cf

Pond ST3: Peak Elev=227.29' Storage=1,595 cf Inflow=0.94 cfs 3,082 cf
Discarded=0.04 cfs 1,859 cf Primary=0.03 cfs 299 cf Outflow=0.06 cfs 2,158 cf

Link A: NHDOT POND Inflow=0.77 cfs 3,741 cf
Primary=0.77 cfs 3,741 cf

Link B: NHDOT Easement Inflow=1.16 cfs 9,263 cf
Primary=1.16 cfs 9,263 cf

Link C: Southern Woods Inflow=1.01 cfs 3,326 cf
Primary=1.01 cfs 3,326 cf

Link f1: via Manch Drainage Inflow=0.70 cfs 2,571 cf
Primary=0.70 cfs 2,571 cf

Link f2: via BHR Drainage

Inflow=0.20 cfs 1,170 cf
Primary=0.20 cfs 1,170 cf

Total Runoff Area = 335,489 sf Runoff Volume = 38,809 cf Average Runoff Depth = 1.39"
43.88% Pervious = 147,218 sf 56.12% Impervious = 188,271 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1APC: done Runoff Area=12,232 sf 18.26% Impervious Runoff Depth>1.06"
Tc=6.0 min UI Adjusted CN=64 Runoff=0.31 cfs 1,083 cf

Subcatchment 1PC: west side yard Runoff Area=10,013 sf 0.00% Impervious Runoff Depth>0.89"
Flow Length=45' Slope=0.0300 '/' Tc=10.5 min CN=61 Runoff=0.17 cfs 745 cf

Subcatchment 2APC: samll portion of BHR Runoff Area=3,785 sf 31.78% Impervious Runoff Depth>1.63"
Flow Length=135' Slope=0.0050 '/' Tc=41.8 min CN=73 Runoff=0.08 cfs 513 cf

Subcatchment 2PC: front of bank and Runoff Area=14,246 sf 89.87% Impervious Runoff Depth>3.48"
Tc=6.0 min CN=94 Runoff=1.23 cfs 4,130 cf

Subcatchment 3.5APC: landscape area Runoff Area=2,440 sf 0.00% Impervious Runoff Depth>0.89"
Flow Length=68' Slope=0.0200 '/' Tc=11.2 min CN=61 Runoff=0.04 cfs 181 cf

Subcatchment 3APC: side yard and BHR Runoff Area=7,495 sf 66.24% Impervious Runoff Depth>2.68"
Flow Length=111' Slope=0.0100 '/' Tc=31.1 min CN=86 Runoff=0.30 cfs 1,672 cf

Subcatchment 3PC: back of bank and Runoff Area=12,737 sf 94.82% Impervious Runoff Depth>3.70"
Tc=0.0 min CN=96 Runoff=1.33 cfs 3,926 cf

Subcatchment 4APC: front landscape area Runoff Area=5,356 sf 0.00% Impervious Runoff Depth>0.89"
Tc=6.0 min CN=61 Runoff=0.11 cfs 399 cf

Subcatchment 4PC: done Runoff Area=7,069 sf 0.00% Impervious Runoff Depth>0.89"
Tc=6.0 min CN=61 Runoff=0.14 cfs 527 cf

Subcatchment 5APC: enterprise front Runoff Area=3,136 sf 46.49% Impervious Runoff Depth>2.01"
Tc=6.0 min CN=78 Runoff=0.17 cfs 526 cf

Subcatchment 5PC: enterprise no change Runoff Area=44,417 sf 56.84% Impervious Runoff Depth>2.32"
Flow Length=168' Tc=33.8 min CN=82 Runoff=1.50 cfs 8,604 cf

Subcatchment 6APC: manchester street Runoff Area=11,184 sf 100.00% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=98 Runoff=1.02 cfs 3,656 cf

Subcatchment 6BPC: no change Runoff Area=9,809 sf 100.00% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=98 Runoff=0.89 cfs 3,206 cf

Subcatchment 6PC: east side yard Runoff Area=17,321 sf 7.79% Impervious Runoff Depth>1.00"
Flow Length=100' Slope=0.0050 '/' Tc=26.5 min CN=63 Runoff=0.24 cfs 1,441 cf

Subcatchment 7APC: east poition of Runoff Area=4,682 sf 65.83% Impervious Runoff Depth>2.60"
Tc=6.0 min CN=85 Runoff=0.32 cfs 1,014 cf

Subcatchment 7BPC: east poition of Runoff Area=2,900 sf 91.21% Impervious Runoff Depth>3.59"
Tc=6.0 min CN=95 Runoff=0.25 cfs 867 cf

Subcatchment 7CPC: east poition of Runoff Area=5,945 sf 93.88% Impervious Runoff Depth>3.70"
Tc=6.0 min CN=96 Runoff=0.53 cfs 1,831 cf

Subcatchment 7DPC: east poition of Runoff Area=8,568 sf 51.76% Impervious Runoff Depth>2.17"
Tc=6.0 min CN=80 Runoff=0.49 cfs 1,551 cf

Subcatchment 8PC: black hill road Runoff Area=42,145 sf 42.51% Impervious Runoff Depth>1.94"
Tc=6.0 min CN=77 Runoff=2.15 cfs 6,799 cf

Subcatchment 9PC: east parking area Runoff Area=11,303 sf 91.20% Impervious Runoff Depth>3.59"
Tc=6.0 min CN=95 Runoff=0.99 cfs 3,378 cf

Subcatchment 10APC: rear drive area and Runoff Area=10,167 sf 91.62% Impervious Runoff Depth>3.59"
Tc=6.0 min CN=95 Runoff=0.89 cfs 3,039 cf

Subcatchment 10PC: parking area Runoff Area=23,359 sf 86.72% Impervious Runoff Depth>3.37"
Tc=6.0 min CN=93 Runoff=1.97 cfs 6,567 cf

Subcatchment 11PC: front parking lot Runoff Area=10,788 sf 100.00% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=98 Runoff=0.98 cfs 3,526 cf

Subcatchment 12APC: car wash area Runoff Area=8,096 sf 94.80% Impervious Runoff Depth>3.70"
Flow Length=220' Tc=6.0 min CN=96 Runoff=0.72 cfs 2,494 cf

Subcatchment 12PC: car wash area Runoff Area=19,566 sf 71.25% Impervious Runoff Depth>2.78"
Flow Length=150' Tc=7.8 min CN=87 Runoff=1.35 cfs 4,534 cf

Subcatchment 13APC: south side yard Runoff Area=9,317 sf 0.00% Impervious Runoff Depth>0.89"
Flow Length=145' Tc=13.4 min CN=61 Runoff=0.15 cfs 692 cf

Subcatchment 13PC: east side yard Runoff Area=11,630 sf 0.00% Impervious Runoff Depth>0.84"
Flow Length=325' Slope=0.0300 '/' Tc=16.0 min CN=60 Runoff=0.16 cfs 812 cf

Subcatchment 14PC: front landscape area Runoff Area=5,783 sf 0.00% Impervious Runoff Depth>0.89"
Flow Length=150' Tc=16.2 min CN=61 Runoff=0.08 cfs 429 cf

Pond 10P: forebay model Peak Elev=0.00' Storage=0 cf

Pond BR1: BR 1 Peak Elev=229.95' Storage=3,023 cf Inflow=1.35 cfs 4,875 cf
Discarded=0.04 cfs 2,289 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 2,289 cf

Pond BR2: BR 2 Peak Elev=229.66' Storage=2,818 cf Inflow=1.39 cfs 4,452 cf
Discarded=0.04 cfs 2,005 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 2,005 cf

Pond CB2: Peak Elev=227.89' Inflow=0.49 cfs 1,551 cf
15.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.49 cfs 1,551 cf

Pond cB3: Peak Elev=227.76' Inflow=1.02 cfs 3,382 cf
15.0" Round Culvert n=0.013 L=13.0' S=0.0077 '/' Outflow=1.02 cfs 3,382 cf

Pond CB4: Peak Elev=228.03' Inflow=0.57 cfs 1,881 cf
12.0" Round Culvert n=0.013 L=93.0' S=0.0040 '/' Outflow=0.57 cfs 1,881 cf

Pond CB5: Peak Elev=228.22' Inflow=0.32 cfs 1,014 cf
12.0" Round Culvert n=0.013 L=39.0' S=0.0051 '/' Outflow=0.32 cfs 1,014 cf

Pond CB6: Peak Elev=229.63' Inflow=0.89 cfs 3,039 cf
Primary=0.89 cfs 3,018 cf Secondary=0.01 cfs 21 cf Outflow=0.89 cfs 3,039 cf

Pond DCB 1: Peak Elev=230.39' Inflow=1.97 cfs 6,567 cf
15.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=1.97 cfs 6,567 cf

Pond DCB2: Peak Elev=230.06' Inflow=1.35 cfs 4,534 cf
15.0" Round Culvert n=0.013 L=20.0' S=0.0200 '/' Outflow=1.35 cfs 4,534 cf

Pond DCB3: Peak Elev=229.63' Inflow=0.81 cfs 3,186 cf
Primary=0.81 cfs 3,159 cf Secondary=0.01 cfs 27 cf Outflow=0.81 cfs 3,186 cf

Pond DMH1: Peak Elev=226.95' Inflow=0.96 cfs 5,662 cf
18.0" Round Culvert n=0.013 L=124.0' S=0.0081 '/' Outflow=0.96 cfs 5,662 cf

Pond DMH2: Peak Elev=225.82' Inflow=1.26 cfs 7,695 cf
18.0" Round Culvert n=0.013 L=36.0' S=0.0069 '/' Outflow=1.26 cfs 7,695 cf

Pond DMH88: Peak Elev=229.63' Inflow=1.97 cfs 6,567 cf
Primary=1.17 cfs 4,129 cf Secondary=0.81 cfs 2,438 cf Outflow=1.97 cfs 6,567 cf

Pond DMH89: Peak Elev=229.63' Inflow=0.81 cfs 2,438 cf
Primary=0.81 cfs 2,418 cf Secondary=0.01 cfs 20 cf Outflow=0.81 cfs 2,438 cf

Pond DMH90: Peak Elev=229.65' Inflow=1.35 cfs 4,534 cf
Primary=1.31 cfs 4,472 cf Secondary=0.04 cfs 62 cf Outflow=1.35 cfs 4,534 cf

Pond ST1: Peak Elev=229.63' Storage=6,945 cf Inflow=4.99 cfs 17,325 cf
Discarded=0.28 cfs 14,150 cf Primary=0.48 cfs 3,087 cf Outflow=0.76 cfs 17,237 cf

Pond ST2: Peak Elev=228.32' Storage=2,901 cf Inflow=1.97 cfs 6,904 cf
Discarded=0.05 cfs 3,018 cf Primary=0.53 cfs 2,576 cf Outflow=0.58 cfs 5,594 cf

Pond ST3: Peak Elev=227.55' Storage=2,315 cf Inflow=1.59 cfs 5,263 cf
Discarded=0.04 cfs 2,050 cf Primary=0.30 cfs 2,033 cf Outflow=0.34 cfs 4,083 cf

Link A: NHDOT POND Inflow=1.34 cfs 6,497 cf
Primary=1.34 cfs 6,497 cf

Link B: NHDOT Easement Inflow=3.54 cfs 23,720 cf
Primary=3.54 cfs 23,720 cf

Link C: Southern Woods Inflow=2.15 cfs 6,799 cf
Primary=2.15 cfs 6,799 cf

Link f1: via Manch Drainage Inflow=1.19 cfs 4,313 cf
Primary=1.19 cfs 4,313 cf

Link f2: via BHR Drainage

Inflow=0.37 cfs 2,185 cf
Primary=0.37 cfs 2,185 cf

Total Runoff Area = 335,489 sf Runoff Volume = 68,141 cf Average Runoff Depth = 2.44"
43.88% Pervious = 147,218 sf 56.12% Impervious = 188,271 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1APC: done Runoff Area=12,232 sf 18.26% Impervious Runoff Depth>1.71"
Tc=6.0 min UI Adjusted CN=64 Runoff=0.53 cfs 1,743 cf

Subcatchment 1PC: west side yard Runoff Area=10,013 sf 0.00% Impervious Runoff Depth>1.49"
Flow Length=45' Slope=0.0300 '/' Tc=10.5 min CN=61 Runoff=0.31 cfs 1,241 cf

Subcatchment 2APC: samll portion of BHR Runoff Area=3,785 sf 31.78% Impervious Runoff Depth>2.42"
Flow Length=135' Slope=0.0050 '/' Tc=41.8 min CN=73 Runoff=0.12 cfs 762 cf

Subcatchment 2PC: front of bank and Runoff Area=14,246 sf 89.87% Impervious Runoff Depth>4.50"
Tc=6.0 min CN=94 Runoff=1.56 cfs 5,345 cf

Subcatchment 3.5APC: landscape area Runoff Area=2,440 sf 0.00% Impervious Runoff Depth>1.49"
Flow Length=68' Slope=0.0200 '/' Tc=11.2 min CN=61 Runoff=0.07 cfs 302 cf

Subcatchment 3APC: side yard and BHR Runoff Area=7,495 sf 66.24% Impervious Runoff Depth>3.63"
Flow Length=111' Slope=0.0100 '/' Tc=31.1 min CN=86 Runoff=0.40 cfs 2,270 cf

Subcatchment 3PC: back of bank and Runoff Area=12,737 sf 94.82% Impervious Runoff Depth>4.73"
Tc=0.0 min CN=96 Runoff=1.68 cfs 5,022 cf

Subcatchment 4APC: front landscape area Runoff Area=5,356 sf 0.00% Impervious Runoff Depth>1.49"
Tc=6.0 min CN=61 Runoff=0.20 cfs 665 cf

Subcatchment 4PC: done Runoff Area=7,069 sf 0.00% Impervious Runoff Depth>1.49"
Tc=6.0 min CN=61 Runoff=0.26 cfs 877 cf

Subcatchment 5APC: enterprise front Runoff Area=3,136 sf 46.49% Impervious Runoff Depth>2.88"
Tc=6.0 min CN=78 Runoff=0.24 cfs 753 cf

Subcatchment 5PC: enterprise no change Runoff Area=44,417 sf 56.84% Impervious Runoff Depth>3.24"
Flow Length=168' Tc=33.8 min CN=82 Runoff=2.08 cfs 11,985 cf

Subcatchment 6APC: manchester street Runoff Area=11,184 sf 100.00% Impervious Runoff Depth>4.96"
Tc=6.0 min CN=98 Runoff=1.28 cfs 4,623 cf

Subcatchment 6BPC: no change Runoff Area=9,809 sf 100.00% Impervious Runoff Depth>4.96"
Tc=6.0 min CN=98 Runoff=1.12 cfs 4,054 cf

Subcatchment 6PC: east side yard Runoff Area=17,321 sf 7.79% Impervious Runoff Depth>1.63"
Flow Length=100' Slope=0.0050 '/' Tc=26.5 min CN=63 Runoff=0.43 cfs 2,347 cf

Subcatchment 7APC: east poition of Runoff Area=4,682 sf 65.83% Impervious Runoff Depth>3.55"
Tc=6.0 min CN=85 Runoff=0.43 cfs 1,385 cf

Subcatchment 7BPC: east poition of Runoff Area=2,900 sf 91.21% Impervious Runoff Depth>4.61"
Tc=6.0 min CN=95 Runoff=0.32 cfs 1,115 cf

Subcatchment 7CPC: east poition of Runoff Area=5,945 sf 93.88% Impervious Runoff Depth>4.73"
Tc=6.0 min CN=96 Runoff=0.67 cfs 2,343 cf

Subcatchment 7DPC: east poition of Runoff Area=8,568 sf 51.76% Impervious Runoff Depth>3.07"
Tc=6.0 min CN=80 Runoff=0.69 cfs 2,189 cf

Subcatchment 8PC: black hill road Runoff Area=42,145 sf 42.51% Impervious Runoff Depth>2.79"
Tc=6.0 min CN=77 Runoff=3.10 cfs 9,794 cf

Subcatchment 9PC: east parking area Runoff Area=11,303 sf 91.20% Impervious Runoff Depth>4.61"
Tc=6.0 min CN=95 Runoff=1.26 cfs 4,347 cf

Subcatchment 10APC: rear drive area and Runoff Area=10,167 sf 91.62% Impervious Runoff Depth>4.61"
Tc=6.0 min CN=95 Runoff=1.13 cfs 3,910 cf

Subcatchment 10PC: parking area Runoff Area=23,359 sf 86.72% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=93 Runoff=2.53 cfs 8,548 cf

Subcatchment 11PC: front parking lot Runoff Area=10,788 sf 100.00% Impervious Runoff Depth>4.96"
Tc=6.0 min CN=98 Runoff=1.23 cfs 4,459 cf

Subcatchment 12APC: car wash area Runoff Area=8,096 sf 94.80% Impervious Runoff Depth>4.73"
Flow Length=220' Tc=6.0 min CN=96 Runoff=0.91 cfs 3,190 cf

Subcatchment 12PC: car wash area Runoff Area=19,566 sf 71.25% Impervious Runoff Depth>3.75"
Flow Length=150' Tc=7.8 min CN=87 Runoff=1.80 cfs 6,118 cf

Subcatchment 13APC: south side yard Runoff Area=9,317 sf 0.00% Impervious Runoff Depth>1.49"
Flow Length=145' Tc=13.4 min CN=61 Runoff=0.27 cfs 1,154 cf

Subcatchment 13PC: east side yard Runoff Area=11,630 sf 0.00% Impervious Runoff Depth>1.41"
Flow Length=325' Slope=0.0300 '/' Tc=16.0 min CN=60 Runoff=0.29 cfs 1,370 cf

Subcatchment 14PC: front landscape area Runoff Area=5,783 sf 0.00% Impervious Runoff Depth>1.48"
Flow Length=150' Tc=16.2 min CN=61 Runoff=0.15 cfs 715 cf

Pond 10P: forebay model Peak Elev=0.00' Storage=0 cf

Pond BR1: BR 1 Peak Elev=230.43' Storage=4,348 cf Inflow=1.82 cfs 6,586 cf
Discarded=0.05 cfs 2,637 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 2,637 cf

Pond BR2: BR 2 Peak Elev=230.14' Storage=3,947 cf Inflow=1.81 cfs 5,899 cf
Discarded=0.04 cfs 2,293 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 2,293 cf

Pond CB2: Peak Elev=227.99' Inflow=0.69 cfs 2,189 cf
15.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.69 cfs 2,189 cf

Pond cB3: Peak Elev=227.86' Inflow=1.36 cfs 4,531 cf
15.0" Round Culvert n=0.013 L=13.0' S=0.0077 '/' Outflow=1.36 cfs 4,531 cf

Pond CB4: Peak Elev=228.11' Inflow=0.76 cfs 2,501 cf
12.0" Round Culvert n=0.013 L=93.0' S=0.0040 '/' Outflow=0.76 cfs 2,501 cf

Pond CB5: Peak Elev=228.29' Inflow=0.43 cfs 1,385 cf
12.0" Round Culvert n=0.013 L=39.0' S=0.0051 '/' Outflow=0.43 cfs 1,385 cf

Pond CB6: Peak Elev=229.90' Inflow=1.13 cfs 3,910 cf
Primary=1.12 cfs 3,737 cf Secondary=0.08 cfs 173 cf Outflow=1.13 cfs 3,910 cf

Pond DCB 1: Peak Elev=230.52' Inflow=2.53 cfs 8,548 cf
15.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=2.53 cfs 8,548 cf

Pond DCB2: Peak Elev=230.18' Inflow=1.80 cfs 6,118 cf
15.0" Round Culvert n=0.013 L=20.0' S=0.0200 '/' Outflow=1.80 cfs 6,118 cf

Pond DCB3: Peak Elev=229.90' Inflow=1.09 cfs 4,344 cf
Primary=1.08 cfs 4,109 cf Secondary=0.11 cfs 234 cf Outflow=1.09 cfs 4,344 cf

Pond DMH1: Peak Elev=227.19' Inflow=2.06 cfs 11,041 cf
18.0" Round Culvert n=0.013 L=124.0' S=0.0081 '/' Outflow=2.06 cfs 11,041 cf

Pond DMH2: Peak Elev=226.10' Inflow=2.60 cfs 14,603 cf
18.0" Round Culvert n=0.013 L=36.0' S=0.0069 '/' Outflow=2.60 cfs 14,603 cf

Pond DMH88: Peak Elev=229.90' Inflow=2.53 cfs 8,548 cf
Primary=1.49 cfs 5,192 cf Secondary=1.04 cfs 3,356 cf Outflow=2.53 cfs 8,548 cf

Pond DMH89: Peak Elev=229.90' Inflow=1.04 cfs 3,356 cf
Primary=1.03 cfs 3,162 cf Secondary=0.12 cfs 194 cf Outflow=1.04 cfs 3,356 cf

Pond DMH90: Peak Elev=229.90' Inflow=1.80 cfs 6,118 cf
Primary=1.66 cfs 5,721 cf Secondary=0.17 cfs 397 cf Outflow=1.80 cfs 6,118 cf

Pond ST1: Peak Elev=229.89' Storage=8,778 cf Inflow=6.52 cfs 22,919 cf
Discarded=0.28 cfs 15,762 cf Primary=1.21 cfs 6,888 cf Outflow=1.49 cfs 22,651 cf

Pond ST2: Peak Elev=228.52' Storage=3,417 cf Inflow=2.49 cfs 8,806 cf
Discarded=0.05 cfs 3,185 cf Primary=0.93 cfs 4,153 cf Outflow=0.98 cfs 7,337 cf

Pond ST3: Peak Elev=227.79' Storage=2,911 cf Inflow=2.12 cfs 7,032 cf
Discarded=0.04 cfs 2,169 cf Primary=0.55 cfs 3,562 cf Outflow=0.59 cfs 5,731 cf

Link A: NHDOT POND Inflow=1.82 cfs 8,806 cf
Primary=1.82 cfs 8,806 cf

Link B: NHDOT Easement Inflow=5.99 cfs 37,385 cf
Primary=5.99 cfs 37,385 cf

Link C: Southern Woods Inflow=3.10 cfs 9,794 cf
Primary=3.10 cfs 9,794 cf

Link f1: via Manch Drainage Inflow=1.61 cfs 5,774 cf
Primary=1.61 cfs 5,774 cf

Link f2: via BHR Drainage

Inflow=0.51 cfs 3,032 cf
Primary=0.51 cfs 3,032 cf

Total Runoff Area = 335,489 sf Runoff Volume = 92,623 cf Average Runoff Depth = 3.31"
43.88% Pervious = 147,218 sf 56.12% Impervious = 188,271 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1APC: done Runoff Area=12,232 sf 18.26% Impervious Runoff Depth>2.38"
Tc=6.0 min UI Adjusted CN=64 Runoff=0.75 cfs 2,422 cf

Subcatchment 1PC: west side yard Runoff Area=10,013 sf 0.00% Impervious Runoff Depth>2.11"
Flow Length=45' Slope=0.0300 '/' Tc=10.5 min CN=61 Runoff=0.46 cfs 1,759 cf

Subcatchment 2APC: samll portion of BHR Runoff Area=3,785 sf 31.78% Impervious Runoff Depth>3.19"
Flow Length=135' Slope=0.0050 '/' Tc=41.8 min CN=73 Runoff=0.16 cfs 1,007 cf

Subcatchment 2PC: front of bank and Runoff Area=14,246 sf 89.87% Impervious Runoff Depth>5.45"
Tc=6.0 min CN=94 Runoff=1.87 cfs 6,472 cf

Subcatchment 3.5APC: landscape area Runoff Area=2,440 sf 0.00% Impervious Runoff Depth>2.11"
Flow Length=68' Slope=0.0200 '/' Tc=11.2 min CN=61 Runoff=0.11 cfs 429 cf

Subcatchment 3APC: side yard and BHR Runoff Area=7,495 sf 66.24% Impervious Runoff Depth>4.54"
Flow Length=111' Slope=0.0100 '/' Tc=31.1 min CN=86 Runoff=0.50 cfs 2,834 cf

Subcatchment 3PC: back of bank and Runoff Area=12,737 sf 94.82% Impervious Runoff Depth>5.69"
Tc=0.0 min CN=96 Runoff=2.00 cfs 6,036 cf

Subcatchment 4APC: front landscape area Runoff Area=5,356 sf 0.00% Impervious Runoff Depth>2.11"
Tc=6.0 min CN=61 Runoff=0.29 cfs 942 cf

Subcatchment 4PC: done Runoff Area=7,069 sf 0.00% Impervious Runoff Depth>2.11"
Tc=6.0 min CN=61 Runoff=0.38 cfs 1,243 cf

Subcatchment 5APC: enterprise front Runoff Area=3,136 sf 46.49% Impervious Runoff Depth>3.72"
Tc=6.0 min CN=78 Runoff=0.31 cfs 971 cf

Subcatchment 5PC: enterprise no change Runoff Area=44,417 sf 56.84% Impervious Runoff Depth>4.11"
Flow Length=168' Tc=33.8 min CN=82 Runoff=2.62 cfs 15,211 cf

Subcatchment 6APC: manchester street Runoff Area=11,184 sf 100.00% Impervious Runoff Depth>5.92"
Tc=6.0 min CN=98 Runoff=1.51 cfs 5,516 cf

Subcatchment 6BPC: no change Runoff Area=9,809 sf 100.00% Impervious Runoff Depth>5.92"
Tc=6.0 min CN=98 Runoff=1.33 cfs 4,838 cf

Subcatchment 6PC: east side yard Runoff Area=17,321 sf 7.79% Impervious Runoff Depth>2.27"
Flow Length=100' Slope=0.0050 '/' Tc=26.5 min CN=63 Runoff=0.62 cfs 3,283 cf

Subcatchment 7APC: east poition of Runoff Area=4,682 sf 65.83% Impervious Runoff Depth>4.45"
Tc=6.0 min CN=85 Runoff=0.54 cfs 1,736 cf

Subcatchment 7BPC: east poition of Runoff Area=2,900 sf 91.21% Impervious Runoff Depth>5.57"
Tc=6.0 min CN=95 Runoff=0.39 cfs 1,345 cf

Subcatchment 7CPC: east poition of Runoff Area=5,945 sf 93.88% Impervious Runoff Depth>5.68"
Tc=6.0 min CN=96 Runoff=0.80 cfs 2,816 cf

Subcatchment 7DPC: east poition of Runoff Area=8,568 sf 51.76% Impervious Runoff Depth>3.92"
Tc=6.0 min CN=80 Runoff=0.88 cfs 2,801 cf

Subcatchment 8PC: black hill road Runoff Area=42,145 sf 42.51% Impervious Runoff Depth>3.62"
Tc=6.0 min CN=77 Runoff=4.02 cfs 12,700 cf

Subcatchment 9PC: east parking area Runoff Area=11,303 sf 91.20% Impervious Runoff Depth>5.57"
Tc=6.0 min CN=95 Runoff=1.50 cfs 5,244 cf

Subcatchment 10APC: rear drive area and Runoff Area=10,167 sf 91.62% Impervious Runoff Depth>5.57"
Tc=6.0 min CN=95 Runoff=1.35 cfs 4,717 cf

Subcatchment 10PC: parking area Runoff Area=23,359 sf 86.72% Impervious Runoff Depth>5.34"
Tc=6.0 min CN=93 Runoff=3.04 cfs 10,389 cf

Subcatchment 11PC: front parking lot Runoff Area=10,788 sf 100.00% Impervious Runoff Depth>5.92"
Tc=6.0 min CN=98 Runoff=1.46 cfs 5,320 cf

Subcatchment 12APC: car wash area Runoff Area=8,096 sf 94.80% Impervious Runoff Depth>5.68"
Flow Length=220' Tc=6.0 min CN=96 Runoff=1.08 cfs 3,834 cf

