DM ROMA
CONSULTING ENGINEERS

STORMWATER MANAGEMENT REPORT

ANGLERS ROAD COMMONS
WINDHAM, MAINE

A. Narrative

Anglers Road Commons LLC is proposing to develop property located on Anglers Road in Windham as a 42-unit residential apartment development. The property is approximately 6.09 acres, is located in the Commercial 1 Zoning District and is identified as Lot 66 on the Town of Windham Assessors Map 80.

The project consists of twenty-one (21) duplex style structures containing twelve (12) three-bedroom residential apartments and thirty (30) two-bedroom residential apartments for a total of 42 units. The development will also include the construction of approximately 860 linear feet of paved roadway, reconstruction of a portion of the exiting Anglers Road, paved driveways and parking area, utility services and stormwater infrastructure. The development will be served by public water, common subsurface septic, natural gas and underground electric, telephone and cable.

The property was previously developed as a gravel pit which has been partially reclaimed. In general, the site drains southeasterly across Town owned land to Chaffin Pond located approximately 265 feet from the southerly property boundary. The Chaffin Pond watershed is defined by the Maine Department of Environmental Protection (MDEP) as a Lake Watershed Most at Risk from Development.

B. Alterations to Land Cover

The 6.09-acre parcel was previously developed as a gravel pit. The site currently consists of approximately 2.7 acres of un-revegetated surface. The remaining property is undeveloped woods.

The proposed development will generate approximately 65,463 square feet (1.50± acres) of new impervious surfaces consisting of the proposed buildings, paved roadway and driveways and a paved path within the open space. The development also proposes approximately 111,774 square feet (2.57± acres) of new landscaped area. Approximately 5,071 square feet (0.12± acres) of the project's total disturbed area, specifically a portion of the site associated with berm of the proposed underdrained soil filter basin "FB", by design will be allowed to revert to natural meadow, resulting in a total new developed area of approximately 177,237 square feet (4.07± acres).

Since the project is within a Lake Watershed Most at Risk from Development and will generate over 20,000 square feet of new impervious surface, a Stormwater Permit will need to be obtained from the MDEP. The stormwater design will be required to meet the Basic and General Standards of the MDEP Chapter 500 Stormwater Management Rules. Since the project will generate less than three (3) acres of new impervious surface and less than five (5) acres of new developed area and Chaffin Pond is not indicated as severely blooming, the MDEP allows the project to meet the General Standards as an acceptable alternative to the Phosphorous Standards.

In addition, the development will require Subdivision approval from the Town of Windham Planning Board. The Town's Land Use Ordinance requires the project to implement Best Management Practices (BMPs) to provide both stormwater quality and quantity control.

The site is relatively flat within the limits of the previously developed gravel pit (1-3%) with steeper slopes located within the undeveloped portion of the property with some slopes steeper than 3H:1V. The onsite soils as identified on the Medium Intensity Soil Maps for Cumberland County, Maine published by the Natural Resources Conservation Service are primarily Hinckley loamy sand. The soils within the proposed development are in the hydrologic soils group "A". The soils map has been included as Attachment 1 of this report.

C. Methodology and Modeling Assumptions

The proposed stormwater management system has been designed utilizing Best Management Practices (BMPs) to maintain existing drainage patterns while providing stormwater quality improvement measures. The goal of the storm drainage design is to remove potential pollutants while promoting infiltration and filtration of runoff generated by the development. The method utilized to predict the surface water runoff rates in this analysis is a computer program entitled HydroCAD, which is based on the same methods that were originally developed by the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service, and utilized in the TR-20 modeling program. Peak rates of runoff are forecasted based upon land use, hydrologic soil conditions, vegetative cover, contributing watershed area, time of concentration, rainfall data, storage volumes of detention basins and the hydraulic capacity of structures. The computer model predicts the amount of runoff as a function of time, with the ability to include the attenuation effect due to dams, lakes, large wetlands, floodplains and constructed stormwater management basins. The input data for rainfalls with statistical recurrence frequencies of 2-, 10- and 25 years was obtained from Appendix H of the MDEP, Chapter 500 Stormwater Management, last revised in 2015. The National Weather Service developed four synthetic storm types to simulate rainfall patterns around the country. For analysis in Cumberland County, Maine, the type III rainfall pattern with a 24-hour duration is appropriate.

