HOWARD STEIN HUDSON
Engineers + Planners

SUPPLEMENTAL DATA REPORT

Proposed Commercial Subdivision

Commercial Drive

Winchendon, Massachusetts

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Existing Conditions

The subject site consists of one parcel totaling approximately 68.17 acres in the Large-Scale Commercial (C1) District. The site is also located within the Gateway Overlay District. The address of record for the parcel is Bemis Road. The site is currently undeveloped and consists of approximately 19.50 acres of wetlands with the remainder being woodlands. The surrounding properties along Commercial Drive remain undeveloped with the exception of 37 Commercial Drive which is used as a Dekhockey Center and Manufacturing center. The North Central Pathway Rail Trail runs along the western property line of the subject site as well.

Within Commercial Drive, there is access to water, and overhead electric cable and telephone. Sewer does not exist within the immediate area. There is currently no drainage infrastructure on site. All stormwater runoff is directed to the surrounding wetlands on the property. The existing site topography ranges from elevation 1210 to 1100 with runoff generally flowing North to South.

Proposed Conditions

The proposal calls for the subdivision of the existing 68 acres into four separate lots ranging from just under 9 acres to 24.5 acres. A cul-de-sac will be constructed that will provide access to Commercial Drive for all four lots and will be approximately 2,350 feet in length. The proposed roadway will have a single wetland crossing that will result in approximately 1,592 square feet of disturbance to a bordering vegetated wetland. We are not currently proposing development within the four lots. Future lot development will require additional regulatory review.

The project proposes to tie into municipal water, and electric within Commercial Drive, with all utilities being run underground with the exception of cable and telephone. The proposed lots will be serviced by private on-site septic systems. The final location of utility services will be coordinated further with the appropriate utility companies.

The project proposes several stormwater management improvements throughout the site to treat, infiltrate, and convey stormwater from the road to the existing wetlands surrounding the site. All stormwater runoff created from the proposed roadway will be directed to one of three treatment trains prior to discharging to the wetlands. All infiltration basins will be created with a sediment forebay to ensure proper pre-treatment prior to discharge. All stormwater runoff generated from the first half of the roadway, starting at Commercial Drive, will be directed to catch basins before discharging into an infiltration basin. The remaining two infiltration basins will accept runoff from

curb breaks in the roadway that will be directed to ACF Rain Guardian units prior to discharge into the basins.

Site lighting has been prepared by an independent lighting consultant and provided as part of the site plan package.

Please see the Stormwater Management System section of this report for further information on the design of the stormwater management system.

Zoning Summary

Commercial Drive – Winchendon, MA 01475
Map 12, Block 0, Lot 23
C1 – Large Scale Commercial District (Gateway Overlay District)
Subdivision of Land

	Dimensional Requirements	Lot 1	Lot 2	Lot 3	Lot 4
Min. Lot Area	75,000 SF	389,222 ± SF 8.94 ± Ac	650,715 ± SF 14.94 ± Ac	1,064,812 ± SF 24.44 ± Ac	757,808 ± SF 17.40 ± Ac
Min. Lot Frontage	250 Ft	829 Ft	950 Ft	250 Ft	1,848 Ft
Min. Front Yard	75 Ft	N.A.	N.A.	N.A.	N.A.
Min. Side Yard	25 Ft	N.A.	N.A.	N.A.	N.A.
Min. Rear Yard	25 Ft	N.A.	N.A.	N.A.	N.A.
Max. Impervious Coverage	45%	0%	0%	0%	0%
Max Stories	3	N.A.	N.A.	N.A.	N.A.
Max Building Height	45 Ft	N.A.	N.A.	N.A.	N.A.

Setback to Residential Area	50 Ft	N.A.	N.A.	N.A.	N.A.
Wetlands	N.A. (SF)	80,834 ± SF	185,148 ± SF	174,903 ± SF	411,974 ± SF
Contiguous Dry	75,000 SF	308,338 ± SF	465,571 ± SF	889,909 ± SF	345,834 ± SF

Stormwater Management Standards

Standard 1: No new untreated discharges

The Massachusetts Stormwater Handbook requires that the project demonstrates that no new stormwater conveyances (e.g., outfalls) discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

The project proposes three (3) locations of discharge to the adjacent Bordering Vegetated Wetland and two (2) locations of discharge to Commercial Drive and the adjacent Rail Trail. All three sources of discharge to the Bordering Vegetated Wetland are from infiltration basins in which all stormwater is treated prior to discharge.

Standard 2: Post-development peak discharge rates not to exceed pre-development peak discharge rates.

Post-development peak discharge rates do not exceed pre-development peak discharge rates and total runoff volumes for all storms. The proposed condition reduces rates by collecting and infiltrating stormwater runoff within the stormwater management system.

Storm Event	2-year	10-year	25-year	100-year
Pre-Development Rates (cfs) AP1 Volume (cf) (Commercial Drive)	1.19 4,022	1.80 6,239	2.26 7,938	3.19 11,393
Post-Development Rates (cfs) AP1 Volume (cf) (Commercial Drive)	0.19 597	0.33 1,063	0.44 1,438	0.68 2,229
Rate Reductions (cfs) **Volume Reductions (cf)**	**-1.00** **-3,425**	**-1.47** **-5,176**	**-1.82** **-6,500**	**-2.51** **-9,164**
Pre-Development Rates (cfs) AP2 Volume (cf) (To Rail Trail)	2.49 12,900	6.41 29,465	9.86 44,180	17.48 77,241
Post-Development Rates (cfs) AP2 Volume (cf) (To Rail Trail)	2.22 12,617	5.61 28,650	8.59 42,861	15.19 76,181
Rate Reductions (cfs) **Volume Reductions (cf)**	**-0.27** **-283**	**-0.8** **-815**	**-1.27** **-1,319**	**-2.29** **-1,060**
Pre-Development Rates (cfs) AP3 Volume (cf) (To Wetland)	0.71 2,865	1.81 6,541	2.78 9,805	4.92 17,138
Post-Development Rates (cfs) AP3 Volume (cf) (To Wetland)	0.49 1,958	1.25 4,469	1.91 6,699	3.41 11,710
Rate Reductions (cfs) **Volume Reductions (cf)**	**-0.22** **-907**	**-0.56** **-2,072**	**-0.87** **-3,106**	**-1.51** **-5,428**
Pre-Development Rates (cfs) AP4 Volume (cf) (To Wetland)	7.22 39,980	22.16 99,831	36.14 154,910	67.74 281,818
Post-Development Rates (cfs) AP4 Volume (cf) (To Wetland)	6.30 37,554	19.61 94,447	32.01 148,154	62.07 272,288
Rate Reductions (cfs) **Volume Reductions (cf)**	**-0.92** **-2,426**	**-2.55** **-5,384**	**-4.13** **-6,756**	**-5.67** **-9,530**
Pre-Development Rates (cfs) AP5 Volume (cf) (To Wetland)	8.58 44,968	23.86 107,162	37.60 163,362	68.46 291,181
Post-Development Rates (cfs) AP5 Volume (cf) (To Wetland)	8.30 43,480	23.07 103,616	36.36 157,989	67.03 286,688
Rate Reductions (cfs) **Volume Reductions (cf)**	**-0.28** **-1,488**	**-0.79** **-3,546**	**-1.24** **-5,373**	**-1.43** **-4,493**

Standard 3: Minimize or eliminate loss of annual recharge to groundwater.

Groundwater recharge will be accomplished using several infiltration basins that will capture and treat runoff from the proposed site. As shown in the table summary for Standard 2, the project decreases the total volume and rates for all storm events. This reduction in volume is generated by the infiltration of runoff generated by the proposed roadway.

Recharge Volume Requirement:

$R_v = F * Impervious\ Area\ (pre)$

Where:

R_v = Required Recharge Volume, expressed in Ft^3, yd^3, or acre-feet

F = Target Depth Factor associated with each Hydrologic Soil Group:

Hydrologic Soil Group A: 0.60 in

Hydrologic Soil Group B: 0.35 in

Hydrologic Soil Group C: 0.25 in

Hydrologic Soil Group D: 0.10 in

Impervious Area = Pavement on-site.

Recharge Volume for Entire Site:
Soil B:

$$\boldsymbol{R_v = 0.35\ in * 24\ sf * {}^{1\ ft}/_{12\ in} = 1\ cf\ recharge}$$

Soil C:

$$\boldsymbol{R_v = 0.25\ in * 65{,}773\ sf * {}^{1\ ft}/_{12\ in} = 1{,}371\ cf\ recharge}$$

Total Recharge Required:
R_v = *1 cf + 1,371 cf* = ***1,372 cf***

Capture Area Adjustment:

Total Recharge volume required: 1,372 cf

Impervious areas that drain to recharge areas: 63,842 sf

Total Site Impervious / Impervious to Infiltration: 65,797 sf / 63,842 sf = 1.03

Total Adjusted Recharge Needed: 1,372 cf * 1.03 = 1,414 cf

Total Recharge Provided:

Pond 1P = 11,115 cf below outlet (Infiltration Pond)
Pond 2P = 2,868 cf below outlet (Infiltration Pond)
Pond 3P = 6,293 cf below outlet (Infiltration Pond)

Total Site Recharge Provided = 23,654 cf > 1,414 cf, OK

Drawdown within 72 Hours

Pond 1P = 11,115 cf / [(1.02 in/hr) * (1ft / 12in) * (7,209 sf)] = 19 **hours < 72 hours, OK**

Pond 2P = 2,868 cf / [(1.02 in/hr) * (1ft / 12in) * (1,503 sf)] = 23 **hours < 72 hours, OK**

Pond 3P = 6,293 cf / [(1.02 in/hr) * (1ft / 12in) * (5,669 sf)] = 14 **hours < 72 hours, OK**

Standard 4: Stormwater management system to remove 90% of the average annual load of Total Suspended Solids (TSS)

The stormwater management system is designed to remove 90% average annual load of total suspended solids (TSS) and 60% of the average annual load of Total Phosphorous (TP) from the proposed surface area of impervious coverage. Values taken from the Massachusetts Stormwater Manual, the Stormwater Best Management Practices (BMP) Performance Analysis, prepared by Tetra Tech, Inc., and Revised through March 2021, and the Best Management Practice Accounting and Tracking Tool (BMP-BATT).

TSS REMOVAL CALCULATION

TREATMENT TRAIN #1 – INFILTRATION BASIN #1

Area of Impervious = 32,342 SF

- Deep Sump Hooded Catch Basin
  - 100% * 25% = 25% *Removed*
  - 100% - 25% = 75% *Remaining*
- Contech CDS 2015-4 Treatment Unit
  - 75% * 80% = 60% *Removed*
  - 75% - 60% = 15% *Remaining*
- Infiltration Pond (with pretreatment)
  - 15% * 80% = 12% *Removed*
  - 15% - 12% = 3% *Remaining*

TSS Removal of the proposed drainage = 25% + 60% + 12% = 97%

TREATMENT TRAIN #2 – INFILTRATION BASIN #2

Area of Impervious = 13,971 SF

- ACF Rain Guardian
  - 100% * 79% = 79% *Removed*
  - 100% - 79% = 21% *Remaining*
- Infiltration Pond (with pretreatment)
  - 21% * 80% = 17% *Removed*
  - 21% - 17% = 4% *Remaining*

TSS Removal of the proposed drainage = 79% + 17% = 96%

TREATMENT TRAIN #3 – INFILTRATION BASIN #3

Area of Impervious = 17,529 SF

- ACF Rain Guardian
  - 100% * 79% = 79% *Removed*
  - 100% - 79% = 21% *Remaining*
- Infiltration Pond (with pretreatment)
  - 21% * 80% = 17% *Removed*
  - 21% - 17% = 4% *Remaining*

TSS Removal of the proposed drainage = 79% + 17% = 96%

TREATMENT TRAIN #4 – UNTREATED ENTRANCE DRIVE

Area of Impervious = 1,955 SF

- No treatment = 0%

TSS Removal of the proposed drainage = 0%

WEIGHTED TSS REMOVAL CALCULATION

On-Site Impervious Area – 65,797 SF

- Treatment Train # 1 – 32,342 SF
  Percentage of Site Impervious = 32,342 SF / 65,797 SF = 49.2%

Weighted TSS Removal = 97% x 49.2% = 47.7%

- Treatment Train # 2 – 13,971 SF
  Percentage of Site Impervious = 13,971 SF / 65,797 SF = 21.2%

Weighted TSS Removal = 96% x 21.2% = 20.4%

- Treatment Train # 3 – 17,529 SF
  Percentage of Site Impervious = 17,529 SF / 65,797 SF = 26.7%

Weighted TSS Removal = 96% x 26.7% = 25.6%

Total Sitewide TSS removal = 47.7% + 20.4% + 25.6% = 93.7% > 90% OK

TOTAL PHOSPHOROUS REMOVAL:

- Calculation derived from the Town of Winchendon Stormwater Management Regulations Section 8.D.(1)(b)

Total Impervious Area on Site = 65,797 sf
(0.8in x 65,797 sf) x (1ft / 12in) = 4,387 cf of treatment required
60% Treatment Required Volume: 4,387 cf x 60% = 2,632 cf
Impervious areas that drain to infiltration systems = 63,842 sf
Total Site Impervious / Impervious to Infiltration = 65,797 sf / 63,842 sf = 1.03
Total Adjusted Required Treatment Volume= 2,632 cf x 1.03 = **2,711 cf**

TREATMENT DEVICE #1 – INFILTRATION POND #1, 1P

Area of Impervious = 32,342 SF

% Impervious on site = 32,342 SF / 65,797 SF = 49.2%

Required Treatment Volume, 1P = 49.2% x 2,711 cf = 1,334 cf
Volume Provided Below Weir, 1P = 11,115 cf

11,115 cf > 1,334 cf, OK

TREATMENT DEVICE #2 – INFILTRATION POND #2, 2P

Area of Impervious = 13,971 SF

% Impervious on site = 13,971 SF / 65,797 SF = 21.2%

Required Treatment Volume, 2P = 21.2% x 2,711 cf = 575 cf
Volume Provided Below Weir, 2P = 2,868 cf

2,868 cf > 575 cf, OK

TREATMENT DEVICE #3 – INFILTRATION POND #3, 3P

Area of Impervious = 17,529 SF

% Impervious on site = 17,529 SF / 65,797 SF = 26.7%

Required Treatment Volume, 3P = 26.7% x 2,711 cf = 724 cf
Volume Provided Below Weir, 3P = 6,293 cf

6,293 cf > 724 cf, OK

WATER QUALITY VOLUME:

For new development, stormwater management systems must be designed to remove 90% of the average annual load (post-development conditions) of Total Suspended Solids (TSS). It is presumed that this standard is met when:

a) *Suitable nonstructural practices for source control and pollution prevention are implemented.*
b) *Stormwater management best management practices (BMPs) are sized to capture the prescribed runoff volume; and*
c) *Stormwater management BMPs are maintained as designed.*

In order to achieve the rated TSS Removal Rates, each BMP must be sized adequately. This development proposes to use ACF Rain Guardian Turrets, which are flow-based devised. Flow calculations can be found below.

Contech CDS 2015-4 (CDS-1):

Contech CDS 2015-4 rated for 80% removal up to 0.70 cfs

Flow rate associated with CDS-1:

Q = (qu)*(A)*(WQV), where:

Q = Peak flow rate associated with first 1/2-inch of runoff

qu = the unit peak discharge, in csm/in (752 csm/in for Tc associated with 6 minutes)

A = impervious surface drainage area (in square miles): 32,342 sf = 0.00116 square miles

WQV = water quality volume in watershed inches

Q = (752 csm/in)*(0.00116 square miles)*(1/2 inch)

Q = 0.44 CFS

Required Capacity = 0.44 CFS

80% Removal Capacity = 0.70 CFS (See Appendix C for calculation)

0.50 CFS > 0.39 CFS, **OK 88% Removal**

ACF Rain Guardian Turret 1 (RG1):

ACF Rain Guardian Turret rated for 88% removal up to 0.25 cfs
ACF Rain Guardian Turret rated for 79% removal up to 0.50 cfs

Flow rate associated with ACF Rain Guardian Turret 1:
Q = (qu)*(A)*(WQV), where:
Q = Peak flow rate associated with first 1/2-inch of runoff
qu = the unit peak discharge, in csm/in (752 csm/in for Tc associated with 6 minutes)
A = impervious surface drainage area (in square miles): 13,971 sf = 0.000501 square miles
WQV = water quality volume in watershed inches

Q = (752 csm/in)*(0.000501 square miles)*(1/2 inch)
Q = 0.19 CFS

Required Capacity = 0.19 CFS
ACF Turret 79% Removal Capacity = 0.50 CFS (See Appendix C for calculation)

0.50 CFS > 0.19 CFS, **OK 88% Removal**

ACF Rain Guardian Turret 2 (RG2):

ACF Rain Guardian Turret rated for 88% removal up to 0.25 cfs
ACF Rain Guardian Turret rated for 79% removal up to 0.50 cfs

Flow rate associated with ACF Rain Guardian Turret 1:
Q = (qu)*(A)*(WQV), where:
Q = Peak flow rate associated with first 1/2-inch of runoff
qu = the unit peak discharge, in csm/in (752 csm/in for Tc associated with 6 minutes)
A = impervious surface drainage area (in square miles): 17,529 sf = 0.000629 square miles
WQV = water quality volume in watershed inches

Q = (752 csm/in)*(0.000629 square miles)*(1/2 inch)
Q = 0.49 CFS

Required Capacity = 0.24 CFS
ACF Turret 79% Removal Capacity = 0.50 CFS (See Appendix C for calculation)

0.50 CFS > 0.24 CFS, **OK 79% Removal**

Standard 5: Land uses with higher potential pollutant loads.

The development is not considered a land use that generally produces higher potential pollutant loads.

Standard 6: Stormwater discharges to critical areas

The development does not discharge to any critical areas.

Standard 7: Redevelopment projects

The project is not considered a redevelopment project.

Standard 8: Control construction-related impacts

The project will install erosion and sediment controls prior to any earthwork activity. Erosion control barriers will be placed down slope from the proposed construction to prevent erosion and sedimentation into the surrounding areas. The barriers will be maintained and inspected periodically during construction; sediment buildup will be removed, and any damaged barrier will be replaced as needed. See construction site plan.

Standard 9: Long-term operation and maintenance plan

See Appendix A for the operation and maintenance requirements of the stormwater management system.

Standard 10: No illicit discharges

An illicit discharge compliance statement will be provided by the property owner under separate cover.

Appendix A: Operation and Maintenance Plan

Infiltration Basin

System Owner: Methuen Construction, or Future Owner
(Ownership of BMP to be transferred to Owner of property)
Estimated Annual Maintenance: $1,000
(Per DEP Stormwater Structural BMP's Vol 2)

In many cases, a landscaping contractor working elsewhere on the site can complete maintenance tasks. Inspect the basin and outlet structure to ensure no structural damage has occurred and that they are functioning property and up to design standards.

Inspection and preventive maintenance are required at least twice per year, and after each major storm event. Note how long water remains standing in the basin after a storm. If water remains standing after 48 to 72 hours after a storm, the infiltration basin may be clogged.

At least twice per year, mow the buffer area, side slopes, and basin bottom. Remove grass clippings, accumulated organic matter, trash and debris at this time.

Remove sediment from the basin as necessary when the basin is dry. Use light equipment when removing the top layer, as to not compact the underlying soil. Use deep tilling to break and remove any clogged surfaces and revegetate immediately.

Important items to check during inspections include:

- Signs of differential settlement
- Cracking
- Erosion
- Leakage in the embankments
- Tree growth on the embankments
- Condition of rip rap
- Sediment accumulation
- Health of vegetation, turf

Date	Inspector	Condition	Maintenance Performed*

**Evidence of maintenance (e.g. receipts) must be provided.*

Deep Sump Hooded Catch Basins

System Owner: Methuen Construction, or Future Owner
(Ownership of BMP to be transferred to Owner of property)
Estimated Annual Maintenance: $2,000 - $4,000
(Per DEP Stormwater Structural BMP's Vol 2)

Inspect or clean deep sump basins at least four times per year and at the end of the foliage and snow removal seasons. Sediments must also be removed four times per year or whenever the depth of deposits is greater than or equal to one half the depth from the bottom of the invert of the lowest pipe in the basin. If handling runoff from land uses with higher potential pollutant loads or discharging runoff near or to a critical area, more frequent cleaning may be necessary. Clamshell buckets are typically used to remove sediment in Massachusetts. However, vacuum trucks are preferable because they remove more trapped sediment and supernatant than clamshells. Vacuuming is also a speedier process and is less likely to snap the cast iron hood within the deep sump catch basin.

Date	Inspector	Condition	Maintenance Performed*

**Evidence of maintenance (e.g. receipts) must be provided.*

ACF Rain Guardian

System Owner: Methuen Construction, or Future Owner
(Ownership of BMP to be transferred to Owner of property)
Estimated Annual Maintenance: $250 - $500
(Per Manufacturer)

Depending on the characteristics of the contributing watershed and seasonal variation, common maintenance needs include periodic removal of accumulated leaves (and other organic debris) and garbage from the top grate and sediment and fine debris from the concrete dry filter box. Contributing watersheds with high sediment concentrations may require inspections monthly and clean them out at least four times a year. More frequent visits may be needed to satisfy maintenance needs.

If sediment accumulates beyond an acceptable level in the system, it will be necessary to remove. This can be done by manual removal with a shovel or mechanical device. The filter screen can be cleaned manually through brushing or with pressurized water.

Date	Inspector	Condition	Maintenance Performed*

**Evidence of maintenance (i.e. receipts) must be provided.*

Contech CDS 2015-4 Water Quality Unit

System Owner: Methuen Construction, or Future Owner
(Ownership of BMP to be transferred to Owner of property)
Estimated Annual Maintenance: $500 - $750
(Per Manufacturer)

See manufacturer specific maintenance information below.

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CDS TECHNOLOGIES

Maintenance

The CDS system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit. For example, unstable soils or heavy winter sanding will cause the grit chamber to fill more quickly but regular sweeping of paved surfaces will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant transport and deposition may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (e.g. spring and fall) however more frequent inspections may be necessary in climates where winter sanding operations may lead to rapid accumulations, or in equipment washdown areas. Installations should also be inspected more frequently where excessive amounts of trash are expected.

The visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet and separation screen. The inspection should also quantify the accumulation of hydrocarbons, trash, and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument. If absorbent material is used for enhanced removal of hydrocarbons, the level of discoloration of the sorbent material should also be identified during inspection. It is useful and often required as part of an operating permit to keep a record of each inspection. A simple form for doing so is provided.

Access to the CDS unit is typically achieved through two manhole access covers. One opening allows for inspection and cleanout of the separation chamber (cylinder and screen) and isolated sump. The other allows for inspection and cleanout of sediment captured and retained outside the screen. For deep units, a single manhole access point would allows both sump cleanout and access outside the screen.

The CDS system should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when an appreciable level of hydrocarbons and trash has accumulated. If absorbent material is used, it should be replaced when significant discoloration has occurred. Performance will not be impacted until 100% of the sump capacity is exceeded however it is recommended that the system be cleaned prior to that for easier removal of sediment. The level of sediment is easily determined by measuring from finished grade down to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Particles at the top of the pile typically offer less resistance to the end of the rod than consolidated particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the as-built drawing for the unit to determine weather the height of the sediment pile off the bottom of the sump floor exceeds 75% of the total height of isolated sump.

Cleaning

Cleaning of a CDS systems should be done during dry weather conditions when no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole covers and insert the vacuum hose into the sump. The system should be completely drained down and the sump fully evacuated of sediment. The area outside the screen should also be cleaned out if pollutant build-up exists in this area.

In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, the system should be cleaned out immediately in the event of an oil or gasoline spill should be cleaned out immediately. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use absorbent pads since they are usually less expensive to dispose than the oil/water emulsion that may be created by vacuuming the oily layer. Trash and debris can be netted out to separate it from the other pollutants. The screen should be power washed to ensure it is free of trash and debris.

Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and also to ensure that proper safety precautions have been followed. Confined space entry procedures need to be followed if physical access is required. Disposal of all material removed from the CDS system should be done in accordance with local regulations. In many jurisdictions, disposal of the sediments may be handled in the same manner as the disposal of sediments removed from catch basins or deep sump manholes.

CDS Model	Diameter		Distance from Water Surface to Top of Sediment Pile		Sediment Storage Capacity	
	ft	m	ft	m	y^3	m^3
CDS1515	3	0.9	3.0	0.9	0.5	0.4
CDS2015	4	1.2	3.0	0.9	0.9	0.7
CDS2015	5	1.3	3.0	0.9	1.3	1.0
CDS2020	5	1.3	3.5	1.1	1.3	1.0
CDS2025	5	1.3	4.0	1.2	1.3	1.0
CDS3020	6	1.8	4.0	1.2	2.1	1.6
CDS3025	6	1.8	4.0	1.2	2.1	1.6
CDS3030	6	1.8	4.6	1.4	2.1	1.6
CDS3035	6	1.8	5.0	1.5	2.1	1.6
CDS4030	8	2.4	4.6	1.4	5.6	4.3
CDS4040	8	2.4	5.7	1.7	5.6	4.3
CDS4045	8	2.4	6.2	1.9	5.6	4.3
CDS5640	10	3.0	6.3	1.9	8.7	6.7
CDS5653	10	3.0	7.7	2.3	8.7	6.7
CDS5668	10	3.0	9.3	2.8	8.7	6.7
CDS5678	10	3.0	10.3	3.1	8.7	6.7

Table 1: CDS Maintenance Indicators and Sediment Storage Capacities

Support

- Drawings and specifications are available at www.contechstormwater.com.
- Site-specific design support is available from our engineers.

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CDS Inspection & Maintenance Log

CDS Model: _____ Location: _____

Date	Water depth to sediment[1]	Floatable Layer Thickness[2]	Describe Maintenance Performed	Maintenance Personnel	Comments

1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than the values listed in table 1 the system should be cleaned out. **Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile.**

2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.

Appendix B: Erosion and Sediment Control Notes and General Construction Sequence

Erosion and Sediment Control Notes

A. Erosion and sediment control measures must be installed prior to the start of construction and maintained and upgraded as necessary during construction by the contractor. It is the contractor's responsibility to inspect and install additional control measures as needed during construction.
B. All catch basins receiving drainage from the project site must be provided with a catch basin filter.
C. Stabilization of all re-graded and soil stockpile areas must be maintained during all phases of construction.
D. Sediment removed from erosion and sediment control devices must be properly removed and disposed. All damaged controls must be removed and replaced.
E. The contractor is responsible for implementing the erosion and sediment control plan. This includes the installation and maintenance of control measures, informing all parties engaged on the construction site of the requirements and objectives of the plan, and notifying the proper city agency of any transfer of this responsibility.
F. The contractor shall be responsible for controlling wind erosion and dust throughout the life of his contract. Dust control may include, but is not limited to, sprinkling of water on exposed soils and street sweeping adjacent roadways.
G. If final grading is to be delayed for more than 21 days after land disturbance activities cease, temporary vegetation or mulch shall be used to stabilize soils within 14 days of the last disturbance.
H. If a disturbed area will be exposed for greater than one-year, permanent grasses or other approved cover must be installed.
I. The contractor must keep on-site at all times additional silt fence and hay bales for the installation at the direction of the engineer or the city to mitigate any emergency condition.
J. The construction fencing and erosion and sediment controls as shown may not be practical during all stages of construction. Earthwork activity on-site must be done in a manner such that runoff is directed to a sediment control device or infiltrated to the ground.
K. Demolition and construction debris must be properly contained and disposed of.
L. Disposal of all demolished materials is the responsibility of the contractor and must be hauled off-site in accordance with all federal, state and local requirements.

General Construction Sequence

1. Install erosion and sediment controls prior to starting any earthworks activity.
2. Install construction entrance.
3. Begin clearing and grubbing.
4. Construct stormwater management system.
5. Install pavement and curbs.
6. Install landscaping.
7. Erosion and sediment controls shall be maintained until permanent cover is established.

Appendix C: ACF Rain Guardian Supplemental Information

From: Lee Jones
To: Patrick Bogle
Subject: FW: ACF Environmental - Rain Guardians
Date: Friday, December 4, 2020 9:30:52 AM
Attachments: 2017.11.21 Flow Data.pdf

Patrick,
Good morning
Great talking with you yesterday.
Per our discussion, I have reviewed the study.
The study was performed by flow rates which are shown and not by storm events.
I am also attaching the Flow Data pdf.

- Rain Guardian Gross Solids and Sediment Removal Report
  - Bunker sediment capture – 75.6% at 0.5 CFS and 91.7% at 0.25 CFS
  - Bunker gross solids capture – 61.4% at 0.5 CFS and 78.8% at 0.25 CFS
  - Turret sediment capture – 79.1% at 0.5 CFS and 88.4% at 0.25 CFS
  - Turret gross solids capture – 72.4% at 0.5 CFS and 86.7% at 0.25 CFS
  - NOTE: Grass and rock lined inlets were also tested and achieved similar removal efficiencies. While the grass lined inlet and rock lined inlets removed similar amounts of sediment under the flow rates tested, the ease of maintenance, long-term effectiveness, storage capacity, and stability of the Rain Guardians set them apart from the grass and rock. The 'Maintenance Considerations' section (5.4) on pages 65 – 68 of the report highlights some advantages of the Rain Guardian products.

Please let me know if I can be of help
Best regards,
Lee

Leland (Lee) Jones, QSM
BMP Specialist – New England
ACF Environmental
508-745-7052 cell
ljones@acfenv.com
www.acfenvironmental.com
"Start each day with a positive
thought and a grateful heart"
Roy T. Bennett

From: Lee Jones
Sent: Thursday, December 3, 2020 1:33 PM
To: Patrick Bogel (pbogle@hshassoc.com) <pbogle@hshassoc.com>
Subject: ACF Environmental - Rain Guardians

Patrick.
Good afternoon
It's good to hear that you are at HSH. I hope that all is going well.
I received an email that you were looking for TSS removal rates on the Rain Guardian.
Please review the information below and let me know if I can be of help

RAIN GUARDIAN TURRET AND FOXHOLE
ENGINEERING PROPERTIES

RAIN GUARDIAN TURRET:

Turret Flow Rate Capacity:

Outflow is possible through three locations. Please note the vertical filter within the chamber was assumed to be 100% clogged because its primary function is to allow the chamber to dry out between rain events.

1) Filter overflow – water can pass between the top of the filter and the bottom of the metal grate; calculated using the continuity equation (i.e. Q=V*A)

2) Grate overflow – water can pass through the top metal grate beyond the vertical filter wall; calculated using an orifice equation (i.e. $Q=0.0108*A*\sqrt{d}$)

3) High volume overflow – water can overtop the front debris wall onto the splash pad; calculated using a standard broad crested weir equation (i.e. Q=C*L*H^(3/2))

Filter overflow – 0.45 CFS

Grate overflow – 2.59 CFS

Emergency overflow - 0.41 CFS

TOTAL: 3.45 CFS

Turret Internal Storage Vol: (i.e. storage capacity below the top of the filter wall): **4.02 ft^3**

RAIN GUARDIAN FOXHOLE:

Below are the flow and storage data for the Rain Guardian Foxhole with an inlet, middle, and outlet (i.e. 6' top lid). (the addition of mid section (for longer units) would improve the sediment storage capacity).