Subcatchment 12PC: car wash area Runoff Area=19,566 sf 71.25% Impervious Runoff Depth>4.67"
Flow Length=150' Tc=7.8 min CN=87 Runoff=2.22 cfs 7,607 cf

Subcatchment 13APC: south side yard Runoff Area=9,317 sf 0.00% Impervious Runoff Depth>2.11"
Flow Length=145' Tc=13.4 min CN=61 Runoff=0.40 cfs 1,636 cf

Subcatchment 13PC: east side yard Runoff Area=11,630 sf 0.00% Impervious Runoff Depth>2.02"
Flow Length=325' Slope=0.0300 '/' Tc=16.0 min CN=60 Runoff=0.44 cfs 1,957 cf

Subcatchment 14PC: front landscape area Runoff Area=5,783 sf 0.00% Impervious Runoff Depth>2.11"
Flow Length=150' Tc=16.2 min CN=61 Runoff=0.23 cfs 1,015 cf

Pond 10P: forebay model Peak Elev=0.00' Storage=0 cf

Pond BR1: BR 1 Peak Elev=230.85' Storage=5,659 cf Inflow=2.26 cfs 8,231 cf
Discarded=0.05 cfs 2,938 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 2,938 cf

Pond BR2: BR 2 Peak Elev=230.56' Storage=5,048 cf Inflow=2.21 cfs 7,279 cf
Discarded=0.04 cfs 2,551 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 2,551 cf

Pond CB2: Peak Elev=228.08' Inflow=0.88 cfs 2,801 cf
15.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.88 cfs 2,801 cf

Pond cB3: Peak Elev=228.07' Inflow=1.68 cfs 5,616 cf
15.0" Round Culvert n=0.013 L=13.0' S=0.0077 '/' Outflow=1.68 cfs 5,616 cf

Pond CB4: Peak Elev=228.17' Inflow=0.92 cfs 3,082 cf
12.0" Round Culvert n=0.013 L=93.0' S=0.0040 '/' Outflow=0.92 cfs 3,082 cf

Pond CB5: Peak Elev=228.35' Inflow=0.54 cfs 1,736 cf
12.0" Round Culvert n=0.013 L=39.0' S=0.0051 '/' Outflow=0.54 cfs 1,736 cf

Pond CB6: Peak Elev=230.20' Inflow=1.35 cfs 4,717 cf
Primary=1.27 cfs 4,310 cf Secondary=0.17 cfs 407 cf Outflow=1.35 cfs 4,717 cf

Pond DCB 1: Peak Elev=230.62' Inflow=3.04 cfs 10,389 cf
15.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=3.04 cfs 10,389 cf

Pond DCB2: Peak Elev=230.27' Inflow=2.22 cfs 7,607 cf
15.0" Round Culvert n=0.013 L=20.0' S=0.0200 '/' Outflow=2.22 cfs 7,607 cf

Pond DCB3: Peak Elev=230.20' Inflow=1.36 cfs 5,470 cf
Primary=1.27 cfs 4,901 cf Secondary=0.25 cfs 569 cf Outflow=1.36 cfs 5,470 cf

Pond DMH1: Peak Elev=227.37' Inflow=3.04 cfs 16,432 cf
18.0" Round Culvert n=0.013 L=124.0' S=0.0081 '/' Outflow=3.04 cfs 16,432 cf

Pond DMH2: Peak Elev=226.31' Inflow=3.78 cfs 21,493 cf
18.0" Round Culvert n=0.013 L=36.0' S=0.0069 '/' Outflow=3.78 cfs 21,493 cf

Pond DMH88: Peak Elev=230.20' Inflow=3.04 cfs 10,389 cf
Primary=1.76 cfs 6,204 cf Secondary=1.28 cfs 4,185 cf Outflow=3.04 cfs 10,389 cf

Pond DMH89: Peak Elev=230.20' Inflow=1.28 cfs 4,185 cf
Primary=1.21 cfs 3,684 cf Secondary=0.30 cfs 502 cf Outflow=1.28 cfs 4,185 cf

Pond DMH90: Peak Elev=230.21' Inflow=2.22 cfs 7,607 cf
Primary=1.94 cfs 6,749 cf Secondary=0.40 cfs 858 cf Outflow=2.22 cfs 7,607 cf

Pond ST1: Peak Elev=230.20' Storage=10,451 cf Inflow=7.93 cfs 28,183 cf
Discarded=0.28 cfs 16,458 cf Primary=1.90 cfs 10,764 cf Outflow=2.18 cfs 27,222 cf

Pond ST2: Peak Elev=228.75' Storage=3,907 cf Inflow=2.96 cfs 10,564 cf
Discarded=0.05 cfs 3,315 cf Primary=1.22 cfs 5,669 cf Outflow=1.27 cfs 8,983 cf

Pond ST3: Peak Elev=228.06' Storage=3,523 cf Inflow=2.60 cfs 8,698 cf
Discarded=0.04 cfs 2,263 cf Primary=0.74 cfs 5,061 cf Outflow=0.78 cfs 7,324 cf

Link A: NHDOT POND Inflow=2.28 cfs 11,021 cf
Primary=2.28 cfs 11,021 cf

Link B: NHDOT Easement Inflow=8.23 cfs 50,895 cf
Primary=8.23 cfs 50,895 cf

Link C: Southern Woods Inflow=4.02 cfs 12,700 cf
Primary=4.02 cfs 12,700 cf

Link f1: via Manch Drainage Inflow=2.01 cfs 7,180 cf
Primary=2.01 cfs 7,180 cf

Link f2: via BHR Drainage

Inflow=0.64 cfs 3,842 cf
Primary=0.64 cfs 3,842 cf

Total Runoff Area = 335,489 sf Runoff Volume = 116,079 cf Average Runoff Depth = 4.15"
43.88% Pervious = 147,218 sf 56.12% Impervious = 188,271 sf

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	10-YR	Type III 24-hr		Default	24.00	1	4.16	2

Summary for Subcatchment 1APC: done

Runoff = 0.31 cfs @ 12.10 hrs, Volume= 1,083 cf, Depth> 1.06"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Adj	Description
2,233	98		Unconnected pavement, HSG B
9,999	61		>75% Grass cover, Good, HSG B
12,232	68	64	Weighted Average, UI Adjusted
9,999			81.74% Pervious Area
2,233			18.26% Impervious Area
2,233			100.00% Unconnected

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

Summary for Subcatchment 1PC: west side yard

Runoff = 0.17 cfs @ 12.17 hrs, Volume= 745 cf, Depth> 0.89"
Routed to Pond BR1 : BR 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
10,013	61	>75% Grass cover, Good, HSG B
10,013		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	45	0.0300	0.07		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"

Summary for Subcatchment 2APC: samll portion of BHR

Runoff = 0.08 cfs @ 12.61 hrs, Volume= 513 cf, Depth> 1.63"
Routed to Link f2 : via BHR Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
1,203	98	Paved parking, HSG B
2,582	61	>75% Grass cover, Good, HSG B
3,785	73	Weighted Average
2,582		68.22% Pervious Area
1,203		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.6	100	0.0050	0.04		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
1.2	35	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
41.8	135	Total			

Summary for Subcatchment 2PC: front of bank and parking

Runoff = 1.23 cfs @ 12.09 hrs, Volume= 4,130 cf, Depth> 3.48"
Routed to Pond BR1 : BR 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
10,524	98	Paved parking, HSG B
1,784	98	Roofs, HSG B
495	98	Unconnected pavement, HSG B
1,443	61	>75% Grass cover, Good, HSG B
14,246	94	Weighted Average
1,443		10.13% Pervious Area
12,803		89.87% Impervious Area
495		3.87% Unconnected

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

Summary for Subcatchment 3.5APC: landscape area

Runoff = 0.04 cfs @ 12.19 hrs, Volume= 181 cf, Depth> 0.89"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
2,440	61	>75% Grass cover, Good, HSG B
2,440		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	68	0.0200	0.10		**Sheet Flow, gras** Grass: Dense n= 0.240 P2= 2.82"

Summary for Subcatchment 3APC: side yard and BHR

Runoff = 0.30 cfs @ 12.42 hrs, Volume= 1,672 cf, Depth> 2.68"
Routed to Link f2 : via BHR Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
4,965	98	Paved parking, HSG B
2,530	61	>75% Grass cover, Good, HSG B
7,495	86	Weighted Average
2,530		33.76% Pervious Area
4,965		66.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.8	100	0.0100	0.05		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 2.82"
0.3	11	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
31.1	111	Total			

Summary for Subcatchment 3PC: back of bank and drive thru

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 1.33 cfs @ 12.00 hrs, Volume= 3,926 cf, Depth> 3.70"
Routed to Pond BR2 : BR 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
9,256	98	Paved parking, HSG B
2,821	98	Roofs, HSG B
660	61	>75% Grass cover, Good, HSG B
12,737	96	Weighted Average
660		5.18% Pervious Area
12,077		94.82% Impervious Area

Summary for Subcatchment 4APC: front landscape area

Runoff = 0.11 cfs @ 12.11 hrs, Volume= 399 cf, Depth> 0.89"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
5,356	61	>75% Grass cover, Good, HSG B
5,356		100.00% Pervious Area

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

Summary for Subcatchment 4PC: done

Runoff = 0.14 cfs @ 12.11 hrs, Volume= 527 cf, Depth> 0.89"
Routed to Pond BR2 : BR 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
7,069	61	>75% Grass cover, Good, HSG B
7,069		100.00% Pervious Area

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

Summary for Subcatchment 5APC: enterprise front entrance

Runoff = 0.17 cfs @ 12.09 hrs, Volume= 526 cf, Depth> 2.01"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
1,458	98	Paved parking, HSG B
1,678	61	>75% Grass cover, Good, HSG B
3,136	78	Weighted Average
1,678		53.51% Pervious Area
1,458		46.49% Impervious Area

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

Summary for Subcatchment 5PC: enterprise no change

Runoff = 1.50 cfs @ 12.47 hrs, Volume= 8,604 cf, Depth> 2.32"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
23,787	98	Paved parking, HSG B
1,545	55	Woods, Good, HSG B
1,460	98	Roofs, HSG B
17,625	61	>75% Grass cover, Good, HSG B
44,417	82	Weighted Average
19,170		43.16% Pervious Area
25,247		56.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2	100	0.0100	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.82"
3.6	68	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
33.8	168	Total			

Summary for Subcatchment 6APC: manchester street

Runoff = 1.02 cfs @ 12.09 hrs, Volume= 3,656 cf, Depth> 3.92"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
11,184	98	Paved parking, HSG B
11,184		100.00% Impervious Area

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

Summary for Subcatchment 6BPC: no change

Runoff = 0.89 cfs @ 12.09 hrs, Volume= 3,206 cf, Depth> 3.92"
Routed to Link f1 : via Manch Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
9,809	98	Paved parking, HSG B
9,809		100.00% Impervious Area

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

Summary for Subcatchment 6PC: east side yard

Runoff = 0.24 cfs @ 12.43 hrs, Volume= 1,441 cf, Depth> 1.00"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
14,830	61	>75% Grass cover, Good, HSG B
1,349	98	Paved parking, HSG B
1,142	55	Woods, Good, HSG B
17,321	63	Weighted Average
15,972		92.21% Pervious Area
1,349		7.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.5	100	0.0050	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"

Summary for Subcatchment 7APC: east poition of parking area

Runoff = 0.32 cfs @ 12.09 hrs, Volume= 1,014 cf, Depth> 2.60"
Routed to Pond CB5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
1,600	61	>75% Grass cover, Good, HSG B
3,082	98	Paved parking, HSG B
4,682	85	Weighted Average
1,600		34.17% Pervious Area
3,082		65.83% Impervious Area

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

Summary for Subcatchment 7BPC: east poition of parking area

Runoff = 0.25 cfs @ 12.09 hrs, Volume= 867 cf, Depth> 3.59"
Routed to Pond CB4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
255	61	>75% Grass cover, Good, HSG B
2,645	98	Paved parking, HSG B
2,900	95	Weighted Average
255		8.79% Pervious Area
2,645		91.21% Impervious Area

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

Summary for Subcatchment 7CPC: east poition of parking area

Runoff = 0.53 cfs @ 12.09 hrs, Volume= 1,831 cf, Depth> 3.70"
Routed to Pond cB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
364	61	>75% Grass cover, Good, HSG B
100	98	Roofs, HSG B
5,481	98	Paved parking, HSG B
5,945	96	Weighted Average
364		6.12% Pervious Area
5,581		93.88% Impervious Area

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

Summary for Subcatchment 7DPC: east poition of parking area

Runoff = 0.49 cfs @ 12.09 hrs, Volume= 1,551 cf, Depth> 2.17"
Routed to Pond CB2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
4,133	61	>75% Grass cover, Good, HSG B
4,435	98	Paved parking, HSG B
8,568	80	Weighted Average
4,133		48.24% Pervious Area
4,435		51.76% Impervious Area

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

Summary for Subcatchment 8PC: black hill road

Runoff = 2.15 cfs @ 12.10 hrs, Volume= 6,799 cf, Depth> 1.94"
Routed to Link C : Southern Woods

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
24,228	61	>75% Grass cover, Good, HSG B
17,917	98	Paved parking, HSG B
42,145	77	Weighted Average
24,228		57.49% Pervious Area
17,917		42.51% Impervious Area

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

Summary for Subcatchment 9PC: east parking area

Runoff = 0.99 cfs @ 12.09 hrs, Volume= 3,378 cf, Depth> 3.59"
Routed to Pond ST2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
995	61	>75% Grass cover, Good, HSG B
917	98	Roofs, HSG B
9,391	98	Paved parking, HSG B
11,303	95	Weighted Average
995		8.80% Pervious Area
10,308		91.20% Impervious Area

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

Summary for Subcatchment 10APC: rear drive area and roof

Runoff = 0.89 cfs @ 12.09 hrs, Volume= 3,039 cf, Depth> 3.59"
Routed to Pond CB6 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
6,090	98	Paved parking, HSG B
3,225	98	Roofs, HSG B
852	61	>75% Grass cover, Good, HSG B
10,167	95	Weighted Average
852		8.38% Pervious Area
9,315		91.62% Impervious Area

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

Summary for Subcatchment 10PC: parking area

Runoff = 1.97 cfs @ 12.09 hrs, Volume= 6,567 cf, Depth> 3.37"
Routed to Pond DCB 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
16,199	98	Paved parking, HSG B
4,058	98	Roofs, HSG B
3,102	61	>75% Grass cover, Good, HSG B
23,359	93	Weighted Average
3,102		13.28% Pervious Area
20,257		86.72% Impervious Area

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

Summary for Subcatchment 11PC: front parking lot

Runoff = 0.98 cfs @ 12.09 hrs, Volume= 3,526 cf, Depth> 3.92"
Routed to Pond ST2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
8,430	98	Paved parking, HSG B
2,358	98	Roofs, HSG B
10,788	98	Weighted Average
10,788		100.00% Impervious Area

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

Summary for Subcatchment 12APC: car wash area

Runoff = 0.72 cfs @ 12.09 hrs, Volume= 2,494 cf, Depth> 3.70"
Routed to Pond DCB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
7,675	98	Paved parking, HSG B
421	61	>75% Grass cover, Good, HSG B
8,096	96	Weighted Average
421		5.20% Pervious Area
7,675		94.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0300	1.32		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.82"
1.1	170	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.7	220	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 12PC: car wash area

Runoff = 1.35 cfs @ 12.11 hrs, Volume= 4,534 cf, Depth> 2.78"
Routed to Pond DCB2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
5,626	61	>75% Grass cover, Good, HSG B
2,730	98	Roofs, HSG B
11,210	98	Paved parking, HSG B
19,566	87	Weighted Average
5,626		28.75% Pervious Area
13,940		71.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	40	0.0200	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
0.5	110	0.0400	4.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
7.8	150	Total			

Summary for Subcatchment 13APC: south side yard

Runoff = 0.15 cfs @ 12.22 hrs, Volume= 692 cf, Depth> 0.89"
Routed to Pond DCB3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
9,317	61	>75% Grass cover, Good, HSG B
9,317		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0300	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
0.5	45	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.4	145	Total			

Summary for Subcatchment 13PC: east side yard

Runoff = 0.16 cfs @ 12.27 hrs, Volume= 812 cf, Depth> 0.84"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
9,198	61	>75% Grass cover, Good, HSG B
2,432	55	Woods, Good, HSG B
11,630	60	Weighted Average
11,630		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0300	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
3.1	225	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.0	325	Total			

Summary for Subcatchment 14PC: front landscape area

Runoff = 0.08 cfs @ 12.27 hrs, Volume= 429 cf, Depth> 0.89"
Routed to Link B : NHDOT Easement

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.16"

Area (sf)	CN	Description
5,783	61	>75% Grass cover, Good, HSG B
5,783		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0200	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.82"
1.0	50	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.2	150	Total			

Summary for Pond 10P: forebay model

[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.Storage	Storage Description
#1	229.50'	313 cf	**1.00'W x 5.00'L x 2.50'H Prismatoid Z=3.0**

Summary for Pond BR1: BR 1

Inflow Area = 24,259 sf, 52.78% Impervious, Inflow Depth > 2.41" for 10-YR event
Inflow = 1.35 cfs @ 12.09 hrs, Volume= 4,875 cf
Outflow = 0.04 cfs @ 16.64 hrs, Volume= 2,289 cf, Atten= 97%, Lag= 272.9 min
Discarded = 0.04 cfs @ 16.64 hrs, Volume= 2,289 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link A : NHDOT POND

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.95' @ 16.64 hrs Surf.Area= 2,595 sf Storage= 3,023 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 166.7 min (962.1 - 795.4)

Volume	Invert	Avail.Storage	Storage Description
#1	228.50'	9,971 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.50	1,576	0	0
229.00	1,913	872	872
230.00	2,628	2,271	3,143
231.00	3,400	3,014	6,157
232.00	4,229	3,815	9,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.50'	**0.700 in/hr Exfiltration over Surface area**
#2	Primary	231.67'	**15.0' long + 20.0 '/' SideZ x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.04 cfs @ 16.64 hrs HW=229.95' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.50' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond BR2: BR 2

Inflow Area = 19,806 sf, 60.98% Impervious, Inflow Depth > 2.70" for 10-YR event
Inflow = 1.39 cfs @ 12.00 hrs, Volume= 4,452 cf
Outflow = 0.04 cfs @ 16.62 hrs, Volume= 2,005 cf, Atten= 97%, Lag= 276.8 min
Discarded = 0.04 cfs @ 16.62 hrs, Volume= 2,005 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link B : NHDOT Easement

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.66' @ 16.62 hrs Surf.Area= 2,186 sf Storage= 2,818 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 161.5 min (937.6 - 776.1)

Volume	Invert	Avail.Storage	Storage Description
#1	228.00'	9,749 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.00	1,241	0	0
229.00	1,790	1,516	1,516
230.00	2,395	2,093	3,608
231.00	3,056	2,726	6,334
232.00	3,774	3,415	9,749

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.00'	**0.700 in/hr Exfiltration over Surface area**
#2	Primary	231.67'	**15.0' long + 20.0 '/' SideZ x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.04 cfs @ 16.62 hrs HW=229.66' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond CB2:

Inflow Area = 8,568 sf, 51.76% Impervious, Inflow Depth > 2.17" for 10-YR event
Inflow = 0.49 cfs @ 12.09 hrs, Volume= 1,551 cf
Outflow = 0.49 cfs @ 12.09 hrs, Volume= 1,551 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.49 cfs @ 12.09 hrs, Volume= 1,551 cf
Routed to Pond cB3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.89' @ 12.12 hrs
Flood Elev= 231.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.45'	**15.0" Round Culvert** L= 28.0' Ke= 0.500
			Inlet / Outlet Invert= 227.45' / 227.30' S= 0.0054 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.43 cfs @ 12.09 hrs HW=227.88' TW=227.75' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.43 cfs @ 1.70 fps)

Summary for Pond cB3:

Inflow Area = 14,513 sf, 69.01% Impervious, Inflow Depth > 2.80" for 10-YR event
Inflow = 1.02 cfs @ 12.09 hrs, Volume= 3,382 cf
Outflow = 1.02 cfs @ 12.09 hrs, Volume= 3,382 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.02 cfs @ 12.09 hrs, Volume= 3,382 cf
Routed to Pond ST3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.76' @ 12.09 hrs
Flood Elev= 231.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.20'	**15.0" Round Culvert** L= 13.0' Ke= 0.500 Inlet / Outlet Invert= 227.20' / 227.10' S= 0.0077 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.00 cfs @ 12.09 hrs HW=227.75' TW=227.26' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 1.00 cfs @ 2.80 fps)

Summary for Pond CB4:

Inflow Area = 7,582 sf, 75.53% Impervious, Inflow Depth > 2.98" for 10-YR event
Inflow = 0.57 cfs @ 12.09 hrs, Volume= 1,881 cf
Outflow = 0.57 cfs @ 12.09 hrs, Volume= 1,881 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.57 cfs @ 12.09 hrs, Volume= 1,881 cf
Routed to Pond ST3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.03' @ 12.09 hrs
Flood Elev= 231.12'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.57'	**12.0" Round Culvert** L= 93.0' Ke= 0.500 Inlet / Outlet Invert= 227.57' / 227.20' S= 0.0040 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.56 cfs @ 12.09 hrs HW=228.03' TW=227.25' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 0.56 cfs @ 2.34 fps)

Summary for Pond CB5:

Inflow Area = 4,682 sf, 65.83% Impervious, Inflow Depth > 2.60" for 10-YR event
Inflow = 0.32 cfs @ 12.09 hrs, Volume= 1,014 cf
Outflow = 0.32 cfs @ 12.09 hrs, Volume= 1,014 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.32 cfs @ 12.09 hrs, Volume= 1,014 cf
Routed to Pond CB4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.22' @ 12.11 hrs
Flood Elev= 231.66'

Device	Routing	Invert	Outlet Devices
#1	Primary	227.86'	**12.0" Round Culvert** L= 39.0' Ke= 0.500 Inlet / Outlet Invert= 227.86' / 227.66' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.29 cfs @ 12.09 hrs HW=228.21' TW=228.03' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.29 cfs @ 1.75 fps)

Summary for Pond CB6:

Inflow Area = 10,167 sf, 91.62% Impervious, Inflow Depth > 3.59" for 10-YR event
Inflow = 0.89 cfs @ 12.09 hrs, Volume= 3,039 cf
Outflow = 0.89 cfs @ 12.09 hrs, Volume= 3,039 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.89 cfs @ 12.09 hrs, Volume= 3,018 cf
Routed to Pond ST1 :
Secondary = 0.01 cfs @ 12.51 hrs, Volume= 21 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.63' @ 12.67 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.87 cfs @ 12.09 hrs HW=229.51' TW=229.20' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.87 cfs @ 3.18 fps)

Secondary OutFlow Max=0.00 cfs @ 12.51 hrs HW=229.61' TW=229.61' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond DCB 1:

Inflow Area = 23,359 sf, 86.72% Impervious, Inflow Depth > 3.37" for 10-YR event
Inflow = 1.97 cfs @ 12.09 hrs, Volume= 6,567 cf
Outflow = 1.97 cfs @ 12.09 hrs, Volume= 6,567 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.97 cfs @ 12.09 hrs, Volume= 6,567 cf
Routed to Pond DMH88 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.39' @ 12.09 hrs
Flood Elev= 233.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.65'	**15.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 229.65' / 229.34' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.92 cfs @ 12.09 hrs HW=230.38' TW=229.60' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.92 cfs @ 3.71 fps)

Summary for Pond DCB2:

Inflow Area = 19,566 sf, 71.25% Impervious, Inflow Depth > 2.78" for 10-YR event
Inflow = 1.35 cfs @ 12.11 hrs, Volume= 4,534 cf
Outflow = 1.35 cfs @ 12.11 hrs, Volume= 4,534 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.35 cfs @ 12.11 hrs, Volume= 4,534 cf
Routed to Pond DMH90 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 230.06' @ 12.12 hrs
Flood Elev= 233.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.50'	**15.0" Round Culvert** L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.10' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.25 cfs @ 12.11 hrs HW=230.06' TW=229.64' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.25 cfs @ 3.49 fps)

Summary for Pond DCB3:

Inflow Area = 17,413 sf, 44.08% Impervious, Inflow Depth > 2.20" for 10-YR event
Inflow = 0.81 cfs @ 12.10 hrs, Volume= 3,186 cf
Outflow = 0.81 cfs @ 12.10 hrs, Volume= 3,186 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.81 cfs @ 12.10 hrs, Volume= 3,159 cf
Routed to Pond ST1 :
Secondary = 0.01 cfs @ 12.51 hrs, Volume= 27 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.63' @ 12.67 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.77 cfs @ 12.10 hrs HW=229.48' TW=229.22' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.77 cfs @ 3.03 fps)

Secondary OutFlow Max=0.00 cfs @ 12.51 hrs HW=229.61' TW=229.62' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond DMH1:

[57] Hint: Peaked at 226.95' (Flood elevation advised)

Inflow Area = 92,596 sf, 78.06% Impervious, Inflow Depth = 0.73" for 10-YR event
Inflow = 0.96 cfs @ 12.52 hrs, Volume= 5,662 cf
Outflow = 0.96 cfs @ 12.52 hrs, Volume= 5,662 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.96 cfs @ 12.52 hrs, Volume= 5,662 cf
Routed to Pond DMH2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 226.95' @ 12.52 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	226.50'	**18.0" Round Culvert** L= 124.0' Ke= 0.500 Inlet / Outlet Invert= 226.50' / 225.50' S= 0.0081 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.96 cfs @ 12.52 hrs HW=226.95' TW=225.81' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.96 cfs @ 3.25 fps)

Summary for Pond DMH2:

[57] Hint: Peaked at 225.82' (Flood elevation advised)

Inflow Area = 114,691 sf, 76.75% Impervious, Inflow Depth = 0.81" for 10-YR event
Inflow = 1.26 cfs @ 12.52 hrs, Volume= 7,695 cf
Outflow = 1.26 cfs @ 12.52 hrs, Volume= 7,695 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.26 cfs @ 12.52 hrs, Volume= 7,695 cf
Routed to Link B : NHDOT Easement

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 225.82' @ 12.52 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	225.25'	**18.0" Round Culvert** L= 36.0' Ke= 0.500 Inlet / Outlet Invert= 225.25' / 225.00' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.26 cfs @ 12.52 hrs HW=225.81' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.26 cfs @ 3.07 fps)

Summary for Pond DMH88:

Inflow Area = 23,359 sf, 86.72% Impervious, Inflow Depth > 3.37" for 10-YR event
Inflow = 1.97 cfs @ 12.09 hrs, Volume= 6,567 cf
Outflow = 1.97 cfs @ 12.09 hrs, Volume= 6,567 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.17 cfs @ 12.09 hrs, Volume= 4,129 cf
Routed to Pond ST1 :
Secondary = 0.81 cfs @ 12.08 hrs, Volume= 2,438 cf
Routed to Pond DMH89 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.63' @ 12.69 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.00'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 229.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.16 cfs @ 12.09 hrs HW=229.60' TW=229.21' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.16 cfs @ 3.36 fps)

Secondary OutFlow Max=0.71 cfs @ 12.08 hrs HW=229.60' TW=229.47' (Dynamic Tailwater)
2=Culvert (Outlet Controls 0.71 cfs @ 2.09 fps)

Summary for Pond DMH89:

[80] Warning: Exceeded Pond DMH88 by 0.04' @ 15.55 hrs (0.21 cfs 1,111 cf)

Inflow = 0.81 cfs @ 12.08 hrs, Volume= 2,438 cf
Outflow = 0.81 cfs @ 12.08 hrs, Volume= 2,438 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.81 cfs @ 12.08 hrs, Volume= 2,418 cf
Routed to Pond ST1 :
Secondary = 0.01 cfs @ 12.51 hrs, Volume= 20 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.63' @ 12.66 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.77 cfs @ 12.08 hrs HW=229.47' TW=229.19' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.77 cfs @ 3.11 fps)