D. Basic Standards

The project is required by the Town and the Maine Department of Environmental Protection (MDEP) to provide permanent and temporary Erosion Control Best Management Practices. These methods are outlined in detail in the plan set.

E. General Standard

The project is required by the MDEP and the Town of Windham to comply with Section 4B-General Standards of the MDEP Chapter 500 Stormwater Management Rules. This document outlines the requirement of the project to provide stormwater quality treatment for no less than 95% of the new impervious surface and 80% of the total new developed area associated with the project. The water quality requirements will be met with the utilization of an underdrained filter basin and roof dripedges installed around each of the apartment buildings. As a result of the proposed stormwater infrastructure, the project provides water quality treatment for over 99% of the site's new impervious surfaces and over 80% of the new developed areas. Calculations can be found on the Stormwater Treatment Plan and included as Attachment 2 of this report.

F. Flooding Standards

The proposed project is required by the Town of Windham to also meet the Flooding Standard outlined in the MDEP Chapter 500 requiring the project to detain, retain or result in the infiltration of stormwater from the 24-hour storms of the 2-year, 10-year and 25-year frequencies such that the peak flows of stormwater from the project site do not exceed the peak flows of stormwater prior to undertaking the project. To maintain these rates, the stormwater design incorporates a closed drainage system discharging to an underdrained filter basin.

Study Point 1 (SP-1) analyzes the flow tributary to the northern property corner along Angler's Road. This flow is conveyed onto the abutting property to the north and into the Angler's Road right of way. Study Point 2 (SP-2) investigates the flow crossing the southeastern property boundary onto the Town of Windham's property. This flow will drain across the publicly owned land and within 265 feet of the property line, discharge into Chaffin Pond.

The following table summarizes the analysis:

Table 1 – Peak Rates of Stormwater Runoff

Study Point	2-Year (cfs)		10-Year (cfs)		25-Year (cfs)	
	Pre	Post	Pre	Post	Pre	Post
SP-1	0.21	0.16	0.42	0.24	0.60	0.30
SP-2	4.12	0.62	8.26	4.04	11.82	7.21

As a result of the installation of the underdrained filter basin, the reduction in tributary area to SP-1, and re-vegetation of existing excavated bare soils on-site, the site effectively reduces the peak rates of runoff at the study point for all storm events. The watershed maps showing pre-development and post-development drainage patterns are included in the plan set and the computations performed with the HydroCAD software program are included as Attachment 3 in this report.

To demonstrate the that the design the proposed underdrained soil filter basin within 24 to 48 hours, a hydrograph of the proposed basin has been included as Attachment 3 of this report. In addition to the draw down time requirement for the basin, DM Roma prepared a model evaluating the proposed filter basin in the 25-year storm event under a scenario where the underdrain system fails, in effort to ensure that the emergency spillway will effectively drain the pond and provide a minimum of 1-foot of freeboard to the proposed top of berm. The summary report for the proposed underdrained soil filter "FB-1" is also included in Attachment 3 of this report.

G. Maintenance of common facilities or property

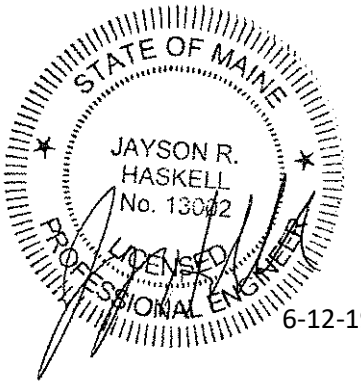
The owner/applicant will be responsible for the maintenance of the stormwater facilities. Enclosed is an Inspection, Maintenance and Housekeeping Plan for the project.

H. Amendment to Previous MDEP Stormwater Permit

This project proposes changes to an existing stormwater infiltration basin that was constructed as part of the Angler's Road Reconstruction Project, which included a MDEP Stormwater Permit with the Town of Windham listed as the applicant in 2014. The intent is to amend the previously approved permit order to include the impervious area that was tributary to the infiltration basin as part of the stormwater management design for the proposed project.