Foxhole Flow Rate Capacity:
Outflow is possible through three locations. Please note the vertical filter within the chamber was assumed to be 100% clogged because its primary function is to allow the chamber to dry out between rain events.

1) Filter overflow – water can pass between the top of the filter and the bottom of the metal grate; calculated using the continuity equation (i.e. Q=V*A)

2) Grate overflow – water can pass through the top metal grate beyond the vertical filter wall; calculated using an orifice equation (i.e. $Q=0.0108*A*\sqrt{d}$)

3) High volume overflow – water can overtop the front debris wall onto the splash pad; calculated using a standard broad crested weir equation (i.e. $Q=C*L*H^{(3/2)}$)

Filter overflow – 0.30 CFS

Grate overflow – 2.69 CFS

Emergency overflow - 0.52 CFS

TOTAL: **3.51 CFS**

Foxhole Internal Storage Volume (i.e. storage capacity below the top of the filter wall):

Inlet + Outlet: 2.0 ft^3

Middle: 2.65 ft^3

TOTAL: **4.65 ft^3**

Appendix D: Mounding Analysis

Infiltration Pond #1

This spreadsheet will calculate the height of a groundwater mound beneath a stormwater infiltration basin. More information can be found in the U.S. Geological Survey Scientific Investigations Report 2010-5102 "Simulation of groundwater mounding beneath hypothetical stormwater infiltration basins".

The user must specify infiltration rate (R), specific yield (Sy), horizontal hydraulic conductivity (Kh), basin dimensions (x, y), duration of infiltration period (t), and the initial thickness of the saturated zone (hi(0), height of the water table if the bottom of the aquifer is the datum). For a square basin the half width equals the half length (x = y). For a rectangular basin, if the user wants the water-table changes perpendicular to the long side, specify x as the short dimension and y as the long dimension. Conversely, if the user wants the values perpendicular to the short side, specify y as the short dimension, x as the long dimension. All distances are from the center of the basin. Users can change the distances from the center of the basin at which water-table aquifer thickness are calculated.
Cells highlighted in yellow are values that can be changed by the user. Cells highlighted in red are output values based on user-specified inputs. The user MUST click the blue "Re-Calculate Now" button each time ANY of the user-specified inputs are changed otherwise necessary iterations to converge on the correct solution will not be done and values shown will be incorrect. Use consistent units for all input values (for example, feet and days)

use consistent units (e.g. feet & days **or** inches & hours)

Input Values		
2.0400	R	Recharge (infiltration) rate (feet/day)
0.260	Sy	Specific yield, Sy (dimensionless, between 0 and 1)
20.40	K	Horizontal hydraulic conductivity, Kh (feet/day)*
60.000	x	1/2 length of basin (x direction, in feet)
31.500	y	1/2 width of basin (y direction, in feet)
1.000	t	duration of infiltration period (days)
40.000	hi(0)	initial thickness of saturated zone (feet)

Conversion Table

inch/hour	feet/day
0.67	1.33
2.00	4.00

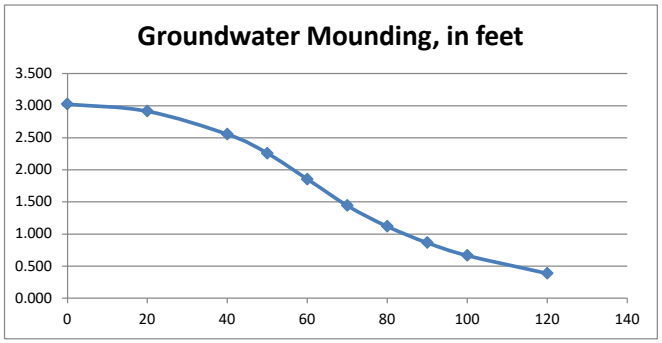
hours	days
36	1.50

In the report accompanying this spreadsheet (USGS SIR 2010-5102), vertical soil permeability (ft/d) is assumed to be one-tenth horizontal hydraulic conductivity (ft/d).

43.024	h(max)	maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
3.024	Δh(max)	maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
3.024	0
2.914	20
2.556	40
2.258	50
1.855	60
1.443	70
1.118	80
0.864	90
0.664	100
0.386	120

Re-Calculate Now



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

Infiltration Pond #2

This spreadsheet will calculate the height of a groundwater mound beneath a stormwater infiltration basin. More information can be found in the U.S. Geological Survey Scientific Investigations Report 2010-5102 "Simulation of groundwater mounding beneath hypothetical stormwater infiltration basins".

The user must specify infiltration rate (R), specific yield (Sy), horizontal hydraulic conductivity (Kh), basin dimensions (x, y), duration of infiltration period (t), and the initial thickness of the saturated zone (hi(0), height of the water table if the bottom of the aquifer is the datum). For a square basin the half width equals the half length (x = y). For a rectangular basin, if the user wants the water-table changes perpendicular to the long side, specify x as the short dimension and y as the long dimension. Conversely, if the user wants the values perpendicular to the short side, specify y as the short dimension, x as the long dimension. All distances are from the center of the basin. Users can change the distances from the center of the basin at which water-table aquifer thickness are calculated.
Cells highlighted in yellow are values that can be changed by the user. Cells highlighted in red are output values based on user-specified inputs. The user MUST click the blue "Re-Calculate Now" button each time ANY of the user-specified inputs are changed otherwise necessary iterations to converge on the correct solution will not be done and values shown will be incorrect. Use consistent units for all input values (for example, feet and days)

use consistent units (e.g. feet & days **or** inches & hours)

Input Values		
2.0400	*R*	**Recharge (infiltration) rate (feet/day)**
0.260	Sy	**Specific yield, Sy (dimensionless, between 0 and 1)**
20.40	K	**Horizontal hydraulic conductivity, Kh (feet/day)***
32.500	x	**1/2 length of basin (x direction, in feet)**
20.000	y	**1/2 width of basin (y direction, in feet)**
1.000	t	**duration of infiltration period (days)**
40.000	hi(0)	**initial thickness of saturated zone (feet)**

Conversion Table

inch/hour	feet/day
0.67	1.33
2.00	4.00

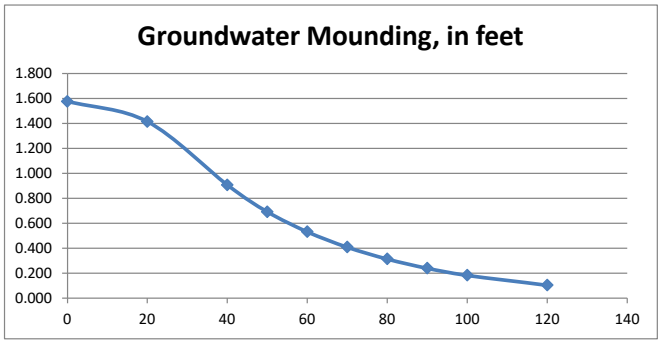
hours	days
36	1.50

In the report accompanying this spreadsheet (USGS SIR 2010-5102), vertical soil permeability (ft/d) is assumed to be one-tenth horizontal hydraulic conductivity (ft/d).

41.578	h(max)	**maximum thickness of saturated zone (beneath center of basin at end of infiltration period)**
1.578	Δh(max)	**maximum groundwater mounding (beneath center of basin at end of infiltration period)**

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
1.578	0
1.416	20
0.908	40
0.693	50
0.532	60
0.409	70
0.314	80
0.240	90
0.183	100
0.104	120

Re-Calculate Now



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

Infiltration Pond #3

This spreadsheet will calculate the height of a groundwater mound beneath a stormwater infiltration basin. More information can be found in the U.S. Geological Survey Scientific Investigations Report 2010-5102 "Simulation of groundwater mounding beneath hypothetical stormwater infiltration basins".

The user must specify infiltration rate (R), specific yield (Sy), horizontal hydraulic conductivity (Kh), basin dimensions (x, y), duration of infiltration period (t), and the initial thickness of the saturated zone (hi(0), height of the water table if the bottom of the aquifer is the datum). For a square basin the half width equals the half length (x = y). For a rectangular basin, if the user wants the water-table changes perpendicular to the long side, specify x as the short dimension and y as the long dimension. Conversely, if the user wants the values perpendicular to the short side, specify y as the short dimension, x as the long dimension. All distances are from the center of the basin. Users can change the distances from the center of the basin at which water-table aquifer thickness are calculated.
Cells highlighted in yellow are values that can be changed by the user. Cells highlighted in red are output values based on user-specified inputs. The user MUST click the blue "Re-Calculate Now" button each time ANY of the user-specified inputs are changed otherwise necessary iterations to converge on the correct solution will not be done and values shown will be incorrect. Use consistent units for all input values (for example, feet and days)

use consistent units (e.g. feet & days **or** inches & hours)

Input Values		
2.0400	R	Recharge (infiltration) rate (feet/day)
0.260	Sy	Specific yield, Sy (dimensionless, between 0 and 1)
20.40	K	Horizontal hydraulic conductivity, Kh (feet/day)*
30.000	x	1/2 length of basin (x direction, in feet)
63.000	y	1/2 width of basin (y direction, in feet)
1.000	t	duration of infiltration period (days)
40.000	hi(0)	initial thickness of saturated zone (feet)

Conversion Table

inch/hour	feet/day
0.67	1.33
2.00	4.00

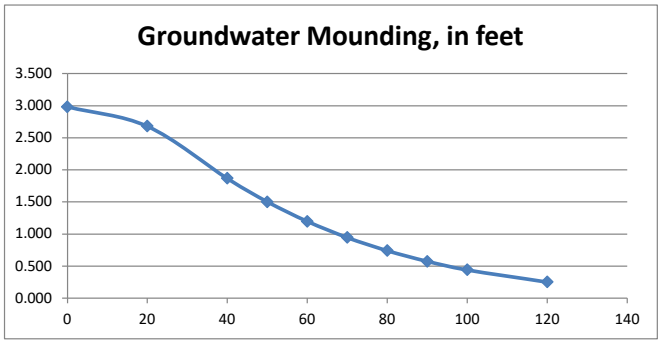
hours	days
36	1.50

In the report accompanying this spreadsheet (USGS SIR 2010-5102), vertical soil permeability (ft/d) is assumed to be one-tenth horizontal hydraulic conductivity (ft/d).

42.981	h(max)	maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
2.981	Δh(max)	maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
2.981	0
2.679	20
1.866	40
1.501	50
1.197	60
0.945	70
0.740	80
0.573	90
0.440	100
0.252	120

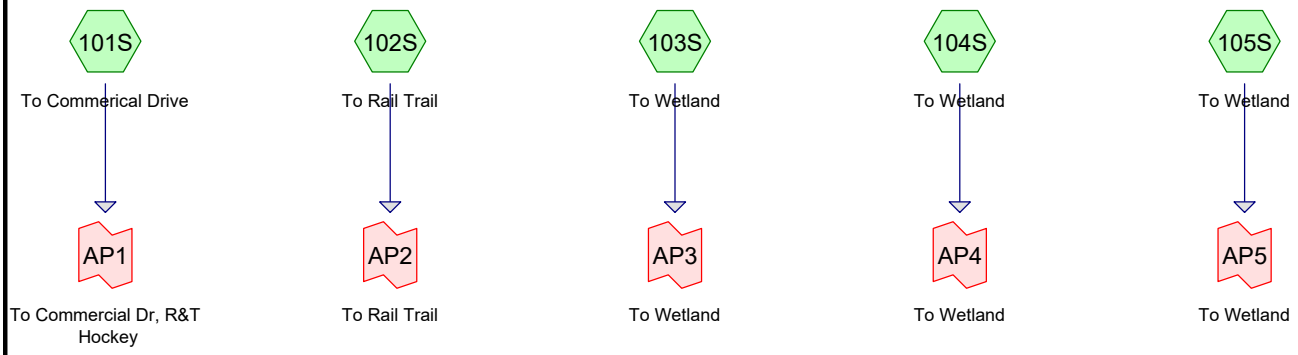
Re-Calculate Now



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

Appendix E: HydroCAD Report



Subcat Reach Pond Link

Routing Diagram for 21262 - Ex

Prepared by Howard Stein Hudson, Printed 7/21/2022

HydroCAD® 10.10-6a s/n M13540 © 2020 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-year	Type III 24-hr		Default	24.00	1	2.94	2
2	10-year	Type III 24-hr		Default	24.00	1	4.33	2
3	25-year	Type III 24-hr		Default	24.00	1	5.39	2
4	100-year	Type III 24-hr		Default	24.00	1	7.54	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
19,371	96	Gravel surface, HSG C (101S)
393,678	55	Woods, Good, HSG B (104S, 105S)
1,728,866	70	Woods, Good, HSG C (102S, 103S, 104S, 105S)
2,141,915	**67**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
393,678	HSG B	104S, 105S
1,748,237	HSG C	101S, 102S, 103S, 104S, 105S
0	HSG D	
0	Other	
2,141,915		**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	Subcatchment Numbers
0	0	19,371	0	0	19,371	Gravel surface	
0	393,678	1,728,866	0	0	2,122,544	Woods, Good	
0	**393,678**	**1,748,237**	**0**	**0**	**2,141,915**	**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

Subcatchment101S: To Commerical Drive Runoff Area=19,371 sf 0.00% Impervious Runoff Depth>2.49"
Tc=6.0 min CN=96 Runoff=1.19 cfs 4,022 cf

Subcatchment102S: To Rail Trail Runoff Area=228,440 sf 0.00% Impervious Runoff Depth>0.68"
Flow Length=632' Tc=18.2 min CN=70 Runoff=2.49 cfs 12,900 cf

Subcatchment103S: To Wetland Runoff Area=50,586 sf 0.00% Impervious Runoff Depth>0.68"
Flow Length=170' Tc=8.9 min CN=70 Runoff=0.71 cfs 2,865 cf

Subcatchment104S: To Wetland Runoff Area=933,493 sf 0.00% Impervious Runoff Depth>0.51"
Flow Length=716' Tc=15.4 min CN=66 Runoff=7.22 cfs 39,980 cf

Subcatchment105S: To Wetland Runoff Area=910,025 sf 0.00% Impervious Runoff Depth>0.59"
Flow Length=910' Tc=16.3 min CN=68 Runoff=8.58 cfs 44,968 cf

Link AP1: To Commercial Dr, R&T Hockey Inflow=1.19 cfs 4,022 cf
Primary=1.19 cfs 4,022 cf

Link AP2: To Rail Trail Inflow=2.49 cfs 12,900 cf
Primary=2.49 cfs 12,900 cf

Link AP3: To Wetland Inflow=0.71 cfs 2,865 cf
Primary=0.71 cfs 2,865 cf

Link AP4: To Wetland Inflow=7.22 cfs 39,980 cf
Primary=7.22 cfs 39,980 cf

Link AP5: To Wetland Inflow=8.58 cfs 44,968 cf
Primary=8.58 cfs 44,968 cf

Total Runoff Area = 2,141,915 sf Runoff Volume = 104,734 cf Average Runoff Depth = 0.59"
100.00% Pervious = 2,141,915 sf 0.00% Impervious = 0 sf

Summary for Subcatchment 101S: To Commerical Drive

Runoff = 1.19 cfs @ 12.09 hrs, Volume= 4,022 cf, Depth> 2.49"
Routed to Link AP1 : To Commercial Dr, R&T Hockey

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-year Rainfall=2.94"

Area (sf)	CN	Description
19,371	96	Gravel surface, HSG C
19,371		100.00% Pervious Area

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

Summary for Subcatchment 102S: To Rail Trail

Runoff = 2.49 cfs @ 12.30 hrs, Volume= 12,900 cf, Depth> 0.68"
Routed to Link AP2 : To Rail Trail

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-year Rainfall=2.94"

Area (sf)	CN	Description
228,440	70	Woods, Good, HSG C
228,440		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
0.6	59	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.2	523	0.0290	0.85		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.2	632	Total			

Summary for Subcatchment 103S: To Wetland

Runoff = 0.71 cfs @ 12.15 hrs, Volume= 2,865 cf, Depth> 0.68"
Routed to Link AP3 : To Wetland

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-year Rainfall=2.94"

Area (sf)	CN	Description
50,586	70	Woods, Good, HSG C
50,586		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
1.5	120	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.9	170	Total			

Summary for Subcatchment 104S: To Wetland

Runoff = 7.22 cfs @ 12.27 hrs, Volume= 39,980 cf, Depth> 0.51"
Routed to Link AP4 : To Wetland

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-year Rainfall=2.94"

Area (sf)	CN	Description
274,007	55	Woods, Good, HSG B
659,486	70	Woods, Good, HSG C
933,493	66	Weighted Average
933,493		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.1000	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
1.1	147	0.1840	2.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	139	0.0720	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.5	129	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	206	0.1650	2.03		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	45	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.4	716	Total			

Summary for Subcatchment 105S: To Wetland

Runoff = 8.58 cfs @ 12.27 hrs, Volume= 44,968 cf, Depth> 0.59"
Routed to Link AP5 : To Wetland

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-year Rainfall=2.94"

Area (sf)	CN	Description
119,671	55	Woods, Good, HSG B
790,354	70	Woods, Good, HSG C
910,025	68	Weighted Average
910,025		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
2.0	198	0.1060	1.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.7	219	0.0730	1.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	185	0.1080	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	107	0.2060	2.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	151	0.1190	1.72		**Shallow Concentrated Flow,** Kv= 5.0 fps
16.3	910	Total			

Summary for Link AP1: To Commercial Dr, R&T Hockey

Inflow Area = 19,371 sf, 0.00% Impervious, Inflow Depth > 2.49" for 2-year event
Inflow = 1.19 cfs @ 12.09 hrs, Volume= 4,022 cf
Primary = 1.19 cfs @ 12.09 hrs, Volume= 4,022 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP2: To Rail Trail

Inflow Area = 228,440 sf, 0.00% Impervious, Inflow Depth > 0.68" for 2-year event
Inflow = 2.49 cfs @ 12.30 hrs, Volume= 12,900 cf
Primary = 2.49 cfs @ 12.30 hrs, Volume= 12,900 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP3: To Wetland

Inflow Area = 50,586 sf, 0.00% Impervious, Inflow Depth > 0.68" for 2-year event
Inflow = 0.71 cfs @ 12.15 hrs, Volume= 2,865 cf
Primary = 0.71 cfs @ 12.15 hrs, Volume= 2,865 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP4: To Wetland

Inflow Area = 933,493 sf, 0.00% Impervious, Inflow Depth > 0.51" for 2-year event
Inflow = 7.22 cfs @ 12.27 hrs, Volume= 39,980 cf
Primary = 7.22 cfs @ 12.27 hrs, Volume= 39,980 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP5: To Wetland

Inflow Area = 910,025 sf, 0.00% Impervious, Inflow Depth > 0.59" for 2-year event
Inflow = 8.58 cfs @ 12.27 hrs, Volume= 44,968 cf
Primary = 8.58 cfs @ 12.27 hrs, Volume= 44,968 cf, Atten= 0%, Lag= 0.0 min

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

Subcatchment101S: To Commerical Drive Runoff Area=19,371 sf 0.00% Impervious Runoff Depth>3.86"
Tc=6.0 min CN=96 Runoff=1.80 cfs 6,239 cf

Subcatchment102S: To Rail Trail Runoff Area=228,440 sf 0.00% Impervious Runoff Depth>1.55"
Flow Length=632' Tc=18.2 min CN=70 Runoff=6.41 cfs 29,465 cf

Subcatchment103S: To Wetland Runoff Area=50,586 sf 0.00% Impervious Runoff Depth>1.55"
Flow Length=170' Tc=8.9 min CN=70 Runoff=1.81 cfs 6,541 cf

Subcatchment104S: To Wetland Runoff Area=933,493 sf 0.00% Impervious Runoff Depth>1.28"
Flow Length=716' Tc=15.4 min CN=66 Runoff=22.16 cfs 99,831 cf

Subcatchment105S: To Wetland Runoff Area=910,025 sf 0.00% Impervious Runoff Depth>1.41"
Flow Length=910' Tc=16.3 min CN=68 Runoff=23.86 cfs 107,162 cf

Link AP1: To Commercial Dr, R&T Hockey Inflow=1.80 cfs 6,239 cf
Primary=1.80 cfs 6,239 cf

Link AP2: To Rail Trail Inflow=6.41 cfs 29,465 cf
Primary=6.41 cfs 29,465 cf

Link AP3: To Wetland Inflow=1.81 cfs 6,541 cf
Primary=1.81 cfs 6,541 cf

Link AP4: To Wetland Inflow=22.16 cfs 99,831 cf
Primary=22.16 cfs 99,831 cf

Link AP5: To Wetland Inflow=23.86 cfs 107,162 cf
Primary=23.86 cfs 107,162 cf

Total Runoff Area = 2,141,915 sf Runoff Volume = 249,238 cf Average Runoff Depth = 1.40"
100.00% Pervious = 2,141,915 sf 0.00% Impervious = 0 sf

Summary for Subcatchment 101S: To Commerical Drive

Runoff = 1.80 cfs @ 12.09 hrs, Volume= 6,239 cf, Depth> 3.86"
Routed to Link AP1 : To Commercial Dr, R&T Hockey

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-year Rainfall=4.33"

Area (sf)	CN	Description
19,371	96	Gravel surface, HSG C
19,371		100.00% Pervious Area

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

Summary for Subcatchment 102S: To Rail Trail

Runoff = 6.41 cfs @ 12.27 hrs, Volume= 29,465 cf, Depth> 1.55"
Routed to Link AP2 : To Rail Trail

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-year Rainfall=4.33"

Area (sf)	CN	Description
228,440	70	Woods, Good, HSG C
228,440		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
0.6	59	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.2	523	0.0290	0.85		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.2	632	Total			

Summary for Subcatchment 103S: To Wetland

Runoff = 1.81 cfs @ 12.14 hrs, Volume= 6,541 cf, Depth> 1.55"
Routed to Link AP3 : To Wetland

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-year Rainfall=4.33"

Area (sf)	CN	Description
50,586	70	Woods, Good, HSG C
50,586		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
1.5	120	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.9	170	Total			

Summary for Subcatchment 104S: To Wetland

Runoff = 22.16 cfs @ 12.24 hrs, Volume= 99,831 cf, Depth> 1.28"
Routed to Link AP4 : To Wetland

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-year Rainfall=4.33"

Area (sf)	CN	Description
274,007	55	Woods, Good, HSG B
659,486	70	Woods, Good, HSG C
933,493	66	Weighted Average
933,493		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.1000	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
1.1	147	0.1840	2.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	139	0.0720	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.5	129	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	206	0.1650	2.03		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	45	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.4	716	Total			

Summary for Subcatchment 105S: To Wetland

Runoff = 23.86 cfs @ 12.25 hrs, Volume= 107,162 cf, Depth> 1.41"
Routed to Link AP5 : To Wetland

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-year Rainfall=4.33"

Area (sf)	CN	Description
119,671	55	Woods, Good, HSG B
790,354	70	Woods, Good, HSG C
910,025	68	Weighted Average
910,025		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
2.0	198	0.1060	1.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.7	219	0.0730	1.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	185	0.1080	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	107	0.2060	2.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	151	0.1190	1.72		**Shallow Concentrated Flow,** Kv= 5.0 fps
16.3	910	Total			

Summary for Link AP1: To Commercial Dr, R&T Hockey

Inflow Area = 19,371 sf, 0.00% Impervious, Inflow Depth > 3.86" for 10-year event
Inflow = 1.80 cfs @ 12.09 hrs, Volume= 6,239 cf
Primary = 1.80 cfs @ 12.09 hrs, Volume= 6,239 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP2: To Rail Trail

Inflow Area = 228,440 sf, 0.00% Impervious, Inflow Depth > 1.55" for 10-year event
Inflow = 6.41 cfs @ 12.27 hrs, Volume= 29,465 cf
Primary = 6.41 cfs @ 12.27 hrs, Volume= 29,465 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP3: To Wetland

Inflow Area = 50,586 sf, 0.00% Impervious, Inflow Depth > 1.55" for 10-year event
Inflow = 1.81 cfs @ 12.14 hrs, Volume= 6,541 cf
Primary = 1.81 cfs @ 12.14 hrs, Volume= 6,541 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP4: To Wetland

Inflow Area = 933,493 sf, 0.00% Impervious, Inflow Depth > 1.28" for 10-year event
Inflow = 22.16 cfs @ 12.24 hrs, Volume= 99,831 cf
Primary = 22.16 cfs @ 12.24 hrs, Volume= 99,831 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP5: To Wetland

Inflow Area = 910,025 sf, 0.00% Impervious, Inflow Depth > 1.41" for 10-year event
Inflow = 23.86 cfs @ 12.25 hrs, Volume= 107,162 cf
Primary = 23.86 cfs @ 12.25 hrs, Volume= 107,162 cf, Atten= 0%, Lag= 0.0 min

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

Subcatchment101S: To Commerical Drive Runoff Area=19,371 sf 0.00% Impervious Runoff Depth>4.92"
Tc=6.0 min CN=96 Runoff=2.26 cfs 7,938 cf

Subcatchment102S: To Rail Trail Runoff Area=228,440 sf 0.00% Impervious Runoff Depth>2.32"
Flow Length=632' Tc=18.2 min CN=70 Runoff=9.86 cfs 44,180 cf

Subcatchment103S: To Wetland Runoff Area=50,586 sf 0.00% Impervious Runoff Depth>2.33"
Flow Length=170' Tc=8.9 min CN=70 Runoff=2.78 cfs 9,805 cf

Subcatchment104S: To Wetland Runoff Area=933,493 sf 0.00% Impervious Runoff Depth>1.99"
Flow Length=716' Tc=15.4 min CN=66 Runoff=36.14 cfs 154,910 cf

Subcatchment105S: To Wetland Runoff Area=910,025 sf 0.00% Impervious Runoff Depth>2.15"
Flow Length=910' Tc=16.3 min CN=68 Runoff=37.60 cfs 163,362 cf

Link AP1: To Commercial Dr, R&T Hockey Inflow=2.26 cfs 7,938 cf
Primary=2.26 cfs 7,938 cf

Link AP2: To Rail Trail Inflow=9.86 cfs 44,180 cf
Primary=9.86 cfs 44,180 cf

Link AP3: To Wetland Inflow=2.78 cfs 9,805 cf
Primary=2.78 cfs 9,805 cf

Link AP4: To Wetland Inflow=36.14 cfs 154,910 cf
Primary=36.14 cfs 154,910 cf

Link AP5: To Wetland Inflow=37.60 cfs 163,362 cf
Primary=37.60 cfs 163,362 cf

Total Runoff Area = 2,141,915 sf Runoff Volume = 380,194 cf Average Runoff Depth = 2.13"
100.00% Pervious = 2,141,915 sf 0.00% Impervious = 0 sf

Summary for Subcatchment 101S: To Commerical Drive

Runoff = 2.26 cfs @ 12.09 hrs, Volume= 7,938 cf, Depth> 4.92"
Routed to Link AP1 : To Commercial Dr, R&T Hockey

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-year Rainfall=5.39"

Area (sf)	CN	Description
19,371	96	Gravel surface, HSG C
19,371		100.00% Pervious Area

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

Summary for Subcatchment 102S: To Rail Trail

Runoff = 9.86 cfs @ 12.26 hrs, Volume= 44,180 cf, Depth> 2.32"
Routed to Link AP2 : To Rail Trail

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-year Rainfall=5.39"

Area (sf)	CN	Description
228,440	70	Woods, Good, HSG C
228,440		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
0.6	59	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.2	523	0.0290	0.85		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.2	632	Total			

Summary for Subcatchment 103S: To Wetland

Runoff = 2.78 cfs @ 12.13 hrs, Volume= 9,805 cf, Depth> 2.33"
Routed to Link AP3 : To Wetland

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-year Rainfall=5.39"

Area (sf)	CN	Description
50,586	70	Woods, Good, HSG C
50,586		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
1.5	120	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.9	170	Total			

Summary for Subcatchment 104S: To Wetland

Runoff = 36.14 cfs @ 12.22 hrs, Volume= 154,910 cf, Depth> 1.99"
Routed to Link AP4 : To Wetland

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-year Rainfall=5.39"

Area (sf)	CN	Description
274,007	55	Woods, Good, HSG B
659,486	70	Woods, Good, HSG C
933,493	66	Weighted Average
933,493		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.1000	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
1.1	147	0.1840	2.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	139	0.0720	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.5	129	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	206	0.1650	2.03		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	45	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.4	716	Total			

Summary for Subcatchment 105S: To Wetland

Runoff = 37.60 cfs @ 12.24 hrs, Volume= 163,362 cf, Depth> 2.15"
Routed to Link AP5 : To Wetland

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-year Rainfall=5.39"

Area (sf)	CN	Description
119,671	55	Woods, Good, HSG B
790,354	70	Woods, Good, HSG C
910,025	68	Weighted Average
910,025		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
2.0	198	0.1060	1.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.7	219	0.0730	1.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	185	0.1080	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	107	0.2060	2.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	151	0.1190	1.72		**Shallow Concentrated Flow,** Kv= 5.0 fps
16.3	910	Total			

Summary for Link AP1: To Commercial Dr, R&T Hockey

Inflow Area = 19,371 sf, 0.00% Impervious, Inflow Depth > 4.92" for 25-year event
Inflow = 2.26 cfs @ 12.09 hrs, Volume= 7,938 cf
Primary = 2.26 cfs @ 12.09 hrs, Volume= 7,938 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP2: To Rail Trail

Inflow Area = 228,440 sf, 0.00% Impervious, Inflow Depth > 2.32" for 25-year event
Inflow = 9.86 cfs @ 12.26 hrs, Volume= 44,180 cf
Primary = 9.86 cfs @ 12.26 hrs, Volume= 44,180 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP3: To Wetland

Inflow Area = 50,586 sf, 0.00% Impervious, Inflow Depth > 2.33" for 25-year event
Inflow = 2.78 cfs @ 12.13 hrs, Volume= 9,805 cf
Primary = 2.78 cfs @ 12.13 hrs, Volume= 9,805 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP4: To Wetland

Inflow Area = 933,493 sf, 0.00% Impervious, Inflow Depth > 1.99" for 25-year event
Inflow = 36.14 cfs @ 12.22 hrs, Volume= 154,910 cf
Primary = 36.14 cfs @ 12.22 hrs, Volume= 154,910 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP5: To Wetland