Secondary OutFlow Max=0.00 cfs @ 12.51 hrs HW=229.61' TW=229.62' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond DMH90:

Inflow Area = 19,566 sf, 71.25% Impervious, Inflow Depth > 2.78" for 10-YR event
Inflow = 1.35 cfs @ 12.11 hrs, Volume= 4,534 cf
Outflow = 1.35 cfs @ 12.11 hrs, Volume= 4,534 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.31 cfs @ 12.11 hrs, Volume= 4,472 cf
Routed to Pond ST1 :
Secondary = 0.04 cfs @ 12.11 hrs, Volume= 62 cf
Routed to Pond ST1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.65' @ 12.11 hrs
Flood Elev= 233.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**12.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 229.00' / 228.84' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	229.50'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.50' / 229.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.28 cfs @ 12.11 hrs HW=229.64' TW=229.25' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.28 cfs @ 3.42 fps)

Secondary OutFlow Max=0.04 cfs @ 12.11 hrs HW=229.64' TW=229.24' (Dynamic Tailwater)
2=Culvert (Barrel Controls 0.04 cfs @ 0.84 fps)

Summary for Pond ST1:

[80] Warning: Exceeded Pond CB6 by 0.01' @ 12.45 hrs (0.21 cfs 172 cf)
[80] Warning: Exceeded Pond CB6 by 0.01' @ 12.45 hrs (0.01 cfs 8 cf)
[80] Warning: Exceeded Pond DMH88 by 0.03' @ 15.55 hrs (0.18 cfs 796 cf)
[80] Warning: Exceeded Pond DMH89 by 0.04' @ 15.50 hrs (0.21 cfs 1,190 cf)
[80] Warning: Exceeded Pond DMH89 by 0.04' @ 13.40 hrs (0.00 cfs 9 cf)

Inflow Area = 70,505 sf, 72.60% Impervious, Inflow Depth > 2.95" for 10-YR event
Inflow = 4.99 cfs @ 12.10 hrs, Volume= 17,325 cf
Outflow = 0.76 cfs @ 12.63 hrs, Volume= 17,237 cf, Atten= 85%, Lag= 32.1 min
Discarded = 0.28 cfs @ 11.35 hrs, Volume= 14,150 cf
Primary = 0.48 cfs @ 12.63 hrs, Volume= 3,087 cf
Routed to Pond DMH1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 229.63' @ 12.63 hrs Surf.Area= 10,126 sf Storage= 6,945 cf

Plug-Flow detention time= 151.1 min calculated for 17,237 cf (99% of inflow)
Center-of-Mass det. time= 147.8 min (938.0 - 790.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	228.50'	7,045 cf	**58.17'W x 174.08'L x 2.33'H Field A** 23,627 cf Overall - 6,015 cf Embedded = 17,612 cf x 40.0% Voids
#2A	229.00'	6,015 cf	**ADS_StormTech SC-310 +Cap** x 408 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 408 Chambers in 17 Rows
		13,059 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.50'	**1.200 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'
#2	Primary	229.26'	**10.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 229.26' / 228.50' S= 0.0760 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.28 cfs @ 11.35 hrs HW=228.62' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.48 cfs @ 12.63 hrs HW=229.63' TW=226.94' (Dynamic Tailwater)
↑—**2=Culvert** (Inlet Controls 0.48 cfs @ 2.06 fps)

Summary for Pond ST2:

Inflow Area = 22,091 sf, 95.50% Impervious, Inflow Depth > 3.75" for 10-YR event
Inflow = 1.97 cfs @ 12.09 hrs, Volume= 6,904 cf
Outflow = 0.58 cfs @ 12.41 hrs, Volume= 5,594 cf, Atten= 71%, Lag= 19.7 min
Discarded = 0.05 cfs @ 12.41 hrs, Volume= 3,018 cf
Primary = 0.53 cfs @ 12.41 hrs, Volume= 2,576 cf
Routed to Pond DMH1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 228.32' @ 12.41 hrs Surf.Area= 3,938 sf Storage= 2,901 cf

Plug-Flow detention time= 174.2 min calculated for 5,582 cf (81% of inflow)
Center-of-Mass det. time= 101.3 min (862.9 - 761.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	227.10'	2,791 cf	**101.50'W x 38.80'L x 2.33'H Field A** 9,189 cf Overall - 2,211 cf Embedded = 6,978 cf x 40.0% Voids
#2A	227.60'	2,211 cf	**ADS_StormTech SC-310 +Cap** x 150 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 150 Chambers in 30 Rows
		5,002 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	227.10'	**0.500 in/hr Exfiltration over Wetted area** Phase-In= 0.10'
#2	Primary	227.89'	**8.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 227.89' / 227.00' S= 0.0890 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.05 cfs @ 12.41 hrs HW=228.32' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.53 cfs @ 12.41 hrs HW=228.32' TW=226.93' (Dynamic Tailwater)
└**2=Culvert** (Inlet Controls 0.53 cfs @ 2.23 fps)

Summary for Pond ST3:

Inflow Area = 22,095 sf, 71.25% Impervious, Inflow Depth > 2.86" for 10-YR event
Inflow = 1.59 cfs @ 12.09 hrs, Volume= 5,263 cf
Outflow = 0.34 cfs @ 12.52 hrs, Volume= 4,083 cf, Atten= 79%, Lag= 25.7 min
Discarded = 0.04 cfs @ 12.52 hrs, Volume= 2,050 cf
Primary = 0.30 cfs @ 12.52 hrs, Volume= 2,033 cf
Routed to Pond DMH2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 227.55' @ 12.52 hrs Surf.Area= 3,700 sf Storage= 2,315 cf

Plug-Flow detention time= 185.8 min calculated for 4,075 cf (77% of inflow)
Center-of-Mass det. time= 104.7 min (900.0 - 795.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	226.50'	2,604 cf	**28.17'W x 131.36'L x 2.33'H Field A** 8,633 cf Overall - 2,123 cf Embedded = 6,510 cf x 40.0% Voids
#2A	227.00'	2,123 cf	**ADS_StormTech SC-310 +Cap** x 144 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 144 Chambers in 8 Rows
		4,727 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	226.50'	**0.400 in/hr Exfiltration over Wetted area** Phase-In= 0.10'
#2	Primary	227.20'	**6.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 227.20' / 226.00' S= 0.1200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.04 cfs @ 12.52 hrs HW=227.55' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.30 cfs @ 12.52 hrs HW=227.55' TW=225.81' (Dynamic Tailwater)
└**2=Culvert** (Inlet Controls 0.30 cfs @ 2.02 fps)

Summary for Link A: NHDOT POND

Inflow Area = 56,280 sf, 53.73% Impervious, Inflow Depth > 1.39" for 10-YR event
Inflow = 1.34 cfs @ 12.10 hrs, Volume= 6,497 cf
Primary = 1.34 cfs @ 12.10 hrs, Volume= 6,497 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link B: NHDOT Easement

Inflow Area = 237,064 sf, 59.10% Impervious, Inflow Depth > 1.20" for 10-YR event
Inflow = 3.54 cfs @ 12.44 hrs, Volume= 23,720 cf
Primary = 3.54 cfs @ 12.44 hrs, Volume= 23,720 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link C: Southern Woods

Inflow Area = 42,145 sf, 42.51% Impervious, Inflow Depth > 1.94" for 10-YR event
Inflow = 2.15 cfs @ 12.10 hrs, Volume= 6,799 cf
Primary = 2.15 cfs @ 12.10 hrs, Volume= 6,799 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link f1: via Manch Drainage

Inflow Area = 20,741 sf, 54.32% Impervious, Inflow Depth > 2.50" for 10-YR event
Inflow = 1.19 cfs @ 12.09 hrs, Volume= 4,313 cf
Primary = 1.19 cfs @ 12.09 hrs, Volume= 4,313 cf, Atten= 0%, Lag= 0.0 min
Routed to Link A : NHDOT POND

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link f2: via BHR Drainage

Inflow Area = 11,280 sf, 54.68% Impervious, Inflow Depth > 2.32" for 10-YR event
Inflow = 0.37 cfs @ 12.46 hrs, Volume= 2,185 cf
Primary = 0.37 cfs @ 12.46 hrs, Volume= 2,185 cf, Atten= 0%, Lag= 0.0 min
Routed to Link A : NHDOT POND

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Infiltration Feasibility Report

Gas Station and Convenience and St Mary's Bank Projects
30 & 32 Manchester Street & 33-35 Black Hill Road
and 16-20 Manchester Street Concord, NH
~~March 20, 2024~~
~~July 12, 2024~~
December 13, 2024
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b. Site Specific Soils Report by TES Environmental Consultants, LLC
c. Test Pit Logs
d. Infiltration Test Memos & Amoozemeter Field Data Sheets

(a) Location of Practice

Phase 1A consists of two proposed projects, a 3,691± sf banking development and a 5,750± sf gas station and convenience development with associated access, parking, landscaping, and stormwater management. The proposed banking site is located at 16-22 Manchester Street and the parcel Tax Map 792 Block Z Lot 2, which is approximately 1.42 ± acres. The proposed gas station/convenience site is located at 30 Manchester and consists of three parcels Tax Map 781 Block Z Lots 29,30, and 32, which will be consolidated into one lot - approximately 3.42 ± acres.

An open and closed drainage system is proposed to capture runoff from the site for this phase of the project. The bank site will be sited with two (2) proposed bio-retention areas with sediment forebays to manage runoff and provide the pretreatment/treatment. Three (3) Underground storage chambers (ADS SC-310) will be used for the gas station site. These systems provide pre-treatment and treatment.

(b) Existing Topography at Location of Practice

The existing lot for the banking development is 1.42± acres and approximately 1.38± acres will be disturbed. The proposed consolidated lot for the gas store site is 3.42± acres and approximately 3.27± acres will be disturbed. In total approximately 4.65± acres for phase 1A of the project will be disturbed.

Both developments are zoned within the Gateway Performance District. In between the two projects is an office building. The projects are abutted by commercial properties north across Manchester Street, an industrial property east, vacant land and a commercial property south across Black Hill Road, and utilities west of the sites.

Access to the banking site is proposed via two (2) paved driveways, one right-in only (1) from Manchester Street along the northern property line and one full service (1) from Black Hill Road along the southern property line. Access to the gas station development is proposed via (2) full-service driveways connecting the proposed access way and Black Hill Road. The gas station will have a right out onto Manchester Street.

(c) Test Pit Locations

A total of Nine (9) test pits were performed by Bryan Levesque, PE, three (3) on 2/2/2024 and six (6) on 3/1/2024. The test pit locations are shown on the Plan in Section (j).

(d) Seasonal High-Water Table and Bedrock Elevations

2/2/24 Test;
Test Pit #1:
Surface Elevation = 232.63'
ESHWT = Observed @ 84" (Elev = 225.63')

Test Pit #2:
Surface Elevation = 230.99'
ESHWT = Not Observed @ 72" (Elev = 224.99')

Test Pit #3:
Surface Elevation = 232.33'
ESHWT = None Observed @ 120" (Elev = 222.33')

3/1/24 Test;
Test Pit #1:
Surface Elevation = 232.50'
ESHWT = Observed @ 84" (Elev = 225.50')

Test Pit #2:
Surface Elevation = 231.1'
ESHWT Observed @ 90" (Elev = 223.60')

Test Pit #3:
Surface Elevation = 230.78'
ESHWT= Observed @ 84" (Elev=223.78')

Test Pit #4:
Surface Elevation = 231.11'
ESHWT= Observed @ 84" (Elev=224.11')

Test Pit #5:
Surface Elevation = 230.24'
ESHWT= Observed @ 84" (Elev=223.24')

Test Pit #6:
Surface Elevation = 230.63'
ESHWT= Observed @ 84" (Elev=223.63')

(e) Profile Descriptions

See the test pit logs in Section (j) showing the soil information.

(f) Soils in Area of Proposed Practice

The soil series from the Site-Specific Soils in the area of the proposed practices are shown on the Plan of Proposed Practices found in Section (j).

(g) Number and Location of Test Locations

Infiltration testing was done in the area of the proposed stormwater management practices as well as across other portions of the site. See Infiltration Test Memo and Field Data Sheets in section (j)

(h) Summary of Design Infiltration Results

Infiltration tests were performed on site using an Amoozemeter. See the Field Data Sheets in section (j). The design infiltration rate used in the drainage model was calculated using the infiltration testing done on February 2, and March 1, 2024 with a factor of safety of 2.

Infiltration Feasibility Report Sumary Table
Infiltration Rate Summary (Ksat, In./Hr.)

St. Mary's: 16-20 Manchester Street				
BMP - BR1	Test #1	Test #2	Test #3	Average
TP-1	1.44	1.68	1.01	1.38
		Design Rate = Average / 2 =		**0.7**
BMP - PP2	Test #1	Test #2	Test #3	Average
TP-3	1.24	1.61		1.43
		Design Rate = Avg / 2 =		**0.7**
Gas Station: 30&32 Manchester Street				
BMP - ST1	Test #1	Test #2	Test #3	Average
TP-1	5.04	3.36	3.02	3.81
TP-2	1.34	0.27	0.81	0.81
		Design Rate = Avg / 2 =		**1.2**
BMP - ST2	Test #1	Test #2	Test #3	Average
TP-3	0.94	0.27	1.48	0.90
TP-4	1.61	0.54		1.08
		Design Rate = Avg / 2 =		**0.5**
BMP - ST3	Test #1	Test #2	Test #3	Average
TP-5	0.27	1.34		0.805
		Design Rate = Avg / 2 =		**0.4**

(i) Date Data was collected

Test Pits

Date:	February 2, and March 1, 2024
Performed by:	Bryan Levesque, PE
Town/State:	Concord, NH
TFM Project Number:	95486.08

Infiltration Test

Date:	February 2, and March 1, 2024
Performed by:	Bryan Levesque, PE
Town/State:	Concord, NH
TFM Project Number:	95486.08

(j) Attachments

a. USDA NRCS Soils Report
b. Site Specific Soils Report by TES Environmental Consultants, LLC
c. Test Pit Logs
d. Infiltration Test Memos & Amoozemeter Field Data Sheets
e. Test Pit Location Exhibit

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Merrimack and Belknap Counties, New Hampshire

December 15, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:5,050 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Merrimack and Belknap Counties, New Hampshire
Survey Area Data: Version 29, Aug 22, 2023

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

Date(s) aerial images were photographed: Oct 6, 2022—Oct 22, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
4A	Pootatuck very fine sandy loam, 0 to 3 percent slopes, occasionally flooded	11.4	19.8%
5A	Rippowam very fine sandy loam, 0 to 3 percent slopes, frequently flooded	1.8	3.1%
26A	Windsor loamy sand, 0 to 3 percent slopes	0.0	0.0%
26E	Windsor loamy sand, 15 to 60 percent slopes	8.5	14.7%
498A	Urban land-Pootatuck complex, 0 to 3 percent slopes	13.2	22.9%
598B	Windsor-Urban land complex, 0 to 8 percent slopes	22.6	39.4%
W	Water	0.0	0.0%
Totals for Area of Interest		**57.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit

descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Merrimack and Belknap Counties, New Hampshire

4A—Pootatuck very fine sandy loam, 0 to 3 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 9dkl
Elevation: 200 to 790 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 100 to 160 days
Farmland classification: Prime farmland if protected from flooding or not frequently flooded during the growing season

Map Unit Composition

Pootatuck, occasionally flooded, and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pootatuck, Occasionally Flooded

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy and/or coarse-loamy alluvium derived from granite, gneiss or schist

Typical profile

H1 - 0 to 14 inches: very fine sandy loam
H2 - 14 to 60 inches: fine sandy loam
H3 - 60 to 65 inches: fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F144AY012CT - Sandy Low Floodplain
Hydric soil rating: No

Minor Components

Rippowam

Percent of map unit: 10 percent

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: Yes

Suncook

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Saco

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Occum, frequently flooded

Percent of map unit: 3 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Occum, occasionally flooded

Percent of map unit: 2 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

5A—Rippowam very fine sandy loam, 0 to 3 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 9dl8
Elevation: 200 to 790 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 100 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Rippowam, frequently flooded, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rippowam, Frequently Flooded

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Sandy and/or coarse-loamy alluvium derived from granite, gneiss or schist

Typical profile

H1 - 0 to 6 inches: very fine sandy loam
H2 - 6 to 26 inches: very fine sandy loam
H3 - 26 to 65 inches: fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F144AY014CT - Wet Sandy Low Floodplain
Hydric soil rating: Yes

Minor Components

Saco

Percent of map unit: 10 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Pootatuck

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

26A—Windsor loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2svkg
Elevation: 0 to 990 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of local importance

Map Unit Composition

Windsor, loamy sand, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Windsor, Loamy Sand

Setting

Landform: Dunes, deltas, outwash terraces, outwash plains
Landform position (three-dimensional): Tread, riser
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

O - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loamy sand
Bw - 3 to 25 inches: loamy sand
C - 25 to 65 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash

Hydric soil rating: No

Minor Components

Deerfield, loamy sand

Percent of map unit: 10 percent
Landform: Outwash plains, terraces, deltas
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Hinckley, loamy sand

Percent of map unit: 5 percent
Landform: Outwash plains, eskers, kames, deltas
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, rise
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

26E—Windsor loamy sand, 15 to 60 percent slopes

Map Unit Setting

National map unit symbol: 2w2ws
Elevation: 0 to 760 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Windsor and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Windsor

Setting

Landform: Outwash plains, outwash terraces, deltas, dunes
Landform position (three-dimensional): Tread, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 3 inches: loamy sand
Bw - 3 to 25 inches: loamy sand
C - 25 to 65 inches: sand

Properties and qualities

Slope: 15 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Hinckley

Percent of map unit: 10 percent
Landform: Outwash plains, eskers, kames, deltas
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, rise
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Deerfield

Percent of map unit: 5 percent
Landform: Outwash plains, terraces, deltas
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

498A—Urban land-Pootatuck complex, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9dl7
Elevation: 200 to 1,970 feet
Mean annual precipitation: 40 to 50 inches

Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 100 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 45 percent
Pootatuck, occasionally flooded, and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Typical profile

H1 - 0 to 6 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Description of Pootatuck, Occasionally Flooded

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy and/or coarse-loamy alluvium derived from granite, gneiss or schist

Typical profile

H1 - 0 to 14 inches: very fine sandy loam
H2 - 14 to 60 inches: fine sandy loam
H3 - 60 to 65 inches: fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F144BY120ME - Small Floodplain Riparian Complex (reserved)
Hydric soil rating: No

Minor Components

Rippowam, frequently flooded

Percent of map unit: 7 percent
Landform: Flood plains

Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: Yes

Saco, frequently flooded
Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Windsor
Percent of map unit: 5 percent
Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Occum, occasionally flooded
Percent of map unit: 3 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

598B—Windsor-Urban land complex, 0 to 8 percent slopes

Map Unit Setting
National map unit symbol: 2w2wq
Elevation: 0 to 920 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition
Windsor and similar soils: 45 percent
Urban land: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Windsor

Setting
Landform: Outwash plains, outwash terraces, deltas, dunes
Landform position (three-dimensional): Tread, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex

Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

A - 0 to 3 inches: loamy sand
Bw - 3 to 25 inches: loamy sand
C - 25 to 65 inches: sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Description of Urban Land

Typical profile

M - 0 to 10 inches: cemented material

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 0 inches to manufactured layer
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Minor Components

Udorthents

Percent of map unit: 10 percent
Landform: Outwash plains, outwash terraces, deltas, dunes
Landform position (three-dimensional): Tread, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Hinckley

Percent of map unit: 5 percent
Landform: Outwash plains, eskers, kames, deltas
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, rise
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Deerfield

Percent of map unit: 5 percent
Landform: Outwash plains, terraces, deltas
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

W—Water

Map Unit Setting

National map unit symbol: wm74
Elevation: 200 to 2,610 feet
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

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TES ENVIRONMENTAL CONSULTANTS, L.L.C.

Environmental Planning and Permitting
Soil and Wetlands Investigation

SITE-SPECIFIC
SOIL SURVEY REPORT

performed at

Tax Map 110, Block H2, Lots 2, 4, 6 and 9;
Block H3, Lots 2 and 3; and Block I2 Lot 3
Manchester Street (U.S. Route 3) and Black Hill Road
Concord, New Hampshire

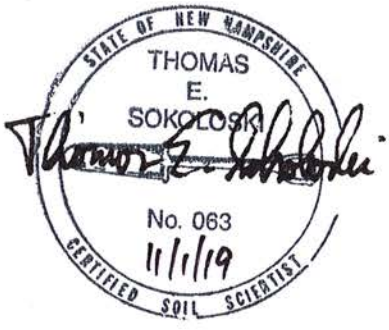
prepared for

T. F. Moran, Inc.
48 Constitution Drive
Bedford, New Hampshire 03110

TES Project # 19-0143

1494 Route 3A, Unit 1
Bow, NH 03304
(603) 856-8925

tom@tesenviro@comcastbiz.net



November 1, 2019

Mr. Shaun Vando, Civil Project Engineer
T.F. Moran, Inc.
48 Constitution Drive
Bedford, NH 03110

RE: Site Specific Soil Survey Mapping
Tax Map 110, Block H2, Lots 2, 4, 6 and 9;
Block H3, Lots 2 and 3; and Block I2 Lot 3
Manchester Street (U.S. Route 3) and Black Hill Road, Concord, New Hampshire

Dear Mr. Vando:

On October 28 and 29, 2019 I performed field work on the above-referenced properties on Manchester Street and Black Hill Road in Concord, New Hampshire for a Site Specific Soil Survey as you requested. The Manchester Street parcels are occupied by residences and commercial/industrial uses, Tax Map 110, Block H3, Lot 2 was formerly occupied by a drive-in theater but is now overgrown, and Tax Map 110, Block H3, Lot 3 and Tax Map 110, Block I2, Lot 3 are forested. The total area of the 7 parcels is 59.31 acres.

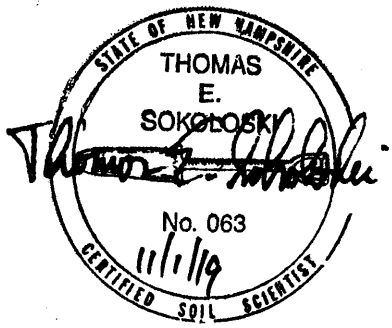
This Site Specific Soil Survey was completed utilizing SSSNNE Special Publication No. 3; Site Specific Soil Mapping Standards for New Hampshire and Vermont, Version 4.0, February 2011. The soil legend used for this soil map conforms to the New Hampshire State-Wide Numerical Soils Legend, Issue #10, January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

Field work for this soil survey included the examination of many soil profiles via hand dug soil pits and auger borings taken at intervals sufficient to delineate the boundaries between soil map units. My past familiarity with the site included two previous wetland delineations. The base map utilized for this soil survey consisted of a topographic plan provided by your office that showed wetland boundaries as delineated by others. It was noted that the wetland boundary extending southward along the eastern site boundary was not depicted on the base plan, and therefore that portion of the site was not mapped. Ground control for this soil survey consisted of the wetland boundary flags, topographic features, the banks of the Merrimack River and development features on and adjacent to the parcels.

The following report includes a Site Specific Soil Map Key with Hydrologic Soil Groups and attached soil map unit descriptions. The general soil conditions on the site consisted of gently to moderately sloping alluvial landscapes, with sandy glacial outwash slopes in the eastern portion of property. If you have any questions regarding the soils on this site and the accompanying report please contact our office.

Very truly yours,

Thomas E. Sokoloski
Certified Soil Scientist #063



SITE SPECIFIC SOIL MAP UNIT KEY

Symbol*	Map Unit	Slope Class	Drainage Class	HISS Symbol	Hydrologic Soil Group
4B	Pootatuck, occasionally flooded	0-8%	Moderately well	375BH	B
5B	Rippowam, frequently flooded	0-8%	Poorly	575BH	C
6A	Saco, frequently flooded	0-3%	Very poorly	675AH	D
10C	Merrimac fine sandy loam	8-15%	Well	211CH	A
10E	Merrimac fine sandy loam	25% +	Well	211EH	A
401E	Occum, occasionally flooded	25% +	Well	275EH	B
500B/cgade	Udorthents, loamy	0-8%	Well	261BH	B
500C/cgade	Udorthents, loamy	8-15%	Well	261CH	B
500E/cgade	Udorthents, loamy	25% +	Well	261EH	B
500B/dggde	Udorthents, loamy	0-8%	Moderately well	361BH	B
500B/hghde	Udorthents, loamy	0-8%	Undeterminable**	761BH	B
513B	Ninigret fine sandy loam	0-8%	Moderately well	311BH	B
513C	Ninigret fine sandy loam	8-15%	Moderately well	311CH	B
513D	Ninigret fine sandy loam	15-25%	Moderately well	311DH	B
601B	Occum, rarely flooded	0-8%	Well	271BH	B
947B	Pootatuck Variant (SPD)	0-8%	Somewhat poorly	475BH	C

* Refer to accompanying report for 5-unit supplemental symbol explanation.

** Assumed to be well drained, as are adjacent undeveloped surfaces.

This detailed Site-Specific Soil Map, performed on October 28 and 29, 2019 by Thomas E. Sokoloski, Certified Soil Scientist #063 of TES Environmental Consultants, L.L.C. in Bow, New Hampshire, conforms to the standards of SSSNNE Publication No. 4, as amended, "Site-Specific Soil Mapping Standards for New Hampshire and Vermont", February 2011. This map has been prepared to comply with soil mapping requirements of RSA 485 A: 17 and NHDES Env-Wq 1500, Alteration of Terrain.

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: 974

Map Unit Name: Pootatuck Variant (Somewhat poorly drained, frequently flooded)

Landscape Settings: River floodplains

Surface Features: None

Drainage Class: Somewhat poorly

Parent Material: Alluvial deposits, sandy to loamy material

Complex: Yes ( ) No (X)

Nature of Dissimilar Inclusions, Locations and Estimated Percent:

Additional Notes:

SITE SPECIFIC SOIL MAP UNIT DESCRIPTIONS

Map Unit Symbol: 4

Map Unit Name: Pootatuck, occasionally flooded

Landscape Settings: River floodplains

Surface Features: None

Drainage Class: Moderately well

Parent Material: Alluvial deposits, sandy to loamy material

Complex: Yes ( ) No (X)

Nature of Dissimilar Inclusions, Locations and Estimated Percent:

Additional Notes:

SITE SPECIFIC SOIL MAP UNIT DESCRIPTIONS

Map Unit Symbol: 5

Map Unit Name: Rippowam, frequently flooded

Landscape Settings: River floodplains

Surface Features: None

Drainage Class: Poorly

Parent Material: Alluvial deposits, sandy to loamy material

Complex: Yes ( ) No (X)

Nature of Dissimilar Inclusions, Locations and Estimated Percent:

Additional Notes:

SITE SPECIFIC SOIL MAP UNIT DESCRIPTIONS

Map Unit Symbol: 6

Map Unit Name: Saco, frequently flooded

Landscape Settings: River floodplains

Surface Features: None

Drainage Class: Very poorly

Parent Material: Alluvial deposits, sandy to loamy material

Complex: Yes ( ) No (X)

Nature of Dissimilar Inclusions, Locations and Estimated Percent:

Additional Notes:

SITE SPECIFIC SOIL MAP UNIT DESCRIPTIONS

Map Unit Symbol: 10

Map Unit Name: Merrimac fine sandy loam

Landscape Settings: Glacial outwash plains and terraces

Surface Features: None

Drainage Class: Well

Parent Material: Glacial outwash with no mineral restrictive features*

Complex: Yes ( ) No (X)

Nature of Dissimilar Inclusions, Locations and Estimated Percent:

Additional Notes:

*May have silty substrata that could temporarily detain infiltrating water.