Prepared by:

DM ROMA CONSULTING ENGINEERS

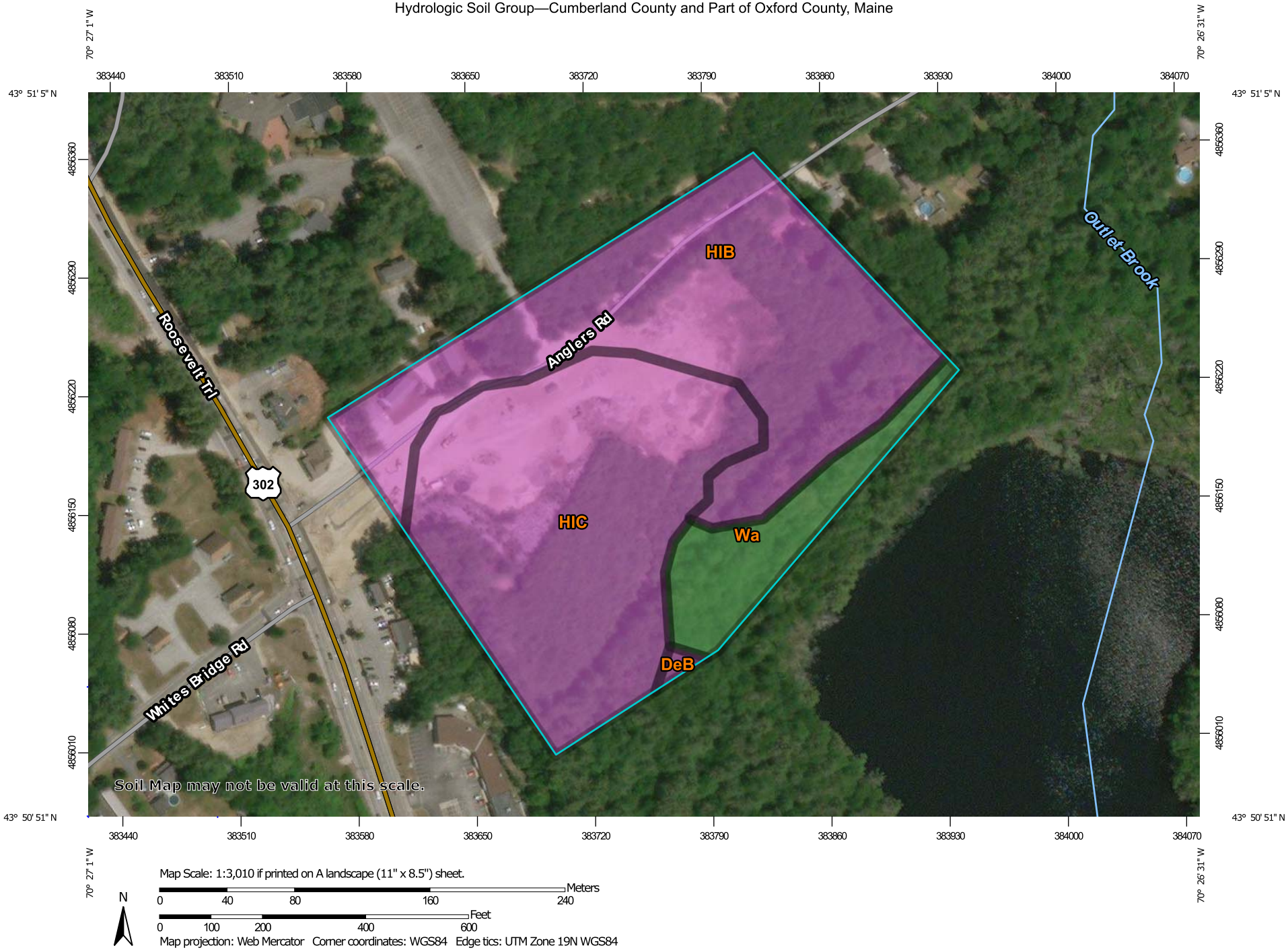


Jayson R. Haskell, P.E.
Southern Maine Regional Manager

6-12-19

ATTACHMENT 1

SOILS MAP



Map Scale: 1:3,010 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 15, Sep 6, 2018