Inflow Area = 910,025 sf, 0.00% Impervious, Inflow Depth > 2.15" for 25-year event
Inflow = 37.60 cfs @ 12.24 hrs, Volume= 163,362 cf
Primary = 37.60 cfs @ 12.24 hrs, Volume= 163,362 cf, Atten= 0%, Lag= 0.0 min

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

Subcatchment101S: To Commerical Drive Runoff Area=19,371 sf 0.00% Impervious Runoff Depth>7.06"
Tc=6.0 min CN=96 Runoff=3.19 cfs 11,393 cf

Subcatchment102S: To Rail Trail Runoff Area=228,440 sf 0.00% Impervious Runoff Depth>4.06"
Flow Length=632' Tc=18.2 min CN=70 Runoff=17.48 cfs 77,241 cf

Subcatchment103S: To Wetland Runoff Area=50,586 sf 0.00% Impervious Runoff Depth>4.07"
Flow Length=170' Tc=8.9 min CN=70 Runoff=4.92 cfs 17,138 cf

Subcatchment104S: To Wetland Runoff Area=933,493 sf 0.00% Impervious Runoff Depth>3.62"
Flow Length=716' Tc=15.4 min CN=66 Runoff=67.74 cfs 281,818 cf

Subcatchment105S: To Wetland Runoff Area=910,025 sf 0.00% Impervious Runoff Depth>3.84"
Flow Length=910' Tc=16.3 min CN=68 Runoff=68.46 cfs 291,181 cf

Link AP1: To Commercial Dr, R&T Hockey Inflow=3.19 cfs 11,393 cf
Primary=3.19 cfs 11,393 cf

Link AP2: To Rail Trail Inflow=17.48 cfs 77,241 cf
Primary=17.48 cfs 77,241 cf

Link AP3: To Wetland Inflow=4.92 cfs 17,138 cf
Primary=4.92 cfs 17,138 cf

Link AP4: To Wetland Inflow=67.74 cfs 281,818 cf
Primary=67.74 cfs 281,818 cf

Link AP5: To Wetland Inflow=68.46 cfs 291,181 cf
Primary=68.46 cfs 291,181 cf

Total Runoff Area = 2,141,915 sf Runoff Volume = 678,771 cf Average Runoff Depth = 3.80"
100.00% Pervious = 2,141,915 sf 0.00% Impervious = 0 sf

Summary for Subcatchment 101S: To Commerical Drive

Runoff = 3.19 cfs @ 12.09 hrs, Volume= 11,393 cf, Depth> 7.06"
Routed to Link AP1 : To Commercial Dr, R&T Hockey

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-year Rainfall=7.54"

Area (sf)	CN	Description
19,371	96	Gravel surface, HSG C
19,371		100.00% Pervious Area

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

Summary for Subcatchment 102S: To Rail Trail

Runoff = 17.48 cfs @ 12.25 hrs, Volume= 77,241 cf, Depth> 4.06"
Routed to Link AP2 : To Rail Trail

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-year Rainfall=7.54"

Area (sf)	CN	Description
228,440	70	Woods, Good, HSG C
228,440		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
0.6	59	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.2	523	0.0290	0.85		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.2	632	Total			

Summary for Subcatchment 103S: To Wetland

Runoff = 4.92 cfs @ 12.13 hrs, Volume= 17,138 cf, Depth> 4.07"
Routed to Link AP3 : To Wetland

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-year Rainfall=7.54"

Area (sf)	CN	Description
50,586	70	Woods, Good, HSG C
50,586		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
1.5	120	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.9	170	Total			

Summary for Subcatchment 104S: To Wetland

Runoff = 67.74 cfs @ 12.22 hrs, Volume= 281,818 cf, Depth> 3.62"
Routed to Link AP4 : To Wetland

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-year Rainfall=7.54"

Area (sf)	CN	Description
274,007	55	Woods, Good, HSG B
659,486	70	Woods, Good, HSG C
933,493	66	Weighted Average
933,493		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.1000	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
1.1	147	0.1840	2.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	139	0.0720	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.5	129	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	206	0.1650	2.03		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	45	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.4	716	Total			

Summary for Subcatchment 105S: To Wetland

Runoff = 68.46 cfs @ 12.23 hrs, Volume= 291,181 cf, Depth> 3.84"
Routed to Link AP5 : To Wetland

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-year Rainfall=7.54"

Area (sf)	CN	Description
119,671	55	Woods, Good, HSG B
790,354	70	Woods, Good, HSG C
910,025	68	Weighted Average
910,025		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
2.0	198	0.1060	1.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.7	219	0.0730	1.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	185	0.1080	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	107	0.2060	2.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	151	0.1190	1.72		**Shallow Concentrated Flow,** Kv= 5.0 fps
16.3	910	Total			

Summary for Link AP1: To Commercial Dr, R&T Hockey

Inflow Area = 19,371 sf, 0.00% Impervious, Inflow Depth > 7.06" for 100-year event
Inflow = 3.19 cfs @ 12.09 hrs, Volume= 11,393 cf
Primary = 3.19 cfs @ 12.09 hrs, Volume= 11,393 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP2: To Rail Trail

Inflow Area = 228,440 sf, 0.00% Impervious, Inflow Depth > 4.06" for 100-year event
Inflow = 17.48 cfs @ 12.25 hrs, Volume= 77,241 cf
Primary = 17.48 cfs @ 12.25 hrs, Volume= 77,241 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP3: To Wetland

Inflow Area = 50,586 sf, 0.00% Impervious, Inflow Depth > 4.07" for 100-year event
Inflow = 4.92 cfs @ 12.13 hrs, Volume= 17,138 cf
Primary = 4.92 cfs @ 12.13 hrs, Volume= 17,138 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP4: To Wetland

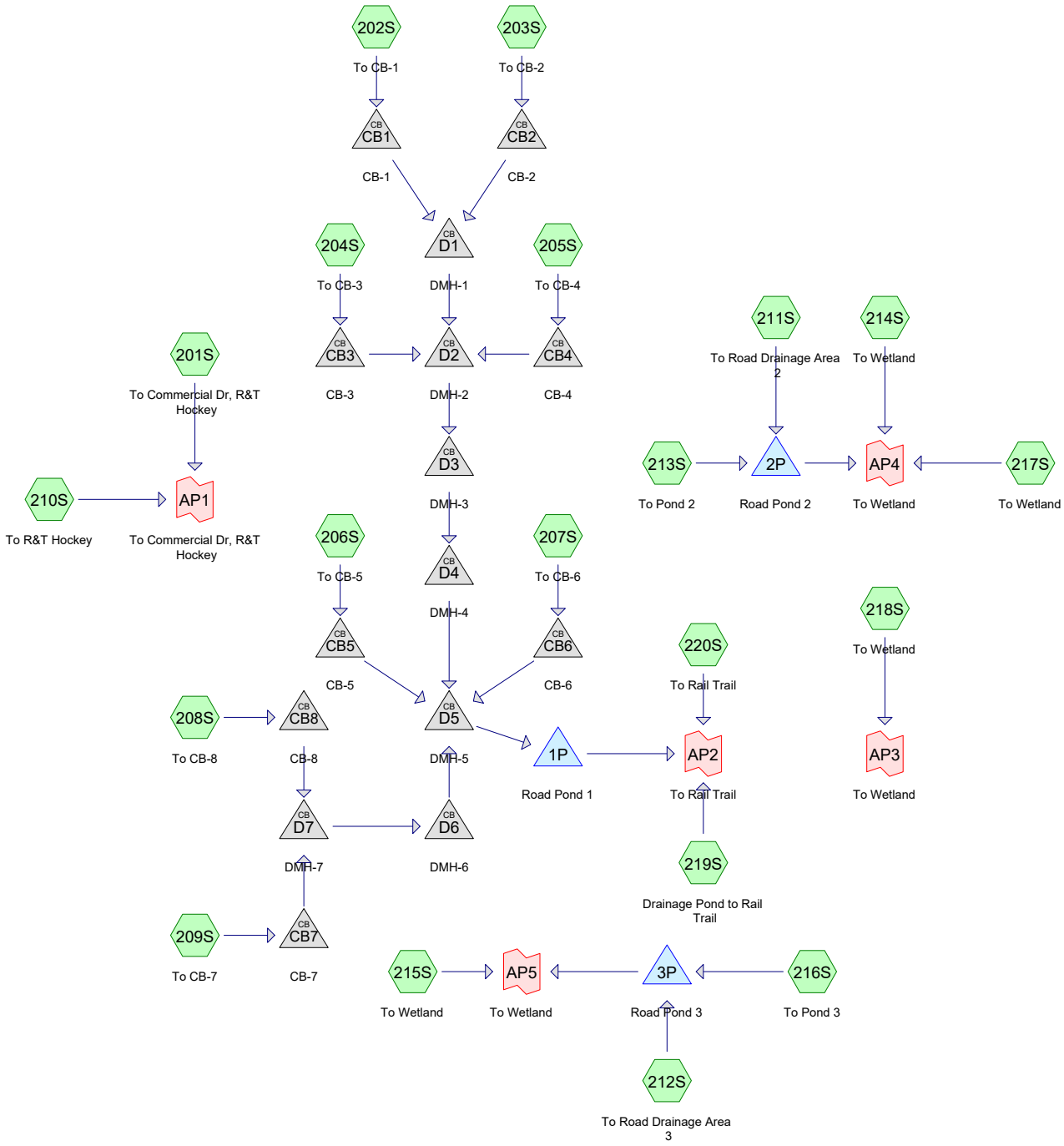
Inflow Area = 933,493 sf, 0.00% Impervious, Inflow Depth > 3.62" for 100-year event
Inflow = 67.74 cfs @ 12.22 hrs, Volume= 281,818 cf
Primary = 67.74 cfs @ 12.22 hrs, Volume= 281,818 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP5: To Wetland

Inflow Area = 910,025 sf, 0.00% Impervious, Inflow Depth > 3.84" for 100-year event
Inflow = 68.46 cfs @ 12.23 hrs, Volume= 291,181 cf
Primary = 68.46 cfs @ 12.23 hrs, Volume= 291,181 cf, Atten= 0%, Lag= 0.0 min

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



Routing Diagram for 21262-POST-DRAINAGE
Prepared by Howard Stein Hudson, Printed 7/25/2022
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Project Notes

Rainfall events imported from "21262 - Ex.hcp"

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-year	Type III 24-hr		Default	24.00	1	2.94	2
2	10-year	Type III 24-hr		Default	24.00	1	4.33	2
3	25-year	Type III 24-hr		Default	24.00	1	5.39	2
4	100-year	Type III 24-hr		Default	24.00	1	7.54	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
13,304	61	>75% Grass cover, Good, HSG B (213S, 214S, 215S, 216S)
96,419	74	>75% Grass cover, Good, HSG C (201S, 203S, 205S, 210S, 214S, 215S, 216S, 217S, 218S, 219S, 220S)
24	98	Paved roads w/curbs & sewers, HSG B (211S)
65,773	98	Paved roads w/curbs & sewers, HSG C (201S, 202S, 203S, 204S, 205S, 206S, 207S, 208S, 209S, 211S, 212S)
380,350	55	Woods, Good, HSG B (214S, 215S, 217S)
1,586,045	70	Woods, Good, HSG C (214S, 215S, 216S, 217S, 218S, 220S)
2,141,915	**68**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
393,678	HSG B	211S, 213S, 214S, 215S, 216S, 217S
1,748,237	HSG C	201S, 202S, 203S, 204S, 205S, 206S, 207S, 208S, 209S, 210S, 211S, 212S, 214S, 215S, 216S, 217S, 218S, 219S, 220S
0	HSG D	
0	Other	
2,141,915		**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
0	13,304	96,419	0	0	109,723	>75% Grass cover, Good
0	24	65,773	0	0	65,797	Paved roads w/curbs & sewers
0	380,350	1,586,045	0	0	1,966,395	Woods, Good
0	**393,678**	**1,748,237**	**0**	**0**	**2,141,915**	**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	CB1	1,109.21	1,109.15	12.0	0.0050	0.013	0.0	12.0	0.0
2	CB2	1,109.21	1,109.15	12.0	0.0050	0.013	0.0	12.0	0.0
3	CB3	1,110.49	1,110.43	12.7	0.0047	0.013	0.0	12.0	0.0
4	CB4	1,110.49	1,110.43	12.7	0.0047	0.013	0.0	12.0	0.0
5	CB5	1,109.57	1,109.49	15.4	0.0052	0.013	0.0	12.0	0.0
6	CB6	1,109.57	1,109.50	14.5	0.0048	0.013	0.0	12.0	0.0
7	CB7	1,112.39	1,112.32	14.1	0.0050	0.013	0.0	12.0	0.0
8	CB8	1,112.41	1,112.34	14.5	0.0048	0.013	0.0	12.0	0.0
9	D1	1,108.92	1,107.15	354.3	0.0050	0.013	0.0	15.0	0.0
10	D2	1,107.05	1,106.10	189.2	0.0050	0.013	0.0	15.0	0.0
11	D3	1,106.01	1,105.29	144.3	0.0050	0.013	0.0	15.0	0.0
12	D4	1,105.28	1,104.61	134.1	0.0050	0.013	0.0	15.0	0.0
13	D5	1,104.26	1,102.99	253.5	0.0050	0.013	0.0	18.0	0.0
14	D6	1,110.76	1,109.14	94.2	0.0172	0.013	0.0	12.0	0.0
15	D7	1,112.21	1,110.87	104.9	0.0128	0.013	0.0	12.0	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

Subcatchment201S: To Commercial Dr, Runoff Area=3,119 sf 62.68% Impervious Runoff Depth>1.84"
Flow Length=82' Tc=6.0 min CN=89 Runoff=0.15 cfs 479 cf

Subcatchment202S: To CB-1 Runoff Area=2,266 sf 100.00% Impervious Runoff Depth>2.71"
Flow Length=358' Slope=0.0150 '/' Tc=6.0 min CN=98 Runoff=0.14 cfs 511 cf

Subcatchment203S: To CB-2 Runoff Area=6,058 sf 37.39% Impervious Runoff Depth>1.40"
Flow Length=407' Slope=0.0150 '/' Tc=6.0 min CN=83 Runoff=0.22 cfs 705 cf

Subcatchment204S: To CB-3 Runoff Area=4,187 sf 100.00% Impervious Runoff Depth>2.71"
Flow Length=311' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=0.27 cfs 944 cf

Subcatchment205S: To CB-4 Runoff Area=7,599 sf 58.32% Impervious Runoff Depth>1.76"
Flow Length=311' Tc=6.0 min CN=88 Runoff=0.35 cfs 1,117 cf

Subcatchment206S: To CB-5 Runoff Area=6,098 sf 100.00% Impervious Runoff Depth>2.71"
Flow Length=220' Slope=0.0155 '/' Tc=6.0 min CN=98 Runoff=0.39 cfs 1,376 cf

Subcatchment207S: To CB-6 Runoff Area=5,975 sf 100.00% Impervious Runoff Depth>2.71"
Flow Length=217' Slope=0.0155 '/' Tc=6.0 min CN=98 Runoff=0.38 cfs 1,348 cf

Subcatchment208S: To CB-8 Runoff Area=3,556 sf 100.00% Impervious Runoff Depth>2.71"
Flow Length=300' Slope=0.0155 '/' Tc=6.0 min CN=98 Runoff=0.23 cfs 802 cf

Subcatchment209S: To CB-7 Runoff Area=3,563 sf 100.00% Impervious Runoff Depth>2.71"
Flow Length=300' Slope=0.0155 '/' Tc=6.0 min CN=98 Runoff=0.23 cfs 804 cf

Subcatchment210S: To R&T Hockey Runoff Area=1,621 sf 0.00% Impervious Runoff Depth>0.87"
Flow Length=13' Slope=0.3800 '/' Tc=6.0 min CN=74 Runoff=0.03 cfs 117 cf

Subcatchment211S: To Road Drainage Runoff Area=13,971 sf 100.00% Impervious Runoff Depth>2.71"
Flow Length=334' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=0.89 cfs 3,151 cf

Subcatchment212S: To Road Drainage Runoff Area=17,529 sf 100.00% Impervious Runoff Depth>2.71"
Flow Length=229' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=1.12 cfs 3,954 cf

Subcatchment213S: To Pond 2 Runoff Area=5,776 sf 0.00% Impervious Runoff Depth>0.34"
Tc=6.0 min CN=61 Runoff=0.03 cfs 165 cf

Subcatchment214S: To Wetland Runoff Area=626,578 sf 0.00% Impervious Runoff Depth>0.44"
Flow Length=716' Tc=15.4 min CN=64 Runoff=3.75 cfs 22,998 cf

Subcatchment215S: To Wetland Runoff Area=879,912 sf 0.00% Impervious Runoff Depth>0.59"
Flow Length=910' Tc=16.3 min CN=68 Runoff=8.30 cfs 43,480 cf

Subcatchment216S: To Pond 3 Runoff Area=24,310 sf 0.00% Impervious Runoff Depth>0.77"
Tc=6.0 min CN=72 Runoff=0.45 cfs 1,563 cf

Subcatchment217S: To Wetland Runoff Area=275,625 sf 0.00% Impervious Runoff Depth>0.63"
Flow Length=567' Tc=21.2 min CN=69 Runoff=2.59 cfs 14,556 cf

Subcatchment218S: To Wetland Runoff Area=34,561 sf 0.00% Impervious Runoff Depth>0.68"
Flow Length=79' Tc=8.6 min CN=70 Runoff=0.49 cfs 1,958 cf

Subcatchment219S: Drainage Pond to Rail Runoff Area=14,449 sf 0.00% Impervious Runoff Depth>0.87"
Tc=6.0 min CN=74 Runoff=0.31 cfs 1,047 cf

Subcatchment220S: To Rail Trail Runoff Area=205,162 sf 0.00% Impervious Runoff Depth>0.68"
Flow Length=698' Tc=22.3 min CN=70 Runoff=2.07 cfs 11,570 cf

Pond 1P: Road Pond 1 Peak Elev=1,102.40' Storage=2,936 cf Inflow=2.21 cfs 7,607 cf
Discarded=0.18 cfs 7,597 cf Primary=0.00 cfs 0 cf Outflow=0.18 cfs 7,597 cf

Pond 2P: Road Pond 2 Peak Elev=1,115.92' Storage=1,597 cf Inflow=0.91 cfs 3,316 cf
Discarded=0.05 cfs 2,570 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 2,570 cf

Pond 3P: Road Pond 3 Peak Elev=1,114.34' Storage=1,976 cf Inflow=1.56 cfs 5,517 cf
Discarded=0.14 cfs 5,509 cf Primary=0.00 cfs 0 cf Outflow=0.14 cfs 5,509 cf

Pond CB1: CB-1 Peak Elev=1,109.43' Inflow=0.14 cfs 511 cf
12.0" Round Culvert n=0.013 L=12.0' S=0.0050 '/' Outflow=0.14 cfs 511 cf

Pond CB2: CB-2 Peak Elev=1,109.49' Inflow=0.22 cfs 705 cf
12.0" Round Culvert n=0.013 L=12.0' S=0.0050 '/' Outflow=0.22 cfs 705 cf

Pond CB3: CB-3 Peak Elev=1,110.80' Inflow=0.27 cfs 944 cf
12.0" Round Culvert n=0.013 L=12.7' S=0.0047 '/' Outflow=0.27 cfs 944 cf

Pond CB4: CB-4 Peak Elev=1,110.85' Inflow=0.35 cfs 1,117 cf
12.0" Round Culvert n=0.013 L=12.7' S=0.0047 '/' Outflow=0.35 cfs 1,117 cf

Pond CB5: CB-5 Peak Elev=1,109.92' Inflow=0.39 cfs 1,376 cf
12.0" Round Culvert n=0.013 L=15.4' S=0.0052 '/' Outflow=0.39 cfs 1,376 cf

Pond CB6: CB-6 Peak Elev=1,109.94' Inflow=0.38 cfs 1,348 cf
12.0" Round Culvert n=0.013 L=14.5' S=0.0048 '/' Outflow=0.38 cfs 1,348 cf

Pond CB7: CB-7 Peak Elev=1,112.67' Inflow=0.23 cfs 804 cf
12.0" Round Culvert n=0.013 L=14.1' S=0.0050 '/' Outflow=0.23 cfs 804 cf

Pond CB8: CB-8 Peak Elev=1,112.69' Inflow=0.23 cfs 802 cf
12.0" Round Culvert n=0.013 L=14.5' S=0.0048 '/' Outflow=0.23 cfs 802 cf

Pond D1: DMH-1 Peak Elev=1,109.25' Inflow=0.37 cfs 1,216 cf
15.0" Round Culvert n=0.013 L=354.3' S=0.0050 '/' Outflow=0.37 cfs 1,216 cf

Pond D2: DMH-2 Peak Elev=1,107.59' Inflow=0.99 cfs 3,278 cf
15.0" Round Culvert n=0.013 L=189.2' S=0.0050 '/' Outflow=0.99 cfs 3,278 cf

Pond D3: DMH-3 Peak Elev=1,106.56' Inflow=0.99 cfs 3,278 cf
15.0" Round Culvert n=0.013 L=144.3' S=0.0050 '/' Outflow=0.99 cfs 3,278 cf

Pond D4: DMH-4 Peak Elev=1,105.82' Inflow=0.99 cfs 3,278 cf
15.0" Round Culvert n=0.013 L=134.1' S=0.0050 '/' Outflow=0.99 cfs 3,278 cf

Pond D5: DMH-5 Peak Elev=1,105.03' Inflow=2.21 cfs 7,607 cf
18.0" Round Culvert n=0.013 L=253.5' S=0.0050 '/' Outflow=2.21 cfs 7,607 cf

Pond D6: DMH-6 Peak Elev=1,111.10' Inflow=0.45 cfs 1,606 cf
12.0" Round Culvert n=0.013 L=94.2' S=0.0172 '/' Outflow=0.45 cfs 1,606 cf

Pond D7: DMH-7 Peak Elev=1,112.55' Inflow=0.45 cfs 1,606 cf
12.0" Round Culvert n=0.013 L=104.9' S=0.0128 '/' Outflow=0.45 cfs 1,606 cf

Link AP1: To Commercial Dr, R&T Hockey Inflow=0.19 cfs 597 cf
Primary=0.19 cfs 597 cf

Link AP2: To Rail Trail Inflow=2.22 cfs 12,617 cf
Primary=2.22 cfs 12,617 cf

Link AP3: To Wetland Inflow=0.49 cfs 1,958 cf
Primary=0.49 cfs 1,958 cf

Link AP4: To Wetland Inflow=6.30 cfs 37,554 cf
Primary=6.30 cfs 37,554 cf

Link AP5: To Wetland Inflow=8.30 cfs 43,480 cf
Primary=8.30 cfs 43,480 cf

Total Runoff Area = 2,141,915 sf Runoff Volume = 112,644 cf Average Runoff Depth = 0.63"
96.93% Pervious = 2,076,118 sf 3.07% Impervious = 65,797 sf

Summary for Subcatchment 201S: To Commercial Dr, R&T Hockey

Runoff = 0.15 cfs @ 12.09 hrs, Volume= 479 cf, Depth> 1.84"
Routed to Link AP1 : To Commercial Dr, R&T Hockey

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-year Rainfall=2.94"

Area (sf)	CN	Description
1,955	98	Paved roads w/curbs & sewers, HSG C
1,164	74	>75% Grass cover, Good, HSG C
3,119	89	Weighted Average
1,164		37.32% Pervious Area
1,955		62.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	25	0.3600	0.39		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.94"
0.4	25	0.0250	1.09		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.94"
0.2	32	0.0250	3.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.7	82	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 202S: To CB-1

Runoff = 0.14 cfs @ 12.09 hrs, Volume= 511 cf, Depth> 2.71"
Routed to Pond CB1 : CB-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-year Rainfall=2.94"

Area (sf)	CN	Description
2,266	98	Paved roads w/curbs & sewers, HSG C
2,266		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0150	1.02		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.94"
2.1	308	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.9	358	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 203S: To CB-2

Runoff = 0.22 cfs @ 12.09 hrs, Volume= 705 cf, Depth> 1.40"
Routed to Pond CB2 : CB-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-year Rainfall=2.94"

Area (sf)	CN	Description
2,265	98	Paved roads w/curbs & sewers, HSG C
3,793	74	>75% Grass cover, Good, HSG C
6,058	83	Weighted Average
3,793		62.61% Pervious Area
2,265		37.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0150	1.02		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
2.4	357	0.0150	2.49		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
3.2	407	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 204S: To CB-3

Runoff = 0.27 cfs @ 12.09 hrs, Volume= 944 cf, Depth> 2.71"
Routed to Pond CB3 : CB-3

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-year Rainfall=2.94"

Area (sf)	CN	Description
4,187	98	Paved roads w/curbs & sewers, HSG C
4,187		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0100	0.87		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
2.1	261	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
3.1	311	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 205S: To CB-4

Runoff = 0.35 cfs @ 12.09 hrs, Volume= 1,117 cf, Depth> 1.76"
Routed to Pond CB4 : CB-4

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-year Rainfall=2.94"

Area (sf)	CN	Description
4,432	98	Paved roads w/curbs & sewers, HSG C
3,167	74	>75% Grass cover, Good, HSG C
7,599	88	Weighted Average
3,167		41.68% Pervious Area
4,432		58.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	13	0.2000	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.94"
0.8	37	0.0100	0.82		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
2.1	261	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.7	311	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 206S: To CB-5

Runoff = 0.39 cfs @ 12.09 hrs, Volume= 1,376 cf, Depth> 2.71"
Routed to Pond CB5 : CB-5

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-year Rainfall=2.94"

Area (sf)	CN	Description
6,098	98	Paved roads w/curbs & sewers, HSG C
6,098		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0155	1.04		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.1	170	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.9	220	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 207S: To CB-6

Runoff = 0.38 cfs @ 12.09 hrs, Volume= 1,348 cf, Depth> 2.71"
Routed to Pond CB6 : CB-6

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-year Rainfall=2.94"

Area (sf)	CN	Description
5,975	98	Paved roads w/curbs & sewers, HSG C
5,975		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0155	1.04		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.1	167	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.9	217	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 208S: To CB-8

Runoff = 0.23 cfs @ 12.09 hrs, Volume= 802 cf, Depth> 2.71"
Routed to Pond CB8 : CB-8

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-year Rainfall=2.94"

Area (sf)	CN	Description
3,556	98	Paved roads w/curbs & sewers, HSG C
3,556		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0155	1.04		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.6	250	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.4	300	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 209S: To CB-7

Runoff = 0.23 cfs @ 12.09 hrs, Volume= 804 cf, Depth> 2.71"
Routed to Pond CB7 : CB-7

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-year Rainfall=2.94"

Area (sf)	CN	Description
3,563	98	Paved roads w/curbs & sewers, HSG C
3,563		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0155	1.04		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.6	250	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.4	300	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 210S: To R&T Hockey

Runoff = 0.03 cfs @ 12.10 hrs, Volume= 117 cf, Depth> 0.87"
Routed to Link AP1 : To Commercial Dr, R&T Hockey

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-year Rainfall=2.94"

Area (sf)	CN	Description
1,621	74	>75% Grass cover, Good, HSG C
1,621		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	13	0.3800	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.94"
0.6	13	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 211S: To Road Drainage Area 2

Runoff = 0.89 cfs @ 12.09 hrs, Volume= 3,151 cf, Depth> 2.71"
Routed to Pond 2P : Road Pond 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-year Rainfall=2.94"

Area (sf)	CN	Description
13,947	98	Paved roads w/curbs & sewers, HSG C
24	98	Paved roads w/curbs & sewers, HSG B
13,971	98	Weighted Average
13,971		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0100	0.87		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
2.3	284	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.3	334	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 212S: To Road Drainage Area 3

Runoff = 1.12 cfs @ 12.09 hrs, Volume= 3,954 cf, Depth> 2.71"
Routed to Pond 3P : Road Pond 3

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-year Rainfall=2.94"

Area (sf)	CN	Description
17,529	98	Paved roads w/curbs & sewers, HSG C
17,529		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0100	0.87		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.5	179	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.5	229	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 213S: To Pond 2

Runoff = 0.03 cfs @ 12.15 hrs, Volume= 165 cf, Depth> 0.34"
Routed to Pond 2P : Road Pond 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-year Rainfall=2.94"

Area (sf)	CN	Description
5,776	61	>75% Grass cover, Good, HSG B
5,776		100.00% Pervious Area

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

Summary for Subcatchment 214S: To Wetland

Runoff = 3.75 cfs @ 12.30 hrs, Volume= 22,998 cf, Depth> 0.44"
Routed to Link AP4 : To Wetland

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-year Rainfall=2.94"

Area (sf)	CN	Description
31,503	74	>75% Grass cover, Good, HSG C
242,166	55	Woods, Good, HSG B
349,931	70	Woods, Good, HSG C
2,978	61	>75% Grass cover, Good, HSG B
626,578	64	Weighted Average
626,578		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.1000	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
1.1	147	0.1840	2.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	139	0.0720	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.5	129	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	206	0.1650	2.03		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	45	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.4	716	Total			

Summary for Subcatchment 215S: To Wetland

Runoff = 8.30 cfs @ 12.27 hrs, Volume= 43,480 cf, Depth> 0.59"
Routed to Link AP5 : To Wetland

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-year Rainfall=2.94"

Area (sf)	CN	Description
8,135	74	>75% Grass cover, Good, HSG C
115,155	55	Woods, Good, HSG B
753,737	70	Woods, Good, HSG C
2,885	61	>75% Grass cover, Good, HSG B
879,912	68	Weighted Average
879,912		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.94"
2.0	198	0.1060	1.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.7	219	0.0730	1.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	185	0.1080	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	107	0.2060	2.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	151	0.1190	1.72		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.3	910	Total			

Summary for Subcatchment 216S: To Pond 3

Runoff = 0.45 cfs @ 12.10 hrs, Volume= 1,563 cf, Depth> 0.77"
Routed to Pond 3P : Road Pond 3

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-year Rainfall=2.94"

Area (sf)	CN	Description
1,665	61	>75% Grass cover, Good, HSG B
13,486	74	>75% Grass cover, Good, HSG C
9,159	70	Woods, Good, HSG C
24,310	72	Weighted Average
24,310		100.00% Pervious Area

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

Summary for Subcatchment 217S: To Wetland

Runoff = 2.59 cfs @ 12.35 hrs, Volume= 14,556 cf, Depth> 0.63"
Routed to Link AP4 : To Wetland

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-year Rainfall=2.94"

Area (sf)	CN	Description
5,942	74	>75% Grass cover, Good, HSG C
23,029	55	Woods, Good, HSG B
246,654	70	Woods, Good, HSG C
275,625	69	Weighted Average
275,625		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	50	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
2.0	135	0.0520	1.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.4	152	0.0130	0.57		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	37	0.2160	2.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	133	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	60	0.0330	0.91		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.2	567	Total			

Summary for Subcatchment 218S: To Wetland

Runoff = 0.49 cfs @ 12.15 hrs, Volume= 1,958 cf, Depth> 0.68"
Routed to Link AP3 : To Wetland