SITE SPECIFIC SOIL MAP UNIT DESCRIPTIONS

Map Unit Symbol: 401

Map Unit Name: Occum, occasionally flooded

Landscape Settings: River floodplains

Surface Features: None

Drainage Class: Well

Parent Material: Alluvial deposits, sandy to loamy material

Complex: Yes ( ) No (X)

Nature of Dissimilar Inclusions, Locations and Estimated Percent:

Additional Notes:

SITE SPECIFIC SOIL MAP UNIT DESCRIPTIONS

Map Unit Symbol:	500B-E/cgade
Map Unit Name:	Udorthents, loamy
Landscape Settings:	Regraded or filled land surfaces
Surface Features:	Fill or exposed parent material
Drainage Class:	Well
Parent Material:	Regraded or filled, sandy to loamy alluvial deposits with no mineral restrictive features
Complex:	Yes ( ) No (**X**)

Nature of Dissimilar Inclusions, Locations and Estimated Percent:

Additional Notes:

SITE SPECIFIC SOIL MAP UNIT DESCRIPTIONS

Map Unit Symbol: 500B/dggde

Map Unit Name: Udorthents, loamy

Landscape Settings: Excavated or regraded land surfaces

Surface Features: Exposed parent material

Drainage Class: Moderately well

Parent Material: Excavated or regraded, sandy to loamy alluvial deposits with no mineral restrictive features

Complex: Yes ( ) No (**X**)

Nature of Dissimilar Inclusions, Locations and Estimated Percent:

Additional Notes:

SITE SPECIFIC SOIL MAP UNIT DESCRIPTIONS

Map Unit Symbol:	500B/hghde
Map Unit Name:	Udorthents, loamy
Landscape Settings:	Developed land surfaces
Surface Features:	Impervious surfaces – pavement or buildings
Drainage Class:	Undetermined (assumed to be well drained as are adjacent surfaces)
Parent Material:	Fill over sandy to loamy alluvial deposits with no mineral restrictive features
Complex:	Yes ( ) No (**X**)

Nature of Dissimilar Inclusions, Locations and Estimated Percent:

Additional Notes:

SITE SPECIFIC SOIL MAP UNIT DESCRIPTIONS

Map Unit Symbol: 513

Map Unit Name: Ninigret fine sandy loam

Landscape Settings: Lower slopes of forested hillsides and fields

Surface Features: None

Drainage Class: Moderately well

Parent Material: Glacial outwash with no mineral restrictive features*

Complex: Yes ( ) No (X)

Nature of Dissimilar Inclusions, Locations and Estimated Percent:

Additional Notes:

*May have silty substrata that could detain infiltrating water.

SITE SPECIFIC SOIL MAP UNIT DESCRIPTIONS

Map Unit Symbol: 601

Map Unit Name: Occum, rarely flooded

Landscape Settings: River floodplains

Surface Features: None

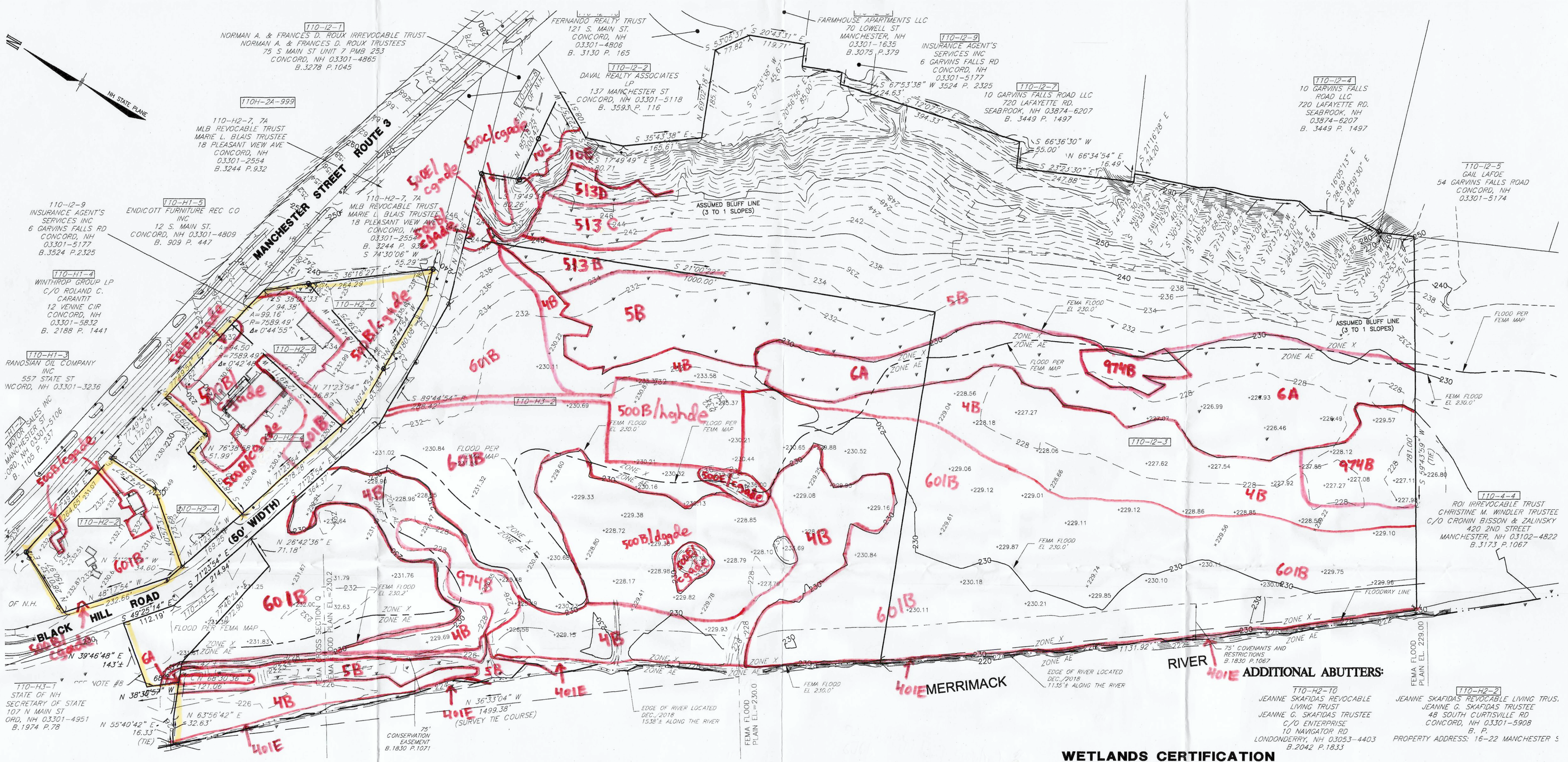
Drainage Class: Well

Parent Material: Alluvial deposits, sandy to loamy material

Complex: Yes ( ) No (X)

Nature of Dissimilar Inclusions, Locations and Estimated Percent:

Additional Notes:



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NOTES

1. OWNER OF RECORD OF LOT 110-H3-2 IS ROI IRREVOCABLE TRUST CHRISTINE M. WINDLER TRUSTEE C/O CRONIN BISSON & ZALINSKY PC 420 2ND STREET MANCHESTER, NH 03102-4822 PROPERTY ADDRESS: BLACK HILL ROAD

   DEED REFERENCE TO PARCEL IS BK. 3173 PG. 1067 IN THE MCRD. AREA = 1,071,100 SF+/- OR 24.59 +/- ACRES .

   OWNER OF RECORD OF LOT 110-I2-3 & 110-H3-3 IS ROI IRREVOCABLE TRUST CHRISTINE M. WINDLER TRUSTEE C/O CRONIN BISSON & ZALINSKY PC 420 2ND STREET MANCHESTER, NH 03102-4822 PROPERTY ADDRESS: GARVINS FALLS ROAD

   DEED REFERENCE TO PARCEL IS BK. 3173 PG. 1067 IN THE MCRD. AREA = 1,349,400 SF+/- OR 30.97 +/- ACRES .

   OWNER OF RECORD OF LOT 110-H2-2 IS JEANNE SKAFIDAS REVOCABLE LIVING TRUST JEANNE G. SKAFIDAS TRUSTEE 48 SOUTH CURTISVILLE RD CONCORD, NH 03301-5908 PROPERTY ADDRESS: 16-22 MANCHESTER ST

   DEED REFERENCE TO PARCEL IS BK. 2042 PG. 1833 IN THE MCRD. AREA = 61,901 SF+/- OR 1.4211 +/-ACRES .

   OWNER OF RECORD OF LOT 110-H2-4 IS ROI IRREVOCABLE TRUST CHRISTINE M. WINDLER TRUSTEE C/O CRONIN BISSON & ZALINSKY PC 420 2ND STREET MANCHESTER, NH 03102-4822 PROPERTY ADDRESS: 30 MANCHESTER ST

   DEED REFERENCE TO PARCEL IS BK. 3173 PG. 1064 IN THE MCRD. AREA = 73,223 SF+/- OR 1.6810 +/- ACRES .

   OWNER OF RECORD OF LOT 110-H2-9 IS ROI IRREVOCABLE TRUST CHRISTINE M. WINDLER TRUSTEE C/O CRONIN BISSON & ZALINSKY PC 420 2ND STREET MANCHESTER, NH 03102-4822 PROPERTY ADDRESS: 32 MANCHESTER ST

   DEED REFERENCE TO PARCEL IS BK. 3276 PG. 1522 IN THE MCRD. AREA = 48212 SF+/- OR 1.1068 +/- ACRES .

   OWNER OF RECORD OF LOT 110-H2-6 IS ROI IRREVOCABLE TRUST CHRISTINE M. WINDLER TRUSTEE 722 CHESTNUT STREET MANCHESTER, NH 03104-3001 PROPERTY ADDRESS: 33-35 BLACK HILL ROAD

2. 110-H3-2 INDICATES TAX MAP, BLOCK AND LOT NUMBER.
3. THE PURPOSE OF THIS PLAN IS TO SHOW THE RESULTS OF A BOUNDARY, WETLAND AND A PARTIAL EXISTING CONDITIONS SURVEY OF LOTS 110-H3-2, 110-I2-3, 110-H2-2, 110-H2-4, 110-H2-9 AND 110-H2-6.
4. CURRENT ZONING IS GWP-GATEWAY PERFORMANCE DISTRICT AND RO-OPEN SPACE RESIDENTIAL DISTRICT
5. EXAMINATION OF THE FLOOD INSURANCE RATE MAP FOR MERRIMACK COUNTY, NEW HAMPSHIRE, (ALL JURISDICTIONS) MAP NUMBERS 33013C0534E EFFECTIVE DATE: APRIL 19, 2010 INDICATES THAT THE SUBJECT PARCELS ARE LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA. PARCELS ARE LOCATED WITHIN ZONES AE, X (SHADED) AND X.
6. BENCHMARK USED: NHCO CORS BASE STATION
   VERTICAL DATUM: NAVD 88 (CORS)
   BENCHMARKS SET: AS NOTED
7. HORIZONTAL COORDINATES: PROJECTION: NH STATE PLANE
   HORIZONTAL DATUM: NAD 83
8. BOUNDARY LINES TO BE CONFIRMED BY A BOUNDARY LINE AGREEMENT.

I HEREBY CERTIFY THAT THIS SURVEY AND PLAT WERE PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION AND IS THE RESULT OF AN ACTUAL FIELD SURVEY MADE ON THE GROUND AND HAS AN ERROR OF CLOSURE OF GREATER ACCURACY THAN ONE PART IN TEN THOUSAND (1:10,000).

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

100 50 25 0 100

WETLANDS CERTIFICATION

WETLANDS SHOWN ON THIS PLAN WERE DELINEATED DURING DEC. 2018 BY MARK WEST. THE WETLANDS WERE DELINEATED ACCORDING TO THE 1987 ARMY CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL.

DOMINANT HYDRIC SOIL CONDITIONS WITHIN THE WETLANDS WERE IDENTIFIED UTILIZING THE CRITERIA OF "FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND", VERSION 3, APRIL 2004.

DOMINANCE OF WETLAND VEGETATION WAS ASSESSED UTILIZING THE "NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS: 1988 NORTHEAST" (REGION 1) (PORTER B. REED, JR.)

LOTS 110-H3-2, 110-I2-3, 110-H2-2
110-H2-4, 110-H2-6 & 110-H3-3

EXISTING CONDITIONS PLAN

EXIT 13 (MANCHESTER STREET)

MANCHESTER STREET & BLACK HILL ROAD

CONCORD, NH

OWNED BY

ROI IRREVOCABLE TRUST & JEANNE SKAFIDAS REVOCABLE LIVING TRUST

PREPARED FOR

ROI IRREVOCABLE TRUST

SCALE: 1"=100' **APRIL 11, 20**

TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
48 Constitution Drive
Bedford, NH 03110
Phone (603) 472-4488
Fax (603) 472-9747
www.tfmoran.com

TEST PIT INSPECTION REPORT

Dates of Observation:	02-02-2024
Weather:	Cloudy, 35 °F
Town:	Concord, NH
Location:	15 Manchester Street
Engineer:	B. Levesque, PE
TFM Project Number	95486.08

OBSERVATIONS:

The undersigned traveled to the site to observe and document the excavation of 3 test pits at locations previously marked to ascertain soil conditions and permeability for proposed stormwater and septic systems for the residence at 15 Manchester Street in Concord, New Hampshire. The test pits, TP-1 through TP-3, were excavated to depths indicated as measured from the existing ground surface.

The first test pit, TP-1, approximately 4' x 8' x 10' (Width x Length x Depth) was excavated at the location shown on the test pit plan. Seasonal High-Water Table may be slightly discernable at the material/color change at about 6 to 7 ft below the existing ground surface; it is noted that groundwater was not encountered in the test pit, but that soil moisture content appeared to be increasing with depth of excavation. The following strata were noted:

SECTION DEPTH (in)	SOIL DESCRIPTION
0 to 18 inches	A5YR 2.5/1 to A7.5YR 7/2 - multiple layers, moist, loose, f-m SAND, little f Gravel, little to trace Silt, little to trace Organics (roots) (TOPSOIL/FILL)
18 to 20 inches	A5YR 4/4 – moist, loose, f-m SAND, little f Gravel, little Silt (FILL/SUBSOIL)
20 to 84 inches	A7.5YR 4/4 – moist, med. dense, f-m SAND, little f-c Gravel, little Silt (LACUSTRINE DEPOSITS)
84 to 120 inches	A7.5YR 3/2 – moist, med. dense, f-m SAND, little-some f-c Gravel, trace Silt (GLACIAL TILL)
	Estimated SHWT approximately 6.0 to 7.0 ft
	B.O.E. @ 10 ft below existing grade

Photo 1: View of TP-1

The second test pit, TP-2, approximately 4’ x 8’ x 6’ (Width x Length x Depth) was excavated at the location shown on the test pit plan. Seasonal High-Water Table was not discernable; it is noted that groundwater was not encountered. The following strata were noted:

SECTION DEPTH (in)	SOIL DESCRIPTION
0 to 12 inches	A5YR 2.5/1- moist, loose, f-m SAND, little f Gravel, little to trace Silt, little to trace Organics (roots) (TOPSOIL/FILL)
12 to 20 inches	A5YR 4/4 – moist, loose, f-m SAND, little f Gravel, little Silt, trace roots (FILL)
20 to 72 inches	A5YR 5/2 – moist, med. dense, f-m SAND, little f-c Gravel, little Silt (FILL)
	Encountered abandoned 6-inch PVC line in excavation.
	Estimated SHWT approximately 6.0 to 7.0 ft
	B.O.E. @ 6 ft below existing grade

Photo 2: View of TP-2

The third test pit, TP-3, approximately 4' x 8' x 10' (Width x Length x Depth) was excavated at the location shown on the test pit plan. Seasonal High-Water Table was not readily discernable; it is noted that groundwater was not encountered in the test pit, but that soil moisture content appeared to be increasing with depth of excavation. The following strata were noted:

SECTION DEPTH (in)	SOIL DESCRIPTION
0 to 18-24 inches	A5YR 2.5/1 to A7.5YR 7/2 - multiple layers, moist, loose, f-m SAND, little f Gravel, little to trace Silt, little to trace Organics (roots) (TOPSOIL/FILL)
18-24 to 48 inches	A5YR 4/4 – moist, loose, f-m SAND, little f Gravel, little Silt (FILL/SUBSOIL)
48 to 120 inches	A7.5YR 4/4 – moist, med. dense, f-m SAND, little f-c Gravel, little Silt (LACUSTRINE DEPOSITS)
	Estimated SHWT not discernable
	B.O.E. @ 10 ft below existing grade

Photo 1: View of TP-3

ANALYSIS: Site soils should be fairly permeable given that they are fairly well-graded with relatively low amounts of silt. The saturated permeabilities or k_{sat} based on field testing of the soils at 4 ft depth as measured from the existing ground surface are generally in the range of 1.6 inches/hour.

CONCLUSIONS: The site soils should not present a problem with stormwater infiltration, however given their variability, consideration should be made to utilize a soil layer or infiltration soil mix having an in-place permeability that is more consistent that may be required for the local and state design requirements.

Bryan Levesque, PE, CPESC
Geotechnical Engineer

TEST PIT INSPECTION REPORT

Dates of Observation:	03-01-2024
Weather:	Sunny, 45 °F
Town:	Concord, NH
Location:	30 Manchester Street
Engineer:	B. Levesque, PE
TFM Project Number	95486.08

OBSERVATIONS:

The undersigned traveled to the site to observe and document the excavation of 6 test pits at locations previously marked to ascertain soil conditions and permeability for proposed stormwater and septic systems for the residence at 30 Manchester Street in Concord, New Hampshire. The test pits, TP-1 through TP-6, were excavated to depths indicated as measured from the existing ground surface.

The first test pit, TP-1, approximately 4' x 8' x 8' (Width x Length x Depth) was excavated at the location shown on the test pit plan. Seasonal High-Water Table was estimated at about 7 ft. below the existing ground surface; groundwater was not encountered, but increasing soil moisture content was encountered with the depth of excavation. The following strata were noted:

SECTION DEPTH (in)	SOIL DESCRIPTION
0 to 3 inches	A5YR 2.5/1 to A7.5YR 7/2 - moist, loose, f-m SAND, little f Gravel, little to trace Silt, little to trace Organics (roots) (TOPSOIL/FILL)
3 to 8 inches	A5YR 4/4 – moist, loose, f-c- SAND, trace f Gravel, little Silt (FILL/SUBSOIL)
8 to 60 inches	A7.5YR 4/4 – moist, med. dense, f-c- SAND, trace f Gravel, trace Silt (FILL/LACUSTRINE DEPOSITS)
60 to 72 inches	A7.5YR 4/4 – moist, med. dense, f-c- SAND, trace f Gravel, trace Silt (LACUSTRINE DEPOSITS)
72 to 96 inches	A7.5YR 3/2 – moist, med. dense, f-c SAND, little f-c Gravel, trace Silt (LACUSTRINE DEPOSITS)
	Estimated SHWT approximately at 7.0 ft
	B.O.E. @ 8 ft below existing grade

Photo 1: View of TP-1

The second test pit, TP-2, approximately 4’ x 8’ x 9’ (Width x Length x Depth) was excavated at the location shown on the test pit plan. Seasonal High-Water Table was estimated at 7.5 ft as measured from the adjacent ground surface. It is noted that groundwater was not encountered, but increasing soil moisture was encountered with the depth of excavation. The following strata were noted:

SECTION DEPTH (in)	SOIL DESCRIPTION
0 to 36 inches	A5YR 2.5/1- moist, loose, f-m SAND, little f Gravel, little to trace Silt, little to trace Organics (roots) (FILL)
36 to 96 inches	A5YR 4/4 – moist, loose, f-m SAND, trace f Gravel, trace Silt (LACAUSTRINE DEPOSITS)
	Estimated SHWT approximately 7.5 ft
	B.O.E. @ 9 ft below existing grade

Photo 2: View of TP-2

The third test pit, TP-3, approximately 4' x 8' x 8' (Width x Length x Depth) was excavated at the location shown on the test pit plan. Seasonal High-Water Table was estimated at 7.0 ft below the existing ground surface; groundwater was not encountered, but increasing soil moisture content was encountered with the depth of excavation. The following strata were noted:

SECTION DEPTH (in)	SOIL DESCRIPTION
0 to 30 inches	A5YR 2.5/1 to A7.5YR 7/2 - multiple layers, moist, loose, f-cm SAND, little to some f-c Gravel, little to trace Silt, few cobbles (FILL)
30 to 48 inches	A5YR 4/4 – moist, loose, f-m SAND, little f Gravel, trace to little Silt (LACUSTRINE DEPOSITS)
48 to 96 inches	A7.5YR 4/4 – moist, med. dense, f-m SAND, trace f-c Gravel, to little Silt (LACUSTRINE DEPOSITS)
	Estimated SHWT estimated at 7 ft
	B.O.E. @ 8 ft below existing grade

Photo 3: View of TP-3

The fourth test pit, TP-4, approximately 4’ x 8’ x 8’ (Width x Length x Depth) was excavated at the location shown on the test pit plan. Seasonal High-Water Table was estimated to be 7 ft below the existing ground surface; groundwater was not encountered, but increasing soil moisture content was encountered with the depth of excavation. The following strata were noted:

SECTION DEPTH (in)	SOIL DESCRIPTION
0 to 12 inches	A5YR 2.5/1- damp, loose, f-m SAND, little f Gravel, little to trace Silt, little to trace Organics (roots) (TOPSOIL/FILL)
12 to 20 inches	A5YR 4/4 – damp, loose, f-m SAND, little f Gravel, little Silt, trace roots (FILL)
20 to 96 inches	A5YR 5/2 – moist, med. dense, f-m SAND, little f-c Gravel, little Silt (FILL)
	Estimated SHWT approximately 7.0 ft
	B.O.E. @ 8 ft below existing grade

Photo 4: View of TP-4

The fifth test pit, TP-5, approximately 4’ x 8’ x 8’ (Width x Length x Depth) was excavated at the location shown on the test pit plan. Seasonal High-Water Table was estimated at 7 ft below existing ground surface elevation; groundwater was not encountered but increasing soil moisture encountered with depth. The following strata were noted:

SECTION DEPTH (in)	SOIL DESCRIPTION
0 to 2 inches	A5YR 2.5/1- damp, loose, f-m SAND, little f Gravel, little to trace Silt, little to trace Organics (roots) (TOPSOIL/FILL)
2 to 20 inches	A5YR 4/4 – damp, loose, f-m SAND, little f Gravel, little Silt, trace roots (FILL)
20 to 96 inches	A5YR 5/2 – moist, med. dense, f-m SAND, little f-c Gravel, little Silt (FILL)
	Estimated SHWT approximately 7.0 ft
	B.O.E. @ 8 ft below existing grade

Photo 5: View of TP-5

The sixth test pit, TP-6, approximately 4' x 8' x 8.5' (Width x Length x Depth) was excavated at the location shown on the test pit plan. Seasonal High-Water Table estimated at 7 ft below existing grade; groundwater was not encountered but increasing soil moisture encountered with depth. The following strata were noted:

SECTION DEPTH (in)	SOIL DESCRIPTION
0 to 12 inches	A5YR 2.5/1- damp, loose, f-m SAND, little f Gravel, little to trace Silt, little to trace Organics (roots) (TOPSOIL/FILL)
12 to 20 inches	A5YR 4/4 – damp, loose, f-m SAND, little f Gravel, little Silt, trace roots (FILL)
20 to 96 inches	A5YR 5/2 – moist, med. dense, f-m SAND, little f-c Gravel, little Silt (FILL)

Photo 6: View of TP-6

ANALYSIS: Site soils should be fairly permeable given that they are fairly well-graded with generally little to trace amounts of silt. The saturated permeabilities or k_{sat} based on field testing of the soils in the anticipated drainage strata are in the range of 1.5 inches/hour, with higher infiltration rates noted on the northern side of the site (TP-1, TP-2) where the permeability rates are around 3 inches/hour.

CONCLUSIONS: The site soils should not present a problem with stormwater infiltration, however given their variability, consideration should be made to utilize a soil layer or infiltration soil mix having an in-place permeability that is more consistent that may be required for the local and state design requirements.

Bryan Levesque, PE, CPESC
Geotechnical Engineer

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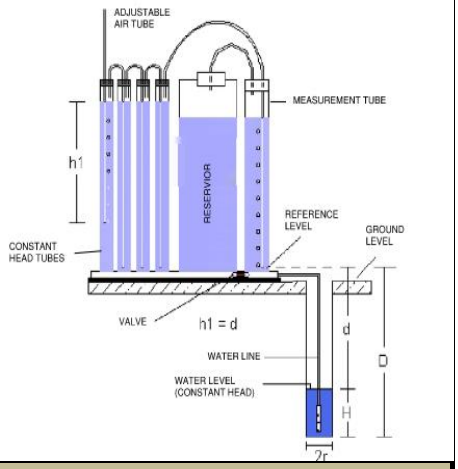
TP #1

PROJECT NAME:	15 Manchester Street	ENGINEER:	BryanLevesque, PE, CPESC
PROJECT NUMBER:	95486-08	DATE OF TESTING:	2/2/2024
PROJECT LOCATION:	Concord, NH		

Amoozemeter Field Data Sheet

SETUP CALCULATIONS			Test 1	Test 2	Test 3
D- REF LINE OF A-METER TO HOLE			70.4	80.4	70.4
H - DEPTH OF H20 IN HOLE (cm)			25.4	25.4	25.4
d - TOP OF WATER TO OUTFLOW LENGTH			45.0	45.0	45.0
AUGER DIAMETER (cm)			5.0	5.0	5.0
AREA OF AUGER HOLE (cm^2)			19.6	19.6	19.6
DEPTH TO IMPERVIOUS LAYER/SHWT, "s" (			91.4	91.4	91.4
GLOVER SOLUTION A OR B			A	A	A
SOIL DESCRIPTION AT TEST 1 DEPTH:					
SOIL HORIZON AT TEST 1 DEPTH:					
SOIL DESCRIPTION AT TEST 2 DEPTH:					
SOIL HORIZON AT TEST 2 DEPTH:					
SOIL DESCRIPTION AT TEST 3 DEPTH:					
SOIL HORIZON AT TEST 3 DEPTH:					
ONE OR BOTH CHAMBERS USED:			2	2	2



TEST #1

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS
46.00	120	A	0.000533	105.0	0.00	0.0000E+00	0.00	
43.85	120	A	0.000533	105.0	1.88	1.0030E-03	1.44	
41.65	120	A	0.000533	105.0	1.93	1.0263E-03	1.48	
39.50	120	A	0.000533	105.0	1.88	1.0030E-03	1.44	
37.35	120	A	0.000533	105.0	1.88	1.0030E-03	1.44	
35.20	120	A	0.000533	105.0	1.88	1.0030E-03	1.44	

Average Ksat (3 consecutive readings w/same outflow per time: 1.44 in/hr

TEST #2

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS
44.00	120	A	0.000533	105.0	0.00	0.0000E+00	0.00	
40.80	120	A	0.000533	105.0	2.80	1.4928E-03	0.16	
38.30	120	A	0.000533	105.0	2.19	1.1662E-03	1.68	
35.81	120	A	0.000533	105.0	2.18	1.1616E-03	1.67	
33.31	120	A	0.000533	105.0	2.19	1.1662E-03	1.68	

Average Ksat (3 consecutive readings w/same outflow per time: 1.68 in/hr

TEST #3

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS
45.00	120	A	0.000533	105.0	0.00	0.0000E+00	0.00	
43.00	120	A	0.000533	105.0	1.75	9.3299E-04	1.34	
41.50	120	A	0.000533	105.0	1.31	6.9974E-04	1.01	
40.00	120	A	0.000533	105.0	1.31	6.9974E-04	1.01	
38.48	120	A	0.000533	105.0	1.33	7.0907E-04	1.02	
36.90	120	A	0.000533	105.0	1.38	7.3706E-04	1.06	

Average Ksat (3 consecutive readings w/same outflow per time: 1.01 in/hr

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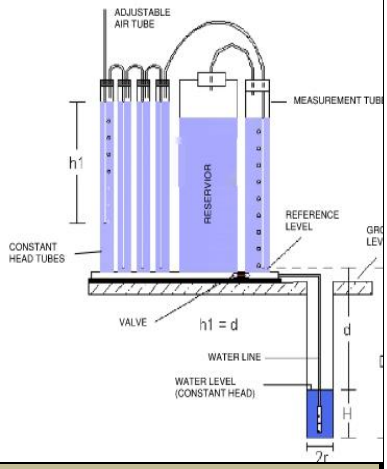
TP #3

PROJECT NAME:	15 Manchester Street	ENGINEER:	BryanLevesque, PE, CPESC
PROJECT NUMBER:	95486-08	DATE OF TESTING:	2/2/2024
PROJECT LOCATION:	Concord, NH		

Amoozemeter Field Data Sheet

SETUP CALCULATIONS			Test 1	Test 2	Test 3
D- REF LINE OF A-METER TO HOLE			70.4	80.4	70.4
H - DEPTH OF H20 IN HOLE (cm)			25.4	25.4	25.4
d - TOP OF WATER TO OUTFLOW LENGTH			45.0	45.0	45.0
AUGER DIAMETER (cm)			5.0	5.0	5.0
AREA OF AUGER HOLE (cm^2)			19.6	19.6	19.6
DEPTH TO IMPERVIOUS LAYER/SHWT, "s" (			91.4	91.4	91.4
GLOVER SOLUTION A OR B			A	A	A
SOIL DESCRIPTION AT TEST 1 DEPTH:					
SOIL HORIZON AT TEST 1 DEPTH:					
SOIL DESCRIPTION AT TEST 2 DEPTH:					
SOIL HORIZON AT TEST 2 DEPTH:					
SOIL DESCRIPTION AT TEST 3 DEPTH:					
SOIL HORIZON AT TEST 3 DEPTH:					
ONE OR BOTH CHAMBERS USED:			2	2	2



TEST #1

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS
48.00	120	A	0.000533	105.0	0.00	0.0000E+00	0.00	
46.85	120	A	0.000533	105.0	1.01	5.3647E-04	0.77	
44.15	120	A	0.000533	105.0	2.36	1.2595E-03	1.81	
42.30	120	A	0.000533	105.0	1.62	8.6302E-04	1.24	
40.45	120	A	0.000533	105.0	1.62	8.6302E-04	1.24	
38.60	120	A	0.000533	105.0	1.62	8.6302E-04	1.24	

Average Ksat (3 consecutive readings w/same outflow per time: 1.24 in/hr

TEST #2

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS
42.00	120	A	0.000533	105.0	0.00	0.0000E+00	0.00	
39.80	120	A	0.000533	105.0	1.93	1.0263E-03	1.48	
37.40	120	A	0.000533	105.0	2.10	1.1196E-03	1.61	
35.00	120	A	0.000533	105.0	2.10	1.1196E-03	1.61	
32.60	120	A	0.000533	105.0	2.10	1.1196E-03	1.61	

Average Ksat (3 consecutive readings w/same outflow per time: 1.61 in/hr

TEST #3

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS

Average Ksat (3 consecutive readings w/same outflow per time:

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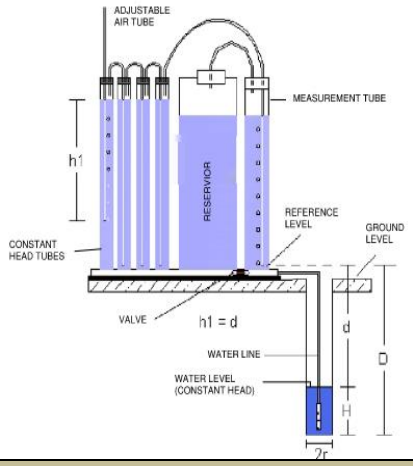
TP #1

PROJECT NAME:	30 Manchester Street	ENGINEER:	BryanLevesque, PE, CPESC
PROJECT NUMBER:	95486-08	DATE OF TESTING:	3/1/2024
PROJECT LOCATION:	Concord, NH		

Amoozemeter Field Data Sheet

SETUP CALCULATIONS			Test 1	Test 2	Test 3
D- REF LINE OF A-METER TO HOLE			80.4	80.4	80.4
H - DEPTH OF H20 IN HOLE (cm)			25.4	25.4	25.4
d - TOP OF WATER TO OUTFLOW LENGTH			45.0	45.0	45.0
AUGER DIAMETER (cm)			5.0	5.0	5.0
AREA OF AUGER HOLE (cm^2)			19.6	19.6	19.6
DEPTH TO IMPERVIOUS LAYER/SHWT, "s" (			91.4	91.4	91.4
GLOVER SOLUTION A OR B			A	A	A
SOIL DESCRIPTION AT TEST 1 DEPTH:					
SOIL HORIZON AT TEST 1 DEPTH:					
SOIL DESCRIPTION AT TEST 2 DEPTH:					
SOIL HORIZON AT TEST 2 DEPTH:					
SOIL DESCRIPTION AT TEST 3 DEPTH:					
SOIL HORIZON AT TEST 3 DEPTH:					
ONE OR BOTH CHAMBERS USED:			2	2	2



TEST #1

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS
48.00	0	A	0.000533	105.0	0.00	0.0000E+00	0.00	Sand characteristic of that typical for Concord heights
44.00	60	A	0.000533	105.0	7.00	3.7320E-03	5.37	
39.00	60	A	0.000533	105.0	8.75	4.6650E-03	6.72	
35.25	60	A	0.000533	105.0	6.56	3.4987E-03	5.04	
31.50	60	A	0.000533	105.0	6.56	3.4987E-03	5.04	
27.75	60	A	0.000533	105.0	6.56	3.4987E-03	5.04	

Average Ksat (3 consecutive readings w/same outflow per time: 5.04 in/hr

TEST #2

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS
48.00	0	A	0.000533	105.0	0.00	0.0000E+00	0.00	
44.00	60	A	0.000533	105.0	7.00	3.7320E-03	0.39	
42.00	60	A	0.000533	105.0	3.50	1.8660E-03	2.69	
39.50	60	A	0.000533	105.0	4.38	2.3325E-03	3.36	
37.00	60	A	0.000533	105.0	4.38	2.3325E-03	3.36	
34.50	60	A	0.000533	105.0	4.38	2.3325E-03	3.36	

Average Ksat (3 consecutive readings w/same outflow per time: 3.36 in/hr

TEST #3

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS
46.00	0	A	0.000533	105.0	0.00	0.0000E+00	0.00	
44.50	60	A	0.000533	105.0	2.63	1.3995E-03	0.15	
41.50	60	A	0.000533	105.0	5.25	2.7990E-03	4.03	
39.25	60	A	0.000533	105.0	3.94	2.0992E-03	3.02	
37.00	60	A	0.000533	105.0	3.94	2.0992E-03	3.02	
34.75	60	A	0.000533	105.0	3.94	2.0992E-03	3.02	

Average Ksat (3 consecutive readings w/same outflow per time: 3.02 in/hr

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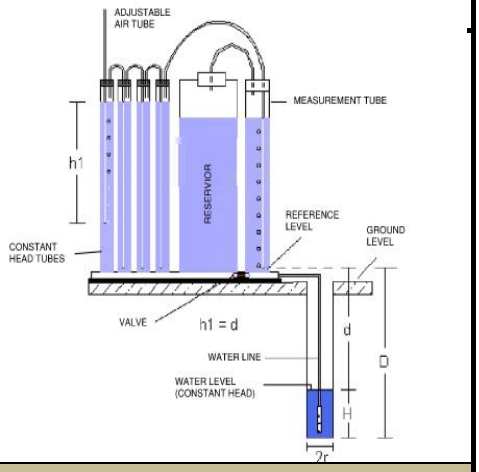
TP #2

PROJECT NAME:	30 Manchester Street	ENGINEER:	BryanLevesque, PE, CPESC
PROJECT NUMBER:	95486-08	DATE OF TESTING:	3/1/2024
PROJECT LOCATION:	Concord, NH		

Amoozemeter Field Data Sheet

SETUP CALCULATIONS			Test 1	Test 2	Test 3
D- REF LINE OF A-METER TO HOLE			80.4	80.4	70.4
H - DEPTH OF H20 IN HOLE (cm)			25.4	25.4	25.4
d - TOP OF WATER TO OUTFLOW LENGTH			45.0	45.0	45.0
AUGER DIAMETER (cm)			5.0	5.0	5.0
AREA OF AUGER HOLE (cm^2)			19.6	19.6	19.6
DEPTH TO IMPERVIOUS LAYER/SHWT, "s" (			91.4	91.4	91.4
GLOVER SOLUTION A OR B			A	A	A
SOIL DESCRIPTION AT TEST 1 DEPTH:					
SOIL HORIZON AT TEST 1 DEPTH:					
SOIL DESCRIPTION AT TEST 2 DEPTH:					
SOIL HORIZON AT TEST 2 DEPTH:					
SOIL DESCRIPTION AT TEST 3 DEPTH:					
SOIL HORIZON AT TEST 3 DEPTH:					
ONE OR BOTH CHAMBERS USED:			2	2	2



TEST #1

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS
48.00	0	A	0.000533	105.0	0.00	0.0000E+00	0.00	
47.75	60	A	0.000533	105.0	0.44	2.3325E-04	0.34	
47.00	60	A	0.000533	105.0	1.31	6.9974E-04	1.01	
46.00	60	A	0.000533	105.0	1.75	9.3299E-04	1.34	
45.00	60	A	0.000533	105.0	1.75	9.3299E-04	1.34	
44.00	60	A	0.000533	105.0	1.75	9.3299E-04	1.34	

Average Ksat (3 consecutive readings w/same outflow per time: 1.34 in/hr

TEST #2

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS
48.00	0	A	0.000533	105.0	0.00	0.0000E+00	0.00	
47.50	60	A	0.000533	105.0	0.88	4.6650E-04	0.05	
47.00	60	A	0.000533	105.0	0.88	4.6650E-04	0.67	
46.80	60	A	0.000533	105.0	0.35	1.8660E-04	0.27	
46.60	60	A	0.000533	105.0	0.35	1.8660E-04	0.27	
46.40	60	A	0.000533	105.0	0.35	1.8660E-04	0.27	

Average Ksat (3 consecutive readings w/same outflow per time: 0.27 in/hr

TEST #3

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS
45.00	0	A	0.000533	105.0	0.00	0.0000E+00	0.00	
44.00	60	A	0.000533	105.0	1.75	9.3299E-04	0.10	
43.00	60	A	0.000533	105.0	1.75	9.3299E-04	1.34	
42.40	60	A	0.000533	105.0	1.05	5.5980E-04	0.81	
41.80	60	A	0.000533	105.0	1.05	5.5980E-04	0.81	
41.20	60	A	0.000533	105.0	1.05	5.5980E-04	0.81	

Average Ksat (3 consecutive readings w/same outflow per time: 0.81 in/hr

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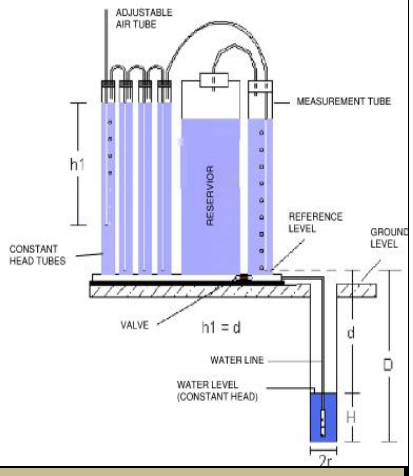
TP #3

PROJECT NAME:	30 Manchester Street	ENGINEER:	BryanLevesque, PE, CPESC
PROJECT NUMBER:	95486-08	DATE OF TESTING:	2/2/2024
PROJECT LOCATION:	Concord, NH		

Amoozemeter Field Data Sheet

SETUP CALCULATIONS			Test 1	Test 2	Test 3
D- REF LINE OF A-METER TO HOLE			80.4	80.4	80.4
H - DEPTH OF H20 IN HOLE (cm)			25.4	25.4	25.4
d - TOP OF WATER TO OUTFLOW LENGTH			45.0	45.0	45.0
AUGER DIAMETER (cm)			5.0	5.0	5.0
AREA OF AUGER HOLE (cm^2)			19.6	19.6	19.6
DEPTH TO IMPERVIOUS LAYER/SHWT, "s" (			91.4	91.4	91.4
GLOVER SOLUTION A OR B			A	A	A
SOIL DESCRIPTION AT TEST 1 DEPTH:					
SOIL HORIZON AT TEST 1 DEPTH:					
SOIL DESCRIPTION AT TEST 2 DEPTH:					
SOIL HORIZON AT TEST 2 DEPTH:					
SOIL DESCRIPTION AT TEST 3 DEPTH:					
SOIL HORIZON AT TEST 3 DEPTH:					
ONE OR BOTH CHAMBERS USED:			2	2	2



TEST #1

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS
47.00	0	A	0.000533	105.0	0.00	0.0000E+00	0.00	
46.50	60	A	0.000533	105.0	0.88	4.6650E-04	0.67	
46.00	60	A	0.000533	105.0	0.88	4.6650E-04	0.67	
45.30	60	A	0.000533	105.0	1.23	6.5309E-04	0.94	
44.60	60	A	0.000533	105.0	1.22	6.5309E-04	0.94	
43.90	60	A	0.000533	105.0	1.23	6.5309E-04	0.94	

Average Ksat (3 consecutive readings w/same outflow per time: 0.94 in/hr

TEST #2

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS
48.00	0	A	0.000533	105.0	0.00	0.0000E+00	0.00	
47.50	60	A	0.000533	105.0	0.88	4.6650E-04	0.05	
47.00	60	A	0.000533	105.0	0.88	4.6650E-04	0.67	
46.80	60	A	0.000533	105.0	0.35	1.8660E-04	0.27	
46.60	60	A	0.000533	105.0	0.35	1.8660E-04	0.27	
46.40	60	A	0.000533	105.0	0.35	1.8660E-04	0.27	

Average Ksat (3 consecutive readings w/same outflow per time: 0.27 in/hr

TEST #3

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS
45.00	0	A	0.000533	105.0	0.00	0.0000E+00	0.00	
43.90	60	A	0.000533	105.0	1.93	1.0263E-03	0.11	
43.10	60	A	0.000533	105.0	1.40	7.4639E-04	1.07	
42.00	60	A	0.000533	105.0	1.93	1.0263E-03	1.48	
41.00	60	A	0.000533	105.0	1.75	9.3299E-04	1.34	
39.90	60	A	0.000533	105.0	1.93	1.0263E-03	1.48	
38.80	60	A	0.000533	105.0	1.93	1.0263E-03	1.48	

Average Ksat (3 consecutive readings w/same outflow per time: 1.48 in/hr

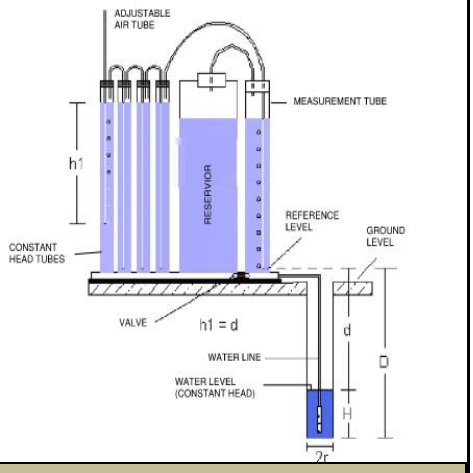
TFM Since 1968
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

TP #4

PROJECT NAME:	30 Manchester Street	ENGINEER:	BryanLevesque, PE, CPESC
PROJECT NUMBER:	95486-08	DATE OF TESTING:	3/1/2024
PROJECT LOCATION:	Concord, NH		

Amoozemeter Field Data Sheet

SETUP CALCULATIONS			Test 1	Test 2	Test 3
D- REF LINE OF A-METER TO HOLE			80.4	80.4	80.4
H - DEPTH OF H20 IN HOLE (cm)			25.4	25.4	25.4
d - TOP OF WATER TO OUTFLOW LENGTH			45.0	45.0	45.0
AUGER DIAMETER (cm)			5.0	5.0	5.0
AREA OF AUGER HOLE (cm^2)			19.6	19.6	19.6
DEPTH TO IMPERVIOUS LAYER/SHWT, "s" (			91.4	91.4	91.4
GLOVER SOLUTION A OR B			A	A	A
SOIL DESCRIPTION AT TEST 1 DEPTH:					
SOIL HORIZON AT TEST 1 DEPTH:					
SOIL DESCRIPTION AT TEST 2 DEPTH:					
SOIL HORIZON AT TEST 2 DEPTH:					
SOIL DESCRIPTION AT TEST 3 DEPTH:					
SOIL HORIZON AT TEST 3 DEPTH:					
ONE OR BOTH CHAMBERS USED:			2	2	2



TEST #1

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS
47.00	0	A	0.000533	105.0	0.00	0.0000E+00	0.00	
46.10	60	A	0.000533	105.0	1.58	8.3969E-04	1.21	
45.50	60	A	0.000533	105.0	1.05	5.5980E-04	0.81	
44.30	60	A	0.000533	105.0	2.10	1.1196E-03	1.61	
43.10	60	A	0.000533	105.0	2.10	1.1196E-03	1.61	
41.90	60	A	0.000533	105.0	2.10	1.1196E-03	1.61	

Average Ksat (3 consecutive readings w/same outflow per time: 1.61 in/hr

TEST #2

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS
48.00	0	A	0.000533	105.0	0.00	0.0000E+00	0.00	
45.30	60	A	0.000533	105.0	4.73	2.5191E-03	0.26	
44.90	60	A	0.000533	105.0	0.70	3.7320E-04	0.54	
44.50	60	A	0.000533	105.0	0.70	3.7320E-04	0.54	
44.10	60	A	0.000533	105.0	0.70	3.7320E-04	0.54	

Average Ksat (3 consecutive readings w/same outflow per time: 0.54 in/hr

TEST #3

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS

Average Ksat (3 consecutive readings w/same outflow per time:

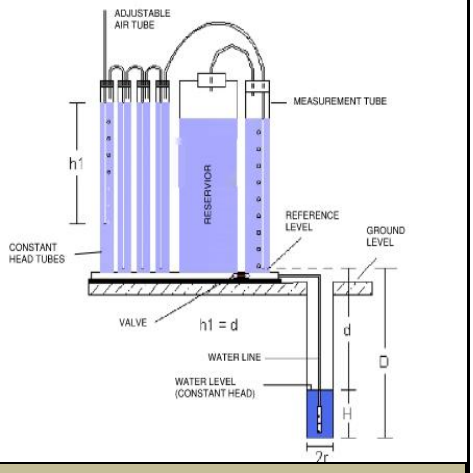
TFM Since 1968
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

TP #5

PROJECT NAME:	30 Manchester Street	ENGINEER:	BryanLevesque, PE, CPESC
PROJECT NUMBER:	95486-08	DATE OF TESTING:	3/1/2024
PROJECT LOCATION:	Concord, NH		

Amoozemeter Field Data Sheet

SETUP CALCULATIONS			Test 1	Test 2	Test 3
D- REF LINE OF A-METER TO HOLE			80.4	80.4	80.4
H - DEPTH OF H20 IN HOLE (cm)			25.4	25.4	25.4
d - TOP OF WATER TO OUTFLOW LENGTH			45.0	45.0	45.0
AUGER DIAMETER (cm)			5.0	5.0	5.0
AREA OF AUGER HOLE (cm^2)			19.6	19.6	19.6
DEPTH TO IMPERVIOUS LAYER/SHWT, "s" (			91.4	91.4	91.4
GLOVER SOLUTION A OR B			A	A	A
SOIL DESCRIPTION AT TEST 1 DEPTH:					
SOIL HORIZON AT TEST 1 DEPTH:					
SOIL DESCRIPTION AT TEST 2 DEPTH:					
SOIL HORIZON AT TEST 2 DEPTH:					
SOIL DESCRIPTION AT TEST 3 DEPTH:					
SOIL HORIZON AT TEST 3 DEPTH:					
ONE OR BOTH CHAMBERS USED:			2	2	2



TEST #1

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS
47.00	0	A	0.000533	105.0	0.00	0.0000E+00	0.00	
46.50	60	A	0.000533	105.0	0.88	4.6650E-04	0.67	
46.00	60	A	0.000533	105.0	0.88	4.6650E-04	0.67	
45.80	60	A	0.000533	105.0	0.35	1.8660E-04	0.27	
45.60	60	A	0.000533	105.0	0.35	1.8660E-04	0.27	
45.40	60	A	0.000533	105.0	0.35	1.8660E-04	0.27	

Average Ksat (3 consecutive readings w/same outflow per time: 0.27 in/hr

TEST #2

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS
48.00	0	A	0.000533	105.0	0.00	0.0000E+00	0.00	
47.00	60	A	0.000533	105.0	1.75	9.3299E-04	0.10	
46.00	60	A	0.000533	105.0	1.75	9.3299E-04	1.34	
44.00	60	A	0.000533	105.0	3.50	1.8660E-03	2.69	
43.00	60	A	0.000533	105.0	1.75	9.3299E-04	1.34	
42.00	60	A	0.000533	105.0	1.75	9.3299E-04	1.34	

Average Ksat (3 consecutive readings w/same outflow per time: 1.34 in/hr

TEST #3

READING	TIME INTERVAL (sec)	COEFFICIENT A or B	COEFFICIENT A or B 1/cm	CONVERSION FACTOR cm^3	OUTFLOW cm^3/s	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) cm/sec	SATURATED HYDRAULIC CONDUCTIVITY (Ksat) in/hr	COMMENTS

Average Ksat (3 consecutive readings w/same outflow per time:

N

OLD TURNPIKE (PUBLIC) (CLASS V)

CARLSON'S MOTOR SALES

792Z-1
CARLSON'S MOTOR SALES INC.
13 MANCHESTER STREET
CONCORD, NH 03301-5106
BK. 1105 PG. 237

781Z-1
ARANOSIAN OIL COMPANY
FORMERLY ARANCO REALTY INC.
557 NORTH STATE STREET
CONCORD, NH 03301-3236

GAS STATION CANOPY

781Z-1
ARANOSIAN OIL CO. INC.
557 NORTH STATE STREET
CONCORD, NH 03301-3326
BK.3717 PG.163

781Z-1
ARANOSIAN OIL CO. INC.
557 NORTH STATE STREET 781Z-2
CONCORD, NH 03301-3326 ' REAL ESTATE
96 SCHOOL STREET
NORTHWOOD, NH 03261-3722
BK.3717 PG.163

781Z-2
JLMW REAL ESTATE LLC
96 SCHOOL STREET
NORTHWOOD, NH 03261-3722
BK. 3717 PG. 163

781Z-3
ENDICOTT FURNITURE CO.INC.
12 SOUTH MAIN STREET
CONCORD, NH 03301-4809
BK.909 PG.447

781-
SUN COMM-
F.K.A. JENSEN
27777 FRANKLIN
SUITE 200
SOUTHFIELD, MI
48034-8205

MANCHESTER STREET
(PUBLIC) (CLASS IV) (100 FT. WIDE)

U.S. ROUTE 3

MANCHESTER STREET
(PUBLIC) (CLASS IV) (100 FT. WIDE)

U.S. ROUTE 3

JERSEY BARRIER (TYP.)

2.0'

2.0'

792Z-2-1
LIBERTY UTILITIES
(ENERGYNORTH
NATURAL GAS CORP.)
STATE OF NEW HAMPSHIRE DAD
(TAKING)
USUD3-3305
(GAS SUBSTATION)

2/2/24
TP-1

2/2/24
TP-2

2/2/24
TP-3

781Z-31
SKUFFY'S LLC
48 SOUTH CURTISVILLE ROAD
CONCORD, NH 03301-5908
BK.3833 PG.2454

3/1/24
TP-5

3/1/24
TP-4

3/1/24
TP-6

3/1/24
TP-3

3/1/24
TP-2

3/1/24
TP-1

781Z-28
MARIE L. BLAIS (TRUSTEE)
M.L.B. REVOCABLE TRUST
18 PLEASANT VIEW AVENUE
CONCORD, NH 03301-2554
BK. 3244 PG. 932

SIGN

SIGN

110

(VARIABLE WIDTH THIS SECTION)

BLACK HILL ROAD
(PUBLIC)(CLASS V)
(50 FT. WIDE)

792Z-4
STATE OF NEW HAMPSHIRE
C/O SECRETARY OF STATE
107 NORTH MAIN STREET
CONCORD, NH 03301-4951
BK. 1974 PG. 78

792Z-3
CHRISTINE M. WINDLER (TRUSTEE)
ROI IRREVOCABLE TRUST
C/O CRONIN, BISSON & SALINSKY PC
722 CHESTNUT STREET
MANCHESTER, NH 03104-4001
BK. 3173 PG. 1067

P.O. BK. 2016 PG 697 PLAT 783 PART TO STATE NH

116-H2-10

110-H3-3

BLACK HILL ROAD
(PUBLIC) (CLASS V) (50 FT. WIDE)

VARIABLE WIDTH PAVED SURFACE

30" CMP DRAIN PIPE

LIMIT OF 20 FT. DRAINAGE EASEMENT

LIMIT OF 20 FT. DRAINAGE EASEMENT

792Z-4
STATE OF NH
C/O SECRETARY OF STATE
107 NORTH MAIN STREET
CONCORD, NH 03301-4951
BK. 1974 PG. 78

781Z-34
CHRISTINE M. WINDLER (TRUSTEE)
ROI IRREVOCABLE TRUST
C/O CRONIN, BISSON & ZALINNSKY PC
722 CHESTNUT STREET
CONCORD, NH 03301-3001
BK. 3173 PG. 1067

BNDF 5"SQ.X2"BG
TIE COURSE
N89°44'08"W 0.36'
CHRISTINE M. WINDLER (TRUSTEE)
ROI IRREVOCABLE TRUST
C/O CRONIN, BISSON & ZALINNSKY PC
722 CHESTNUT STREET

100-YEAR FLOOD LINE

ZONE X
ZONE AE

FLOOD PER FEMA MAP

10.2

MAP 792Z, LOT 2
MAP 781Z, LOT 30, 29, & 32

TEST PIT LOCATION EXHIBIT

EXIT 13 (MANCHESTER STREET)

CONCORD, NH

OWNED BY

ROI IRREV. TRUST - CHRISTINE WINDLER (TRUSTEE)

PREPARED FOR

SAINT MARY'S BANK & ROI IRREV. TRUST

SCALE: 1" = 40' **DECEMBER 13, 2024**

LEGEND

- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION
- 5 SUBCATCHMENT
- 9 REACH
- 1 POND
- D DISCHARGE POINT

40 20 10 0 40
Graphic Scale in Feet

REV	DATE	DESCRIPTION	DR	CK
1	12/17/2024	REVISED PER ENGINEERING COMMENTS	JR	RD

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This plan is not effective unless signed by a duly authorized officer of TFMoran, Inc.

DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

48 Constitution Drive
Bedford, NH 03110
Phone (603) 472-4488
Fax (603) 472-9747
www.tfmoran.com

FILE	DR	SRP	FB	–	
95486.11	CK	JK	CADFILE	95486-08 DRAINAGE MAPS PHASE 1	1

Inspection & Maintenance Manual

Gas and Convenience Project

30 & 32 Manchester Street & 33-35 Black Hill Road

~~March 20, 2024~~

July 12, 2024

Table of Contents

Description of Project

Responsible Party

Stormwater Practices – Schedule of Maintenance

Stormwater Practices – Maintenance Guidelines

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  - Subsurface Chamber System (Isolator Row)
- Conveyance Practices
  - Catch Basins
- System Components
  - Invasive Species

Inspection & Maintenance Log

Inspection Checklist and Inspection & Maintenance Plan

Description of Project

The proposed project is the 5,750± sf gas station and convenience development with associated amenities such as an access driveway connecting Manchester Street and Black Hill Road, a bus stop, a drive-through, outdoor dining areas, parking, and stormwater management is located in the northeast of the overall development.

30 & 32 Manchester Street & 33-35 Black Hill Road were formerly a strip mall, dog grooming facility, and roofing materials warehouse. As part of this project, all of the buildings on the subject lots have been razed. The project area is currently vacant, consisting of primarily woods and paved or gravel parking. An approximately 850 SF wetlands complex is located northeast of the development. There are no wetlands impacts. Photographs of the existing site features can be found in section 2 of this report.

Access to the development is proposed via (2) full-service driveways connecting the proposed access way and Black Hill Road. The gas station will have a right out onto Manchester Street.

Responsible Party

Owner:	ROI Irrevocable Trust & Christine M. Windler Trustee
Contact:	John Bisson
Phone:	(603)-624-4333
Email:	jbisson@cbzlaw
Address:	722 Chestnut Street, Manchester, NH 03104-3001

Stormwater Practices – Schedule of Maintenance

The following practices shall be inspected twice annually; once following snow-melt (spring) and once following leaf-drop (fall):

- Catch Basins
- Subsurface Chamber System (Chambers)
- Subsurface Chamber System (Isolator Row)

Stormwater Practices – Maintenance Guidelines

Treatment Practices
(Inspected twice a year)
Subsurface Chamber System (Chambers)
Maintenance Requirements:

- The Chambers shall be inspected immediately after completion of the site construction and cleaned out if necessary. The typical inspection schedule after construction for the Chambers is a minimum of twice a year (spring & fall).
- Inspection of the Chambers shall involve a visual check using the access manholes.
- If upon visual inspection of the Chambers, it is found that sediment has accumulated to an average depth exceeding 3 inches throughout the length of the Chambers, cleanout is required.
- Cleanout of the accumulated material in the Chambers should be accomplished by vacuum pumping.
- If the system does not drain within 72-hours following a rainfall event, then a qualified professional should assess the condition of the facility to determine measures required to restore function, including but not limited to removal of accumulated sediments or reconstruction of the system.
- A site maintenance log will be kept. This log will record the dates when maintenance tasks were completed, the person who completed the task, and any observations of malfunctions in components of the stormwater management system. Call 1-888-892-2694 to speak with a technical representative or visit www.stormtech.com.
- Remove and dispose of accumulated sediment based on inspection.

Pretreatment Practices
(Inspected twice a year)
Subsurface Chamber System (Isolator Rows)

Maintenance Requirements:

- Isolator Rows shall be inspected immediately after completion of the site construction and cleaned out if necessary. The typical inspection schedule after construction for the Isolator Rows is a minimum of twice a year (spring & fall).
- Inspection of the Isolator Row shall involve a visual check using either the inspection ports or the access manholes.
- If upon visual inspection of the Isolator Row, it is found that sediment has accumulated to an average depth exceeding 3 inches throughout the length of the Isolator Row, cleanout is required.
- Cleanout of the accumulated material in the Isolator Row should be accomplished by vacuum pumping. Cleanout should be performed during dry weather and care should be taken to avoid tearing the fabric in the Isolator Rows.
- A site maintenance log will be kept. This log will record the dates when maintenance tasks were completed, the person who completed the task, and any observations of malfunctions in components of the stormwater management system. Call 1-888-892-2694 to speak with a technical representative or visit www.stormtech.com.

Conveyance Practices
(Inspected once a year)

Catch Basin
Maintenance Requirements:

- To be inspection a least twice annually, once following snow-melt and once following leaf-drop and cleaned as indicated by inspection;
- Sediment should be removed annually and when it approaches half the sump depth; and
- If floating hydrocarbons are observed during an inspection, the material should be removed immediately by skimming, absorbent materials, or other method and disposed in conformance with applicable state and federal regulations.

System Components
Invasive Species
Maintenance Requirements:

- If any invasive species grow on-site, they shall be killed using spray herbicide
- Responsible Party should contact a local nursery to determine the best alternative for removing the invasive species.

Control of Invasive Plans

During maintenance activities, check for the presence of invasive plans. If invasive plants are found, they shall be controlled and remove in a safe manner as described on the following pages.

Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some exotic plants are imported for human use such as landscaping, erosion control or food crops. They also can arrive as “hitchhikers” among shipments of other plants, seeds, packing materials or fresh produce. Invasive plants can cause harm by:

- Becoming weedy and overgrown;
- Killing established shade trees;
- Obstructing pipes and drainage systems
- Forming dense beds in water
- Lowering water levels in lakes, streams and wetlands
- Destroying natural communities
- Promoting erosion on stream banks and hillsides
- Resisting control except by hazardous chemicals.

Inspection & Maintenance Log

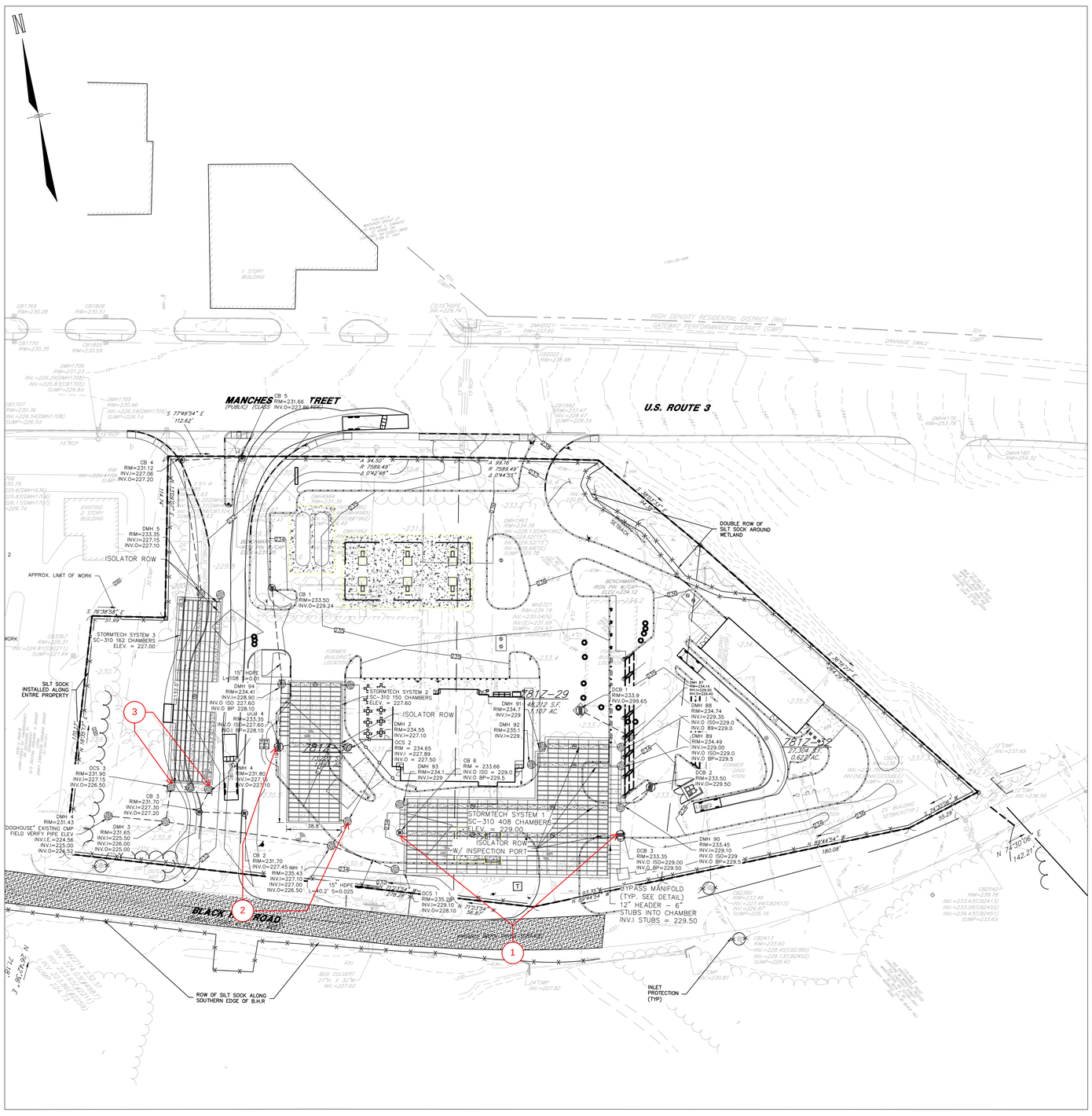
Date	Inspector	BMPs checked	Maintenance Required

Inspection Checklist

Date:	**Project Name: Gas Station and Convenience Project**
Inspector's Name/Title:	
Inspector's Contact Information:	
☐ 1st Yearly Inspection ☐ 2nd Yearly Inspection	BMP's to be inspected: All BMP's to be inspected: Treatment Practices and Pretreatment Practices

BMP* **Refer to following Inspection & Maintenance Plan for BMP location**		Maintenance Required	Corrective Action Needed and Notes
1	Storm Tech #1	☐ Yes ☐ No	
2	Storm Tech #2	☐ Yes ☐ No	
3	Storm Tch #3	☐ Yes ☐ No	
4	All Catch Basins	☐ Yes ☐ No	

*Best Management Practices



CONSTRUCTION GENERAL PERMIT

1. THE OWNER, IN CONJUNCTION WITH THE CONTRACTOR (OPERATORS), MUST OBTAIN A CONSTRUCTION GENERAL PERMIT (CGP) FOR LARGE CONSTRUCTION ACTIVITIES (FIVE OR MORE ACRES) OR SMALL CONSTRUCTION ACTIVITIES (GREATER THAN ONE ACRE BUT LESS THAN FIVE ACRES) FROM THE ENVIRONMENTAL PROTECTION AGENCY (EPA). AS PART OF THE CGP, A STORMWATER NOTICE OF INTENT (NOI) MUST BE SUBMITTED TO THE EPA AT LEAST 7 DAYS PRIOR TO COMMENCING CONSTRUCTION. THE NOI MUST BE SUBMITTED TO STORM WATER NOTICE OF INTENT (4203M), USEPA, 1200 PENNSYLVANIA AVE. NW, WASHINGTON, DC 20460.

2. THE CGP OUTLINES A SET OF PROVISIONS MANDATING THE OWNER AND CONTRACTOR TO COMPLY WITH THE REQUIREMENTS OF THE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER REGULATIONS, INCLUDING, BUT NOT LIMITED TO, STORM WATER POLLUTION PREVENTION PLANS (SWPPP'S), IMPLEMENTATION OF EROSION AND SEDIMENTATION CONTROLS, EQUIPMENT MAINTENANCE GUIDELINES, ETC. PLEASE CONTACT USEPA OFFICE OF WASTEWATER MANAGEMENT AT 202-564-9545 OR AT WWW.EPA.GOV/NPDES/STORMWATER FOR ADDITIONAL INFORMATION. FOR FURTHER ASSISTANCE, CONTACT ABBY SWAINE OF NEW ENGLAND'S EPA REGION 1 AT 617-918-1841.

NOTES

1. IT IS BEING PROPOSED TO CONSTRUCT PHASE 1A OF NAULT MIXED-USE DEVELOPMENT, WHICH CONSISTS OF TWO COMMERCIAL DEVELOPMENTS OUTSIDE THE 100-YEAR FLOOD HAZARD AREA. PHASE 1A WILL BE FILED UNDER ITS OWN ALTERATION OF TERRAIN PERMIT APPLICATION WHILE THE OTHER PHASES OF THE PROJECT WILL BE FILED UNDER A SEPARATE PERMIT APPLICATION. PHASE 1A CONSISTS OF TWO PROPOSED PROJECTS, A 3,691± SF BANKING DEVELOPMENT AND A 5,750± SF GAS STATION AND CONVENIENCE DEVELOPMENT WITH ASSOCIATED ACCESS, PARKING, LANDSCAPING, AND STORMWATER MANAGEMENT.

2. TOTAL SITE AREA: 5.77 AC
   TOTAL AREA OF DISTURBANCE: 4.65 AC

3. SOILS SHOWN ARE FROM THE SOIL SPECIFIC SURVEY OF PROPERTIES ON MANCHESTER STREET AND BLACK HILL ROAD IN CONCORD, NEW HAMPSHIRE WAS PREPARED BY THOMAS E. SOKOLOSKI, CSS #063 OF TES ENVIRONMENTAL CONSULTANTS, L.L.C.
   - 500B/CGADE – UDORTHENTS, LOAMY, 0 TO 8% SLOPES
   - 601B – OCCUM, RARELY FLOODED, 0 TO 8% SLOPES

4. STORM WATER DRAINAGE SYSTEM IS SHOWN ON THE PLAN. SEE GRADING & DRAINAGE PLAN FOR RIM, INVERT, PIPE LENGTH, AND SLOPE INFORMATION.
   POST-CONSTRUCTION RUNOFF COEFFICIENT: C=0.67
   IMPERVIOUS SURFACE AREA: 4.46± AC

5. STABILIZATION PRACTICES FOR EROSION AND SEDIMENTATION CONTROLS:

   TEMPORARY STABILIZATION – TOPSOIL STOCKPILES AND DISTURBED AREAS OF THE CONSTRUCTION SITE THAT WILL NOT BE REDISTURBED FOR 14 DAYS OR MORE MUST BE STABILIZED BY THE 14TH DAY AFTER THE LAST DISTURBANCE. THE TEMPORARY SEED SHALL BE ANNUAL RYE APPLIED AT THE RATE OF 1.1 LBS PER 1,000 SF. PRIOR TO SEEDING, A MINIMUM OF 2 TONS PER ACRE OF AGRICULTURAL LIMESTONE AND 500 LBS PER ACRE OF 10-20-20 FERTILIZER SHALL BE APPLIED. AFTER SEEDING, EACH AREA SHALL BE MULCHED WITH 1.5 TONS PER ACRE OF HAY MULCH. MULCH TO BE ANCHORED IN PLACE WHERE NECESSARY. AREAS OF THE SITE THAT WILL BE PAVED WILL BE TEMPORARILY STABILIZED BY APPLYING GEOTEXTILES AND A STONE SUB-BASE UNTIL BITUMINOUS PAVEMENT CAN BE APPLIED. CALCIUM CHLORIDE SHALL BE USED FOR DUST CONTROL IF NEEDED.

   PERMANENT STABILIZATION – DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES PERMANENTLY CEASES SHALL BE STABILIZED WITH PERMANENT SEED NO LATER THAN 3 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY. THE PERMANENT SEED MIX SHALL BE AS SPECIFIED BY THE LANDSCAPE PLAN NOTES OR MAY OTHERWISE CONSIST OF 0.45 LBS/1,000 SF TALL FESCUE, 0.20 LBS/1,000 SF CREEPING RED FESCUE, AND 0.20 LBS/1,000 SF BIRDSFOOT TREFOIL. PRIOR TO SEEDING, A MINIMUM OF 2 TONS PER ACRE OF AGRICULTURAL LIMESTONE AND 500 LBS PER ACRE IF 10-20-20 FERTILIZER SHALL BE APPLIED. AFTER SEEDING, EACH AREA SHALL BE MULCHED WITH 1.5 TONS PER ACRE OF HAY MULCH. MULCH TO BE ANCHORED IN PLACE WHERE NECESSARY.

6. STRUCTURAL PRACTICES FOR EROSION AND SEDIMENTATION CONTROL

   SILT SOCK – WILL BE CONSTRUCTED AROUND THE PERIMETER OF THE DISTURBED AREAS AND WILL DELINEATE THE LIMITS OF WORK FOR THE PROPOSED CONSTRUCTION. THE SILT SOCK WILL BE INSTALLED BY OTHERS. POSTS SHALL BE USED WITH AT LEAST 6" OF THE POST BURIED BELOW THE GROUND SURFACE TO PREVENT THE SILT SOCK FROM FORMING GAPS NEAR THE GROUND SURFACE. RUNOFF WILL FLOW THROUGH THE OPENINGS IN THE SILT SOCK WHILE RETAINING THE SEDIMENT WITHIN THE CONSTRUCTION AREA.

   SILT FENCE – WILL BE CONSTRUCTED AROUND THE PERIMETER OF THE DISTURBED AREAS AND WILL DELINEATE THE LIMITS OF WORK FOR THE PROPOSED CONSTRUCTION. THE SILT FENCE WILL BE INSTALLED BY STRETCHING REINFORCED FILTER FABRIC BETWEEN POSTS WITH AT LEAST 8" OF THE FABRIC BURIED BELOW THE GROUND SURFACE TO PREVENT GAPS FROM FORMING NEAR THE GROUND SURFACE. RUNOFF WILL FLOW THROUGH THE OPENINGS IN THE FILTER FABRIC WHILE RETAINING THE SEDIMENT WITHIN THE CONSTRUCTION AREA.

   STABILIZED CONSTRUCTION ENTRANCE – WILL BE INSTALLED IN ACCORDANCE WITH THE DETAIL AT THE ENTRANCE TO THE CONSTRUCTION SITE TO HELP REDUCE VEHICLE TRACKING OF SEDIMENTS OFF THE SITE. THE STABILIZED ENTRANCE WILL BE 20'-WIDE AND FLARE AT THE ENTRANCE TO THE PAVED ROAD AND HAVE A DEPTH OF 12" OF STONE. THE STABILIZED ENTRANCE SHALL BE MAINTAINED UNTIL THE REMAINDER OF THE CONSTRUCTION SITE HAS BEEN FULLY STABILIZED. THE PAVED STREET ADJACENT TO THE SITE SHALL BE SWEPT ON A WEEKLY BASIS TO REMOVE EXCESS MUD AND DIRT FROM BEING TRACKED FROM THE SITE. TRUCKS HAULING MATERIAL TO AND/OR FROM THE SITE SHALL BE COVERED WITH A TARPAULIN.

   CATCH BASINS – WILL BE CLEANED ON AN ANNUAL BASIS TO REMOVE ALL SEDIMENTS FROM THE CATCH BASIN SUMPS.

   CATCH BASIN PROTECTION – WILL BE INSTALLED AT ALL CATCH BASINS WITHIN THE CONSTRUCTION AREA. FILTER FABRIC WILL BE INSTALLED AROUND THE GRATES OF CATCH BASINS THAT ARE LOCATED IN THE TRAVEL WAY AND STONE/FILTER FABRIC PROTECTION WILL BE INSTALLED AT THE CATCH BASINS FOUND WITHIN THE PARKING AREA AND GRASS.

   BLANKET SLOPE PROTECTION – SHALL BE INSTALLED ON ALL 2:1 SLOPES OR STEEPER ON SITE. ANCHOR THE TOP OF THE BLANKET BY ANCHORING THE BLANKET IN A 6" DEEP TRENCH. BACKFILL AND COMPACT TRENCH AFTER STAPLING. ROLL THE BLANKET IN THE DIRECTION OF STORM WATER FLOW. WHERE 2 OR MORE STRIPS OF BLANKET ARE REQUIRED, A MINIMUM OF 4" OF OVERLAP SHALL BE PROVIDED.

   STONE CHECK DAMS – WILL BE INSTALLED IN EXISTING AND PROPOSED GRASS SWALES TO REDUCE THE VELOCITY OF CONCENTRATED STORM WATER FLOWS AND PREVENT EROSION OF THE SWALE.

7. STORM WATER MANAGEMENT

   STORM WATER DRAINAGE FOR DEVELOPED AREAS WILL BE COLLECTED BY A PIPE AND CATCH BASIN CLOSED DRAINAGE SYSTEM. APPROXIMATELY 1.13 ACRES OF THE 5.77 ACRE SITE WILL REMAIN UNTOUCHED AND IN ITS NATURAL STATE. WHEN CONSTRUCTION IS COMPLETE THE MAJORITY OF THE GAS STATION AND CONVENIENCE DEVELOPMENT SITE WILL DRAIN TO THREE (3) UNDERGROUND STORMTECH SYSTEMS TO TREAT RUNOFF PRIOR TO ENTERING THE NHDOT SYSTEM.

8. ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURE DUMPSTERS OR APPROVED ENCLOSURE AND REMOVED FROM THE SITE ON A WEEKLY BASIS. NO CONSTRUCTION WASTE SHALL BE BURIED ON SITE. PORTABLE TOILET SANITARY WASTE FACILITIES WILL BE PROVIDED DURING CONSTRUCTION AND MAINTAINED/DISPOSED OF ON A REGULAR BASIS IN ACCORDANCE WITH TOWN AND STATE REGULATIONS.

9. THRUST BLOCK SHALL BE PROVIDED WHERE WATER LINE CHANGES DIRECTION OR TAPS INTO EXISTING WATER LINE.

10. A LIST OF CONSTRUCTION ITEMS AND OTHER PRODUCTS USED ON THIS PROJECT SHALL BE KEPT ON RECORD WITH THIS PLAN ONSITE. ALL CHEMICALS, PETROLEUM PRODUCTS AND OTHER MATERIALS USED DURING CONSTRUCTION SHALL BE STORED IN A SECURE AREA, AND PRECAUTIONS USED TO PREVENT POTENTIAL SOURCES OF CONTAMINATION OR POLLUTION. ANY SPILL OF THESE TYPES OF SUBSTANCES SHALL BE CLEANED UP AND DISPOSED OF IN A LEGAL MANNER AS SPECIFIED BY STATE REGULATIONS AND THE MANUFACTURER. ANY SPILL IN AMOUNTS EQUAL TO OR EXCEEDING REPORTABLE QUANTITY AS DEFINED BY THE EPA SHALL TAKE THE FOLLOWING STEPS:
    - NOTIFY THE NATIONAL RESPONSE CENTER IMMEDIATELY AT (888) 424-8802; IN WASHINGTON, D.C., CALL (202) 426-2675.
    - WITHIN 14 DAYS, SUBMIT A WRITTEN DESCRIPTION OF THE RELEASE TO THE EPA REGIONAL OFFICE PROVIDING THE DATE AND CIRCUMSTANCES OF THE RELEASE AND THE STEPS TO BE TAKEN TO PREVENT ANOTHER RELEASE.
    - MODIFY THE POLLUTION PREVENTION PLAN TO INCLUDE THE INFORMATION LISTED ABOVE.

    GOOD HOUSEKEEPING:
    THE FOLLOWING GOOD HOUSEKEEPING PRACTICES WILL BE FOLLOWED ONSITE DURING THE CONSTRUCTION PROJECT.
    - AN EFFORT WILL BE MADE TO STORE ONLY ENOUGH PRODUCT REQUIRED TO DO THE JOB;
    - ALL MATERIALS STORED ONSITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE;
    - PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL;
    - SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER;
    - WHENEVER POSSIBLE, ALL OF A PRODUCT WILL BE USED UP BEFORE DISPOSING OF THE CONTAINER;
    - MANUFACTURERS' RECOMMENDATIONS FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED;
    - TRASH DUMPSTERS SHALL BE GASKETED OR HAVE A SECURE WATERTIGHT LID AND BE PLACED AWAY FROM STORMWATER CONVEYANCES AND DRAINS.
    - THE SITE SUPERINTENDENT WILL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ONSITE.

    HAZARDOUS PRODUCTS:
    THESE PRACTICES ARE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
    - PRODUCTS WILL BE KEPT IN ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE;
    - ORIGINAL LABELS AND MATERIAL SAFETY DATA WILL BE RETAINED; THEY CONTAIN IMPORTANT PRODUCT INFORMATION;
    - IF SURPLUS PRODUCT MUST BE DISPOSED OF, MANUFACTURER'S OR LOCAL AND STATE RECOMMENDED METHODS FOR PROPER DISPOSAL WILL BE FOLLOWED.

    PRODUCT SPECIFIC PRACTICES:
    THE FOLLOWING PRODUCT SPECIFIC PRACTICES WILL BE FOLLOWED ON SITE:

    PETROLEUM PRODUCTS:
    ALL ONSITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTATIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT SUBSTANCES USED ONSITE WILL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

    FERTILIZERS:
    FERTILIZERS USED WILL BE APPLIED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY THE MANUFACTURER. ONCE APPLIED, FERTILIZER WILL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORM WATER. STORAGE WILL BE IN A COVERED SHED. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER WILL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.

    PAINTS:
    ALL CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM SEWER BUT WILL BE PROPERLY DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.

    CONCRETE TRUCKS:
    EXCESS CONCRETE SHALL BE USED IN AREAS DESIGNATED BY THE SITE CONTRACTOR. WASH WATER SHALL BE DISPOSED OF USING BEST MANAGEMENT PRACTICES. BUILDING CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL DRUM WASH WATER ASSOCIATED WITH CONCRETE FOR THE BUILDING PAD. SITE CONTRACTOR TO COORDINATE AND PROVIDE BUILDING CONTRACTOR WITH AN AREA FOR DRUM WASH WATER.

    SPILL CONTROL PRACTICES:
    IN ADDITION TO THE GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTIONS OF THIS PLAN, THE FOLLOWING PRACTICES WILL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
    - MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND SITE PERSONNEL WILL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.
    - MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREA ONSITE. EQUIPMENT AND MATERIALS WILL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUST PANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST, AND PLASTIC AND METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE.
    - ALL SPILLS WILL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY.
    - THE SPILL AREA WILL BE KEPT WELL VENTILATED AND PERSONNEL WILL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE.
    - SPILLS OF TOXIC OR HAZARDOUS MATERIAL WILL BE REPORTED TO THE APPROPRIATE STATE OR LOCAL GOVERNMENT AGENCY, REGARDLESS OF SIZE.
    - THE SPILL PREVENTION PLAN WILL BE ADJUSTED TO INCLUDE MEASURES TO PREVENT THIS TYPE OF SPILL FROM REOCCURRING AND HOW TO CLEAN UP THE SPILL IF THERE IS ANOTHER ONE. A DESCRIPTION OF THE SPILL, WHAT CAUSED IT, AND THE CLEANUP MEASURES WILL ALSO BE INCLUDED.
    - THE SITE SUPERINTENDENT RESPONSIBLE FOR THE DAY-TO-DAY SITE OPERATIONS, WILL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR. THEY WILL DESIGNATE AT LEAST THREE OTHER SITE PERSONNEL WHO WILL EACH RECEIVE SPILL PREVENTION AND CLEANUP TRAINING. THESE INDIVIDUALS WILL EACH BECOME RESPONSIBLE FOR A PARTICULAR PHASE OF PREVENTION AND CLEANUP. THE NAMES OF RESPONSIBLE SPILL PERSONNEL WILL BE POSTED IN THE MATERIAL STORAGE AREA AND IN THE OFFICE TRAILER ONSITE.

11. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN RECORDS OF CONSTRUCTION ACTIVITIES, INCLUDING DATES OF MAJOR GRADING ACTIVITIES, DATES WHEN CONSTRUCTION ACTIVITIES HAVE TEMPORARILY CEASED ON A PORTION OF THE SITE, DATES WHEN WORK IS COMPLETED ON A PORTION OF THE SITE, AND DATES WHEN STABILIZATION MEASURES ARE INITIATED ONSITE.

12. THE CONTRACTOR SHALL PERFORM INSPECTIONS OR HAVE A CONSULTING ENGINEER PERFORM INSPECTIONS EVERY SEVEN (7) DAYS AND WITHIN 24 HOURS AFTER A STORM OF 0.5" OR GREATER. INSPECTIONS REPORTS ARE TO BE KEPT ON FILE AT THE SITE WITH THIS PLAN. MAINTENANCE OR MODIFICATION SHALL BE IMPLEMENTED AND ADDED TO THE PLAN AS RECOMMENDED BY THE QUALIFIED INSPECTOR.