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-year Rainfall=2.94"

Area (sf)	CN	Description
3,078	74	>75% Grass cover, Good, HSG C
31,483	70	Woods, Good, HSG C
34,561	70	Weighted Average
34,561		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0600	0.10		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.94"
0.3	29	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.6	79	Total			

Summary for Subcatchment 219S: Drainage Pond to Rail Trail

Runoff = 0.31 cfs @ 12.10 hrs, Volume= 1,047 cf, Depth> 0.87"
Routed to Link AP2 : To Rail Trail

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-year Rainfall=2.94"

Area (sf)	CN	Description
14,449	74	>75% Grass cover, Good, HSG C
14,449		100.00% Pervious Area

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

Summary for Subcatchment 220S: To Rail Trail

Runoff = 2.07 cfs @ 12.36 hrs, Volume= 11,570 cf, Depth> 0.68"
Routed to Link AP2 : To Rail Trail

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-year Rainfall=2.94"

Area (sf)	CN	Description
195,081	70	Woods, Good, HSG C
10,081	74	>75% Grass cover, Good, HSG C
205,162	70	Weighted Average
205,162		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
0.6	59	0.1190	1.72		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	83	0.0480	1.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.7	178	0.0110	0.52		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.1	116	0.0340	0.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.5	104	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	108	0.0460	1.07		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.3	698	Total			

Summary for Pond 1P: Road Pond 1

Inflow Area = 39,302 sf, 82.29% Impervious, Inflow Depth > 2.32" for 2-year event
Inflow = 2.21 cfs @ 12.09 hrs, Volume= 7,607 cf
Outflow = 0.18 cfs @ 13.12 hrs, Volume= 7,597 cf, Atten= 92%, Lag= 61.8 min
Discarded = 0.18 cfs @ 13.12 hrs, Volume= 7,597 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link AP2 : To Rail Trail

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,102.40' @ 13.12 hrs Surf.Area= 7,622 sf Storage= 2,936 cf

Plug-Flow detention time= 130.5 min calculated for 7,582 cf (100% of inflow)
Center-of-Mass det. time= 129.4 min (903.3 - 773.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,102.00'	21,291 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,102.00	7,209	0	0
1,104.00	9,295	16,504	16,504
1,104.50	9,852	4,787	21,291

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,102.00'	**1.020 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	1,103.40'	**10.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.18 cfs @ 13.12 hrs HW=1,102.40' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,102.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Road Pond 2

Inflow Area = 19,747 sf, 70.75% Impervious, Inflow Depth > 2.02" for 2-year event
Inflow = 0.91 cfs @ 12.09 hrs, Volume= 3,316 cf
Outflow = 0.05 cfs @ 14.56 hrs, Volume= 2,570 cf, Atten= 95%, Lag= 148.3 min
Discarded = 0.05 cfs @ 14.56 hrs, Volume= 2,570 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link AP4 : To Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,115.92' @ 14.56 hrs Surf.Area= 1,953 sf Storage= 1,597 cf

Plug-Flow detention time= 254.9 min calculated for 2,570 cf (78% of inflow)
Center-of-Mass det. time= 171.3 min (937.4 - 766.1)

Volume	Invert	Avail.Storage	Storage Description
#1	1,115.00'	7,309 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,115.00	1,503	0	0
1,116.00	1,990	1,747	1,747
1,117.00	3,000	2,495	4,242
1,118.00	3,134	3,067	7,309

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,115.00'	**1.020 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	1,116.50'	**10.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.05 cfs @ 14.56 hrs HW=1,115.92' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,115.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: Road Pond 3

Inflow Area = 41,839 sf, 41.90% Impervious, Inflow Depth > 1.58" for 2-year event
Inflow = 1.56 cfs @ 12.09 hrs, Volume= 5,517 cf
Outflow = 0.14 cfs @ 13.11 hrs, Volume= 5,509 cf, Atten= 91%, Lag= 61.2 min
Discarded = 0.14 cfs @ 13.11 hrs, Volume= 5,509 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link AP5 : To Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,114.34' @ 13.11 hrs Surf.Area= 6,088 sf Storage= 1,976 cf

Plug-Flow detention time= 111.7 min calculated for 5,509 cf (100% of inflow)
Center-of-Mass det. time= 110.8 min (901.5 - 790.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,114.00'	13,834 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,114.00	5,669	0	0
1,116.00	8,165	13,834	13,834

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,114.00'	**1.020 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	1,115.00'	**10.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.14 cfs @ 13.11 hrs HW=1,114.34' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,114.00' TW=0.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond CB1: CB-1

Inflow Area = 2,266 sf,100.00% Impervious, Inflow Depth > 2.71" for 2-year event
Inflow = 0.14 cfs @ 12.09 hrs, Volume= 511 cf
Outflow = 0.14 cfs @ 12.09 hrs, Volume= 511 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 12.09 hrs, Volume= 511 cf
Routed to Pond D1 : DMH-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,109.43' @ 12.09 hrs
Flood Elev= 1,112.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,109.21'	**12.0" Round Culvert** L= 12.0' Ke= 0.500 Inlet / Outlet Invert= 1,109.21' / 1,109.15' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.14 cfs @ 12.09 hrs HW=1,109.43' TW=1,109.24' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.14 cfs @ 1.64 fps)

Summary for Pond CB2: CB-2

Inflow Area = 6,058 sf, 37.39% Impervious, Inflow Depth > 1.40" for 2-year event
Inflow = 0.22 cfs @ 12.09 hrs, Volume= 705 cf
Outflow = 0.22 cfs @ 12.09 hrs, Volume= 705 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.22 cfs @ 12.09 hrs, Volume= 705 cf
Routed to Pond D1 : DMH-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,109.49' @ 12.09 hrs
Flood Elev= 1,112.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,109.21'	**12.0" Round Culvert** L= 12.0' Ke= 0.500 Inlet / Outlet Invert= 1,109.21' / 1,109.15' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.22 cfs @ 12.09 hrs HW=1,109.49' TW=1,109.25' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.22 cfs @ 1.85 fps)

Summary for Pond CB3: CB-3

Inflow Area = 4,187 sf,100.00% Impervious, Inflow Depth > 2.71" for 2-year event
Inflow = 0.27 cfs @ 12.09 hrs, Volume= 944 cf
Outflow = 0.27 cfs @ 12.09 hrs, Volume= 944 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.27 cfs @ 12.09 hrs, Volume= 944 cf
Routed to Pond D2 : DMH-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,110.80' @ 12.09 hrs
Flood Elev= 1,113.66'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,110.49'	**12.0" Round Culvert** L= 12.7' Ke= 0.500 Inlet / Outlet Invert= 1,110.49' / 1,110.43' S= 0.0047 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.26 cfs @ 12.09 hrs HW=1,110.80' TW=1,107.58' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.26 cfs @ 1.91 fps)

Summary for Pond CB4: CB-4

Inflow Area = 7,599 sf, 58.32% Impervious, Inflow Depth > 1.76" for 2-year event
Inflow = 0.35 cfs @ 12.09 hrs, Volume= 1,117 cf
Outflow = 0.35 cfs @ 12.09 hrs, Volume= 1,117 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 12.09 hrs, Volume= 1,117 cf
Routed to Pond D2 : DMH-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,110.85' @ 12.09 hrs
Flood Elev= 1,113.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,110.49'	**12.0" Round Culvert** L= 12.7' Ke= 0.500 Inlet / Outlet Invert= 1,110.49' / 1,110.43' S= 0.0047 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.35 cfs @ 12.09 hrs HW=1,110.85' TW=1,107.58' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.35 cfs @ 2.06 fps)

Summary for Pond CB5: CB-5

Inflow Area = 6,098 sf,100.00% Impervious, Inflow Depth > 2.71" for 2-year event
Inflow = 0.39 cfs @ 12.09 hrs, Volume= 1,376 cf
Outflow = 0.39 cfs @ 12.09 hrs, Volume= 1,376 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.39 cfs @ 12.09 hrs, Volume= 1,376 cf
Routed to Pond D5 : DMH-5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,109.92' @ 12.09 hrs
Flood Elev= 1,112.73'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,109.57'	**12.0" Round Culvert** L= 15.4' Ke= 0.050 Inlet / Outlet Invert= 1,109.57' / 1,109.49' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.38 cfs @ 12.09 hrs HW=1,109.92' TW=1,105.01' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.38 cfs @ 2.32 fps)

Summary for Pond CB6: CB-6

Inflow Area = 5,975 sf,100.00% Impervious, Inflow Depth > 2.71" for 2-year event
Inflow = 0.38 cfs @ 12.09 hrs, Volume= 1,348 cf
Outflow = 0.38 cfs @ 12.09 hrs, Volume= 1,348 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 12.09 hrs, Volume= 1,348 cf
Routed to Pond D5 : DMH-5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,109.94' @ 12.09 hrs
Flood Elev= 1,112.73'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,109.57'	**12.0" Round Culvert** L= 14.5' Ke= 0.500 Inlet / Outlet Invert= 1,109.57' / 1,109.50' S= 0.0048 '/' 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=1,109.94' TW=1,105.01' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.37 cfs @ 2.11 fps)

Summary for Pond CB7: CB-7

Inflow Area = 3,563 sf,100.00% Impervious, Inflow Depth > 2.71" for 2-year event
Inflow = 0.23 cfs @ 12.09 hrs, Volume= 804 cf
Outflow = 0.23 cfs @ 12.09 hrs, Volume= 804 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.23 cfs @ 12.09 hrs, Volume= 804 cf
Routed to Pond D7 : DMH-7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,112.67' @ 12.09 hrs
Flood Elev= 1,115.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,112.39'	**12.0" Round Culvert** L= 14.1' Ke= 0.500 Inlet / Outlet Invert= 1,112.39' / 1,112.32' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.21 cfs @ 12.09 hrs HW=1,112.67' TW=1,112.54' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.21 cfs @ 1.78 fps)

Summary for Pond CB8: CB-8

Inflow Area = 3,556 sf,100.00% Impervious, Inflow Depth > 2.71" for 2-year event
Inflow = 0.23 cfs @ 12.09 hrs, Volume= 802 cf
Outflow = 0.23 cfs @ 12.09 hrs, Volume= 802 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.23 cfs @ 12.09 hrs, Volume= 802 cf
Routed to Pond D7 : DMH-7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,112.69' @ 12.09 hrs
Flood Elev= 1,115.58'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,112.41'	**12.0" Round Culvert** L= 14.5' Ke= 0.500 Inlet / Outlet Invert= 1,112.41' / 1,112.34' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.22 cfs @ 12.09 hrs HW=1,112.69' TW=1,112.54' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.22 cfs @ 1.85 fps)

Summary for Pond D1: DMH-1

Inflow Area = 8,324 sf, 54.43% Impervious, Inflow Depth > 1.75" for 2-year event
Inflow = 0.37 cfs @ 12.09 hrs, Volume= 1,216 cf
Outflow = 0.37 cfs @ 12.09 hrs, Volume= 1,216 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.37 cfs @ 12.09 hrs, Volume= 1,216 cf
Routed to Pond D2 : DMH-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,109.25' @ 12.09 hrs
Flood Elev= 1,112.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,108.92'	**15.0" Round Culvert** L= 354.3' Ke= 0.500 Inlet / Outlet Invert= 1,108.92' / 1,107.15' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.36 cfs @ 12.09 hrs HW=1,109.24' TW=1,107.58' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.36 cfs @ 2.11 fps)

Summary for Pond D2: DMH-2

Inflow Area = 20,110 sf, 65.39% Impervious, Inflow Depth > 1.96" for 2-year event
Inflow = 0.99 cfs @ 12.09 hrs, Volume= 3,278 cf
Outflow = 0.99 cfs @ 12.09 hrs, Volume= 3,278 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.99 cfs @ 12.09 hrs, Volume= 3,278 cf
Routed to Pond D3 : DMH-3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,107.59' @ 12.09 hrs
Flood Elev= 1,116.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,107.05'	**15.0" Round Culvert** L= 189.2' Ke= 0.500 Inlet / Outlet Invert= 1,107.05' / 1,106.10' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.95 cfs @ 12.09 hrs HW=1,107.58' TW=1,106.56' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.95 cfs @ 2.81 fps)

Summary for Pond D3: DMH-3

Inflow Area = 20,110 sf, 65.39% Impervious, Inflow Depth > 1.96" for 2-year event
Inflow = 0.99 cfs @ 12.09 hrs, Volume= 3,278 cf
Outflow = 0.99 cfs @ 12.09 hrs, Volume= 3,278 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.99 cfs @ 12.09 hrs, Volume= 3,278 cf
Routed to Pond D4 : DMH-4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,106.56' @ 12.10 hrs
Flood Elev= 1,114.83'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,106.01'	**15.0" Round Culvert** L= 144.3' Ke= 0.500 Inlet / Outlet Invert= 1,106.01' / 1,105.29' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.94 cfs @ 12.09 hrs HW=1,106.56' TW=1,105.81' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 0.94 cfs @ 2.70 fps)

Summary for Pond D4: DMH-4

Inflow Area = 20,110 sf, 65.39% Impervious, Inflow Depth > 1.96" for 2-year event
Inflow = 0.99 cfs @ 12.09 hrs, Volume= 3,278 cf
Outflow = 0.99 cfs @ 12.09 hrs, Volume= 3,278 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.99 cfs @ 12.09 hrs, Volume= 3,278 cf
Routed to Pond D5 : DMH-5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,105.82' @ 12.09 hrs
Flood Elev= 1,113.59'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,105.28'	**15.0" Round Culvert** L= 134.1' Ke= 0.500 Inlet / Outlet Invert= 1,105.28' / 1,104.61' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.96 cfs @ 12.09 hrs HW=1,105.81' TW=1,105.02' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.96 cfs @ 2.84 fps)

Summary for Pond D5: DMH-5

Inflow Area = 39,302 sf, 82.29% Impervious, Inflow Depth > 2.32" for 2-year event
Inflow = 2.21 cfs @ 12.09 hrs, Volume= 7,607 cf
Outflow = 2.21 cfs @ 12.09 hrs, Volume= 7,607 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.21 cfs @ 12.09 hrs, Volume= 7,607 cf
Routed to Pond 1P : Road Pond 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,105.03' @ 12.09 hrs
Flood Elev= 1,112.98'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,104.26'	**18.0" Round Culvert** L= 253.5' Ke= 0.500 Inlet / Outlet Invert= 1,104.26' / 1,102.99' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.16 cfs @ 12.09 hrs HW=1,105.02' TW=1,102.19' (Dynamic Tailwater)
1=Culvert (Barrel Controls 2.16 cfs @ 3.53 fps)

Summary for Pond D6: DMH-6

Inflow Area = 7,119 sf,100.00% Impervious, Inflow Depth > 2.71" for 2-year event
Inflow = 0.45 cfs @ 12.09 hrs, Volume= 1,606 cf
Outflow = 0.45 cfs @ 12.09 hrs, Volume= 1,606 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.45 cfs @ 12.09 hrs, Volume= 1,606 cf
Routed to Pond D5 : DMH-5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,111.10' @ 12.09 hrs
Flood Elev= 1,114.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,110.76'	**12.0" Round Culvert** L= 94.2' Ke= 0.500 Inlet / Outlet Invert= 1,110.76' / 1,109.14' S= 0.0172 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.44 cfs @ 12.09 hrs HW=1,111.09' TW=1,105.01' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.44 cfs @ 1.96 fps)

Summary for Pond D7: DMH-7

Inflow Area = 7,119 sf,100.00% Impervious, Inflow Depth > 2.71" for 2-year event
Inflow = 0.45 cfs @ 12.09 hrs, Volume= 1,606 cf
Outflow = 0.45 cfs @ 12.09 hrs, Volume= 1,606 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.45 cfs @ 12.09 hrs, Volume= 1,606 cf
Routed to Pond D6 : DMH-6

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,112.55' @ 12.09 hrs
Flood Elev= 1,115.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,112.21'	**12.0" Round Culvert** L= 104.9' Ke= 0.500 Inlet / Outlet Invert= 1,112.21' / 1,110.87' S= 0.0128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.44 cfs @ 12.09 hrs HW=1,112.54' TW=1,111.09' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.44 cfs @ 1.96 fps)

Summary for Link AP1: To Commercial Dr, R&T Hockey

Inflow Area = 4,740 sf, 41.24% Impervious, Inflow Depth > 1.51" for 2-year event
Inflow = 0.19 cfs @ 12.09 hrs, Volume= 597 cf
Primary = 0.19 cfs @ 12.09 hrs, Volume= 597 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP2: To Rail Trail

Inflow Area = 258,913 sf, 12.49% Impervious, Inflow Depth > 0.58" for 2-year event
Inflow = 2.22 cfs @ 12.36 hrs, Volume= 12,617 cf
Primary = 2.22 cfs @ 12.36 hrs, Volume= 12,617 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP3: To Wetland

Inflow Area = 34,561 sf, 0.00% Impervious, Inflow Depth > 0.68" for 2-year event
Inflow = 0.49 cfs @ 12.15 hrs, Volume= 1,958 cf
Primary = 0.49 cfs @ 12.15 hrs, Volume= 1,958 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP4: To Wetland

Inflow Area = 921,950 sf, 1.52% Impervious, Inflow Depth > 0.49" for 2-year event
Inflow = 6.30 cfs @ 12.32 hrs, Volume= 37,554 cf
Primary = 6.30 cfs @ 12.32 hrs, Volume= 37,554 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP5: To Wetland

Inflow Area = 921,751 sf, 1.90% Impervious, Inflow Depth > 0.57" for 2-year event
Inflow = 8.30 cfs @ 12.27 hrs, Volume= 43,480 cf
Primary = 8.30 cfs @ 12.27 hrs, Volume= 43,480 cf, Atten= 0%, Lag= 0.0 min

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

Subcatchment201S: To Commercial Dr, Runoff Area=3,119 sf 62.68% Impervious Runoff Depth>3.13"
Flow Length=82' Tc=6.0 min CN=89 Runoff=0.25 cfs 814 cf

Subcatchment202S: To CB-1 Runoff Area=2,266 sf 100.00% Impervious Runoff Depth>4.09"
Flow Length=358' Slope=0.0150 '/' Tc=6.0 min CN=98 Runoff=0.21 cfs 773 cf

Subcatchment203S: To CB-2 Runoff Area=6,058 sf 37.39% Impervious Runoff Depth>2.57"
Flow Length=407' Slope=0.0150 '/' Tc=6.0 min CN=83 Runoff=0.41 cfs 1,299 cf

Subcatchment204S: To CB-3 Runoff Area=4,187 sf 100.00% Impervious Runoff Depth>4.09"
Flow Length=311' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=0.40 cfs 1,428 cf

Subcatchment205S: To CB-4 Runoff Area=7,599 sf 58.32% Impervious Runoff Depth>3.03"
Flow Length=311' Tc=6.0 min CN=88 Runoff=0.60 cfs 1,921 cf

Subcatchment206S: To CB-5 Runoff Area=6,098 sf 100.00% Impervious Runoff Depth>4.09"
Flow Length=220' Slope=0.0155 '/' Tc=6.0 min CN=98 Runoff=0.58 cfs 2,079 cf

Subcatchment207S: To CB-6 Runoff Area=5,975 sf 100.00% Impervious Runoff Depth>4.09"
Flow Length=217' Slope=0.0155 '/' Tc=6.0 min CN=98 Runoff=0.57 cfs 2,037 cf

Subcatchment208S: To CB-8 Runoff Area=3,556 sf 100.00% Impervious Runoff Depth>4.09"
Flow Length=300' Slope=0.0155 '/' Tc=6.0 min CN=98 Runoff=0.34 cfs 1,213 cf

Subcatchment209S: To CB-7 Runoff Area=3,563 sf 100.00% Impervious Runoff Depth>4.09"
Flow Length=300' Slope=0.0155 '/' Tc=6.0 min CN=98 Runoff=0.34 cfs 1,215 cf

Subcatchment210S: To R&T Hockey Runoff Area=1,621 sf 0.00% Impervious Runoff Depth>1.84"
Flow Length=13' Slope=0.3800 '/' Tc=6.0 min CN=74 Runoff=0.08 cfs 249 cf

Subcatchment211S: To Road Drainage Runoff Area=13,971 sf 100.00% Impervious Runoff Depth>4.09"
Flow Length=334' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=1.32 cfs 4,764 cf

Subcatchment212S: To Road Drainage Runoff Area=17,529 sf 100.00% Impervious Runoff Depth>4.09"
Flow Length=229' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=1.66 cfs 5,977 cf

Subcatchment213S: To Pond 2 Runoff Area=5,776 sf 0.00% Impervious Runoff Depth>0.98"
Tc=6.0 min CN=61 Runoff=0.13 cfs 474 cf

Subcatchment214S: To Wetland Runoff Area=626,578 sf 0.00% Impervious Runoff Depth>1.16"
Flow Length=716' Tc=15.4 min CN=64 Runoff=13.07 cfs 60,495 cf

Subcatchment215S: To Wetland Runoff Area=879,912 sf 0.00% Impervious Runoff Depth>1.41"
Flow Length=910' Tc=16.3 min CN=68 Runoff=23.07 cfs 103,616 cf

Subcatchment216S: To Pond 3 Runoff Area=24,310 sf 0.00% Impervious Runoff Depth>1.69"
Tc=6.0 min CN=72 Runoff=1.07 cfs 3,432 cf

Subcatchment217S: To Wetland Runoff Area=275,625 sf 0.00% Impervious Runoff Depth>1.48"
Flow Length=567' Tc=21.2 min CN=69 Runoff=6.89 cfs 33,952 cf

Subcatchment218S: To Wetland Runoff Area=34,561 sf 0.00% Impervious Runoff Depth>1.55"
Flow Length=79' Tc=8.6 min CN=70 Runoff=1.25 cfs 4,469 cf

Subcatchment219S: Drainage Pond to Rail Runoff Area=14,449 sf 0.00% Impervious Runoff Depth>1.84"
Tc=6.0 min CN=74 Runoff=0.69 cfs 2,216 cf

Subcatchment220S: To Rail Trail Runoff Area=205,162 sf 0.00% Impervious Runoff Depth>1.55"
Flow Length=698' Tc=22.3 min CN=70 Runoff=5.29 cfs 26,434 cf

Pond 1P: Road Pond 1 Peak Elev=1,102.72' Storage=5,444 cf Inflow=3.44 cfs 11,965 cf
Discarded=0.19 cfs 10,479 cf Primary=0.00 cfs 0 cf Outflow=0.19 cfs 10,479 cf

Pond 2P: Road Pond 2 Peak Elev=1,116.50' Storage=2,862 cf Inflow=1.45 cfs 5,238 cf
Discarded=0.06 cfs 3,265 cf Primary=0.00 cfs 0 cf Outflow=0.06 cfs 3,265 cf

Pond 3P: Road Pond 3 Peak Elev=1,114.69' Storage=4,235 cf Inflow=2.72 cfs 9,409 cf
Discarded=0.15 cfs 8,160 cf Primary=0.00 cfs 0 cf Outflow=0.15 cfs 8,160 cf

Pond CB1: CB-1 Peak Elev=1,109.48' Inflow=0.21 cfs 773 cf
12.0" Round Culvert n=0.013 L=12.0' S=0.0050 '/' Outflow=0.21 cfs 773 cf

Pond CB2: CB-2 Peak Elev=1,109.60' Inflow=0.41 cfs 1,299 cf
12.0" Round Culvert n=0.013 L=12.0' S=0.0050 '/' Outflow=0.41 cfs 1,299 cf

Pond CB3: CB-3 Peak Elev=1,110.87' Inflow=0.40 cfs 1,428 cf
12.0" Round Culvert n=0.013 L=12.7' S=0.0047 '/' Outflow=0.40 cfs 1,428 cf

Pond CB4: CB-4 Peak Elev=1,110.97' Inflow=0.60 cfs 1,921 cf
12.0" Round Culvert n=0.013 L=12.7' S=0.0047 '/' Outflow=0.60 cfs 1,921 cf

Pond CB5: CB-5 Peak Elev=1,110.00' Inflow=0.58 cfs 2,079 cf
12.0" Round Culvert n=0.013 L=15.4' S=0.0052 '/' Outflow=0.58 cfs 2,079 cf

Pond CB6: CB-6 Peak Elev=1,110.03' Inflow=0.57 cfs 2,037 cf
12.0" Round Culvert n=0.013 L=14.5' S=0.0048 '/' Outflow=0.57 cfs 2,037 cf

Pond CB7: CB-7 Peak Elev=1,112.75' Inflow=0.34 cfs 1,215 cf
12.0" Round Culvert n=0.013 L=14.1' S=0.0050 '/' Outflow=0.34 cfs 1,215 cf

Pond CB8: CB-8 Peak Elev=1,112.76' Inflow=0.34 cfs 1,213 cf
12.0" Round Culvert n=0.013 L=14.5' S=0.0048 '/' Outflow=0.34 cfs 1,213 cf

Pond D1: DMH-1 Peak Elev=1,109.35' Inflow=0.63 cfs 2,072 cf
15.0" Round Culvert n=0.013 L=354.3' S=0.0050 '/' Outflow=0.63 cfs 2,072 cf

Pond D2: DMH-2 Peak Elev=1,107.76' Inflow=1.62 cfs 5,421 cf
15.0" Round Culvert n=0.013 L=189.2' S=0.0050 '/' Outflow=1.62 cfs 5,421 cf

Pond D3: DMH-3 Peak Elev=1,106.74' Inflow=1.62 cfs 5,421 cf
15.0" Round Culvert n=0.013 L=144.3' S=0.0050 '/' Outflow=1.62 cfs 5,421 cf

Pond D4: DMH-4 Peak Elev=1,106.00' Inflow=1.62 cfs 5,421 cf
15.0" Round Culvert n=0.013 L=134.1' S=0.0050 '/' Outflow=1.62 cfs 5,421 cf

Pond D5: DMH-5 Peak Elev=1,105.24' Inflow=3.44 cfs 11,965 cf
18.0" Round Culvert n=0.013 L=253.5' S=0.0050 '/' Outflow=3.44 cfs 11,965 cf

Pond D6: DMH-6 Peak Elev=1,111.17' Inflow=0.67 cfs 2,427 cf
12.0" Round Culvert n=0.013 L=94.2' S=0.0172 '/' Outflow=0.67 cfs 2,427 cf

Pond D7: DMH-7 Peak Elev=1,112.62' Inflow=0.67 cfs 2,427 cf
12.0" Round Culvert n=0.013 L=104.9' S=0.0128 '/' Outflow=0.67 cfs 2,427 cf

Link AP1: To Commercial Dr, R&T Hockey Inflow=0.33 cfs 1,063 cf
Primary=0.33 cfs 1,063 cf

Link AP2: To Rail Trail Inflow=5.61 cfs 28,650 cf
Primary=5.61 cfs 28,650 cf

Link AP3: To Wetland Inflow=1.25 cfs 4,469 cf
Primary=1.25 cfs 4,469 cf

Link AP4: To Wetland Inflow=19.61 cfs 94,447 cf
Primary=19.61 cfs 94,447 cf

Link AP5: To Wetland Inflow=23.07 cfs 103,616 cf
Primary=23.07 cfs 103,616 cf

Total Runoff Area = 2,141,915 sf Runoff Volume = 258,856 cf Average Runoff Depth = 1.45"
96.93% Pervious = 2,076,118 sf 3.07% Impervious = 65,797 sf

Summary for Subcatchment 201S: To Commercial Dr, R&T Hockey

Runoff = 0.25 cfs @ 12.09 hrs, Volume= 814 cf, Depth> 3.13"
Routed to Link AP1 : To Commercial Dr, R&T Hockey

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-year Rainfall=4.33"

Area (sf)	CN	Description
1,955	98	Paved roads w/curbs & sewers, HSG C
1,164	74	>75% Grass cover, Good, HSG C
3,119	89	Weighted Average
1,164		37.32% Pervious Area
1,955		62.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	25	0.3600	0.39		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.94"
0.4	25	0.0250	1.09		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.94"
0.2	32	0.0250	3.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.7	82	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 202S: To CB-1

Runoff = 0.21 cfs @ 12.09 hrs, Volume= 773 cf, Depth> 4.09"
Routed to Pond CB1 : CB-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-year Rainfall=4.33"

Area (sf)	CN	Description
2,266	98	Paved roads w/curbs & sewers, HSG C
2,266		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0150	1.02		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.94"
2.1	308	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.9	358	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 203S: To CB-2

Runoff = 0.41 cfs @ 12.09 hrs, Volume= 1,299 cf, Depth> 2.57"
Routed to Pond CB2 : CB-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-year Rainfall=4.33"

Area (sf)	CN	Description
2,265	98	Paved roads w/curbs & sewers, HSG C
3,793	74	>75% Grass cover, Good, HSG C
6,058	83	Weighted Average
3,793		62.61% Pervious Area
2,265		37.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0150	1.02		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
2.4	357	0.0150	2.49		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
3.2	407	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 204S: To CB-3

Runoff = 0.40 cfs @ 12.09 hrs, Volume= 1,428 cf, Depth> 4.09"
Routed to Pond CB3 : CB-3

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-year Rainfall=4.33"

Area (sf)	CN	Description
4,187	98	Paved roads w/curbs & sewers, HSG C
4,187		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0100	0.87		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
2.1	261	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
3.1	311	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 205S: To CB-4

Runoff = 0.60 cfs @ 12.09 hrs, Volume= 1,921 cf, Depth> 3.03"
Routed to Pond CB4 : CB-4

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-year Rainfall=4.33"

Area (sf)	CN	Description
4,432	98	Paved roads w/curbs & sewers, HSG C
3,167	74	>75% Grass cover, Good, HSG C
7,599	88	Weighted Average
3,167		41.68% Pervious Area
4,432		58.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	13	0.2000	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.94"
0.8	37	0.0100	0.82		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
2.1	261	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.7	311	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 206S: To CB-5

Runoff = 0.58 cfs @ 12.09 hrs, Volume= 2,079 cf, Depth> 4.09"
Routed to Pond CB5 : CB-5

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-year Rainfall=4.33"

Area (sf)	CN	Description
6,098	98	Paved roads w/curbs & sewers, HSG C
6,098		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0155	1.04		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.1	170	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.9	220	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 207S: To CB-6

Runoff = 0.57 cfs @ 12.09 hrs, Volume= 2,037 cf, Depth> 4.09"
Routed to Pond CB6 : CB-6

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-year Rainfall=4.33"

Area (sf)	CN	Description
5,975	98	Paved roads w/curbs & sewers, HSG C
5,975		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0155	1.04		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.1	167	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.9	217	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 208S: To CB-8

Runoff = 0.34 cfs @ 12.09 hrs, Volume= 1,213 cf, Depth> 4.09"
Routed to Pond CB8 : CB-8

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-year Rainfall=4.33"

Area (sf)	CN	Description
3,556	98	Paved roads w/curbs & sewers, HSG C
3,556		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0155	1.04		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.6	250	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.4	300	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 209S: To CB-7

Runoff = 0.34 cfs @ 12.09 hrs, Volume= 1,215 cf, Depth> 4.09"
Routed to Pond CB7 : CB-7

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-year Rainfall=4.33"

Area (sf)	CN	Description
3,563	98	Paved roads w/curbs & sewers, HSG C
3,563		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0155	1.04		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.6	250	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.4	300	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 210S: To R&T Hockey

Runoff = 0.08 cfs @ 12.10 hrs, Volume= 249 cf, Depth> 1.84"
Routed to Link AP1 : To Commercial Dr, R&T Hockey

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-year Rainfall=4.33"

Area (sf)	CN	Description
1,621	74	>75% Grass cover, Good, HSG C
1,621		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	13	0.3800	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.94"
0.6	13	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 211S: To Road Drainage Area 2

Runoff = 1.32 cfs @ 12.09 hrs, Volume= 4,764 cf, Depth> 4.09"
Routed to Pond 2P : Road Pond 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-year Rainfall=4.33"

Area (sf)	CN	Description
13,947	98	Paved roads w/curbs & sewers, HSG C
24	98	Paved roads w/curbs & sewers, HSG B
13,971	98	Weighted Average
13,971		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0100	0.87		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
2.3	284	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.3	334	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 212S: To Road Drainage Area 3

Runoff = 1.66 cfs @ 12.09 hrs, Volume= 5,977 cf, Depth> 4.09"
Routed to Pond 3P : Road Pond 3

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-year Rainfall=4.33"

Area (sf)	CN	Description
17,529	98	Paved roads w/curbs & sewers, HSG C
17,529		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0100	0.87		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.5	179	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.5	229	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 213S: To Pond 2

Runoff = 0.13 cfs @ 12.11 hrs, Volume= 474 cf, Depth> 0.98"
Routed to Pond 2P : Road Pond 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-year Rainfall=4.33"

Area (sf)	CN	Description
5,776	61	>75% Grass cover, Good, HSG B
5,776		100.00% Pervious Area

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

Summary for Subcatchment 214S: To Wetland

Runoff = 13.07 cfs @ 12.24 hrs, Volume= 60,495 cf, Depth> 1.16"
Routed to Link AP4 : To Wetland

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-year Rainfall=4.33"

Area (sf)	CN	Description
31,503	74	>75% Grass cover, Good, HSG C
242,166	55	Woods, Good, HSG B
349,931	70	Woods, Good, HSG C
2,978	61	>75% Grass cover, Good, HSG B
626,578	64	Weighted Average
626,578		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.1000	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
1.1	147	0.1840	2.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	139	0.0720	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.5	129	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	206	0.1650	2.03		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	45	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.4	716	Total			

Summary for Subcatchment 215S: To Wetland

Runoff = 23.07 cfs @ 12.25 hrs, Volume= 103,616 cf, Depth> 1.41"
Routed to Link AP5 : To Wetland

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-year Rainfall=4.33"

Area (sf)	CN	Description
8,135	74	>75% Grass cover, Good, HSG C
115,155	55	Woods, Good, HSG B
753,737	70	Woods, Good, HSG C
2,885	61	>75% Grass cover, Good, HSG B
879,912	68	Weighted Average
879,912		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.94"
2.0	198	0.1060	1.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.7	219	0.0730	1.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	185	0.1080	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	107	0.2060	2.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	151	0.1190	1.72		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.3	910	Total			

Summary for Subcatchment 216S: To Pond 3

Runoff = 1.07 cfs @ 12.10 hrs, Volume= 3,432 cf, Depth> 1.69"
Routed to Pond 3P : Road Pond 3

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-year Rainfall=4.33"

Area (sf)	CN	Description
1,665	61	>75% Grass cover, Good, HSG B
13,486	74	>75% Grass cover, Good, HSG C
9,159	70	Woods, Good, HSG C
24,310	72	Weighted Average
24,310		100.00% Pervious Area

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

Summary for Subcatchment 217S: To Wetland

Runoff = 6.89 cfs @ 12.32 hrs, Volume= 33,952 cf, Depth> 1.48"
Routed to Link AP4 : To Wetland

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-year Rainfall=4.33"

Area (sf)	CN	Description
5,942	74	>75% Grass cover, Good, HSG C
23,029	55	Woods, Good, HSG B
246,654	70	Woods, Good, HSG C
275,625	69	Weighted Average
275,625		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	50	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
2.0	135	0.0520	1.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.4	152	0.0130	0.57		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	37	0.2160	2.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	133	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	60	0.0330	0.91		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.2	567	Total			

Summary for Subcatchment 218S: To Wetland

Runoff = 1.25 cfs @ 12.13 hrs, Volume= 4,469 cf, Depth> 1.55"
Routed to Link AP3 : To Wetland

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-year Rainfall=4.33"

Area (sf)	CN	Description
3,078	74	>75% Grass cover, Good, HSG C
31,483	70	Woods, Good, HSG C
34,561	70	Weighted Average
34,561		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0600	0.10		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.94"
0.3	29	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.6	79	Total			

Summary for Subcatchment 219S: Drainage Pond to Rail Trail

Runoff = 0.69 cfs @ 12.10 hrs, Volume= 2,216 cf, Depth> 1.84"
Routed to Link AP2 : To Rail Trail

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-year Rainfall=4.33"

Area (sf)	CN	Description
14,449	74	>75% Grass cover, Good, HSG C
14,449		100.00% Pervious Area

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

Summary for Subcatchment 220S: To Rail Trail

Runoff = 5.29 cfs @ 12.33 hrs, Volume= 26,434 cf, Depth> 1.55"
Routed to Link AP2 : To Rail Trail

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-year Rainfall=4.33"

Area (sf)	CN	Description
195,081	70	Woods, Good, HSG C
10,081	74	>75% Grass cover, Good, HSG C
205,162	70	Weighted Average
205,162		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
0.6	59	0.1190	1.72		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	83	0.0480	1.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.7	178	0.0110	0.52		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.1	116	0.0340	0.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.5	104	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	108	0.0460	1.07		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.3	698	Total			

Summary for Pond 1P: Road Pond 1

Inflow Area = 39,302 sf, 82.29% Impervious, Inflow Depth > 3.65" for 10-year event
Inflow = 3.44 cfs @ 12.09 hrs, Volume= 11,965 cf
Outflow = 0.19 cfs @ 14.06 hrs, Volume= 10,479 cf, Atten= 95%, Lag= 118.4 min
Discarded = 0.19 cfs @ 14.06 hrs, Volume= 10,479 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link AP2 : To Rail Trail

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,102.72' @ 14.06 hrs Surf.Area= 7,958 sf Storage= 5,444 cf

Plug-Flow detention time= 240.1 min calculated for 10,457 cf (87% of inflow)
Center-of-Mass det. time= 183.1 min (949.1 - 766.0)

Volume	Invert	Avail.Storage	Storage Description
#1	1,102.00'	21,291 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,102.00	7,209	0	0
1,104.00	9,295	16,504	16,504
1,104.50	9,852	4,787	21,291

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,102.00'	**1.020 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	1,103.40'	**10.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.19 cfs @ 14.06 hrs HW=1,102.72' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,102.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Road Pond 2

Inflow Area = 19,747 sf, 70.75% Impervious, Inflow Depth > 3.18" for 10-year event
Inflow = 1.45 cfs @ 12.09 hrs, Volume= 5,238 cf
Outflow = 0.06 cfs @ 15.29 hrs, Volume= 3,265 cf, Atten= 96%, Lag= 192.4 min
Discarded = 0.06 cfs @ 15.29 hrs, Volume= 3,265 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link AP4 : To Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,116.50' @ 15.29 hrs Surf.Area= 2,493 sf Storage= 2,862 cf

Plug-Flow detention time= 268.9 min calculated for 3,258 cf (62% of inflow)
Center-of-Mass det. time= 160.1 min (922.2 - 762.1)

Volume	Invert	Avail.Storage	Storage Description
#1	1,115.00'	7,309 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,115.00	1,503	0	0
1,116.00	1,990	1,747	1,747
1,117.00	3,000	2,495	4,242
1,118.00	3,134	3,067	7,309

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,115.00'	**1.020 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	1,116.50'	**10.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.06 cfs @ 15.29 hrs HW=1,116.50' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,115.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: Road Pond 3

Inflow Area = 41,839 sf, 41.90% Impervious, Inflow Depth > 2.70" for 10-year event
Inflow = 2.72 cfs @ 12.09 hrs, Volume= 9,409 cf
Outflow = 0.15 cfs @ 14.36 hrs, Volume= 8,160 cf, Atten= 94%, Lag= 136.3 min
Discarded = 0.15 cfs @ 14.36 hrs, Volume= 8,160 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link AP5 : To Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,114.69' @ 14.36 hrs Surf.Area= 6,535 sf Storage= 4,235 cf

Plug-Flow detention time= 242.5 min calculated for 8,160 cf (87% of inflow)
Center-of-Mass det. time= 181.0 min (967.4 - 786.4)

Volume	Invert	Avail.Storage	Storage Description
#1	1,114.00'	13,834 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,114.00	5,669	0	0
1,116.00	8,165	13,834	13,834

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,114.00'	**1.020 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	1,115.00'	**10.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.15 cfs @ 14.36 hrs HW=1,114.69' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.15 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,114.00' TW=0.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond CB1: CB-1

Inflow Area = 2,266 sf,100.00% Impervious, Inflow Depth > 4.09" for 10-year event
Inflow = 0.21 cfs @ 12.09 hrs, Volume= 773 cf
Outflow = 0.21 cfs @ 12.09 hrs, Volume= 773 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.21 cfs @ 12.09 hrs, Volume= 773 cf
Routed to Pond D1 : DMH-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,109.48' @ 12.09 hrs
Flood Elev= 1,112.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,109.21'	**12.0" Round Culvert** L= 12.0' Ke= 0.500 Inlet / Outlet Invert= 1,109.21' / 1,109.15' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.21 cfs @ 12.09 hrs HW=1,109.48' TW=1,109.35' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.21 cfs @ 1.82 fps)

Summary for Pond CB2: CB-2

Inflow Area = 6,058 sf, 37.39% Impervious, Inflow Depth > 2.57" for 10-year event
Inflow = 0.41 cfs @ 12.09 hrs, Volume= 1,299 cf
Outflow = 0.41 cfs @ 12.09 hrs, Volume= 1,299 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.41 cfs @ 12.09 hrs, Volume= 1,299 cf
Routed to Pond D1 : DMH-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,109.60' @ 12.09 hrs
Flood Elev= 1,112.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,109.21'	**12.0" Round Culvert** L= 12.0' Ke= 0.500 Inlet / Outlet Invert= 1,109.21' / 1,109.15' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.40 cfs @ 12.09 hrs HW=1,109.59' TW=1,109.35' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.40 cfs @ 2.16 fps)

Summary for Pond CB3: CB-3

Inflow Area = 4,187 sf,100.00% Impervious, Inflow Depth > 4.09" for 10-year event
Inflow = 0.40 cfs @ 12.09 hrs, Volume= 1,428 cf
Outflow = 0.40 cfs @ 12.09 hrs, Volume= 1,428 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.40 cfs @ 12.09 hrs, Volume= 1,428 cf
Routed to Pond D2 : DMH-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,110.87' @ 12.09 hrs
Flood Elev= 1,113.66'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,110.49'	**12.0" Round Culvert** L= 12.7' Ke= 0.500 Inlet / Outlet Invert= 1,110.49' / 1,110.43' S= 0.0047 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.39 cfs @ 12.09 hrs HW=1,110.87' TW=1,107.75' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.39 cfs @ 2.12 fps)

Summary for Pond CB4: CB-4

Inflow Area = 7,599 sf, 58.32% Impervious, Inflow Depth > 3.03" for 10-year event
Inflow = 0.60 cfs @ 12.09 hrs, Volume= 1,921 cf
Outflow = 0.60 cfs @ 12.09 hrs, Volume= 1,921 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.60 cfs @ 12.09 hrs, Volume= 1,921 cf
Routed to Pond D2 : DMH-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,110.97' @ 12.09 hrs
Flood Elev= 1,113.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,110.49'	**12.0" Round Culvert** L= 12.7' Ke= 0.500 Inlet / Outlet Invert= 1,110.49' / 1,110.43' S= 0.0047 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.58 cfs @ 12.09 hrs HW=1,110.96' TW=1,107.75' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.58 cfs @ 2.36 fps)

Summary for Pond CB5: CB-5

Inflow Area = 6,098 sf,100.00% Impervious, Inflow Depth > 4.09" for 10-year event
Inflow = 0.58 cfs @ 12.09 hrs, Volume= 2,079 cf
Outflow = 0.58 cfs @ 12.09 hrs, Volume= 2,079 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.58 cfs @ 12.09 hrs, Volume= 2,079 cf
Routed to Pond D5 : DMH-5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,110.00' @ 12.09 hrs
Flood Elev= 1,112.73'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,109.57'	**12.0" Round Culvert** L= 15.4' Ke= 0.050 Inlet / Outlet Invert= 1,109.57' / 1,109.49' S= 0.0052 '/' 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=1,110.00' TW=1,105.23' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.56 cfs @ 2.59 fps)

Summary for Pond CB6: CB-6

Inflow Area = 5,975 sf,100.00% Impervious, Inflow Depth > 4.09" for 10-year event
Inflow = 0.57 cfs @ 12.09 hrs, Volume= 2,037 cf
Outflow = 0.57 cfs @ 12.09 hrs, Volume= 2,037 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.57 cfs @ 12.09 hrs, Volume= 2,037 cf
Routed to Pond D5 : DMH-5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,110.03' @ 12.09 hrs
Flood Elev= 1,112.73'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,109.57'	**12.0" Round Culvert** L= 14.5' Ke= 0.500 Inlet / Outlet Invert= 1,109.57' / 1,109.50' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.55 cfs @ 12.09 hrs HW=1,110.02' TW=1,105.23' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.55 cfs @ 2.34 fps)

Summary for Pond CB7: CB-7

Inflow Area = 3,563 sf,100.00% Impervious, Inflow Depth > 4.09" for 10-year event
Inflow = 0.34 cfs @ 12.09 hrs, Volume= 1,215 cf
Outflow = 0.34 cfs @ 12.09 hrs, Volume= 1,215 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.34 cfs @ 12.09 hrs, Volume= 1,215 cf
Routed to Pond D7 : DMH-7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,112.75' @ 12.10 hrs
Flood Elev= 1,115.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,112.39'	**12.0" Round Culvert** L= 14.1' Ke= 0.500 Inlet / Outlet Invert= 1,112.39' / 1,112.32' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.30 cfs @ 12.09 hrs HW=1,112.74' TW=1,112.62' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.30 cfs @ 1.84 fps)

Summary for Pond CB8: CB-8

Inflow Area = 3,556 sf,100.00% Impervious, Inflow Depth > 4.09" for 10-year event
Inflow = 0.34 cfs @ 12.09 hrs, Volume= 1,213 cf
Outflow = 0.34 cfs @ 12.09 hrs, Volume= 1,213 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.34 cfs @ 12.09 hrs, Volume= 1,213 cf
Routed to Pond D7 : DMH-7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,112.76' @ 12.10 hrs
Flood Elev= 1,115.58'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,112.41'	**12.0" Round Culvert** L= 14.5' Ke= 0.500 Inlet / Outlet Invert= 1,112.41' / 1,112.34' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.31 cfs @ 12.09 hrs HW=1,112.76' TW=1,112.62' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.31 cfs @ 1.92 fps)

Summary for Pond D1: DMH-1

Inflow Area = 8,324 sf, 54.43% Impervious, Inflow Depth > 2.99" for 10-year event
Inflow = 0.63 cfs @ 12.09 hrs, Volume= 2,072 cf
Outflow = 0.63 cfs @ 12.09 hrs, Volume= 2,072 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.63 cfs @ 12.09 hrs, Volume= 2,072 cf
Routed to Pond D2 : DMH-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,109.35' @ 12.09 hrs
Flood Elev= 1,112.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,108.92'	**15.0" Round Culvert** L= 354.3' Ke= 0.500 Inlet / Outlet Invert= 1,108.92' / 1,107.15' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.60 cfs @ 12.09 hrs HW=1,109.35' TW=1,107.75' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.60 cfs @ 2.40 fps)

Summary for Pond D2: DMH-2

Inflow Area = 20,110 sf, 65.39% Impervious, Inflow Depth > 3.23" for 10-year event
Inflow = 1.62 cfs @ 12.09 hrs, Volume= 5,421 cf
Outflow = 1.62 cfs @ 12.09 hrs, Volume= 5,421 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.62 cfs @ 12.09 hrs, Volume= 5,421 cf
Routed to Pond D3 : DMH-3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,107.76' @ 12.09 hrs
Flood Elev= 1,116.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,107.05'	**15.0" Round Culvert** L= 189.2' Ke= 0.500 Inlet / Outlet Invert= 1,107.05' / 1,106.10' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.54 cfs @ 12.09 hrs HW=1,107.75' TW=1,106.73' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.54 cfs @ 3.14 fps)

Summary for Pond D3: DMH-3

Inflow Area = 20,110 sf, 65.39% Impervious, Inflow Depth > 3.23" for 10-year event
Inflow = 1.62 cfs @ 12.09 hrs, Volume= 5,421 cf
Outflow = 1.62 cfs @ 12.09 hrs, Volume= 5,421 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.62 cfs @ 12.09 hrs, Volume= 5,421 cf
Routed to Pond D4 : DMH-4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,106.74' @ 12.10 hrs
Flood Elev= 1,114.83'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,106.01'	**15.0" Round Culvert** L= 144.3' Ke= 0.500 Inlet / Outlet Invert= 1,106.01' / 1,105.29' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.52 cfs @ 12.09 hrs HW=1,106.73' TW=1,105.99' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.52 cfs @ 2.99 fps)

Summary for Pond D4: DMH-4

Inflow Area = 20,110 sf, 65.39% Impervious, Inflow Depth > 3.23" for 10-year event
Inflow = 1.62 cfs @ 12.09 hrs, Volume= 5,421 cf
Outflow = 1.62 cfs @ 12.09 hrs, Volume= 5,421 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.62 cfs @ 12.09 hrs, Volume= 5,421 cf
Routed to Pond D5 : DMH-5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,106.00' @ 12.10 hrs
Flood Elev= 1,113.59'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,105.28'	**15.0" Round Culvert** L= 134.1' Ke= 0.500 Inlet / Outlet Invert= 1,105.28' / 1,104.61' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.53 cfs @ 12.09 hrs HW=1,105.99' TW=1,105.23' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.53 cfs @ 3.08 fps)

Summary for Pond D5: DMH-5

Inflow Area = 39,302 sf, 82.29% Impervious, Inflow Depth > 3.65" for 10-year event
Inflow = 3.44 cfs @ 12.09 hrs, Volume= 11,965 cf
Outflow = 3.44 cfs @ 12.09 hrs, Volume= 11,965 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.44 cfs @ 12.09 hrs, Volume= 11,965 cf
Routed to Pond 1P : Road Pond 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,105.24' @ 12.09 hrs
Flood Elev= 1,112.98'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,104.26'	**18.0" Round Culvert** L= 253.5' Ke= 0.500 Inlet / Outlet Invert= 1,104.26' / 1,102.99' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.35 cfs @ 12.09 hrs HW=1,105.23' TW=1,102.35' (Dynamic Tailwater)
1=Culvert (Barrel Controls 3.35 cfs @ 3.94 fps)

Summary for Pond D6: DMH-6

Inflow Area = 7,119 sf,100.00% Impervious, Inflow Depth > 4.09" for 10-year event
Inflow = 0.67 cfs @ 12.09 hrs, Volume= 2,427 cf
Outflow = 0.67 cfs @ 12.09 hrs, Volume= 2,427 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 12.09 hrs, Volume= 2,427 cf
Routed to Pond D5 : DMH-5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,111.17' @ 12.09 hrs
Flood Elev= 1,114.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,110.76'	**12.0" Round Culvert** L= 94.2' Ke= 0.500 Inlet / Outlet Invert= 1,110.76' / 1,109.14' S= 0.0172 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.66 cfs @ 12.09 hrs HW=1,111.17' TW=1,105.23' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.66 cfs @ 2.18 fps)

Summary for Pond D7: DMH-7

Inflow Area = 7,119 sf,100.00% Impervious, Inflow Depth > 4.09" for 10-year event
Inflow = 0.67 cfs @ 12.09 hrs, Volume= 2,427 cf
Outflow = 0.67 cfs @ 12.09 hrs, Volume= 2,427 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 12.09 hrs, Volume= 2,427 cf
Routed to Pond D6 : DMH-6

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,112.62' @ 12.09 hrs
Flood Elev= 1,115.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,112.21'	**12.0" Round Culvert** L= 104.9' Ke= 0.500 Inlet / Outlet Invert= 1,112.21' / 1,110.87' S= 0.0128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.66 cfs @ 12.09 hrs HW=1,112.62' TW=1,111.17' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.66 cfs @ 2.18 fps)

Summary for Link AP1: To Commercial Dr, R&T Hockey

Inflow Area = 4,740 sf, 41.24% Impervious, Inflow Depth > 2.69" for 10-year event
Inflow = 0.33 cfs @ 12.09 hrs, Volume= 1,063 cf
Primary = 0.33 cfs @ 12.09 hrs, Volume= 1,063 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP2: To Rail Trail

Inflow Area = 258,913 sf, 12.49% Impervious, Inflow Depth > 1.33" for 10-year event
Inflow = 5.61 cfs @ 12.32 hrs, Volume= 28,650 cf
Primary = 5.61 cfs @ 12.32 hrs, Volume= 28,650 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP3: To Wetland

Inflow Area = 34,561 sf, 0.00% Impervious, Inflow Depth > 1.55" for 10-year event
Inflow = 1.25 cfs @ 12.13 hrs, Volume= 4,469 cf
Primary = 1.25 cfs @ 12.13 hrs, Volume= 4,469 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP4: To Wetland

Inflow Area = 921,950 sf, 1.52% Impervious, Inflow Depth > 1.23" for 10-year event
Inflow = 19.61 cfs @ 12.26 hrs, Volume= 94,447 cf
Primary = 19.61 cfs @ 12.26 hrs, Volume= 94,447 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP5: To Wetland

Inflow Area = 921,751 sf, 1.90% Impervious, Inflow Depth > 1.35" for 10-year event
Inflow = 23.07 cfs @ 12.25 hrs, Volume= 103,616 cf
Primary = 23.07 cfs @ 12.25 hrs, Volume= 103,616 cf, Atten= 0%, Lag= 0.0 min

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

Subcatchment201S: To Commercial Dr, Runoff Area=3,119 sf 62.68% Impervious Runoff Depth>4.14"
Flow Length=82' Tc=6.0 min CN=89 Runoff=0.33 cfs 1,077 cf

Subcatchment202S: To CB-1 Runoff Area=2,266 sf 100.00% Impervious Runoff Depth>5.15"
Flow Length=358' Slope=0.0150 '/' Tc=6.0 min CN=98 Runoff=0.27 cfs 972 cf

Subcatchment203S: To CB-2 Runoff Area=6,058 sf 37.39% Impervious Runoff Depth>3.53"
Flow Length=407' Slope=0.0150 '/' Tc=6.0 min CN=83 Runoff=0.56 cfs 1,780 cf

Subcatchment204S: To CB-3 Runoff Area=4,187 sf 100.00% Impervious Runoff Depth>5.15"
Flow Length=311' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=0.50 cfs 1,797 cf

Subcatchment205S: To CB-4 Runoff Area=7,599 sf 58.32% Impervious Runoff Depth>4.04"
Flow Length=311' Tc=6.0 min CN=88 Runoff=0.79 cfs 2,557 cf

Subcatchment206S: To CB-5 Runoff Area=6,098 sf 100.00% Impervious Runoff Depth>5.15"
Flow Length=220' Slope=0.0155 '/' Tc=6.0 min CN=98 Runoff=0.72 cfs 2,617 cf

Subcatchment207S: To CB-6 Runoff Area=5,975 sf 100.00% Impervious Runoff Depth>5.15"
Flow Length=217' Slope=0.0155 '/' Tc=6.0 min CN=98 Runoff=0.71 cfs 2,564 cf

Subcatchment208S: To CB-8 Runoff Area=3,556 sf 100.00% Impervious Runoff Depth>5.15"
Flow Length=300' Slope=0.0155 '/' Tc=6.0 min CN=98 Runoff=0.42 cfs 1,526 cf

Subcatchment209S: To CB-7 Runoff Area=3,563 sf 100.00% Impervious Runoff Depth>5.15"
Flow Length=300' Slope=0.0155 '/' Tc=6.0 min CN=98 Runoff=0.42 cfs 1,529 cf

Subcatchment210S: To R&T Hockey Runoff Area=1,621 sf 0.00% Impervious Runoff Depth>2.68"
Flow Length=13' Slope=0.3800 '/' Tc=6.0 min CN=74 Runoff=0.11 cfs 362 cf

Subcatchment211S: To Road Drainage Runoff Area=13,971 sf 100.00% Impervious Runoff Depth>5.15"
Flow Length=334' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=1.65 cfs 5,995 cf

Subcatchment212S: To Road Drainage Runoff Area=17,529 sf 100.00% Impervious Runoff Depth>5.15"
Flow Length=229' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=2.07 cfs 7,522 cf

Subcatchment213S: To Pond 2 Runoff Area=5,776 sf 0.00% Impervious Runoff Depth>1.61"
Tc=6.0 min CN=61 Runoff=0.23 cfs 774 cf

Subcatchment214S: To Wetland Runoff Area=626,578 sf 0.00% Impervious Runoff Depth>1.83"
Flow Length=716' Tc=15.4 min CN=64 Runoff=21.88 cfs 95,686 cf

Subcatchment215S: To Wetland Runoff Area=879,912 sf 0.00% Impervious Runoff Depth>2.15"
Flow Length=910' Tc=16.3 min CN=68 Runoff=36.36 cfs 157,956 cf

Subcatchment216S: To Pond 3 Runoff Area=24,310 sf 0.00% Impervious Runoff Depth>2.50"
Tc=6.0 min CN=72 Runoff=1.60 cfs 5,064 cf

Subcatchment217S: To Wetland Runoff Area=275,625 sf 0.00% Impervious Runoff Depth>2.23"
Flow Length=567' Tc=21.2 min CN=69 Runoff=10.72 cfs 51,329 cf

Subcatchment218S: To Wetland Runoff Area=34,561 sf 0.00% Impervious Runoff Depth>2.33"
Flow Length=79' Tc=8.6 min CN=70 Runoff=1.91 cfs 6,699 cf

Subcatchment219S: Drainage Pond to Rail Runoff Area=14,449 sf 0.00% Impervious Runoff Depth>2.68"
Tc=6.0 min CN=74 Runoff=1.02 cfs 3,223 cf

Subcatchment220S: To Rail Trail Runoff Area=205,162 sf 0.00% Impervious Runoff Depth>2.32"
Flow Length=698' Tc=22.3 min CN=70 Runoff=8.15 cfs 39,638 cf

Pond 1P: Road Pond 1 Peak Elev=1,102.99' Storage=7,647 cf Inflow=4.38 cfs 15,342 cf
Discarded=0.19 cfs 11,310 cf Primary=0.00 cfs 0 cf Outflow=0.19 cfs 11,310 cf

Pond 2P: Road Pond 2 Peak Elev=1,116.57' Storage=3,037 cf Inflow=1.88 cfs 6,769 cf
Discarded=0.06 cfs 3,466 cf Primary=0.44 cfs 1,139 cf Outflow=0.50 cfs 4,606 cf

Pond 3P: Road Pond 3 Peak Elev=1,115.01' Storage=6,334 cf Inflow=3.67 cfs 12,586 cf
Discarded=0.16 cfs 8,968 cf Primary=0.01 cfs 33 cf Outflow=0.17 cfs 9,001 cf

Pond CB1: CB-1 Peak Elev=1,109.52' Inflow=0.27 cfs 972 cf
12.0" Round Culvert n=0.013 L=12.0' S=0.0050 '/' Outflow=0.27 cfs 972 cf

Pond CB2: CB-2 Peak Elev=1,109.67' Inflow=0.56 cfs 1,780 cf
12.0" Round Culvert n=0.013 L=12.0' S=0.0050 '/' Outflow=0.56 cfs 1,780 cf

Pond CB3: CB-3 Peak Elev=1,110.92' Inflow=0.50 cfs 1,797 cf
12.0" Round Culvert n=0.013 L=12.7' S=0.0047 '/' Outflow=0.50 cfs 1,797 cf

Pond CB4: CB-4 Peak Elev=1,111.04' Inflow=0.79 cfs 2,557 cf
12.0" Round Culvert n=0.013 L=12.7' S=0.0047 '/' Outflow=0.79 cfs 2,557 cf

Pond CB5: CB-5 Peak Elev=1,110.06' Inflow=0.72 cfs 2,617 cf
12.0" Round Culvert n=0.013 L=15.4' S=0.0052 '/' Outflow=0.72 cfs 2,617 cf

Pond CB6: CB-6 Peak Elev=1,110.09' Inflow=0.71 cfs 2,564 cf
12.0" Round Culvert n=0.013 L=14.5' S=0.0048 '/' Outflow=0.71 cfs 2,564 cf

Pond CB7: CB-7 Peak Elev=1,112.80' Inflow=0.42 cfs 1,529 cf
12.0" Round Culvert n=0.013 L=14.1' S=0.0050 '/' Outflow=0.42 cfs 1,529 cf

Pond CB8: CB-8 Peak Elev=1,112.81' Inflow=0.42 cfs 1,526 cf
12.0" Round Culvert n=0.013 L=14.5' S=0.0048 '/' Outflow=0.42 cfs 1,526 cf

Pond D1: DMH-1 Peak Elev=1,109.43' Inflow=0.83 cfs 2,753 cf
15.0" Round Culvert n=0.013 L=354.3' S=0.0050 '/' Outflow=0.83 cfs 2,753 cf

Pond D2: DMH-2 Peak Elev=1,107.88' Inflow=2.11 cfs 7,106 cf
15.0" Round Culvert n=0.013 L=189.2' S=0.0050 '/' Outflow=2.11 cfs 7,106 cf

Pond D3: DMH-3 Peak Elev=1,106.87' Inflow=2.11 cfs 7,106 cf
15.0" Round Culvert n=0.013 L=144.3' S=0.0050 '/' Outflow=2.11 cfs 7,106 cf

Pond D4: DMH-4 Peak Elev=1,106.13' Inflow=2.11 cfs 7,106 cf
15.0" Round Culvert n=0.013 L=134.1' S=0.0050 '/' Outflow=2.11 cfs 7,106 cf