MAP 781Z, LOTS 29, 30, & 32

INSPECTION AND MAINTANCE PLAN

GAS STATION AND CONVENIENCE STORE
30 MANCHESTER STREET, CONCORD, NH

OWNED BY AND PREPARED FOR

ROI IRREV. TRUST - CHRISTINE WINDLER (TRUSTEE)
722 CHESTNUT STREET
MANCHESTER, NH 03104-300

SCALE: 1" = 40' **MARCH 20, 2024**

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This plan is not effective unless signed by a duly authorized officer of TFMoran, Inc.

DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

HORIZONTAL SCALE 1"=40'
40 20 0 40

REV	DATE	DESCRIPTION	DR	CK
4	7/12/2024	REVISED FOR AOT COMMENTS	JD	RD
3	6/4/2024	CONDITIONS OF APPROVAL	JD	RD
2	5/9/2024	PARKING & STACKING	JD	RD
1	4/26/2024	STAFF COMMENTS	JD	RD

TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
48 Constitution Drive
Bedford, NH 03110
Phone (603) 472-4488
Fax (603) 472-9747
www.tfmoran.com

FILE 95486.08 | DR SRP | CK JK | FB – | CADFILE 95486-08 CMAN SITE PLANS PHASE 1

C-10

Inspection & Maintenance Manual

Gas and Convenience and St Mary's Bank Projects

16-20 Manchester Street Concord, NH

~~March 20, 2024~~

July 12, 2024

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Inspection Checklist and Inspection & Maintenance Plan

Description of Project

The proposed project is phase 1A of the ROI Mixed-Use Comprehension Development Plan. The 3,691± sf banking development along with associated access, a drive-through, parking, and stormwater management will be located in the northwest of the overall development.

16-20 Manchester Street were formerly two single family houses. As part of this project, all of the buildings on the subject lots have been razed. The project area is currently vacant, consisting of primarily woods and paved or gravel parking. There are no wetlands impacts. Photographs of the existing site features can be found in section 2 of this report.

Access to the banking site is proposed via two (2) paved driveways, one right-in only (1) from Manchester Street along the northern property line and one full service (1) from Black Hill Road along the southern property line.

Responsible Party

Owner:	Saint Mary's Bank
Contact:	Saint Mary's Bank – Marc Bourbeau
Phone:	(603)-629-1598
Email:	mbourbeau@stmarysbank.com
Address:	200 Mcgregor Street, Manchester, NH 03102

Stormwater Practices – Schedule of Maintenance

The following practices shall be inspected twice annually; once following snow-melt (spring) and once following leaf-drop (fall):

- Bio-Retention Areas
- Sediment Forebay
- Catch Basins

The following practices shall be inspected annually following snow-melt (spring):

- Riprap Apron

Stormwater Practices – Maintenance Guidelines

Treatment Practices
(Inspected twice a year)
Bio-retention Area
Maintenance Requirements:

- Systems should be inspected at least twice a year, and following any rainfall event exceeding 2.5 inches in a 24-hour period, with maintenance or rehabilitation conducted as warranted by such inspection.
- Pretreatment measures should be inspected at least twice annually, and cleaned of accumulated sediment as warranted by inspection, but no less than once annually.
- Trash and debris should be removed at each inspection.
- At least once annually, the system should be inspected for drawdown time. If a bio-retention system does not drain within 72-hours following a rainfall event, then a qualified professional should assess the condition of the facility to determine measures required to restore filtration function or infiltration function (as applicable), including but not limited to removal of accumulated sediments or reconstruction of the filter media.
- Vegetation should be inspected at least annually, and maintained in healthy condition, including pruning, removal, and replacement of dead or diseased vegetation, and removal of invasive species.

Pretreatment Practices
(Inspected twice a year)
Sediment Forebay
Maintenance Requirements:

- To be inspected at least twice annually, once following snowmelt, and once following leaf-drop and cleaned as indicated by inspection;
- Conduct periodic mowing of embankments (two times per year) to control grown of woody vegetation on embankments;
- Remove debris from outlet structure;
- Remove and dispose of accumulated sediment; and
- Install and maintain a staff gage or other measuring device to indicate depth of sediment accumulation and level at which clean-out is required. It shall be cleaned out when sediment fills half the sump depth (minimum sump depth is 2 feet when clear).
- A site maintenance log will be kept. This log will record the dates when maintenance tasks were completed, the person who completed the task, and any observations of malfunctions in components of the stormwater management system. Call 1-888-892-2694 to speak with a technical representative or visit www.stormtech.com.

Conveyance Practices
(Inspected once a year)
Riprap Apron
Maintenance Requirements:

- Inspect at least once annually for damage and deterioration.
- Repair damages immediately.

Catch Basin
Maintenance Requirements:

- To be inspection a least twice annually, once following snow-melt and once following leaf-drop and cleaned as indicated by inspection;
- Sediment should be removed annually and when it approaches half the sump depth; and
- If floating hydrocarbons are observed during an inspection, the material should be removed immediately by skimming, absorbent materials, or other method and disposed in conformance with applicable state and federal regulations.

System Components
Invasive Species
Maintenance Requirements:

- If any invasive species grow on-site, they shall be killed using spray herbicide
- Responsible Party should contact a local nursery to determine the best alternative for removing the invasive species.

Control of Invasive Plans

During maintenance activities, check for the presence of invasive plans. If invasive plants are found, they shall be controlled and remove in a safe manner as described on the following pages.

Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some exotic plants are imported for human use such as landscaping, erosion control or food crops. They also can arrive as “hitchhikers” among shipments of other plants, seeds, packing materials or fresh produce. Invasive plants can cause harm by:

- Becoming weedy and overgrown;
- Killing established shade trees;
- Obstructing pipes and drainage systems
- Forming dense beds in water
- Lowering water levels in lakes, streams and wetlands
- Destroying natural communities
- Promoting erosion on stream banks and hillsides
- Resisting control except by hazardous chemicals.

Inspection & Maintenance Log

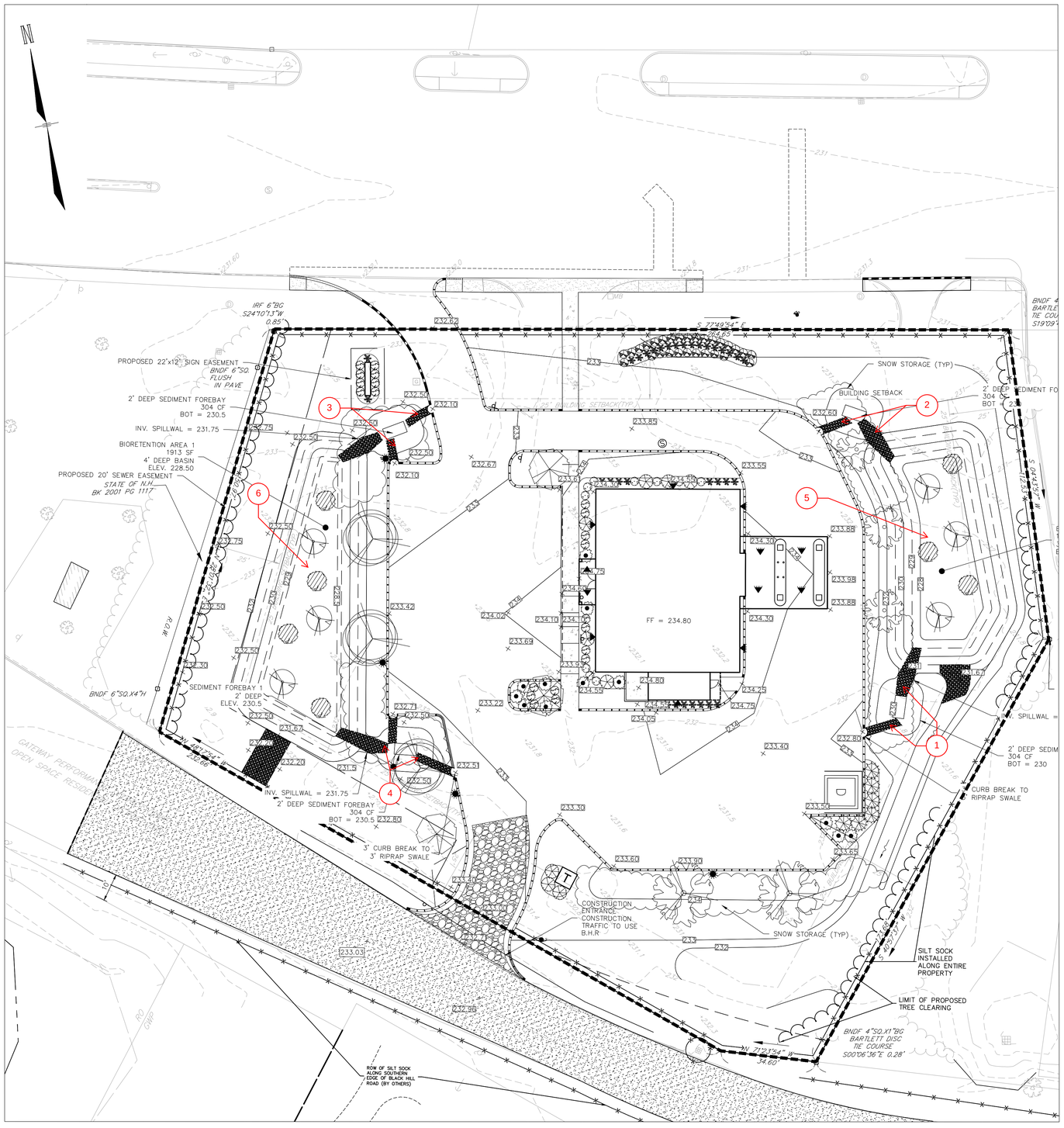
Date	Inspector	BMPs checked	Maintenance Required

Inspection Checklist

Date:	**Project Name: St Mary's Bank Projects**
Inspector's Name/Title:	
Inspector's Contact Information:	
☐ 1st Yearly Inspection ☐ 2nd Yearly Inspection	BMP's to be inspected: All BMP's to be inspected: Treatment Practices and Pretreatment Practices

	BMP* **Refer to following Inspection & Maintenance Plan for BMP location**	Maintenance Required	Corrective Action Needed and Notes
1	Sediment Forebay #1	☐ Yes ☐ No	
2	Sediment Forebay #2	☐ Yes ☐ No	
3	Sediment Forebay #3	☐ Yes ☐ No	
4	Sediment Forebay #4	☐ Yes ☐ No	
5	Bio-Retention #1	☐ Yes ☐ No	
6	Bio-Retention #2	☐ Yes ☐ No	
7	All Catch Basins	☐ Yes ☐ No	

*Best Management Practices



HORIZONTAL SCALE 1"=20'

20 10 0 20

CONSTRUCTION GENERAL PERMIT

1. THE OWNER, IN CONJUNCTION WITH THE CONTRACTOR (OPERATORS), MUST OBTAIN A CONSTRUCTION GENERAL PERMIT (CGP) FOR LARGE CONSTRUCTION ACTIVITIES (FIVE OR MORE ACRES) OR SMALL CONSTRUCTION ACTIVITIES (GREATER THAN ONE ACRE BUT LESS THAN FIVE ACRES) FROM THE ENVIRONMENTAL PROTECTION AGENCY (EPA). AS PART OF THE CGP, A STORMWATER NOTICE OF INTENT (NOI) MUST BE SUBMITTED TO THE EPA AT LEAST 7 DAYS PRIOR TO COMMENCING CONSTRUCTION. THE NOI MUST BE SUBMITTED TO STORM WATER NOTICE OF INTENT (4203M), USEPA, 1200 PENNSYLVANIA AVE. NW, WASHINGTON, DC 20460.

2. THE CGP OUTLINES A SET OF PROVISIONS MANDATING THE OWNER AND CONTRACTOR TO COMPLY WITH THE REQUIREMENTS OF THE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER REGULATIONS, INCLUDING, BUT NOT LIMITED TO, STORM WATER POLLUTION PREVENTION PLANS (SWPPP'S), IMPLEMENTATION OF EROSION AND SEDIMENTATION CONTROLS, EQUIPMENT MAINTENANCE GUIDELINES, ETC. PLEASE CONTACT USEPA OFFICE OF WASTEWATER MANAGEMENT AT 202-564-9545 OR AT WWW.EPA.GOV/NPDES/STORMWATER FOR ADDITIONAL INFORMATION. FOR FURTHER ASSISTANCE, CONTACT ABBY SWAINE OF NEW ENGLAND'S EPA REGION 1 AT 617-918-1841.

NOTES

1. IT IS BEING PROPOSED TO TO CONSTRUCT A 3,691 SF BANK DEVELOPMENT INCLUDING A DRIVE-THROUGH.

2. TOTAL SITE AREA: 1.42 AC
   TOTAL AREA OF DISTURBANCE: 1.35 AC

3. SOILS SHOWN ARE FROM THE SOIL SPECIFIC SURVEY OF PROPERTIES ON MANCHESTER STREET AND BLACK HILL ROAD IN CONCORD, NEW HAMPSHIRE WAS PREPARED BY THOMAS E. SOKOLOSKI, CSS #063 OF TES ENVIRONMENTAL CONSULTANTS, L.L.C.
   500B/cgadc – UDORTHENTS, LOAMY, 0 TO 8% SLOPES
   601B – OCCUM, RARELY FLOODED, 0 TO 8% SLOPES

4. STORM WATER DRAINAGE SYSTEM IS SHOWN ON THE PLAN. SEE GRADING & DRAINAGE PLAN FOR RIM, INVERT, PIPE LENGTH, AND SLOPE INFORMATION.
   POST-CONSTRUCTION RUNOFF COEFFICIENT: C=74
   IMPERVIOUS SURFACE AREA: 23,140± SF

5. STABILIZATION PRACTICES FOR EROSION AND SEDIMENTATION CONTROLS:

   TEMPORARY STABILIZATION – TOPSOIL STOCKPILES AND DISTURBED AREAS OF THE CONSTRUCTION SITE THAT WILL NOT BE REDISTURBED FOR 14 DAYS OR MORE MUST BE STABILIZED BY THE 14TH DAY AFTER THE LAST DISTURBANCE. THE TEMPORARY SEED SHALL BE ANNUAL RYE APPLIED AT THE RATE OF 1.1 LBS PER 1,000 SF. PRIOR TO SEEDING, A MINIMUM OF 2 TONS PER ACRE OF AGRICULTURAL LIMESTONE AND 500 LBS PER ACRE OF 10-20-20 FERTILIZER SHALL BE APPLIED. AFTER SEEDING, EACH AREA SHALL BE MULCHED WITH 1.5 TONS PER ACRE OF HAY MULCH. MULCH TO BE ANCHORED IN PLACE WHERE NECESSARY. AREAS OF THE SITE THAT WILL BE PAVED WILL BE TEMPORARILY STABILIZED BY APPLYING GEOTEXTILES AND A STONE SUB-BASE UNTIL BITUMINOUS PAVEMENT CAN BE APPLIED. CALCIUM CHLORIDE SHALL BE USED FOR DUST CONTROL IF NEEDED.

   PERMANENT STABILIZATION – DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES PERMANENTLY CEASES SHALL BE STABILIZED WITH PERMANENT SEED NO LATER THAN 3 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY. THE PERMANENT SEED MIX SHALL BE AS SPECIFIED BY THE LANDSCAPE PLAN NOTES OR MAY OTHERWISE CONSIST OF 0.45 LBS/1,000 SF TALL FESCUE, 0.20 LBS/1,000 SF CREEPING RED FESCUE, AND 0.20 LBS/1,000 SF BIRDSFOOT TREFOIL PRIOR TO SEEDING, A MINIMUM OF 2 TONS PER ACRE OF AGRICULTURAL LIMESTONE AND 500 LBS PER ACRE IF 10-20-20 FERTILIZER SHALL BE APPLIED. AFTER SEEDING, EACH AREA SHALL BE MULCHED WITH 1.5 TONS PER ACRE OF HAY MULCH. MULCH TO BE ANCHORED IN PLACE WHERE NECESSARY.

6. STRUCTURAL PRACTICES FOR EROSION AND SEDIMENTATION CONTROL

   SILT SOCK – WILL BE CONSTRUCTED AROUND THE PERIMETER OF THE DISTURBED AREAS AND WILL DELINEATE THE LIMITS OF WORK FOR THE PROPOSED CONSTRUCTION. THE SILT SOCK WILL BE INSTALLED BY OTHERS. POSTS SHALL BE USED WITH AT LEAST 6" OF THE POST BURIED BELOW THE GROUND SURFACE TO PREVENT THE SILT SOCK FROM FORMING GAPS NEAR THE GROUND SURFACE. RUNOFF WILL FLOW THROUGH THE OPENINGS IN THE SILT SOCK WHILE RETAINING THE SEDIMENT WITHIN THE CONSTRUCTION AREA.

   SILT FENCE – WILL BE CONSTRUCTED AROUND THE PERIMETER OF THE DISTURBED AREAS AND WILL DELINEATE THE LIMITS OF WORK FOR THE PROPOSED CONSTRUCTION. THE SILT FENCE WILL BE INSTALLED BY STRETCHING REINFORCED FILTER FABRIC BETWEEN POSTS WITH AT LEAST 8" OF THE FABRIC BURIED BELOW THE GROUND SURFACE TO PREVENT GAPS FROM FORMING NEAR THE GROUND SURFACE. RUNOFF WILL FLOW THROUGH THE OPENINGS IN THE FILTER FABRIC WHILE RETAINING THE SEDIMENT WITHIN THE CONSTRUCTION AREA.

   STABILIZED CONSTRUCTION ENTRANCE – WILL BE INSTALLED IN ACCORDANCE WITH THE DETAIL AT THE ENTRANCE TO THE CONSTRUCTION SITE TO HELP REDUCE VEHICLE TRACKING OF SEDIMENTS OFF THE SITE. THE STABILIZED ENTRANCE WILL BE 20'-WIDE AND FLARE AT THE ENTRANCE TO THE PAVED ROAD AND HAVE A DEPTH OF 12" OF STONE. THE STABILIZED ENTRANCE SHALL BE MAINTAINED UNTIL THE REMAINDER OF THE CONSTRUCTION SITE HAS BEEN FULLY STABILIZED. THE PAVED STREET ADJACENT TO THE SITE SHALL BE SWEPT ON A WEEKLY BASIS TO REMOVE EXCESS MUD AND DIRT FROM BEING TRACKED FROM THE SITE. TRUCKS HAULING MATERIAL TO AND/OR FROM THE SITE SHALL BE COVERED WITH A TARPAULIN.

   CATCH BASINS – WILL BE CLEANED ON AN ANNUAL BASIS TO REMOVE ALL SEDIMENTS FROM THE CATCH BASIN SUMPS.

   CATCH BASIN PROTECTION – WILL BE INSTALLED AT ALL CATCH BASINS WITHIN THE CONSTRUCTION AREA. FILTER FABRIC WILL BE INSTALLED AROUND THE GRATES OF CATCH BASINS THAT ARE LOCATED IN THE TRAVEL WAY AND STONE/FILTER FABRIC PROTECTION WILL BE INSTALLED AT THE CATCH BASINS FOUND WITHIN THE PARKING AREA AND GRASS.

   BLANKET SLOPE PROTECTION – SHALL BE INSTALLED ON ALL 2:1 SLOPES OR STEEPER ON SITE. ANCHOR THE TOP OF THE BLANKET BY ANCHORING THE BLANKET IN A 6" DEEP TRENCH, BACKFILL AND COMPACT TRENCH AFTER STAPLING. ROLL THE BLANKET IN THE DIRECTION OF STORM WATER FLOW. WHERE 2 OR MORE STRIPS OF BLANKET ARE REQUIRED, A MINIMUM OF 4" OF OVERLAP SHALL BE PROVIDED.

   STONE CHECK DAMS – WILL BE INSTALLED IN EXISTING AND PROPOSED GRASS SWALES TO REDUCE THE VELOCITY OF CONCENTRATED STORM WATER FLOWS AND PREVENT EROSION OF THE SWALE.

7. STORM WATER MANAGEMENT

   STORM WATER DRAINAGE FOR DEVELOPED AREAS WILL BE COLLECTED BY OPEN DRAINAGE SYSTEM. .

8. ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURE DUMPSTERS OR APPROVED ENCLOSURE AND REMOVED FROM THE SITE ON A WEEKLY BASIS. NO CONSTRUCTION WASTE SHALL BE BURIED ON SITE. PORTABLE TOILET SANITARY WASTE FACILITIES WILL BE PROVIDED DURING CONSTRUCTION AND MAINTAINED/DISPOSED OF ON A REGULAR BASIS IN ACCORDANCE WITH TOWN AND STATE REGULATIONS.

9. THRUST BLOCK SHALL BE PROVIDED WHERE WATER LINE CHANGES DIRECTION OR TAPS INTO EXISTING WATER LINE.

10. A LIST OF CONSTRUCTION ITEMS AND OTHER PRODUCTS USED ON THIS PROJECT SHALL BE KEPT ON RECORD WITH THIS PLAN ONSITE. ALL CHEMICALS, PETROLEUM PRODUCTS AND OTHER MATERIALS USED DURING CONSTRUCTION SHALL BE STORED IN A SECURE AREA, AND PRECAUTIONS USED TO PREVENT POTENTIAL SOURCES OF CONTAMINATION OR POLLUTION. ANY SPILL OF THESE TYPES OF SUBSTANCES SHALL BE CLEANED UP AND DISPOSED OF IN A LEGAL MANNER AS SPECIFIED BY STATE REGULATIONS AND THE MANUFACTURER. ANY SPILL IN AMOUNTS EQUAL TO OR EXCEEDING REPORTABLE QUANTITY AS DEFINED BY THE EPA SHALL TAKE THE FOLLOWING STEPS:
   - NOTIFY THE NATIONAL RESPONSE CENTER IMMEDIATELY AT (888) 424-8802; IN WASHINGTON, D.C., CALL (202) 426-2675.
   - WITHIN 14 DAYS, SUBMIT A WRITTEN DESCRIPTION OF THE RELEASE TO THE EPA REGIONAL OFFICE PROVIDING THE DATE AND CIRCUMSTANCES OF THE RELEASE AND THE STEPS TO BE TAKEN TO PREVENT ANOTHER RELEASE.
   - MODIFY THE POLLUTION PREVENTION PLAN TO INCLUDE THE INFORMATION LISTED ABOVE.

   GOOD HOUSEKEEPING:
   THE FOLLOWING GOOD HOUSEKEEPING PRACTICES WILL BE FOLLOWED ONSITE DURING THE CONSTRUCTION PROJECT.
   - AN EFFORT WILL BE MADE TO STORE ONLY ENOUGH PRODUCT REQUIRED TO DO THE JOB;
   - ALL MATERIALS STORED ONSITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE;
   - PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL;
   - SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER;
   - WHENEVER POSSIBLE, ALL OF A PRODUCT WILL BE USED UP BEFORE DISPOSING OF THE CONTAINER;
   - MANUFACTURERS' RECOMMENDATIONS FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED;
   - TRASH DUMPSTERS SHALL BE GASKETED OR HAVE A SECURE WATERTIGHT LID AND BE PLACED AWAY FROM STORMWATER CONVEYANCES AND DRAINS.
   - THE SITE SUPERINTENDENT WILL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ONSITE.

   HAZARDOUS PRODUCTS:
   THESE PRACTICES ARE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
   - PRODUCTS WILL BE KEPT IN ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE;
   - ORIGINAL LABELS AND MATERIAL SAFETY DATA WILL BE RETAINED; THEY CONTAIN IMPORTANT PRODUCT INFORMATION;
   - IF SURPLUS PRODUCT MUST BE DISPOSED OF, MANUFACTURER'S OR LOCAL AND STATE RECOMMENDED METHODS FOR PROPER DISPOSAL WILL BE FOLLOWED.

   PRODUCT SPECIFIC PRACTICES:
   THE FOLLOWING PRODUCT SPECIFIC PRACTICES WILL BE FOLLOWED ON SITE:

   PETROLEUM PRODUCTS:
   ALL ONSITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTATIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT SUBSTANCES USED ONSITE WILL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

   FERTILIZERS:
   FERTILIZERS USED WILL BE APPLIED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY THE MANUFACTURER. ONCE APPLIED, FERTILIZER WILL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORM WATER. STORAGE WILL BE IN A COVERED SHED. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER WILL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.

   PAINTS:
   ALL CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM SEWER BUT WILL BE PROPERLY DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.

   CONCRETE TRUCKS:
   EXCESS CONCRETE SHALL BE USED IN AREAS DESIGNATED BY THE SITE CONTRACTOR. WASH WATER SHALL BE DISPOSED OF USING BEST MANAGEMENT PRACTICES. BUILDING CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL DRUM WASH WATER ASSOCIATED WITH CONCRETE FOR THE BUILDING PAD. SITE CONTRACTOR TO COORDINATE AND PROVIDE BUILDING CONTRACTOR WITH AN AREA FOR DRUM WASH WATER.

   SPILL CONTROL PRACTICES:
   IN ADDITION TO THE GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTIONS OF THIS PLAN, THE FOLLOWING PRACTICES WILL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
   - MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND SITE PERSONNEL WILL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.
   - MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREA ONSITE. EQUIPMENT AND MATERIALS WILL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUST PANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST, AND PLASTIC AND METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE.
   - ALL SPILLS WILL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY.
   - THE SPILL AREA WILL BE KEPT WELL VENTILATED AND PERSONNEL WILL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE.
   - SPILLS OF TOXIC OR HAZARDOUS MATERIAL WILL BE REPORTED TO THE APPROPRIATE STATE OR LOCAL GOVERNMENT AGENCY, REGARDLESS OF SIZE.
   - THE SPILL PREVENTION PLAN WILL BE ADJUSTED TO INCLUDE MEASURES TO PREVENT THIS TYPE OF SPILL FROM REOCCURRING AND HOW TO CLEAN UP THE SPILL IF THERE IS ANOTHER ONE. A DESCRIPTION OF THE SPILL, WHAT CAUSED IT, AND THE CLEANUP MEASURES WILL ALSO BE INCLUDED.
   - THE SITE SUPERINTENDENT RESPONSIBLE FOR THE DAY-TO-DAY SITE OPERATIONS, WILL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR. THEY WILL DESIGNATE AT LEAST THREE OTHER SITE PERSONNEL WHO WILL EACH RECEIVE SPILL PREVENTION AND CLEANUP TRAINING. THESE INDIVIDUALS WILL EACH BECOME RESPONSIBLE FOR A PARTICULAR PHASE OF PREVENTION AND CLEANUP. THE NAMES OF RESPONSIBLE SPILL PERSONNEL WILL BE POSTED IN THE MATERIAL STORAGE AREA AND IN THE OFFICE TRAILER ONSITE.

11. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN RECORDS OF CONSTRUCTION ACTIVITIES, INCLUDING DATES OF MAJOR GRADING ACTIVITIES, DATES WHEN CONSTRUCTION ACTIVITIES HAVE TEMPORARILY CEASED ON A PORTION OF THE SITE, DATES WHEN WORK IS COMPLETED ON A PORTION OF THE SITE, AND DATES WHEN STABILIZATION MEASURES ARE INITIATED ONSITE.

12. THE CONTRACTOR SHALL PERFORM INSPECTIONS OR HAVE A CONSULTING ENGINEER PERFORM INSPECTIONS EVERY SEVEN (7) DAYS AND WITHIN 24 HOURS AFTER A STORM OF 0.5" OR GREATER. INSPECTIONS REPORTS ARE TO BE KEPT ON FILE AT THE SITE WITH THIS PLAN. MAINTENANCE OR MODIFICATION SHALL BE IMPLEMENTED AND ADDED TO THE PLAN AS RECOMMENDED BY THE QUALIFIED INSPECTOR.