Pond D5: DMH-5 Peak Elev=1,105.40' Inflow=4.38 cfs 15,342 cf
18.0" Round Culvert n=0.013 L=253.5' S=0.0050 '/' Outflow=4.38 cfs 15,342 cf

Pond D6: DMH-6 Peak Elev=1,111.23' Inflow=0.84 cfs 3,055 cf
12.0" Round Culvert n=0.013 L=94.2' S=0.0172 '/' Outflow=0.84 cfs 3,055 cf

Pond D7: DMH-7 Peak Elev=1,112.68' Inflow=0.84 cfs 3,055 cf
12.0" Round Culvert n=0.013 L=104.9' S=0.0128 '/' Outflow=0.84 cfs 3,055 cf

Link AP1: To Commercial Dr, R&T Hockey Inflow=0.44 cfs 1,438 cf
Primary=0.44 cfs 1,438 cf

Link AP2: To Rail Trail Inflow=8.59 cfs 42,861 cf
Primary=8.59 cfs 42,861 cf

Link AP3: To Wetland Inflow=1.91 cfs 6,699 cf
Primary=1.91 cfs 6,699 cf

Link AP4: To Wetland Inflow=32.01 cfs 148,154 cf
Primary=32.01 cfs 148,154 cf

Link AP5: To Wetland Inflow=36.36 cfs 157,989 cf
Primary=36.36 cfs 157,989 cf

Total Runoff Area = 2,141,915 sf Runoff Volume = 390,667 cf Average Runoff Depth = 2.19"
96.93% Pervious = 2,076,118 sf 3.07% Impervious = 65,797 sf

Summary for Subcatchment 201S: To Commercial Dr, R&T Hockey

Runoff = 0.33 cfs @ 12.09 hrs, Volume= 1,077 cf, Depth> 4.14"
Routed to Link AP1 : To Commercial Dr, R&T Hockey

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-year Rainfall=5.39"

Area (sf)	CN	Description
1,955	98	Paved roads w/curbs & sewers, HSG C
1,164	74	>75% Grass cover, Good, HSG C
3,119	89	Weighted Average
1,164		37.32% Pervious Area
1,955		62.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	25	0.3600	0.39		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.94"
0.4	25	0.0250	1.09		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.94"
0.2	32	0.0250	3.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.7	82	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 202S: To CB-1

Runoff = 0.27 cfs @ 12.09 hrs, Volume= 972 cf, Depth> 5.15"
Routed to Pond CB1 : CB-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-year Rainfall=5.39"

Area (sf)	CN	Description
2,266	98	Paved roads w/curbs & sewers, HSG C
2,266		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0150	1.02		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.94"
2.1	308	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.9	358	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 203S: To CB-2

Runoff = 0.56 cfs @ 12.09 hrs, Volume= 1,780 cf, Depth> 3.53"
Routed to Pond CB2 : CB-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-year Rainfall=5.39"

Area (sf)	CN	Description
2,265	98	Paved roads w/curbs & sewers, HSG C
3,793	74	>75% Grass cover, Good, HSG C
6,058	83	Weighted Average
3,793		62.61% Pervious Area
2,265		37.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0150	1.02		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
2.4	357	0.0150	2.49		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
3.2	407	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 204S: To CB-3

Runoff = 0.50 cfs @ 12.09 hrs, Volume= 1,797 cf, Depth> 5.15"
Routed to Pond CB3 : CB-3

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-year Rainfall=5.39"

Area (sf)	CN	Description
4,187	98	Paved roads w/curbs & sewers, HSG C
4,187		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0100	0.87		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
2.1	261	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
3.1	311	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 205S: To CB-4

Runoff = 0.79 cfs @ 12.09 hrs, Volume= 2,557 cf, Depth> 4.04"
Routed to Pond CB4 : CB-4

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-year Rainfall=5.39"

Area (sf)	CN	Description
4,432	98	Paved roads w/curbs & sewers, HSG C
3,167	74	>75% Grass cover, Good, HSG C
7,599	88	Weighted Average
3,167		41.68% Pervious Area
4,432		58.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	13	0.2000	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.94"
0.8	37	0.0100	0.82		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
2.1	261	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.7	311	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 206S: To CB-5

Runoff = 0.72 cfs @ 12.09 hrs, Volume= 2,617 cf, Depth> 5.15"
Routed to Pond CB5 : CB-5

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-year Rainfall=5.39"

Area (sf)	CN	Description
6,098	98	Paved roads w/curbs & sewers, HSG C
6,098		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0155	1.04		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.1	170	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.9	220	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 207S: To CB-6

Runoff = 0.71 cfs @ 12.09 hrs, Volume= 2,564 cf, Depth> 5.15"
Routed to Pond CB6 : CB-6

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-year Rainfall=5.39"

Area (sf)	CN	Description
5,975	98	Paved roads w/curbs & sewers, HSG C
5,975		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0155	1.04		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.1	167	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.9	217	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 208S: To CB-8

Runoff = 0.42 cfs @ 12.09 hrs, Volume= 1,526 cf, Depth> 5.15"
Routed to Pond CB8 : CB-8

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-year Rainfall=5.39"

Area (sf)	CN	Description
3,556	98	Paved roads w/curbs & sewers, HSG C
3,556		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0155	1.04		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.6	250	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.4	300	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 209S: To CB-7

Runoff = 0.42 cfs @ 12.09 hrs, Volume= 1,529 cf, Depth> 5.15"
Routed to Pond CB7 : CB-7

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-year Rainfall=5.39"

Area (sf)	CN	Description
3,563	98	Paved roads w/curbs & sewers, HSG C
3,563		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0155	1.04		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.6	250	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.4	300	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 210S: To R&T Hockey

Runoff = 0.11 cfs @ 12.09 hrs, Volume= 362 cf, Depth> 2.68"
Routed to Link AP1 : To Commercial Dr, R&T Hockey

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-year Rainfall=5.39"

Area (sf)	CN	Description
1,621	74	>75% Grass cover, Good, HSG C
1,621		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	13	0.3800	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.94"
0.6	13	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 211S: To Road Drainage Area 2

Runoff = 1.65 cfs @ 12.09 hrs, Volume= 5,995 cf, Depth> 5.15"
Routed to Pond 2P : Road Pond 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-year Rainfall=5.39"

Area (sf)	CN	Description
13,947	98	Paved roads w/curbs & sewers, HSG C
24	98	Paved roads w/curbs & sewers, HSG B
13,971	98	Weighted Average
13,971		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0100	0.87		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
2.3	284	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.3	334	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 212S: To Road Drainage Area 3

Runoff = 2.07 cfs @ 12.09 hrs, Volume= 7,522 cf, Depth> 5.15"
Routed to Pond 3P : Road Pond 3

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-year Rainfall=5.39"

Area (sf)	CN	Description
17,529	98	Paved roads w/curbs & sewers, HSG C
17,529		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0100	0.87		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.5	179	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.5	229	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 213S: To Pond 2

Runoff = 0.23 cfs @ 12.10 hrs, Volume= 774 cf, Depth> 1.61"
Routed to Pond 2P : Road Pond 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-year Rainfall=5.39"

Area (sf)	CN	Description
5,776	61	>75% Grass cover, Good, HSG B
5,776		100.00% Pervious Area

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

Summary for Subcatchment 214S: To Wetland

Runoff = 21.88 cfs @ 12.23 hrs, Volume= 95,686 cf, Depth> 1.83"
Routed to Link AP4 : To Wetland

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-year Rainfall=5.39"

Area (sf)	CN	Description
31,503	74	>75% Grass cover, Good, HSG C
242,166	55	Woods, Good, HSG B
349,931	70	Woods, Good, HSG C
2,978	61	>75% Grass cover, Good, HSG B
626,578	64	Weighted Average
626,578		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.1000	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
1.1	147	0.1840	2.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	139	0.0720	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.5	129	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	206	0.1650	2.03		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	45	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.4	716	Total			

Summary for Subcatchment 215S: To Wetland

Runoff = 36.36 cfs @ 12.24 hrs, Volume= 157,956 cf, Depth> 2.15"
Routed to Link AP5 : To Wetland

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-year Rainfall=5.39"

Area (sf)	CN	Description
8,135	74	>75% Grass cover, Good, HSG C
115,155	55	Woods, Good, HSG B
753,737	70	Woods, Good, HSG C
2,885	61	>75% Grass cover, Good, HSG B
879,912	68	Weighted Average
879,912		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.94"
2.0	198	0.1060	1.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.7	219	0.0730	1.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	185	0.1080	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	107	0.2060	2.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	151	0.1190	1.72		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.3	910	Total			

Summary for Subcatchment 216S: To Pond 3

Runoff = 1.60 cfs @ 12.10 hrs, Volume= 5,064 cf, Depth> 2.50"
Routed to Pond 3P : Road Pond 3

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-year Rainfall=5.39"

Area (sf)	CN	Description
1,665	61	>75% Grass cover, Good, HSG B
13,486	74	>75% Grass cover, Good, HSG C
9,159	70	Woods, Good, HSG C
24,310	72	Weighted Average
24,310		100.00% Pervious Area

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

Summary for Subcatchment 217S: To Wetland

Runoff = 10.72 cfs @ 12.31 hrs, Volume= 51,329 cf, Depth> 2.23"
Routed to Link AP4 : To Wetland

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-year Rainfall=5.39"

Area (sf)	CN	Description
5,942	74	>75% Grass cover, Good, HSG C
23,029	55	Woods, Good, HSG B
246,654	70	Woods, Good, HSG C
275,625	69	Weighted Average
275,625		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	50	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
2.0	135	0.0520	1.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.4	152	0.0130	0.57		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	37	0.2160	2.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	133	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	60	0.0330	0.91		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.2	567	Total			

Summary for Subcatchment 218S: To Wetland

Runoff = 1.91 cfs @ 12.13 hrs, Volume= 6,699 cf, Depth> 2.33"
Routed to Link AP3 : To Wetland

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-year Rainfall=5.39"

Area (sf)	CN	Description
3,078	74	>75% Grass cover, Good, HSG C
31,483	70	Woods, Good, HSG C
34,561	70	Weighted Average
34,561		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0600	0.10		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.94"
0.3	29	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.6	79	Total			

Summary for Subcatchment 219S: Drainage Pond to Rail Trail

Runoff = 1.02 cfs @ 12.09 hrs, Volume= 3,223 cf, Depth> 2.68"
Routed to Link AP2 : To Rail Trail

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-year Rainfall=5.39"

Area (sf)	CN	Description
14,449	74	>75% Grass cover, Good, HSG C
14,449		100.00% Pervious Area

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

Summary for Subcatchment 220S: To Rail Trail

Runoff = 8.15 cfs @ 12.32 hrs, Volume= 39,638 cf, Depth> 2.32"
Routed to Link AP2 : To Rail Trail

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-year Rainfall=5.39"

Area (sf)	CN	Description
195,081	70	Woods, Good, HSG C
10,081	74	>75% Grass cover, Good, HSG C
205,162	70	Weighted Average
205,162		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
0.6	59	0.1190	1.72		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	83	0.0480	1.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.7	178	0.0110	0.52		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.1	116	0.0340	0.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.5	104	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	108	0.0460	1.07		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.3	698	Total			

Summary for Pond 1P: Road Pond 1

Inflow Area = 39,302 sf, 82.29% Impervious, Inflow Depth > 4.68" for 25-year event
Inflow = 4.38 cfs @ 12.09 hrs, Volume= 15,342 cf
Outflow = 0.19 cfs @ 14.80 hrs, Volume= 11,310 cf, Atten= 96%, Lag= 162.6 min
Discarded = 0.19 cfs @ 14.80 hrs, Volume= 11,310 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link AP2 : To Rail Trail

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,102.99' @ 14.80 hrs Surf.Area= 8,241 sf Storage= 7,647 cf

Plug-Flow detention time= 256.8 min calculated for 11,287 cf (74% of inflow)
Center-of-Mass det. time= 168.6 min (930.4 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	1,102.00'	21,291 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,102.00	7,209	0	0
1,104.00	9,295	16,504	16,504
1,104.50	9,852	4,787	21,291

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,102.00'	**1.020 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	1,103.40'	**10.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.19 cfs @ 14.80 hrs HW=1,102.99' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,102.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Road Pond 2

Inflow Area = 19,747 sf, 70.75% Impervious, Inflow Depth > 4.11" for 25-year event
Inflow = 1.88 cfs @ 12.09 hrs, Volume= 6,769 cf
Outflow = 0.50 cfs @ 12.46 hrs, Volume= 4,606 cf, Atten= 73%, Lag= 22.5 min
Discarded = 0.06 cfs @ 12.46 hrs, Volume= 3,466 cf
Primary = 0.44 cfs @ 12.46 hrs, Volume= 1,139 cf
Routed to Link AP4 : To Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,116.57' @ 12.46 hrs Surf.Area= 2,563 sf Storage= 3,037 cf

Plug-Flow detention time= 215.8 min calculated for 4,596 cf (68% of inflow)
Center-of-Mass det. time= 115.3 min (875.4 - 760.1)

Volume	Invert	Avail.Storage	Storage Description
#1	1,115.00'	7,309 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,115.00	1,503	0	0
1,116.00	1,990	1,747	1,747
1,117.00	3,000	2,495	4,242
1,118.00	3,134	3,067	7,309

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,115.00'	**1.020 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	1,116.50'	**10.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.06 cfs @ 12.46 hrs HW=1,116.57' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.43 cfs @ 12.46 hrs HW=1,116.57' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.43 cfs @ 0.64 fps)

Summary for Pond 3P: Road Pond 3

Inflow Area = 41,839 sf, 41.90% Impervious, Inflow Depth > 3.61" for 25-year event
Inflow = 3.67 cfs @ 12.09 hrs, Volume= 12,586 cf
Outflow = 0.17 cfs @ 14.93 hrs, Volume= 9,001 cf, Atten= 95%, Lag= 170.4 min
Discarded = 0.16 cfs @ 14.93 hrs, Volume= 8,968 cf
Primary = 0.01 cfs @ 14.93 hrs, Volume= 33 cf
Routed to Link AP5 : To Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,115.01' @ 14.93 hrs Surf.Area= 6,924 sf Storage= 6,334 cf

Plug-Flow detention time= 264.8 min calculated for 8,983 cf (71% of inflow)
Center-of-Mass det. time= 169.4 min (952.7 - 783.3)

Volume	Invert	Avail.Storage	Storage Description
#1	1,114.00'	13,834 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,114.00	5,669	0	0
1,116.00	8,165	13,834	13,834

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,114.00'	**1.020 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	1,115.00'	**10.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.16 cfs @ 14.93 hrs HW=1,115.01' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.16 cfs)

Primary OutFlow Max=0.01 cfs @ 14.93 hrs HW=1,115.01' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 0.01 cfs @ 0.19 fps)

Summary for Pond CB1: CB-1

Inflow Area = 2,266 sf,100.00% Impervious, Inflow Depth > 5.15" for 25-year event
Inflow = 0.27 cfs @ 12.09 hrs, Volume= 972 cf
Outflow = 0.27 cfs @ 12.09 hrs, Volume= 972 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.27 cfs @ 12.09 hrs, Volume= 972 cf
Routed to Pond D1 : DMH-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,109.52' @ 12.11 hrs
Flood Elev= 1,112.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,109.21'	**12.0" Round Culvert** L= 12.0' Ke= 0.500 Inlet / Outlet Invert= 1,109.21' / 1,109.15' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.23 cfs @ 12.09 hrs HW=1,109.52' TW=1,109.42' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.23 cfs @ 1.67 fps)

Summary for Pond CB2: CB-2

Inflow Area = 6,058 sf, 37.39% Impervious, Inflow Depth > 3.53" for 25-year event
Inflow = 0.56 cfs @ 12.09 hrs, Volume= 1,780 cf
Outflow = 0.56 cfs @ 12.09 hrs, Volume= 1,780 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.56 cfs @ 12.09 hrs, Volume= 1,780 cf
Routed to Pond D1 : DMH-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,109.67' @ 12.09 hrs
Flood Elev= 1,112.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,109.21'	**12.0" Round Culvert** L= 12.0' Ke= 0.500 Inlet / Outlet Invert= 1,109.21' / 1,109.15' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.55 cfs @ 12.09 hrs HW=1,109.66' TW=1,109.42' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.55 cfs @ 2.33 fps)

Summary for Pond CB3: CB-3

Inflow Area = 4,187 sf,100.00% Impervious, Inflow Depth > 5.15" for 25-year event
Inflow = 0.50 cfs @ 12.09 hrs, Volume= 1,797 cf
Outflow = 0.50 cfs @ 12.09 hrs, Volume= 1,797 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.50 cfs @ 12.09 hrs, Volume= 1,797 cf
Routed to Pond D2 : DMH-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,110.92' @ 12.09 hrs
Flood Elev= 1,113.66'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,110.49'	**12.0" Round Culvert** L= 12.7' Ke= 0.500 Inlet / Outlet Invert= 1,110.49' / 1,110.43' S= 0.0047 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.48 cfs @ 12.09 hrs HW=1,110.91' TW=1,107.87' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.48 cfs @ 2.24 fps)

Summary for Pond CB4: CB-4

Inflow Area = 7,599 sf, 58.32% Impervious, Inflow Depth > 4.04" for 25-year event
Inflow = 0.79 cfs @ 12.09 hrs, Volume= 2,557 cf
Outflow = 0.79 cfs @ 12.09 hrs, Volume= 2,557 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.79 cfs @ 12.09 hrs, Volume= 2,557 cf
Routed to Pond D2 : DMH-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,111.04' @ 12.09 hrs
Flood Elev= 1,113.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,110.49'	**12.0" Round Culvert** L= 12.7' Ke= 0.500 Inlet / Outlet Invert= 1,110.49' / 1,110.43' S= 0.0047 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.77 cfs @ 12.09 hrs HW=1,111.04' TW=1,107.87' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.77 cfs @ 2.53 fps)

Summary for Pond CB5: CB-5

Inflow Area = 6,098 sf,100.00% Impervious, Inflow Depth > 5.15" for 25-year event
Inflow = 0.72 cfs @ 12.09 hrs, Volume= 2,617 cf
Outflow = 0.72 cfs @ 12.09 hrs, Volume= 2,617 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.72 cfs @ 12.09 hrs, Volume= 2,617 cf
Routed to Pond D5 : DMH-5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,110.06' @ 12.09 hrs
Flood Elev= 1,112.73'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,109.57'	**12.0" Round Culvert** L= 15.4' Ke= 0.050 Inlet / Outlet Invert= 1,109.57' / 1,109.49' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.70 cfs @ 12.09 hrs HW=1,110.05' TW=1,105.38' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.70 cfs @ 2.75 fps)

Summary for Pond CB6: CB-6

Inflow Area = 5,975 sf,100.00% Impervious, Inflow Depth > 5.15" for 25-year event
Inflow = 0.71 cfs @ 12.09 hrs, Volume= 2,564 cf
Outflow = 0.71 cfs @ 12.09 hrs, Volume= 2,564 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.71 cfs @ 12.09 hrs, Volume= 2,564 cf
Routed to Pond D5 : DMH-5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,110.09' @ 12.09 hrs
Flood Elev= 1,112.73'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,109.57'	**12.0" Round Culvert** L= 14.5' Ke= 0.500 Inlet / Outlet Invert= 1,109.57' / 1,109.50' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.69 cfs @ 12.09 hrs HW=1,110.08' TW=1,105.38' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.69 cfs @ 2.47 fps)

Summary for Pond CB7: CB-7

Inflow Area = 3,563 sf,100.00% Impervious, Inflow Depth > 5.15" for 25-year event
Inflow = 0.42 cfs @ 12.09 hrs, Volume= 1,529 cf
Outflow = 0.42 cfs @ 12.09 hrs, Volume= 1,529 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.42 cfs @ 12.09 hrs, Volume= 1,529 cf
Routed to Pond D7 : DMH-7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,112.80' @ 12.11 hrs
Flood Elev= 1,115.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,112.39'	**12.0" Round Culvert** L= 14.1' Ke= 0.500 Inlet / Outlet Invert= 1,112.39' / 1,112.32' S= 0.0050 '/' 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=1,112.79' TW=1,112.67' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.37 cfs @ 1.86 fps)

Summary for Pond CB8: CB-8

Inflow Area = 3,556 sf,100.00% Impervious, Inflow Depth > 5.15" for 25-year event
Inflow = 0.42 cfs @ 12.09 hrs, Volume= 1,526 cf
Outflow = 0.42 cfs @ 12.09 hrs, Volume= 1,526 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.42 cfs @ 12.09 hrs, Volume= 1,526 cf
Routed to Pond D7 : DMH-7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,112.81' @ 12.10 hrs
Flood Elev= 1,115.58'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,112.41'	**12.0" Round Culvert** L= 14.5' Ke= 0.500 Inlet / Outlet Invert= 1,112.41' / 1,112.34' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.38 cfs @ 12.09 hrs HW=1,112.81' TW=1,112.67' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.38 cfs @ 1.95 fps)

Summary for Pond D1: DMH-1

Inflow Area = 8,324 sf, 54.43% Impervious, Inflow Depth > 3.97" for 25-year event
Inflow = 0.83 cfs @ 12.09 hrs, Volume= 2,753 cf
Outflow = 0.83 cfs @ 12.09 hrs, Volume= 2,753 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.83 cfs @ 12.09 hrs, Volume= 2,753 cf
Routed to Pond D2 : DMH-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,109.43' @ 12.09 hrs
Flood Elev= 1,112.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,108.92'	**15.0" Round Culvert** L= 354.3' Ke= 0.500 Inlet / Outlet Invert= 1,108.92' / 1,107.15' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.79 cfs @ 12.09 hrs HW=1,109.42' TW=1,107.87' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.79 cfs @ 2.56 fps)

Summary for Pond D2: DMH-2

Inflow Area = 20,110 sf, 65.39% Impervious, Inflow Depth > 4.24" for 25-year event
Inflow = 2.11 cfs @ 12.09 hrs, Volume= 7,106 cf
Outflow = 2.11 cfs @ 12.09 hrs, Volume= 7,106 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.11 cfs @ 12.09 hrs, Volume= 7,106 cf
Routed to Pond D3 : DMH-3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,107.88' @ 12.10 hrs
Flood Elev= 1,116.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,107.05'	**15.0" Round Culvert** L= 189.2' Ke= 0.500 Inlet / Outlet Invert= 1,107.05' / 1,106.10' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.98 cfs @ 12.09 hrs HW=1,107.87' TW=1,106.85' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.98 cfs @ 3.31 fps)

Summary for Pond D3: DMH-3

Inflow Area = 20,110 sf, 65.39% Impervious, Inflow Depth > 4.24" for 25-year event
Inflow = 2.11 cfs @ 12.09 hrs, Volume= 7,106 cf
Outflow = 2.11 cfs @ 12.09 hrs, Volume= 7,106 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.11 cfs @ 12.09 hrs, Volume= 7,106 cf
Routed to Pond D4 : DMH-4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,106.87' @ 12.10 hrs
Flood Elev= 1,114.83'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,106.01'	**15.0" Round Culvert** L= 144.3' Ke= 0.500 Inlet / Outlet Invert= 1,106.01' / 1,105.29' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.95 cfs @ 12.09 hrs HW=1,106.85' TW=1,106.12' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.95 cfs @ 3.13 fps)

Summary for Pond D4: DMH-4

Inflow Area = 20,110 sf, 65.39% Impervious, Inflow Depth > 4.24" for 25-year event
Inflow = 2.11 cfs @ 12.09 hrs, Volume= 7,106 cf
Outflow = 2.11 cfs @ 12.09 hrs, Volume= 7,106 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.11 cfs @ 12.09 hrs, Volume= 7,106 cf
Routed to Pond D5 : DMH-5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,106.13' @ 12.10 hrs
Flood Elev= 1,113.59'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,105.28'	**15.0" Round Culvert** L= 134.1' Ke= 0.500 Inlet / Outlet Invert= 1,105.28' / 1,104.61' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.96 cfs @ 12.09 hrs HW=1,106.12' TW=1,105.38' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.96 cfs @ 3.19 fps)

Summary for Pond D5: DMH-5

Inflow Area = 39,302 sf, 82.29% Impervious, Inflow Depth > 4.68" for 25-year event
Inflow = 4.38 cfs @ 12.09 hrs, Volume= 15,342 cf
Outflow = 4.38 cfs @ 12.09 hrs, Volume= 15,342 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.38 cfs @ 12.09 hrs, Volume= 15,342 cf
Routed to Pond 1P : Road Pond 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,105.40' @ 12.09 hrs
Flood Elev= 1,112.98'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,104.26'	**18.0" Round Culvert** L= 253.5' Ke= 0.500 Inlet / Outlet Invert= 1,104.26' / 1,102.99' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.26 cfs @ 12.09 hrs HW=1,105.38' TW=1,102.49' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 4.26 cfs @ 4.18 fps)

Summary for Pond D6: DMH-6

Inflow Area = 7,119 sf,100.00% Impervious, Inflow Depth > 5.15" for 25-year event
Inflow = 0.84 cfs @ 12.09 hrs, Volume= 3,055 cf
Outflow = 0.84 cfs @ 12.09 hrs, Volume= 3,055 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 12.09 hrs, Volume= 3,055 cf
Routed to Pond D5 : DMH-5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,111.23' @ 12.09 hrs
Flood Elev= 1,114.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,110.76'	**12.0" Round Culvert** L= 94.2' Ke= 0.500 Inlet / Outlet Invert= 1,110.76' / 1,109.14' S= 0.0172 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.82 cfs @ 12.09 hrs HW=1,111.22' TW=1,105.38' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.82 cfs @ 2.31 fps)

Summary for Pond D7: DMH-7

Inflow Area = 7,119 sf,100.00% Impervious, Inflow Depth > 5.15" for 25-year event
Inflow = 0.84 cfs @ 12.09 hrs, Volume= 3,055 cf
Outflow = 0.84 cfs @ 12.09 hrs, Volume= 3,055 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 12.09 hrs, Volume= 3,055 cf
Routed to Pond D6 : DMH-6

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,112.68' @ 12.09 hrs
Flood Elev= 1,115.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,112.21'	**12.0" Round Culvert** L= 104.9' Ke= 0.500 Inlet / Outlet Invert= 1,112.21' / 1,110.87' S= 0.0128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.82 cfs @ 12.09 hrs HW=1,112.67' TW=1,111.22' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.82 cfs @ 2.31 fps)

Summary for Link AP1: To Commercial Dr, R&T Hockey

Inflow Area = 4,740 sf, 41.24% Impervious, Inflow Depth > 3.64" for 25-year event
Inflow = 0.44 cfs @ 12.09 hrs, Volume= 1,438 cf
Primary = 0.44 cfs @ 12.09 hrs, Volume= 1,438 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP2: To Rail Trail

Inflow Area = 258,913 sf, 12.49% Impervious, Inflow Depth > 1.99" for 25-year event
Inflow = 8.59 cfs @ 12.32 hrs, Volume= 42,861 cf
Primary = 8.59 cfs @ 12.32 hrs, Volume= 42,861 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP3: To Wetland

Inflow Area = 34,561 sf, 0.00% Impervious, Inflow Depth > 2.33" for 25-year event
Inflow = 1.91 cfs @ 12.13 hrs, Volume= 6,699 cf
Primary = 1.91 cfs @ 12.13 hrs, Volume= 6,699 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP4: To Wetland

Inflow Area = 921,950 sf, 1.52% Impervious, Inflow Depth > 1.93" for 25-year event
Inflow = 32.01 cfs @ 12.25 hrs, Volume= 148,154 cf
Primary = 32.01 cfs @ 12.25 hrs, Volume= 148,154 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP5: To Wetland

Inflow Area = 921,751 sf, 1.90% Impervious, Inflow Depth > 2.06" for 25-year event
Inflow = 36.36 cfs @ 12.24 hrs, Volume= 157,989 cf
Primary = 36.36 cfs @ 12.24 hrs, Volume= 157,989 cf, Atten= 0%, Lag= 0.0 min

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

Subcatchment201S: To Commercial Dr, Runoff Area=3,119 sf 62.68% Impervious Runoff Depth>6.23"
Flow Length=82' Tc=6.0 min CN=89 Runoff=0.48 cfs 1,620 cf

Subcatchment202S: To CB-1 Runoff Area=2,266 sf 100.00% Impervious Runoff Depth>7.30"
Flow Length=358' Slope=0.0150 '/' Tc=6.0 min CN=98 Runoff=0.38 cfs 1,378 cf

Subcatchment203S: To CB-2 Runoff Area=6,058 sf 37.39% Impervious Runoff Depth>5.54"
Flow Length=407' Slope=0.0150 '/' Tc=6.0 min CN=83 Runoff=0.86 cfs 2,794 cf

Subcatchment204S: To CB-3 Runoff Area=4,187 sf 100.00% Impervious Runoff Depth>7.30"
Flow Length=311' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=0.69 cfs 2,546 cf

Subcatchment205S: To CB-4 Runoff Area=7,599 sf 58.32% Impervious Runoff Depth>6.11"
Flow Length=311' Tc=6.0 min CN=88 Runoff=1.16 cfs 3,872 cf

Subcatchment206S: To CB-5 Runoff Area=6,098 sf 100.00% Impervious Runoff Depth>7.30"
Flow Length=220' Slope=0.0155 '/' Tc=6.0 min CN=98 Runoff=1.01 cfs 3,708 cf

Subcatchment207S: To CB-6 Runoff Area=5,975 sf 100.00% Impervious Runoff Depth>7.30"
Flow Length=217' Slope=0.0155 '/' Tc=6.0 min CN=98 Runoff=0.99 cfs 3,633 cf

Subcatchment208S: To CB-8 Runoff Area=3,556 sf 100.00% Impervious Runoff Depth>7.30"
Flow Length=300' Slope=0.0155 '/' Tc=6.0 min CN=98 Runoff=0.59 cfs 2,162 cf

Subcatchment209S: To CB-7 Runoff Area=3,563 sf 100.00% Impervious Runoff Depth>7.30"
Flow Length=300' Slope=0.0155 '/' Tc=6.0 min CN=98 Runoff=0.59 cfs 2,166 cf

Subcatchment210S: To R&T Hockey Runoff Area=1,621 sf 0.00% Impervious Runoff Depth>4.51"
Flow Length=13' Slope=0.3800 '/' Tc=6.0 min CN=74 Runoff=0.19 cfs 610 cf

Subcatchment211S: To Road Drainage Runoff Area=13,971 sf 100.00% Impervious Runoff Depth>7.30"
Flow Length=334' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=2.32 cfs 8,495 cf

Subcatchment212S: To Road Drainage Runoff Area=17,529 sf 100.00% Impervious Runoff Depth>7.30"
Flow Length=229' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=2.91 cfs 10,658 cf

Subcatchment213S: To Pond 2 Runoff Area=5,776 sf 0.00% Impervious Runoff Depth>3.09"
Tc=6.0 min CN=61 Runoff=0.47 cfs 1,490 cf