MAP 792Z, LOT 2

INSPECTION AND MAINTANCE PLAN

SAINT MARY'S BANK
16 MANCHESTER STREET CONCORD, NH

OWNED BY AND PREPARED FOR

ROI IRREV. TRUST - CHRISTINE WINDLER (TRUSTEE)
722 CHESTNUT STREET
MANCHESTER, NH 03104-300

SCALE: 1" = 20' **MARCH 20, 2024**

REV	DATE	DESCRIPTION	DR	CK
3	7/12/2024	REVISED FOR AOT COMMENTS	JD	RD
2	6/5/2024	COA	JD	RD
1	4/26/2024	STAFF COMMENTS	JD	RD

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Land Surveyors
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Scientists

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FILE 95486.11 | DR SRP | FB – | CK JK | CADFILE 95486-11 SMB SITE PLANS PHASE 1 | C-08

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DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

SOIL LEGEND (PER SITE SPECIFIC SOIL SURVEY)		
SYMBOL	DESCRIPTION	HYDROLOGIC SOIL GROUP
500B/cgade	UFORTHENTS, LOAMY, 0–8% SLOPES, WELL DRAINED	B
601B	OCCUM, RARELY FLOODED, 0–8% SLOPES, WELL DRAINED	B

SOIL LEGEND (PER NRCS WEB SOIL SURVEY)		
SYMBOL	DESCRIPTION	HYDROLOGIC SOIL GROUP
4A	POOTATUCK VERY FINE SANDY LOAM, 0–3% SLOPES, OCCASIONALLY FLOODED, MODERATELY WELL DRAINED	B
498A	URBAN LAND–POOTATUCK COMPLEX, 0–3% SLOPES	B

N

OLD TURNPIKE (PUBLIC) (CLASS V)

CARLSON'S MOTOR SALES

GAS STATION CANOPY

1 STORY BUILDING

7922–1
CARLSON'S MOTOR SALES INC.
13 MANCHESTER STREET
CONCORD, NH 03301–5106
BK. 1105 PG. 237

7812–1
ARANOSIAN OIL COMPA
FORMERLY ARANOSIAN OIL
557 NORTH
CONCORD, N

7812–1
ARANOSIAN OIL CO. INC.
557 NORTH STATE STREET
CONCORD, NH 03301–3326
BK.3717 PG.163

7812–2
JLMW REAL ESTATE LLC
96 SCHOOL STREET
NORTHWOOD, NH 03261–3722
BK. 3717 PG. 163

7812–1
ARANOSIAN OIL CO. INC.
557 NORTH STATE STREET 7812–2
CONCORD, NH 03301–3326 / REAL ESTATE
96 SCHOOL STREET
NORTHWOOD, NH 03261–3722
BK.3717 PG.163

7812–3
ENDICOTT FURNITURE CO.INC.
12 SOUTH MAIN STREET
CONCORD, NH 03301–4809
BK.909 PG.447

MANCHESTER STREET
(PUBLIC) (CLASS IV) (100 FT. WIDE)

U.S. ROUTE 3

UNNAMED STREET
(PUBLIC) (CLASS IV) (100 FT. WIDE)

U.S. ROUTE 3

6ASC

6BSC

1SC

3SC

5ASC

5SC

6SC

4SC

2SC

3ASC

7922–2–1
LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS CORP.)
STATE OF NEW HAMPSHIRE 3AD (TAKING)
NH 3–305
U3U5J–3305
(GAS SUBSTATION)

BENCHMARK:
MAG.NAIL(SET)
ELEV.=232.60

BENCHMARK:
IRON PIN W/CAP
ELEV.=231.95

BENCHMARK:
IRON PIN W/CAP
ELEV.=234.12

DRAINAGE EASEMENT BK.2016 PG.698

"SLOPE EASEMENT" BK.2016 PG.698

EXISTING DRAINAGE PIPE TO REMAIN

EASEMENT PG.698

COMMON DRIVEWAY EASEMENT BK.1476 PG.961

COMMON DRIVEWAY EASEMENT BK.1476 PG.961

7812–28
MARIE L. BLAIS (TRUSTEE)
M.L.B. REVOCABLE TRUST
18 PLEASANT VIEW AVENUE
CONCORD, NH 03301–2554
BK. 3244 PG. 932

7812–31
SKUFFY'S LLC
48 SOUTH CURTISVILLE ROAD
CONCORD, NH 03301–5908
BK.3833 PG.2454

FORMER IG LOCATION 35

FORMER BUILDING LOCATION

FORMER BUILDING LOCATION

EXISTING STORY BUILDING

TEMPORARY OUT BUILDINGS (REMOVED)

HOUSE 870± S.F. (RAZED)

(VARIABLE WIDTH THIS SECTION)

BLACK HILL ROAD
(PUBLIC)(CLASS V)
(50 FT. WIDE)

BLACK HILL ROAD
(PUBLIC) (CLASS V) (50 FT. WIDE)

7922–4
STATE OF NEW HAMPSHIRE
C/O SECRETARY OF STATE
107 NORTH MAIN STREET
CONCORD, NH 03301–4951
BK.1974 PG.78

7922–3
CHRISTINE M. WINDLER (TRUSTEE)
ROI IRREVOCABLE TRUST
C/O CRONIN, BISSON & ZALINSKY PC
722 CHESTNUT ST
MANCHESTER, NH
BK. 3173 PG

P.O. BK.1941 PG.837 NH
DOT TO STATE
DEED 2016

7922–4
STATE OF NH
C/O SECRETARY OF STATE
107 NORTH MAIN STREET
CONCORD, NH 03301–4951
BK. 1974 PG. 78

7812–34
CHRISTINE M. WINDLER (TRUSTEE)
ROI IRREVOCABLE TRUST
C/O CRONIN, BISSON & ZALINSKY PC
722 CHESTNUT STREET
CONCORD, NH 03301–3001
BK. 3173 PG. 1067

APPROXIMATE LOCATION 20' WIDE DRAINAGE EASEMENT TO BE RELEASED BK. 2016 PG. 698

APPROXIMATE LOCATION 20' WIDE DRAINAGE EASEMENT TO BE RELEASED BK. 2016 PG. 698

30" CMP DRAIN PIPE

LIMIT OF 20 FT

LIMIT OF 20 FT. DRAINAGE EASEMENT

VARIABLE WIDTH PAVED SURFACE

APPROXIMATE LOT LINE CONCORD/BOW

A

B

C

500B/cgade

498A

601B

6A

41B

110–H2–7, 7A

LEGEND

- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION
- 5 SUBCATCHMENT
- 9 REACH
- 1 POND
- D DISCHARGE POINT

40 20 10 0 40
Graphic Scale in Feet

MAP 792Z, LOT 2
MAP 781Z, LOT 30, 29, & 32

PRE DEVELOPMENT DRAINGE MAP

EXIT 13 (MANCHESTER STREET)

CONCORD, NH

OWNED BY

ROI IRREV. TRUST - CHRISTINE WINDLER (TRUSTEE)

PREPARED FOR

SAINT MARY'S BANK & ROI IRREV. TRUST

SCALE: 1" = 40' **MARCH 20, 2024**

REV	DATE	DESCRIPTION	DR	CK
1	7/12/2024	REVISED FOR AOT COMMENTS	JD	RD

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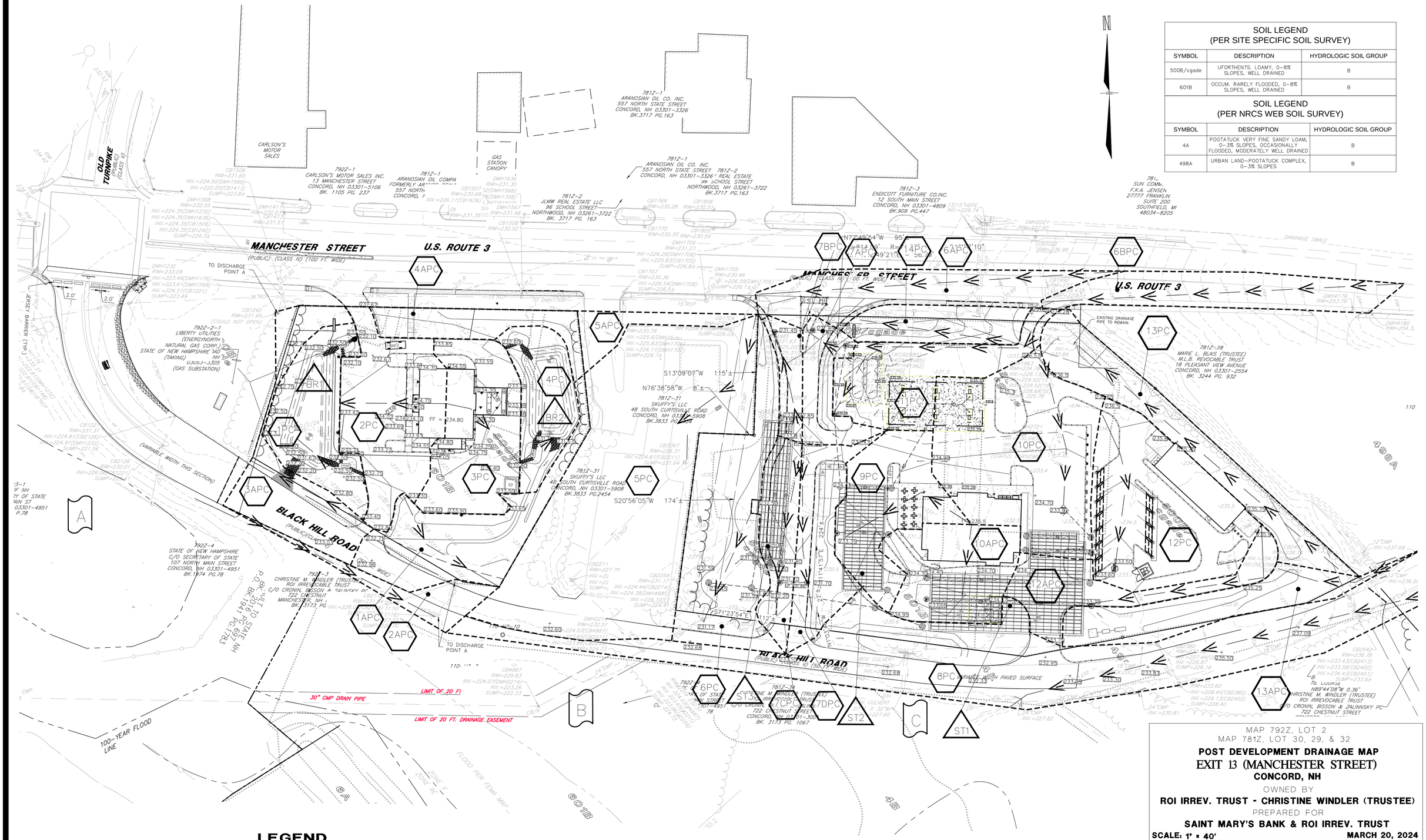
FILE	DR	SRP	FB	–	
95486.11	CK	JK	CADFILE	95486–08 DRAINAGE MAPS PHASE 1	DAM1

SOIL LEGEND (PER SITE SPECIFIC SOIL SURVEY)		
SYMBOL	DESCRIPTION	HYDROLOGIC SOIL GROUP
500B/cgade	UFORTHENTS, LOAMY, 0–8% SLOPES, WELL DRAINED	B
601B	OCCUM, RARELY FLOODED, 0–8% SLOPES, WELL DRAINED	B

SOIL LEGEND (PER NRCS WEB SOIL SURVEY)		
SYMBOL	DESCRIPTION	HYDROLOGIC SOIL GROUP
4A	POOTATUCK VERY FINE SANDY LOAM, 0–3% SLOPES, OCCASIONALLY FLOODED, MODERATELY WELL DRAINED	B
498A	URBAN LAND–POOTATUCK COMPLEX, 0–3% SLOPES	B



LEGEND

- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION
- SUBCATCHMENT 5
- REACH 9
- POND A
- DISCHARGE POINT D

Graphic Scale in Feet: 40 20 10 0 40

MAP 792Z, LOT 2
MAP 781Z, LOT 30, 29, & 32

POST DEVELOPMENT DRAINAGE MAP

EXIT 13 (MANCHESTER STREET)

CONCORD, NH

OWNED BY

ROI IRREV. TRUST - CHRISTINE WINDLER (TRUSTEE)

PREPARED FOR

SAINT MARY'S BANK & ROI IRREV. TRUST

SCALE: 1" = 40' **MARCH 20, 2024**

REV	DATE	DESCRIPTION	DR	CK
2	7/19/2024	REVISED PER ENGINEERING COMMENTS	JR	RD
1	7/12/2024	REVISED FOR AOT COMMENTS	JD	RD

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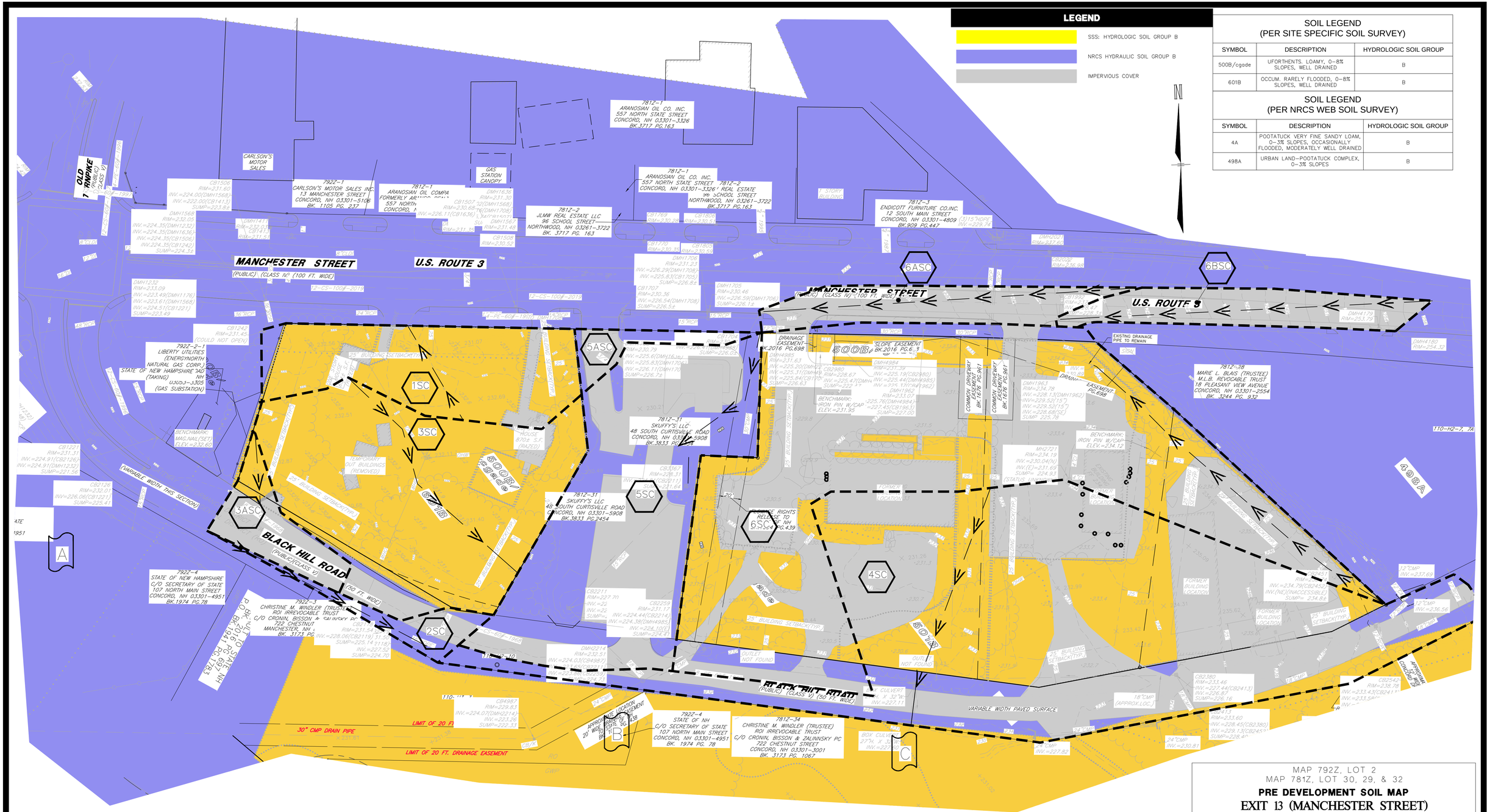
FILE	DR	SRP	FB	–	
95486.11	CK	JK	CADFILE	95486-08 DRAINAGE MAPS PHASE 1	DAM2



MAP 792Z, LOT 2
MAP 781Z, LOT 30, 29, & 32

PRE DEVELOPMENT SOIL MAP
EXIT 13 (MANCHESTER STREET)
CONCORD, NH

OWNED BY
ROI IRREV. TRUST - CHRISTINE WINDLER (TRUSTEE)
PREPARED FOR
SAINT MARY'S BANK & ROI IRREV. TRUST

SCALE: 1" = 40' **MARCH 20, 2024**

LEGEND

DRAINAGE AREA BOUNDARY
TIME OF CONCENTRATION
5 SUBCATCHMENT
9 REACH
1 POND
D DISCHARGE POINT

SOILS CERTIFICATION

THE SITE SPECIFIC SOIL MAPPING WAS PERFORMED ON 10/28/2019 & 10/19/2019 BY THOMAS E. SOKOLOSKI, CERTIFIED SOIL SCIENTIST #063, OF TES ENVIRONMENTAL CONSULTANTS, L.L.C., IN CONCORD, NEW HAMPSHIRE. THIS MAPPING WAS PERFORMED ACCORDING TO THE STANDARDS OF THE "SITE-SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT," VERSION 4.0, FEBRUARY 2011. THESE STANDARDS ARE PUBLISHED BY THE SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND, SPECIAL PUBLICATION NO. 3.

STATE OF NEW HAMPSHIRE
THOMAS E. SOKOLOSKI
No. 063
11/11/19

40 20 10 0 40
Graphic Scale in Feet

REV	DATE	DESCRIPTION	DR	CK
1	7/12/2024	REVISED FOR AOT COMMENTS	JD	RD

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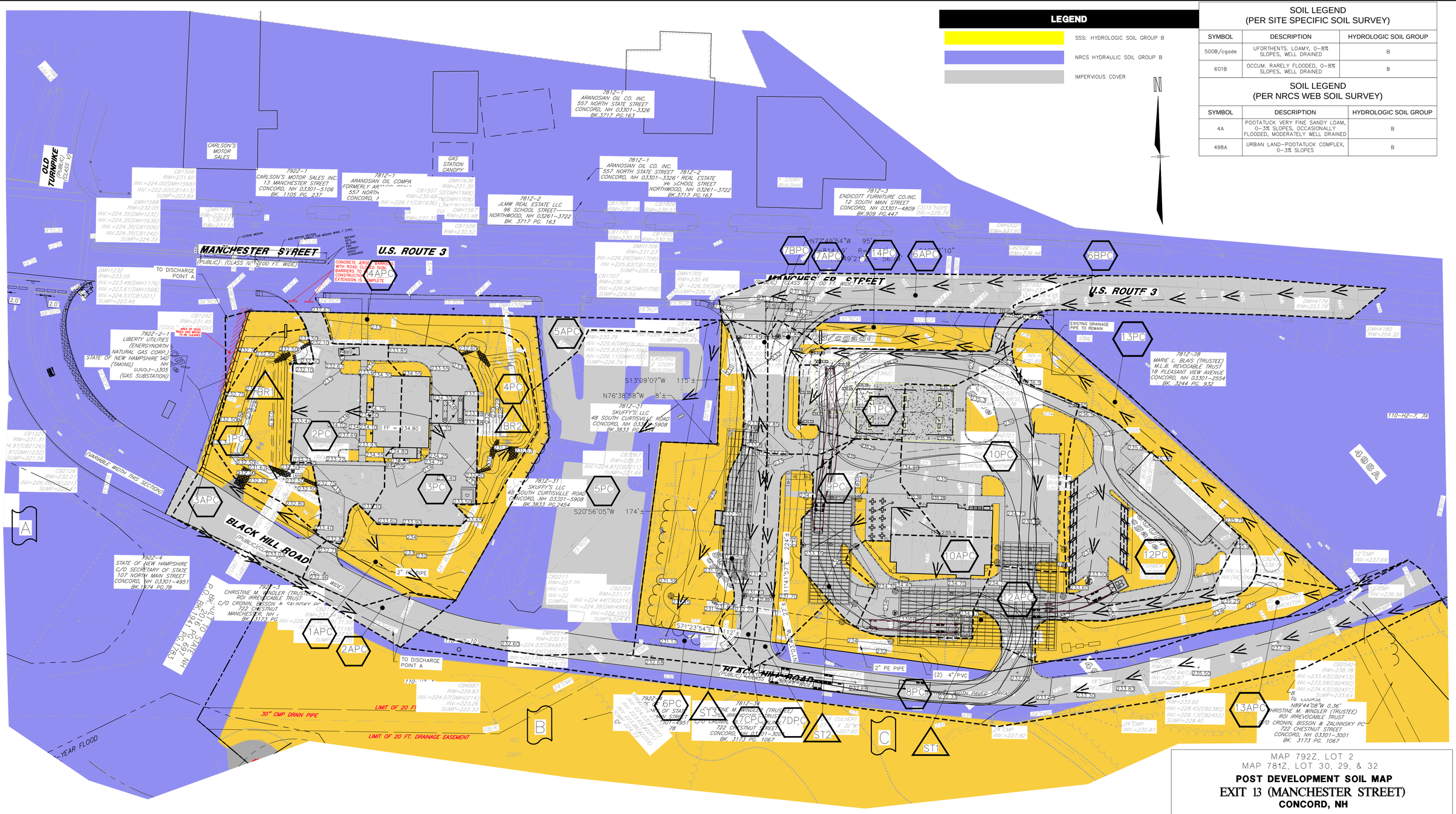
FILE	DR	SRP	FB	–	
95486.11	CK	JK	CADFILE	95486-08 DRAINAGE MAPS PHASE 1	SAM1



LEGEND

- SSS: HYDROLOGIC SOIL GROUP B
- NRCS HYDRAULIC SOIL GROUP B
- IMPERVIOUS COVER

N

SOIL LEGEND (PER SITE SPECIFIC SOIL SURVEY)

SYMBOL	DESCRIPTION	HYDROLOGIC SOIL GROUP
500B/cgadе	UFORTHENTS, LOAMY, 0–8% SLOPES, WELL DRAINED	B
601B	OCCUM, RARELY FLOODED, 0–8% SLOPES, WELL DRAINED	B

SOIL LEGEND (PER NRCS WEB SOIL SURVEY)

SYMBOL	DESCRIPTION	HYDROLOGIC SOIL GROUP
4A	POOTATUCK VERY FINE SANDY LOAM, 0–3% SLOPES, OCCASIONALLY FLOODED, MODERATELY WELL DRAINED	B
498A	URBAN LAND–POOTATUCK COMPLEX, 0–3% SLOPES	B

LEGEND

- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION
- 5 SUBCATCHMENT
- 9 REACH
- 1 POND
- D DISCHARGE POINT

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This plan is not effective unless signed by a duly authorized officer of TFMoran, Inc.

DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

SOILS CERTIFICATION

THE SITE SPECIFIC SOIL MAPPING WAS PERFORMED ON 10/28/2019 & 10/19/2019 BY THOMAS E. SOKOLOSKI, CERTIFIED SOIL SCIENTIST #063, OF TES ENVIRONMENTAL CONSULTANTS, L.L.C., IN CONCORD, NEW HAMPSHIRE. THIS MAPPING WAS PERFORMED ACCORDING TO THE STANDARDS OF THE "SITE-SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT," VERSION 4.0, FEBRUARY 2011. THESE STANDARDS ARE PUBLISHED BY THE SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND, SPECIAL PUBLICATION NO. 3.

40 20 10 0 40
Graphic Scale in Feet

REV	DATE	DESCRIPTION		
1	7/12/2024	REVISED FOR AOT COMMENTS	JD	RD

MAP 792Z, LOT 2
MAP 781Z, LOT 30, 29, & 32

POST DEVELOPMENT SOIL MAP
EXIT 13 (MANCHESTER STREET)
CONCORD, NH

OWNED BY
ROI IRREV. TRUST - CHRISTINE WINDLER (TRUSTEE)
PREPARED FOR
SAINT MARY'S BANK & ROI IRREV. TRUST

SCALE: 1" = 40' **MARCH 20, 2024**

TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
48 Constitution Drive
Bedford, NH 03110
Phone (603) 472-4488
Fax (603) 472-9747
www.tfmoran.com

FILE	95486.11	DR	SRP	FB	–	
		CK	JK	CADFILE	95486-08 DRAINAGE MAPS PHASE 1	SAM2

Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

August 15, 2025

Abutters List
30, 32, 33-35 Black Hill Road
Concord, NH

Job No. 95486.08

Owner/Applicant
Tax Map 781Z Lot 29
Christine M. Windler-TTE
ROI Irrevocable Trust
C/O Cronin, Bisson & Salinsky PC
722 Chestnut Street
Manchester, NH 03104-3001

Tax Map 781Z Lot 1
Aranosian Oil Co. Inc.
(Formerly Aranco Realty Inc.)
557 North State Street
Concord, NH 03301-3236

Tax Map 781Z Lot 2
JLMW Real Estate LLC
96 School Street
Northwood, NH 03261-3722

Tax Map 781Z Lot 3
Endicott Furniture Co. Inc.
12 South Main Street
Concord, NH 03301-4809

Tax Map 781Z Lot 4
Sun Communities
f.k.a. Jensen's Inc.
27777 Franklin Road, Suite 200
Southfield, MI 48034-8205

Tax Map 781Z Lot 28
Marie L. Blais-TTE
M.L.B. Revocable Trust
18 Pleasant View Avenue
Concord, NH 03301-2554

Tax Map 781Z Lot 33 & 34
Christine M. Windler, TTE
ROI Irrevocable Trust
c/o Cronin, Bisson & Salinsky PC
722 Chestnut Street
Manchester, NH 03104-3001

Tax Map 792Z Lot 3
Christine M. Windler, TTE
ROI Irrevocable Trust
c/o Cronin, Bisson & Salinsky PC
722 Chestnut Street
Manchester, NH 03104-3001

Tax Map 781Z Lot 31
Skuffy's LLC
48 South Curtisville Road
Concord, NH 03301-5908

Licensed Land Surveyor
Mr. Michael R. Dahlberg, LLS
TF Moran, Inc.
48 Constitution Drive
Bedford, NH 03110

Professional Engineer
Mr. Robert Duval, PE
TF Moran, Inc.
48 Constitution Drive
Concord, NH 03110

Certified Wetlands Scientist
Mr. Mark West, CWS
West Environmental, Inc.
48 Stevens Hill Road
Nottingham, NH 03290

Certified Soils Scientist
Mr. Thomas E. Sokoloski, CSS
TES Environmental Consultants, LLC
1494 Route 3A, Unit 1
Bow NH 03304

OWNER AUTHORIZATION FOR ENTITY

I, John Bisson, as the duly authorized
(print name)

Trustee of ROI Irrevocable Trust
(member, manager, etc.) (name of entity)

by my signature below, hereby authorize Jonathan Devine - TFMoran, INC. to
(name of applicant)

Submit Zoning Board of Adjustment/Planning Board/Planning Division applications and applicable materials for presentation to Concord Planning Division/Concord Zoning Board of Adjustment/Concord Planning Board for the proposed development at:

32 Manchester St.
(address of site)

John F. Bisson, Trustee
(Signature)

August 20, 2025
(Date)