Subcatchment214S: To Wetland Runoff Area=626,578 sf 0.00% Impervious Runoff Depth>3.41"
Flow Length=716' Tc=15.4 min CN=64 Runoff=42.56 cfs 177,901 cf

Subcatchment215S: To Wetland Runoff Area=879,912 sf 0.00% Impervious Runoff Depth>3.84"
Flow Length=910' Tc=16.3 min CN=68 Runoff=66.19 cfs 281,545 cf

Subcatchment216S: To Pond 3 Runoff Area=24,310 sf 0.00% Impervious Runoff Depth>4.29"
Tc=6.0 min CN=72 Runoff=2.75 cfs 8,690 cf

Subcatchment217S: To Wetland Runoff Area=275,625 sf 0.00% Impervious Runoff Depth>3.94"
Flow Length=567' Tc=21.2 min CN=69 Runoff=19.25 cfs 90,610 cf

Subcatchment218S: To Wetland Runoff Area=34,561 sf 0.00% Impervious Runoff Depth>4.07"
Flow Length=79' Tc=8.6 min CN=70 Runoff=3.41 cfs 11,710 cf

Subcatchment219S: Drainage Pond to Rail Runoff Area=14,449 sf 0.00% Impervious Runoff Depth>4.51"
Tc=6.0 min CN=74 Runoff=1.72 cfs 5,433 cf

Subcatchment220S: To Rail Trail Runoff Area=205,162 sf 0.00% Impervious Runoff Depth>4.05"
Flow Length=698' Tc=22.3 min CN=70 Runoff=14.45 cfs 69,308 cf

Pond 1P: Road Pond 1 Peak Elev=1,103.44' Storage=11,490 cf Inflow=6.28 cfs 22,259 cf
Discarded=0.21 cfs 12,639 cf Primary=0.23 cfs 1,439 cf Outflow=0.43 cfs 14,077 cf

Pond 2P: Road Pond 2 Peak Elev=1,116.69' Storage=3,353 cf Inflow=2.78 cfs 9,984 cf
Discarded=0.06 cfs 3,748 cf Primary=2.10 cfs 3,777 cf Outflow=2.16 cfs 7,525 cf

Pond 3P: Road Pond 3 Peak Elev=1,115.16' Storage=7,440 cf Inflow=5.66 cfs 19,348 cf
Discarded=0.17 cfs 9,728 cf Primary=1.71 cfs 5,143 cf Outflow=1.88 cfs 14,871 cf

Pond CB1: CB-1 Peak Elev=1,109.63' Inflow=0.38 cfs 1,378 cf
12.0" Round Culvert n=0.013 L=12.0' S=0.0050 '/' Outflow=0.38 cfs 1,378 cf

Pond CB2: CB-2 Peak Elev=1,109.79' Inflow=0.86 cfs 2,794 cf
12.0" Round Culvert n=0.013 L=12.0' S=0.0050 '/' Outflow=0.86 cfs 2,794 cf

Pond CB3: CB-3 Peak Elev=1,111.01' Inflow=0.69 cfs 2,546 cf
12.0" Round Culvert n=0.013 L=12.7' S=0.0047 '/' Outflow=0.69 cfs 2,546 cf

Pond CB4: CB-4 Peak Elev=1,111.18' Inflow=1.16 cfs 3,872 cf
12.0" Round Culvert n=0.013 L=12.7' S=0.0047 '/' Outflow=1.16 cfs 3,872 cf

Pond CB5: CB-5 Peak Elev=1,110.16' Inflow=1.01 cfs 3,708 cf
12.0" Round Culvert n=0.013 L=15.4' S=0.0052 '/' Outflow=1.01 cfs 3,708 cf

Pond CB6: CB-6 Peak Elev=1,110.20' Inflow=0.99 cfs 3,633 cf
12.0" Round Culvert n=0.013 L=14.5' S=0.0048 '/' Outflow=0.99 cfs 3,633 cf

Pond CB7: CB-7 Peak Elev=1,112.90' Inflow=0.59 cfs 2,166 cf
12.0" Round Culvert n=0.013 L=14.1' S=0.0050 '/' Outflow=0.59 cfs 2,166 cf

Pond CB8: CB-8 Peak Elev=1,112.91' Inflow=0.59 cfs 2,162 cf
12.0" Round Culvert n=0.013 L=14.5' S=0.0048 '/' Outflow=0.59 cfs 2,162 cf

Pond D1: DMH-1 Peak Elev=1,109.56' Inflow=1.24 cfs 4,172 cf
15.0" Round Culvert n=0.013 L=354.3' S=0.0050 '/' Outflow=1.24 cfs 4,172 cf

Pond D2: DMH-2 Peak Elev=1,108.12' Inflow=3.10 cfs 10,590 cf
15.0" Round Culvert n=0.013 L=189.2' S=0.0050 '/' Outflow=3.10 cfs 10,590 cf

Pond D3: DMH-3 Peak Elev=1,107.11' Inflow=3.10 cfs 10,590 cf
15.0" Round Culvert n=0.013 L=144.3' S=0.0050 '/' Outflow=3.10 cfs 10,590 cf

Pond D4: DMH-4 Peak Elev=1,106.40' Inflow=3.10 cfs 10,590 cf
15.0" Round Culvert n=0.013 L=134.1' S=0.0050 '/' Outflow=3.10 cfs 10,590 cf

Pond D5: DMH-5 Peak Elev=1,105.72' Inflow=6.28 cfs 22,259 cf
18.0" Round Culvert n=0.013 L=253.5' S=0.0050 '/' Outflow=6.28 cfs 22,259 cf

Pond D6: DMH-6 Peak Elev=1,111.33' Inflow=1.18 cfs 4,328 cf
12.0" Round Culvert n=0.013 L=94.2' S=0.0172 '/' Outflow=1.18 cfs 4,328 cf

Pond D7: DMH-7 Peak Elev=1,112.78' Inflow=1.18 cfs 4,328 cf
12.0" Round Culvert n=0.013 L=104.9' S=0.0128 '/' Outflow=1.18 cfs 4,328 cf

Link AP1: To Commercial Dr, R&T Hockey Inflow=0.68 cfs 2,229 cf
Primary=0.68 cfs 2,229 cf

Link AP2: To Rail Trail Inflow=15.19 cfs 76,181 cf
Primary=15.19 cfs 76,181 cf

Link AP3: To Wetland Inflow=3.41 cfs 11,710 cf
Primary=3.41 cfs 11,710 cf

Link AP4: To Wetland Inflow=62.07 cfs 272,288 cf
Primary=62.07 cfs 272,288 cf

Link AP5: To Wetland Inflow=67.03 cfs 286,688 cf
Primary=67.03 cfs 286,688 cf

Total Runoff Area = 2,141,915 sf Runoff Volume = 690,328 cf Average Runoff Depth = 3.87"
96.93% Pervious = 2,076,118 sf 3.07% Impervious = 65,797 sf

Summary for Subcatchment 201S: To Commercial Dr, R&T Hockey

Runoff = 0.48 cfs @ 12.09 hrs, Volume= 1,620 cf, Depth> 6.23"
Routed to Link AP1 : To Commercial Dr, R&T Hockey

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-year Rainfall=7.54"

Area (sf)	CN	Description
1,955	98	Paved roads w/curbs & sewers, HSG C
1,164	74	>75% Grass cover, Good, HSG C
3,119	89	Weighted Average
1,164		37.32% Pervious Area
1,955		62.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	25	0.3600	0.39		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.94"
0.4	25	0.0250	1.09		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.94"
0.2	32	0.0250	3.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.7	82	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 202S: To CB-1

Runoff = 0.38 cfs @ 12.09 hrs, Volume= 1,378 cf, Depth> 7.30"
Routed to Pond CB1 : CB-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-year Rainfall=7.54"

Area (sf)	CN	Description
2,266	98	Paved roads w/curbs & sewers, HSG C
2,266		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0150	1.02		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.94"
2.1	308	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.9	358	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 203S: To CB-2

Runoff = 0.86 cfs @ 12.09 hrs, Volume= 2,794 cf, Depth> 5.54"
Routed to Pond CB2 : CB-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-year Rainfall=7.54"

Area (sf)	CN	Description
2,265	98	Paved roads w/curbs & sewers, HSG C
3,793	74	>75% Grass cover, Good, HSG C
6,058	83	Weighted Average
3,793		62.61% Pervious Area
2,265		37.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0150	1.02		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
2.4	357	0.0150	2.49		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
3.2	407	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 204S: To CB-3

Runoff = 0.69 cfs @ 12.09 hrs, Volume= 2,546 cf, Depth> 7.30"
Routed to Pond CB3 : CB-3

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-year Rainfall=7.54"

Area (sf)	CN	Description
4,187	98	Paved roads w/curbs & sewers, HSG C
4,187		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0100	0.87		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
2.1	261	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
3.1	311	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 205S: To CB-4

Runoff = 1.16 cfs @ 12.09 hrs, Volume= 3,872 cf, Depth> 6.11"
Routed to Pond CB4 : CB-4

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-year Rainfall=7.54"

Area (sf)	CN	Description
4,432	98	Paved roads w/curbs & sewers, HSG C
3,167	74	>75% Grass cover, Good, HSG C
7,599	88	Weighted Average
3,167		41.68% Pervious Area
4,432		58.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	13	0.2000	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.94"
0.8	37	0.0100	0.82		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
2.1	261	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.7	311	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 206S: To CB-5

Runoff = 1.01 cfs @ 12.09 hrs, Volume= 3,708 cf, Depth> 7.30"
Routed to Pond CB5 : CB-5

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-year Rainfall=7.54"

Area (sf)	CN	Description
6,098	98	Paved roads w/curbs & sewers, HSG C
6,098		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0155	1.04		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.1	170	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.9	220	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 207S: To CB-6

Runoff = 0.99 cfs @ 12.09 hrs, Volume= 3,633 cf, Depth> 7.30"
Routed to Pond CB6 : CB-6

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-year Rainfall=7.54"

Area (sf)	CN	Description
5,975	98	Paved roads w/curbs & sewers, HSG C
5,975		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0155	1.04		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.1	167	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.9	217	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 208S: To CB-8

Runoff = 0.59 cfs @ 12.09 hrs, Volume= 2,162 cf, Depth> 7.30"
Routed to Pond CB8 : CB-8

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-year Rainfall=7.54"

Area (sf)	CN	Description
3,556	98	Paved roads w/curbs & sewers, HSG C
3,556		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0155	1.04		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.6	250	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.4	300	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 209S: To CB-7

Runoff = 0.59 cfs @ 12.09 hrs, Volume= 2,166 cf, Depth> 7.30"
Routed to Pond CB7 : CB-7

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-year Rainfall=7.54"

Area (sf)	CN	Description
3,563	98	Paved roads w/curbs & sewers, HSG C
3,563		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0155	1.04		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.6	250	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.4	300	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 210S: To R&T Hockey

Runoff = 0.19 cfs @ 12.09 hrs, Volume= 610 cf, Depth> 4.51"
Routed to Link AP1 : To Commercial Dr, R&T Hockey

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-year Rainfall=7.54"

Area (sf)	CN	Description
1,621	74	>75% Grass cover, Good, HSG C
1,621		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	13	0.3800	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.94"
0.6	13	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 211S: To Road Drainage Area 2

Runoff = 2.32 cfs @ 12.09 hrs, Volume= 8,495 cf, Depth> 7.30"
Routed to Pond 2P : Road Pond 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-year Rainfall=7.54"

Area (sf)	CN	Description
13,947	98	Paved roads w/curbs & sewers, HSG C
24	98	Paved roads w/curbs & sewers, HSG B
13,971	98	Weighted Average
13,971		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0100	0.87		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
2.3	284	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.3	334	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 212S: To Road Drainage Area 3

Runoff = 2.91 cfs @ 12.09 hrs, Volume= 10,658 cf, Depth> 7.30"
Routed to Pond 3P : Road Pond 3

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-year Rainfall=7.54"

Area (sf)	CN	Description
17,529	98	Paved roads w/curbs & sewers, HSG C
17,529		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0100	0.87		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.94"
1.5	179	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.5	229	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 213S: To Pond 2

Runoff = 0.47 cfs @ 12.10 hrs, Volume= 1,490 cf, Depth> 3.09"
Routed to Pond 2P : Road Pond 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-year Rainfall=7.54"

Area (sf)	CN	Description
5,776	61	>75% Grass cover, Good, HSG B
5,776		100.00% Pervious Area

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

Summary for Subcatchment 214S: To Wetland

Runoff = 42.56 cfs @ 12.22 hrs, Volume= 177,901 cf, Depth> 3.41"
Routed to Link AP4 : To Wetland

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-year Rainfall=7.54"

Area (sf)	CN	Description
31,503	74	>75% Grass cover, Good, HSG C
242,166	55	Woods, Good, HSG B
349,931	70	Woods, Good, HSG C
2,978	61	>75% Grass cover, Good, HSG B
626,578	64	Weighted Average
626,578		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.1000	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
1.1	147	0.1840	2.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	139	0.0720	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.5	129	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	206	0.1650	2.03		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	45	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.4	716	Total			

Summary for Subcatchment 215S: To Wetland

Runoff = 66.19 cfs @ 12.23 hrs, Volume= 281,545 cf, Depth> 3.84"
Routed to Link AP5 : To Wetland

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-year Rainfall=7.54"

Area (sf)	CN	Description
8,135	74	>75% Grass cover, Good, HSG C
115,155	55	Woods, Good, HSG B
753,737	70	Woods, Good, HSG C
2,885	61	>75% Grass cover, Good, HSG B
879,912	68	Weighted Average
879,912		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.94"
2.0	198	0.1060	1.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.7	219	0.0730	1.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	185	0.1080	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	107	0.2060	2.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	151	0.1190	1.72		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.3	910	Total			

Summary for Subcatchment 216S: To Pond 3

Runoff = 2.75 cfs @ 12.09 hrs, Volume= 8,690 cf, Depth> 4.29"
Routed to Pond 3P : Road Pond 3

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-year Rainfall=7.54"

Area (sf)	CN	Description
1,665	61	>75% Grass cover, Good, HSG B
13,486	74	>75% Grass cover, Good, HSG C
9,159	70	Woods, Good, HSG C
24,310	72	Weighted Average
24,310		100.00% Pervious Area

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

Summary for Subcatchment 217S: To Wetland

Runoff = 19.25 cfs @ 12.30 hrs, Volume= 90,610 cf, Depth> 3.94"
Routed to Link AP4 : To Wetland

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-year Rainfall=7.54"

Area (sf)	CN	Description
5,942	74	>75% Grass cover, Good, HSG C
23,029	55	Woods, Good, HSG B
246,654	70	Woods, Good, HSG C
275,625	69	Weighted Average
275,625		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	50	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
2.0	135	0.0520	1.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.4	152	0.0130	0.57		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	37	0.2160	2.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	133	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	60	0.0330	0.91		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.2	567	Total			

Summary for Subcatchment 218S: To Wetland

Runoff = 3.41 cfs @ 12.12 hrs, Volume= 11,710 cf, Depth> 4.07"
Routed to Link AP3 : To Wetland

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-year Rainfall=7.54"

Area (sf)	CN	Description
3,078	74	>75% Grass cover, Good, HSG C
31,483	70	Woods, Good, HSG C
34,561	70	Weighted Average
34,561		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0600	0.10		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.94"
0.3	29	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.6	79	Total			

Summary for Subcatchment 219S: Drainage Pond to Rail Trail

Runoff = 1.72 cfs @ 12.09 hrs, Volume= 5,433 cf, Depth> 4.51"
Routed to Link AP2 : To Rail Trail

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-year Rainfall=7.54"

Area (sf)	CN	Description
14,449	74	>75% Grass cover, Good, HSG C
14,449		100.00% Pervious Area

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

Summary for Subcatchment 220S: To Rail Trail

Runoff = 14.45 cfs @ 12.31 hrs, Volume= 69,308 cf, Depth> 4.05"
Routed to Link AP2 : To Rail Trail

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-year Rainfall=7.54"

Area (sf)	CN	Description
195,081	70	Woods, Good, HSG C
10,081	74	>75% Grass cover, Good, HSG C
205,162	70	Weighted Average
205,162		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.94"
0.6	59	0.1190	1.72		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	83	0.0480	1.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.7	178	0.0110	0.52		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.1	116	0.0340	0.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.5	104	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	108	0.0460	1.07		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.3	698	Total			

Summary for Pond 1P: Road Pond 1

Inflow Area = 39,302 sf, 82.29% Impervious, Inflow Depth > 6.80" for 100-year event
Inflow = 6.28 cfs @ 12.09 hrs, Volume= 22,259 cf
Outflow = 0.43 cfs @ 13.46 hrs, Volume= 14,077 cf, Atten= 93%, Lag= 82.6 min
Discarded = 0.21 cfs @ 13.46 hrs, Volume= 12,639 cf
Primary = 0.23 cfs @ 13.46 hrs, Volume= 1,439 cf
Routed to Link AP2 : To Rail Trail

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,103.44' @ 13.46 hrs Surf.Area= 8,714 sf Storage= 11,490 cf

Plug-Flow detention time= 244.8 min calculated for 14,077 cf (63% of inflow)
Center-of-Mass det. time= 139.7 min (895.6 - 755.8)

Volume	Invert	Avail.Storage	Storage Description
#1	1,102.00'	21,291 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,102.00	7,209	0	0
1,104.00	9,295	16,504	16,504
1,104.50	9,852	4,787	21,291

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,102.00'	**1.020 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	1,103.40'	**10.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.21 cfs @ 13.46 hrs HW=1,103.44' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.21 cfs)

Primary OutFlow Max=0.23 cfs @ 13.46 hrs HW=1,103.44' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.23 cfs @ 0.52 fps)

Summary for Pond 2P: Road Pond 2

Inflow Area = 19,747 sf, 70.75% Impervious, Inflow Depth > 6.07" for 100-year event
Inflow = 2.78 cfs @ 12.09 hrs, Volume= 9,984 cf
Outflow = 2.16 cfs @ 12.17 hrs, Volume= 7,525 cf, Atten= 22%, Lag= 4.8 min
Discarded = 0.06 cfs @ 12.17 hrs, Volume= 3,748 cf
Primary = 2.10 cfs @ 12.17 hrs, Volume= 3,777 cf
Routed to Link AP4 : To Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,116.69' @ 12.17 hrs Surf.Area= 2,684 sf Storage= 3,353 cf

Plug-Flow detention time= 154.6 min calculated for 7,509 cf (75% of inflow)
Center-of-Mass det. time= 66.8 min (824.0 - 757.2)

Volume	Invert	Avail.Storage	Storage Description
#1	1,115.00'	7,309 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,115.00	1,503	0	0
1,116.00	1,990	1,747	1,747
1,117.00	3,000	2,495	4,242
1,118.00	3,134	3,067	7,309

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,115.00'	**1.020 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	1,116.50'	**10.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.06 cfs @ 12.17 hrs HW=1,116.68' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=1.99 cfs @ 12.17 hrs HW=1,116.68' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 1.99 cfs @ 1.05 fps)

Summary for Pond 3P: Road Pond 3

Inflow Area = 41,839 sf, 41.90% Impervious, Inflow Depth > 5.55" for 100-year event
Inflow = 5.66 cfs @ 12.09 hrs, Volume= 19,348 cf
Outflow = 1.88 cfs @ 12.40 hrs, Volume= 14,871 cf, Atten= 67%, Lag= 18.3 min
Discarded = 0.17 cfs @ 12.40 hrs, Volume= 9,728 cf
Primary = 1.71 cfs @ 12.40 hrs, Volume= 5,143 cf
Routed to Link AP5 : To Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,115.16' @ 12.40 hrs Surf.Area= 7,121 sf Storage= 7,440 cf

Plug-Flow detention time= 181.6 min calculated for 14,871 cf (77% of inflow)
Center-of-Mass det. time= 96.6 min (874.5 - 777.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,114.00'	13,834 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,114.00	5,669	0	0
1,116.00	8,165	13,834	13,834

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,114.00'	**1.020 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	1,115.00'	**10.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.17 cfs @ 12.40 hrs HW=1,115.16' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=1.71 cfs @ 12.40 hrs HW=1,115.16' TW=0.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 1.71 cfs @ 1.00 fps)

Summary for Pond CB1: CB-1

Inflow Area = 2,266 sf,100.00% Impervious, Inflow Depth > 7.30" for 100-year event
Inflow = 0.38 cfs @ 12.09 hrs, Volume= 1,378 cf
Outflow = 0.38 cfs @ 12.09 hrs, Volume= 1,378 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 12.09 hrs, Volume= 1,378 cf
Routed to Pond D1 : DMH-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,109.63' @ 12.13 hrs
Flood Elev= 1,112.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,109.21'	**12.0" Round Culvert** L= 12.0' Ke= 0.500 Inlet / Outlet Invert= 1,109.21' / 1,109.15' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.26 cfs @ 12.09 hrs HW=1,109.61' TW=1,109.55' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.26 cfs @ 1.35 fps)

Summary for Pond CB2: CB-2

Inflow Area = 6,058 sf, 37.39% Impervious, Inflow Depth > 5.54" for 100-year event
Inflow = 0.86 cfs @ 12.09 hrs, Volume= 2,794 cf
Outflow = 0.86 cfs @ 12.09 hrs, Volume= 2,794 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.86 cfs @ 12.09 hrs, Volume= 2,794 cf
Routed to Pond D1 : DMH-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,109.79' @ 12.09 hrs
Flood Elev= 1,112.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,109.21'	**12.0" Round Culvert** L= 12.0' Ke= 0.500 Inlet / Outlet Invert= 1,109.21' / 1,109.15' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.84 cfs @ 12.09 hrs HW=1,109.78' TW=1,109.55' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.84 cfs @ 2.60 fps)

Summary for Pond CB3: CB-3

Inflow Area = 4,187 sf,100.00% Impervious, Inflow Depth > 7.30" for 100-year event
Inflow = 0.69 cfs @ 12.09 hrs, Volume= 2,546 cf
Outflow = 0.69 cfs @ 12.09 hrs, Volume= 2,546 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.69 cfs @ 12.09 hrs, Volume= 2,546 cf
Routed to Pond D2 : DMH-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,111.01' @ 12.09 hrs
Flood Elev= 1,113.66'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,110.49'	**12.0" Round Culvert** L= 12.7' Ke= 0.500 Inlet / Outlet Invert= 1,110.49' / 1,110.43' S= 0.0047 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.68 cfs @ 12.09 hrs HW=1,111.00' TW=1,108.09' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.68 cfs @ 2.45 fps)

Summary for Pond CB4: CB-4

Inflow Area = 7,599 sf, 58.32% Impervious, Inflow Depth > 6.11" for 100-year event
Inflow = 1.16 cfs @ 12.09 hrs, Volume= 3,872 cf
Outflow = 1.16 cfs @ 12.09 hrs, Volume= 3,872 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.16 cfs @ 12.09 hrs, Volume= 3,872 cf
Routed to Pond D2 : DMH-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,111.18' @ 12.09 hrs
Flood Elev= 1,113.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,110.49'	**12.0" Round Culvert** L= 12.7' Ke= 0.500 Inlet / Outlet Invert= 1,110.49' / 1,110.43' S= 0.0047 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.13 cfs @ 12.09 hrs HW=1,111.17' TW=1,108.10' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.13 cfs @ 2.80 fps)

Summary for Pond CB5: CB-5

Inflow Area = 6,098 sf,100.00% Impervious, Inflow Depth > 7.30" for 100-year event
Inflow = 1.01 cfs @ 12.09 hrs, Volume= 3,708 cf
Outflow = 1.01 cfs @ 12.09 hrs, Volume= 3,708 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.01 cfs @ 12.09 hrs, Volume= 3,708 cf
Routed to Pond D5 : DMH-5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,110.16' @ 12.09 hrs
Flood Elev= 1,112.73'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,109.57'	**12.0" Round Culvert** L= 15.4' Ke= 0.050 Inlet / Outlet Invert= 1,109.57' / 1,109.49' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.98 cfs @ 12.09 hrs HW=1,110.15' TW=1,105.69' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.98 cfs @ 3.01 fps)

Summary for Pond CB6: CB-6

Inflow Area = 5,975 sf,100.00% Impervious, Inflow Depth > 7.30" for 100-year event
Inflow = 0.99 cfs @ 12.09 hrs, Volume= 3,633 cf
Outflow = 0.99 cfs @ 12.09 hrs, Volume= 3,633 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.99 cfs @ 12.09 hrs, Volume= 3,633 cf
Routed to Pond D5 : DMH-5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,110.20' @ 12.09 hrs
Flood Elev= 1,112.73'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,109.57'	**12.0" Round Culvert** L= 14.5' Ke= 0.500 Inlet / Outlet Invert= 1,109.57' / 1,109.50' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.96 cfs @ 12.09 hrs HW=1,110.19' TW=1,105.69' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.96 cfs @ 2.70 fps)

Summary for Pond CB7: CB-7

Inflow Area = 3,563 sf,100.00% Impervious, Inflow Depth > 7.30" for 100-year event
Inflow = 0.59 cfs @ 12.09 hrs, Volume= 2,166 cf
Outflow = 0.59 cfs @ 12.09 hrs, Volume= 2,166 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.59 cfs @ 12.09 hrs, Volume= 2,166 cf
Routed to Pond D7 : DMH-7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,112.90' @ 12.11 hrs
Flood Elev= 1,115.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,112.39'	**12.0" Round Culvert** L= 14.1' Ke= 0.500 Inlet / Outlet Invert= 1,112.39' / 1,112.32' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.50 cfs @ 12.09 hrs HW=1,112.88' TW=1,112.77' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.50 cfs @ 1.88 fps)

Summary for Pond CB8: CB-8

Inflow Area = 3,556 sf,100.00% Impervious, Inflow Depth > 7.30" for 100-year event
Inflow = 0.59 cfs @ 12.09 hrs, Volume= 2,162 cf
Outflow = 0.59 cfs @ 12.09 hrs, Volume= 2,162 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.59 cfs @ 12.09 hrs, Volume= 2,162 cf
Routed to Pond D7 : DMH-7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,112.91' @ 12.11 hrs
Flood Elev= 1,115.58'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,112.41'	**12.0" Round Culvert** L= 14.5' Ke= 0.500 Inlet / Outlet Invert= 1,112.41' / 1,112.34' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.51 cfs @ 12.09 hrs HW=1,112.90' TW=1,112.77' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.51 cfs @ 1.97 fps)

Summary for Pond D1: DMH-1

Inflow Area = 8,324 sf, 54.43% Impervious, Inflow Depth > 6.01" for 100-year event
Inflow = 1.24 cfs @ 12.09 hrs, Volume= 4,172 cf
Outflow = 1.24 cfs @ 12.09 hrs, Volume= 4,172 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.24 cfs @ 12.09 hrs, Volume= 4,172 cf
Routed to Pond D2 : DMH-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,109.56' @ 12.10 hrs
Flood Elev= 1,112.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,108.92'	**15.0" Round Culvert** L= 354.3' Ke= 0.500 Inlet / Outlet Invert= 1,108.92' / 1,107.15' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.17 cfs @ 12.09 hrs HW=1,109.55' TW=1,108.10' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.17 cfs @ 2.76 fps)

Summary for Pond D2: DMH-2

Inflow Area = 20,110 sf, 65.39% Impervious, Inflow Depth > 6.32" for 100-year event
Inflow = 3.10 cfs @ 12.09 hrs, Volume= 10,590 cf
Outflow = 3.10 cfs @ 12.09 hrs, Volume= 10,590 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.10 cfs @ 12.09 hrs, Volume= 10,590 cf
Routed to Pond D3 : DMH-3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,108.12' @ 12.10 hrs
Flood Elev= 1,116.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,107.05'	**15.0" Round Culvert** L= 189.2' Ke= 0.500 Inlet / Outlet Invert= 1,107.05' / 1,106.10' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.86 cfs @ 12.09 hrs HW=1,108.10' TW=1,107.09' (Dynamic Tailwater)
1=Culvert (Outlet Controls 2.86 cfs @ 3.52 fps)

Summary for Pond D3: DMH-3

Inflow Area = 20,110 sf, 65.39% Impervious, Inflow Depth > 6.32" for 100-year event
Inflow = 3.10 cfs @ 12.09 hrs, Volume= 10,590 cf
Outflow = 3.10 cfs @ 12.09 hrs, Volume= 10,590 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.10 cfs @ 12.09 hrs, Volume= 10,590 cf
Routed to Pond D4 : DMH-4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,107.11' @ 12.10 hrs
Flood Elev= 1,114.83'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,106.01'	**15.0" Round Culvert** L= 144.3' Ke= 0.500 Inlet / Outlet Invert= 1,106.01' / 1,105.29' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.75 cfs @ 12.09 hrs HW=1,107.09' TW=1,106.37' (Dynamic Tailwater)
1=Culvert (Outlet Controls 2.75 cfs @ 3.28 fps)

Summary for Pond D4: DMH-4

Inflow Area = 20,110 sf, 65.39% Impervious, Inflow Depth > 6.32" for 100-year event
Inflow = 3.10 cfs @ 12.09 hrs, Volume= 10,590 cf
Outflow = 3.10 cfs @ 12.09 hrs, Volume= 10,590 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.10 cfs @ 12.09 hrs, Volume= 10,590 cf
Routed to Pond D5 : DMH-5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,106.40' @ 12.10 hrs
Flood Elev= 1,113.59'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,105.28'	**15.0" Round Culvert** L= 134.1' Ke= 0.500 Inlet / Outlet Invert= 1,105.28' / 1,104.61' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.78 cfs @ 12.09 hrs HW=1,106.37' TW=1,105.70' (Dynamic Tailwater)
1=Culvert (Outlet Controls 2.78 cfs @ 3.27 fps)

Summary for Pond D5: DMH-5

Inflow Area = 39,302 sf, 82.29% Impervious, Inflow Depth > 6.80" for 100-year event
Inflow = 6.28 cfs @ 12.09 hrs, Volume= 22,259 cf
Outflow = 6.28 cfs @ 12.09 hrs, Volume= 22,259 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.28 cfs @ 12.09 hrs, Volume= 22,259 cf
Routed to Pond 1P : Road Pond 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,105.72' @ 12.09 hrs
Flood Elev= 1,112.98'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,104.26'	**18.0" Round Culvert** L= 253.5' Ke= 0.500 Inlet / Outlet Invert= 1,104.26' / 1,102.99' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.12 cfs @ 12.09 hrs HW=1,105.69' TW=1,102.81' (Dynamic Tailwater)
1=Culvert (Barrel Controls 6.12 cfs @ 4.51 fps)

Summary for Pond D6: DMH-6

Inflow Area = 7,119 sf,100.00% Impervious, Inflow Depth > 7.30" for 100-year event
Inflow = 1.18 cfs @ 12.09 hrs, Volume= 4,328 cf
Outflow = 1.18 cfs @ 12.09 hrs, Volume= 4,328 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.18 cfs @ 12.09 hrs, Volume= 4,328 cf
Routed to Pond D5 : DMH-5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,111.33' @ 12.09 hrs
Flood Elev= 1,114.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,110.76'	**12.0" Round Culvert** L= 94.2' Ke= 0.500 Inlet / Outlet Invert= 1,110.76' / 1,109.14' S= 0.0172 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.15 cfs @ 12.09 hrs HW=1,111.32' TW=1,105.69' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.15 cfs @ 2.55 fps)

Summary for Pond D7: DMH-7

Inflow Area = 7,119 sf,100.00% Impervious, Inflow Depth > 7.30" for 100-year event
Inflow = 1.18 cfs @ 12.09 hrs, Volume= 4,328 cf
Outflow = 1.18 cfs @ 12.09 hrs, Volume= 4,328 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.18 cfs @ 12.09 hrs, Volume= 4,328 cf
Routed to Pond D6 : DMH-6

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,112.78' @ 12.09 hrs
Flood Elev= 1,115.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,112.21'	**12.0" Round Culvert** L= 104.9' Ke= 0.500 Inlet / Outlet Invert= 1,112.21' / 1,110.87' S= 0.0128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.15 cfs @ 12.09 hrs HW=1,112.77' TW=1,111.32' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.15 cfs @ 2.55 fps)

Summary for Link AP1: To Commercial Dr, R&T Hockey

Inflow Area = 4,740 sf, 41.24% Impervious, Inflow Depth > 5.64" for 100-year event
Inflow = 0.68 cfs @ 12.09 hrs, Volume= 2,229 cf
Primary = 0.68 cfs @ 12.09 hrs, Volume= 2,229 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP2: To Rail Trail

Inflow Area = 258,913 sf, 12.49% Impervious, Inflow Depth > 3.53" for 100-year event
Inflow = 15.19 cfs @ 12.31 hrs, Volume= 76,181 cf
Primary = 15.19 cfs @ 12.31 hrs, Volume= 76,181 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP3: To Wetland

Inflow Area = 34,561 sf, 0.00% Impervious, Inflow Depth > 4.07" for 100-year event
Inflow = 3.41 cfs @ 12.12 hrs, Volume= 11,710 cf
Primary = 3.41 cfs @ 12.12 hrs, Volume= 11,710 cf, Atten= 0%, Lag= 0.0 min

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

Summary for Link AP4: To Wetland

Inflow Area = 921,950 sf, 1.52% Impervious, Inflow Depth > 3.54" for 100-year event
Inflow = 62.07 cfs @ 12.24 hrs, Volume= 272,288 cf
Primary = 62.07 cfs @ 12.24 hrs, Volume= 272,288 cf, Atten= 0%, Lag= 0.0 min

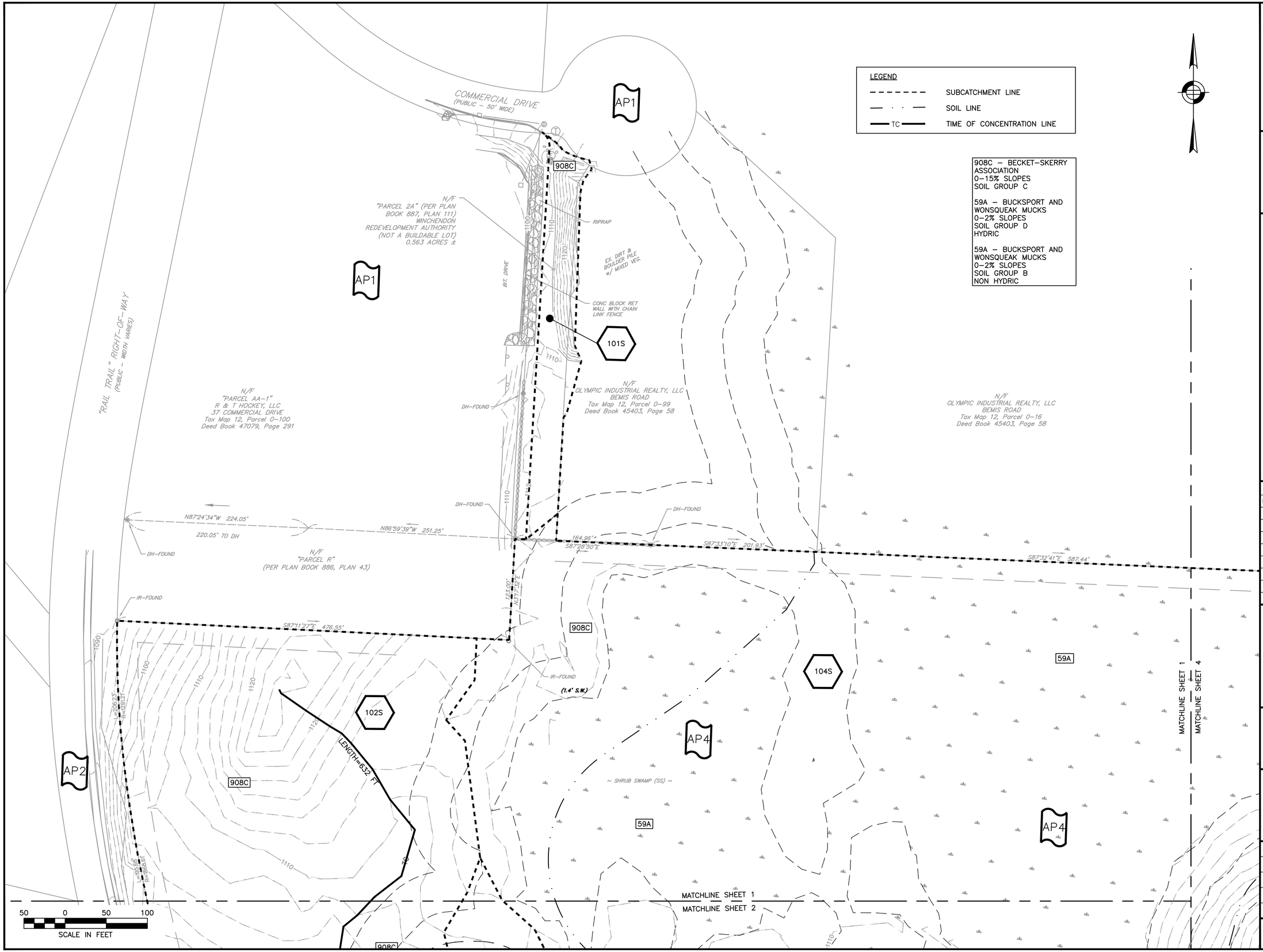
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link AP5: To Wetland

Inflow Area = 921,751 sf, 1.90% Impervious, Inflow Depth > 3.73" for 100-year event
Inflow = 67.03 cfs @ 12.23 hrs, Volume= 286,688 cf
Primary = 67.03 cfs @ 12.23 hrs, Volume= 286,688 cf, Atten= 0%, Lag= 0.0 min

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

Appendix F: Pre- and Post-development Watershed Plans



LEGEND

- SUBCATCHMENT LINE
- SOIL LINE
- TC — TIME OF CONCENTRATION LINE

908C – BECKET–SKERRY ASSOCIATION
0–15% SLOPES
SOIL GROUP C

59A – BUCKSPORT AND WONSQUEAK MUCKS
0–2% SLOPES
SOIL GROUP D
HYDRIC

59A – BUCKSPORT AND WONSQUEAK MUCKS
0–2% SLOPES
SOIL GROUP B
NON HYDRIC

HOWARD STEIN HUDSON
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Chelmsford, MA 01824
www.hshassoc.com

PREPARED FOR:
DAVID CLARK
METHUEN CONSTRUCTION
144 MAIN ST, P.O. BOX 980
PLAISTOW, NH 03865

PROPOSED COMMERCIAL SUBDIVISION

COMMERCIAL DRIVE
WINCHENDON, MA, 01475
WORCESTER COUNTY

REVISIONS:

NO	BY	DATE	DESCRIPTION

SITE PLAN

EXISTING WATERSHED PLAN 1 OF 4

DATE:	JULY 26, 2022
PROJECT NUMBER:	21262
DESIGNED BY:	PB
DRAWN BY:	PB/MB/NC
CHECKED BY:	KE

1

SHEET 1 OF 8

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MATCHLINE SHEET 1

MATCHLINE SHEET 2

MATCHLINE SHEET 2

MATCHLINE SHEET 3

908C

59A

103S

104S

AP2

AP3

AP4

AP5

TC

LENGTH=632 FT.

"RAIL TRAIL" RIGHT OF WAY
(PUBLIC - WIDTH VARIES)

N/F
TOWN OF WINCHENDON
OFF GARDNER ROAD
TAX MAP 12,
PARCEL 0-104

~ WOODED SWAMP CONIFEROUS (WS2) ~

~ WOODED SWAMP DECIDUOUS (WS1) ~

N/F
WINCHENDON FOREST LLC
TEEL ROAD
Tax Map 12, Parcel 0-56
Deed Book 48771, Page 346

N21°08'30"W
43.91'

N88°09'07"W 259.82'

IP-FOUND

N84°39'28"W 140

908C — BECKET-SKERRY ASSOCIATION
0-15% SLOPES
NON HYDRIC
SOIL GROUP C

59A — BUCKSPORT AND WONSQUEAK MUCKS
0-2% SLOPES
SOIL GROUP D
HYDRIC

59A — BUCKSPORT AND WONSQUEAK MUCKS
0-2% SLOPES
SOIL GROUP B
NON HYDRIC

LEGEND

- SUBCATCHMENT LINE
- SOIL LINE
- TC — TIME OF CONCENTRATION LINE

50 0 50 100
SCALE IN FEET

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WORCESTER COUNTY

REVISIONS:

NO	BY	DATE	DESCRIPTION

SITE PLAN

EXISTING WATERSHED PLAN 2 OF 4

DATE:	JULY 26, 2022
PROJECT NUMBER:	21262
DESIGNED BY:	PB
DRAWN BY:	PB/MB/NC
CHECKED BY:	KE

2

SHEET 2 OF 8

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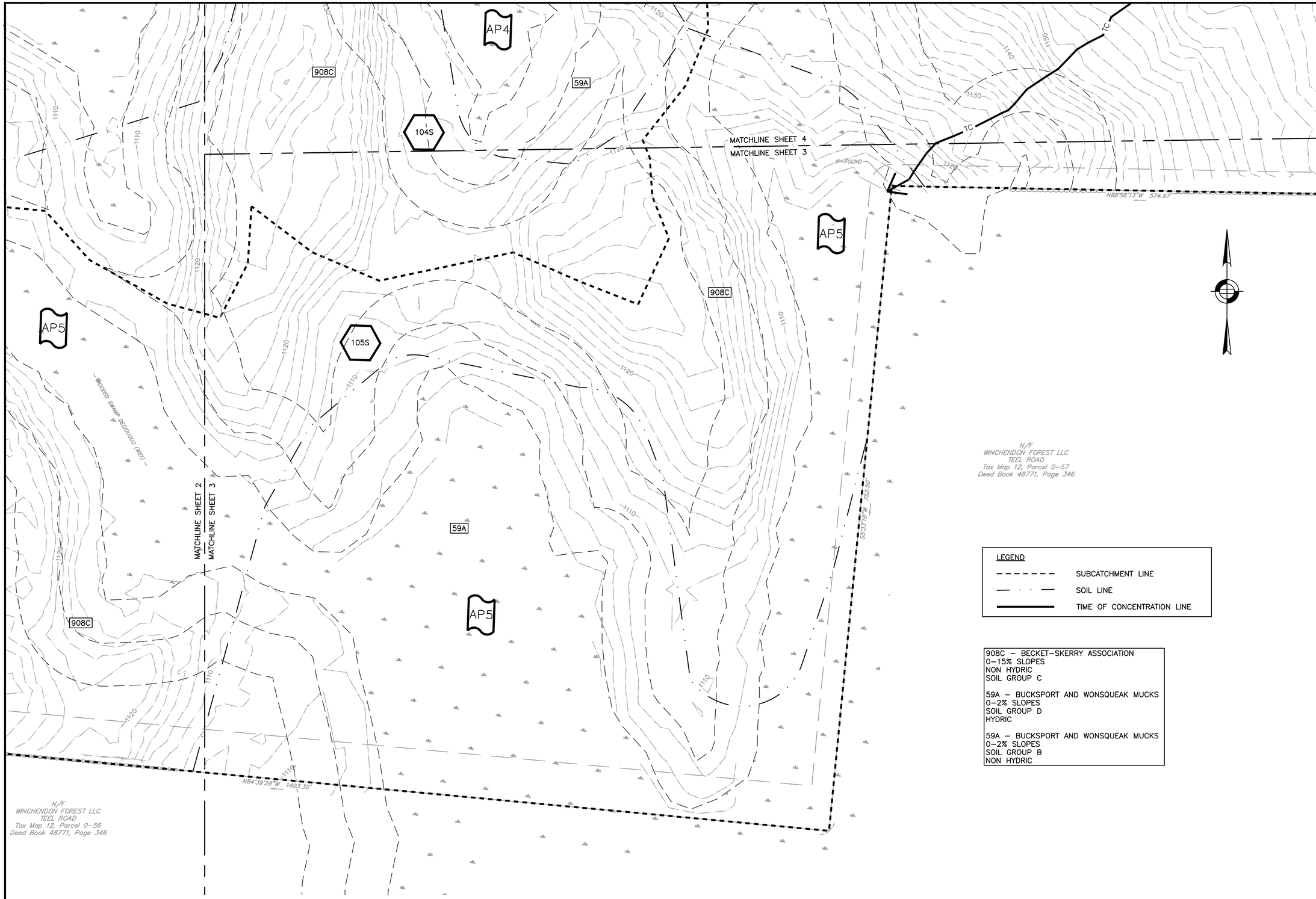

LEGEND

- SUBCATCHMENT LINE
- SOIL LINE
- TIME OF CONCENTRATION LINE

908C – BECKET–SKERRY ASSOCIATION
0–15% SLOPES
NON HYDRIC
SOIL GROUP C

59A – BUCKSPORT AND WONSQUEAK MUCKS
0–2% SLOPES
SOIL GROUP D
HYDRIC

59A – BUCKSPORT AND WONSQUEAK MUCKS
0–2% SLOPES
SOIL GROUP B
NON HYDRIC

50 0 50 100
SCALE IN FEET

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COMMERCIAL DRIVE
WINCHENDON, MA, 01475
WORCESTER COUNTY

REVISIONS:

NO	BY	DATE	DESCRIPTION

SITE PLAN

EXISTING WATERSHED PLAN
3 OF 4

DATE:	JULY 26, 2022
PROJECT NUMBER:	21262
DESIGNED BY:	PB
DRAWN BY:	PB/MB/NC
CHECKED BY:	KE

3
SHEET 3 OF 8

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LEGEND

- SUBCATCHMENT LINE
- SOIL LINE
- TIME OF CONCENTRATION LINE

59A – BUCKSPORT AND WONSQUEAK MUCKS
0–2% SLOPES
SOIL GROUP D
HYDRIC

59A – BUCKSPORT AND WONSQUEAK MUCKS
0–2% SLOPES
SOIL GROUP B
NON HYDRIC

905C – PERU–MARLOW ASSOCIATION
3–15% SLOPES
SOIL GROUP D
HYDRIC

905C – PERU MARLOW ASSOCIATION
3–15% SLOPES
SOIL GROUP C
NON HYDRIC

908C – BECKET–SKERRY ASSOCIATION
0–15% SLOPES
SOIL GROUP C
NON HYDRIC

N/F
OLYMPIC INDUSTRIAL REALTY, LLC
BEMIS ROAD
Tax Map 12, Parcel 0–16
Deed Book 45403, Page 58

S86°52'31"E 480.28'

S87°49'04"E 733.27'

EXISTING STONE WALL (TYP.)

S3°50'19"E 55.01'

S25°56'10"E 397.27'

S7°41'24"E 91.04'

S0°44'43"E 118.38'

N88°56'13"W 574.97'

MATCHLINE SHEET 1
MATCHLINE SHEET 4

MATCHLINE SHEET 4
MATCHLINE SHEET 3

LENGTH=717 FT

LENGTH=837 FT

TC

905C

59A

908C

105S

104S

AP4

AP5

IP=FOUND

BEMIS ROAD
(AN UNMAINTAINED TOWN WAY – WIDTH VARIES)

50 0 50 100
SCALE IN FEET

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COMMERCIAL DRIVE
WINCHENDON, MA, 01475
WORCESTER COUNTY

REVISIONS:

NO	BY	DATE	DESCRIPTION

SITE PLAN

EXISTING WATERSHED PLAN 4 OF 4

DATE:	JULY 26, 2022
PROJECT NUMBER:	21262
DESIGNED BY:	PB
DRAWN BY:	PB/MB/NC
CHECKED BY:	KE

4

SHEET 4 OF 8

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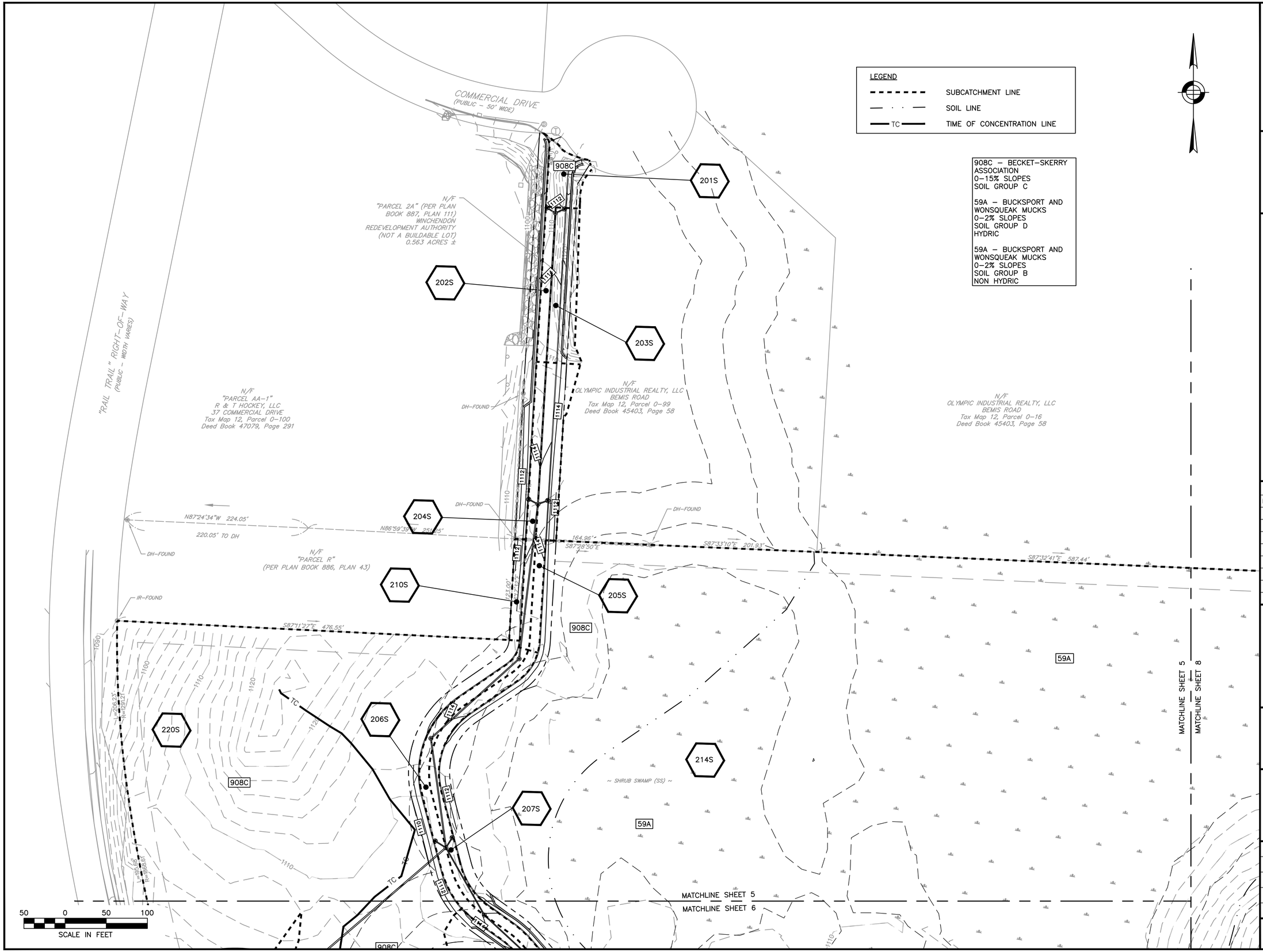

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COMMERCIAL DRIVE
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WORCESTER COUNTY

REVISIONS:

NO	BY	DATE	DESCRIPTION

SITE PLAN

PROPOSED WATERSHED PLAN
1 OF 4

DATE:	JULY 26, 2022
PROJECT NUMBER:	21262
DESIGNED BY:	PB
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5
SHEET 5 OF 8

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Printed by: Nathan Clegg

MATCHLINE SHEET 5

MATCHLINE SHEET 6

MATCHLINE SHEET 6

MATCHLINE SHEET 7

908C – BECKET–SKERRY ASSOCIATION
0–15% SLOPES
NON HYDRIC
SOIL GROUP C

59A – BUCKSPORT AND WONSQUEAK MUCKS
0–2% SLOPES
SOIL GROUP D
HYDRIC

59A – BUCKSPORT AND WONSQUEAK MUCKS
0–2% SLOPES
SOIL GROUP B
NON HYDRIC

LEGEND

- SUBCATCHMENT LINE
- SOIL LINE
- TC — TIME OF CONCENTRATION LINE

LENGTH=79 FT

LENGTH=567 FT

"RAIL TRAIL" RIGHT OF WAY (PUBLIC – WIDTH VARIES)

N/F
TOWN OF WINCHENDON
OFF GARDNER ROAD
TAX MAP 12,
PARCEL 0–104

N/F
WINCHENDON FOREST LLC
TEEL ROAD
Tax Map 12, Parcel 0–56
Deed Book 48771, Page 346

~ WOODED SWAMP CONIFEROUS (WS2) ~

~ WOODED SWAMP DECIDUOUS (WS1) ~

N21°08'30"W 43.91'

N88°09'07"W 259.82'

N84°39'28"W 140

IP–FOUND

SCALE IN FEET: 50 0 50 100

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WORCESTER COUNTY

REVISIONS:

NO	BY	DATE	DESCRIPTION

SITE PLAN

PROPOSED WATERSHED PLAN 2 OF 4

DATE:	JULY 26, 2022
PROJECT NUMBER:	21262
DESIGNED BY:	PB
DRAWN BY:	PB/MB/NC
CHECKED BY:	KE

6

SHEET 6 OF 8

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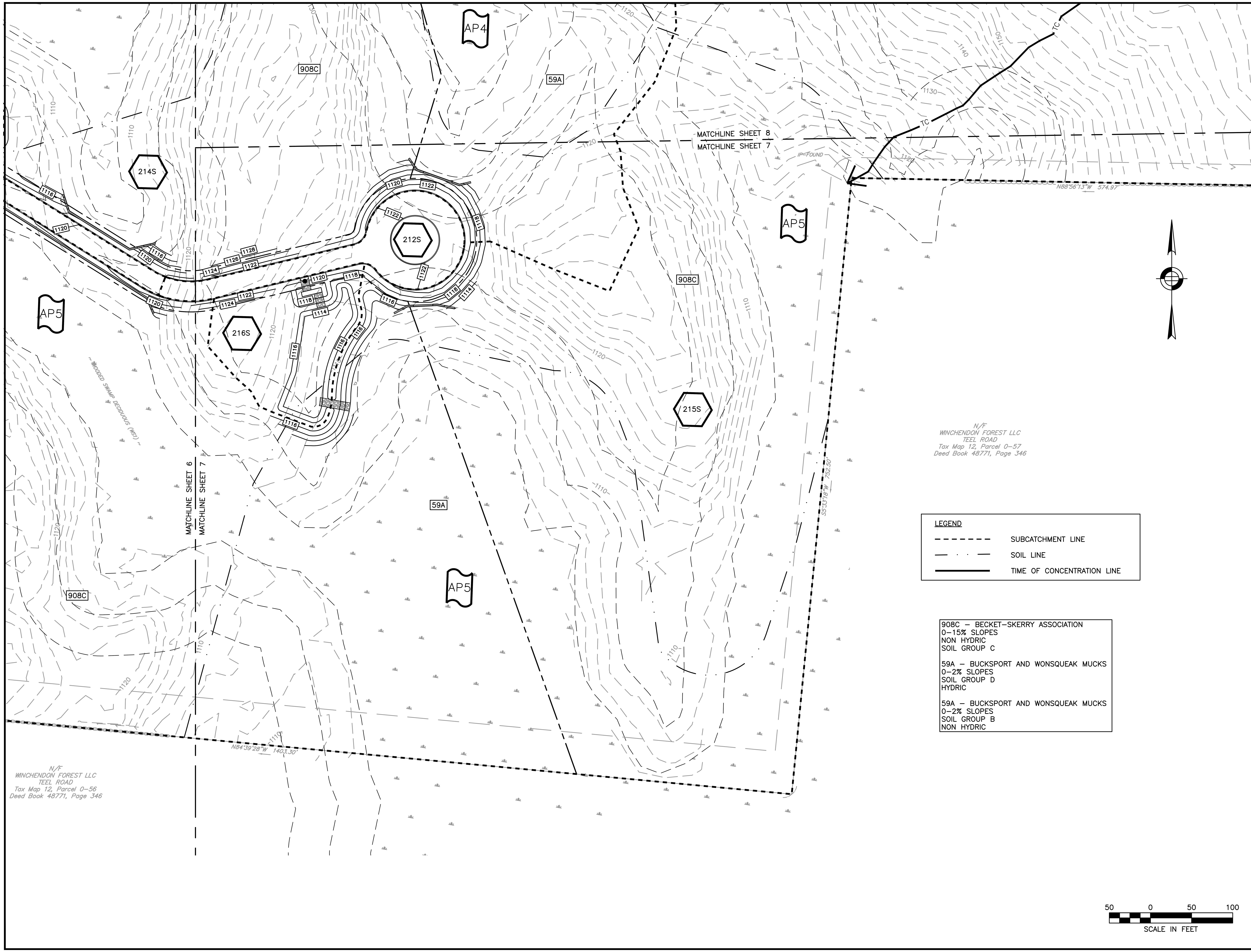

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COMMERCIAL DRIVE
WINCHENDON, MA, 01475
WORCESTER COUNTY

REVISIONS:

NO	BY	DATE	DESCRIPTION

SITE
PLAN

PROPOSED
WATERSHED
PLAN
3 OF 4

DATE:	JULY 26, 2022
PROJECT NUMBER:	21262
DESIGNED BY:	PB
DRAWN BY:	PB/MB/NC
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7

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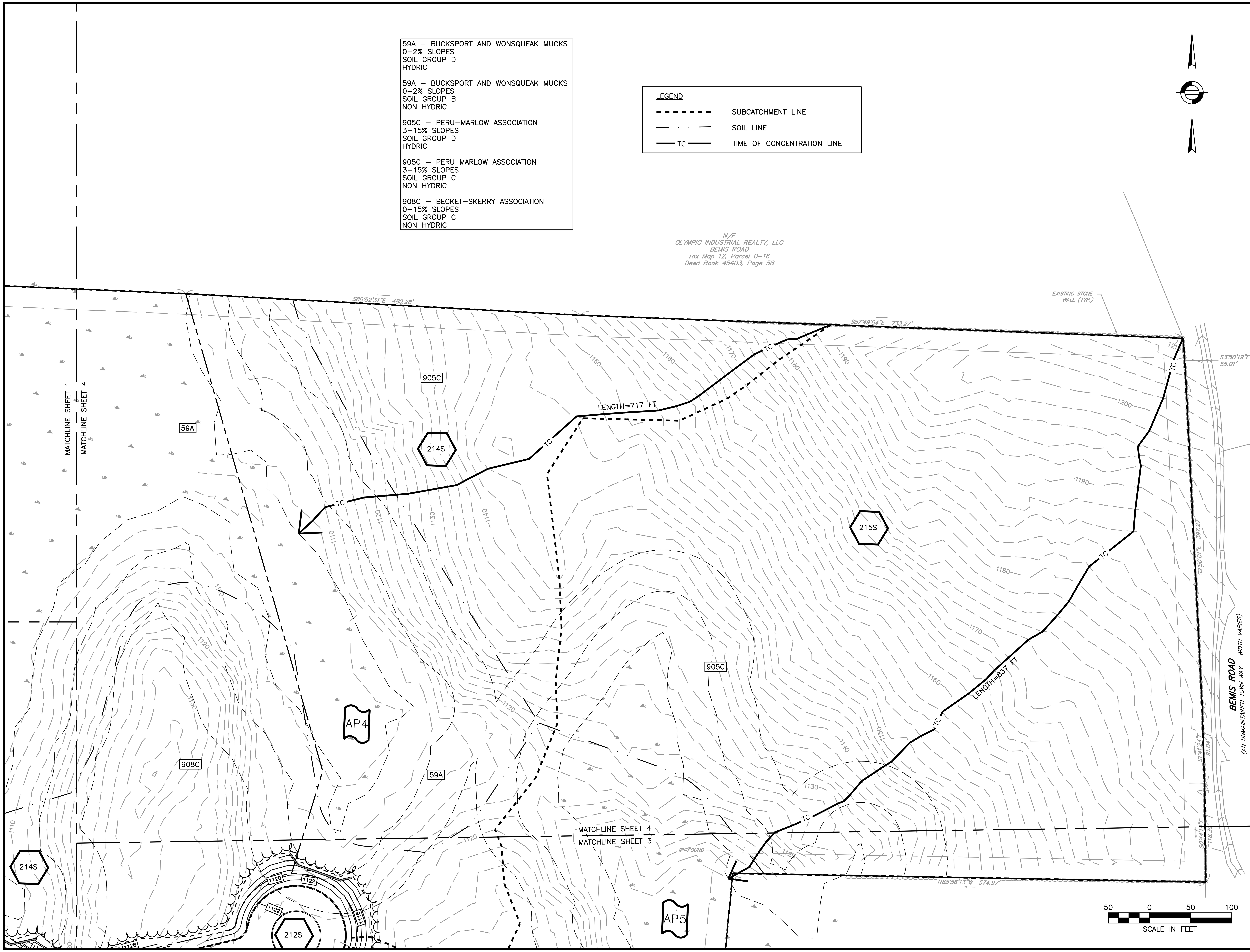

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WORCESTER COUNTY

REVISIONS:

NO	BY	DATE	DESCRIPTION

SITE PLAN

PROPOSED WATERSHED PLAN 4 OF 4

DATE:	JULY 26, 2022
PROJECT NUMBER:	21262
DESIGNED BY:	PB
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CHECKED BY:	KE

8

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