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

Date(s) aerial images were photographed: Apr 29, 2012—Jun 26, 2016

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DeB	Deerfield loamy fine sand, 3 to 8 percent slopes	A	0.1	0.5%
HlB	Hinckley loamy sand, 3 to 8 percent slopes	A	7.6	44.8%
HlC	Hinckley loamy sand, 8 to 15 percent slopes	A	7.5	44.5%
Wa	Walpole fine sandy loam	A/D	1.7	10.3%
Totals for Area of Interest			**16.9**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

ATTACHMENT 2

STORMWATER TREATMENT CALCULATIONS

Stormwater Treatment Table

Anglers Road Commons Apartments

	Total Watershed Area (SF)	New Paved Impervious Area (SF)	New Building Area (SF)*	New Landscaped Area (SF)	Existing/Offsite Impervious Area (SF)**	Existing/Offsite Landscaped Area (SF)**	Existing Undeveloped Area (SF)	Treatment Provided	New Impervious Area Treated In Treatment Device (SF)	New Landscaped Area Treated In Treatment Device (SF)	Treatment Device
WS-10	10,178	206	1,541	7,411	909	110	0	No	0	0	None
WS-20	15,156	0	0	63	0	0	15,093	No	0	0	None
WS-21	134,479	266	6,034	27,027	0	62,322	38,830	No	0	0	FB
WS-22	13,632	944	567	12,121	0	0	0	YES	944	12,121	FB
WS-23	4,825	3,456	0	1,369	0	0	0	YES	3,456	1,369	FB
WS-24	19,789	9,270	3,466	7,054	0	0	0	YES	9,270	7,054	FB
WS-25	17,710	5,320	1,515	10,874	0	0	0	YES	5,320	10,874	FB
WS-26	12,441	1,703	276	1,003	8,887	572	0	YES	1,703	1,003	FB
WS-27	15,482	3,942	1,104	7,768	2,048	621	0	YES	3,942	7,768	FB
WS-28	24,838	0	3,885	20,952	0	0	0	YES	0	20,952	FB
WS-29	4,490	0	81	4,409	0	0	0	YES	0	4,409	FB
WS-31	12,139	6,197	1,797	4,146	0	0	0	YES	6,197	4,146	FB
WS-32	21,471	10,015	3,878	7,577	0	0	0	YES	10,015	7,577	FB
Total		**41,319**	**24,144**	**111,774**					**40,847**	**77,273**	

* All new buildings shall install a roofline drip edge to provide treatment for the rooftop impervious surface. The building's impervious area is included in the watershed and overall treatment calculations below, but not included in the BMP sizing calculations for each treatment device.

** The project is not taking credit for the Existing or Offsite impervious and landscaped areas, but are included in the BMP sizing calculations for each treatment device.

New Impervious Area =	65,463	sf
Impervious Area Requiring Treatment (95%) =	62,190	sf
Impervious Area Treatment Provided =	64,991	sf
	99%	New Impervious Area Treated

New Developed Area =	177,237	sf
Developed Area Requiring Treatment (80%) =	141,790	sf
Developed Area Treatment Provided =	142,264	sf
	80%	New Developed Area Treated

Filter Basin FB-1

Tributary Impervious Area*=	51,782	sf	(WS-21 ~ 29, & WS-31 & 32 Impervious Area*)
Tributary Landscaped Area**=	78,466	sf	(WS-21 ~ 29, & WS-31 & 32 Landscaped Area**)

* - includes new and existing (Angler's Road WS-26 & 27) impervious area tributary to FB-1

** - includes new and existing (Angler's Road WS-26 & 27) landscaped area tributary to FB-1

Water Quality Volume (WQV) Calculation

WQV (Required) = 1.0"xImpervious Area + 0.4"xLandscaped Area

WQV (Required) = 6,931 cf

Stage Storage Volume

Elevation	Area (sf)	Storage (cf)
298.25	4,230	0
300	5,676	8,328
301.5	7,193	17,957

Outlet Elevation = 299.75

Storage Volume Provided= 6,940 cf > Required

Filter Bottom Calculation

Filter Area (Required) = 5%xImpervious Area + 2%xLandscaped Area

Filter Area (Required) = 4,158 sf

Filter Area Provided = 4,230 sf > Required

Typical Drip Edge Sizing Calculations

Tributary Impervious Area=	626	sf
Tributary Landscaped Area=	0	sf

Water Quality Volume (WQV) Calculation

WQV (Required) = 1.0"xImpervious Area + 0.4"xLandscaped Area

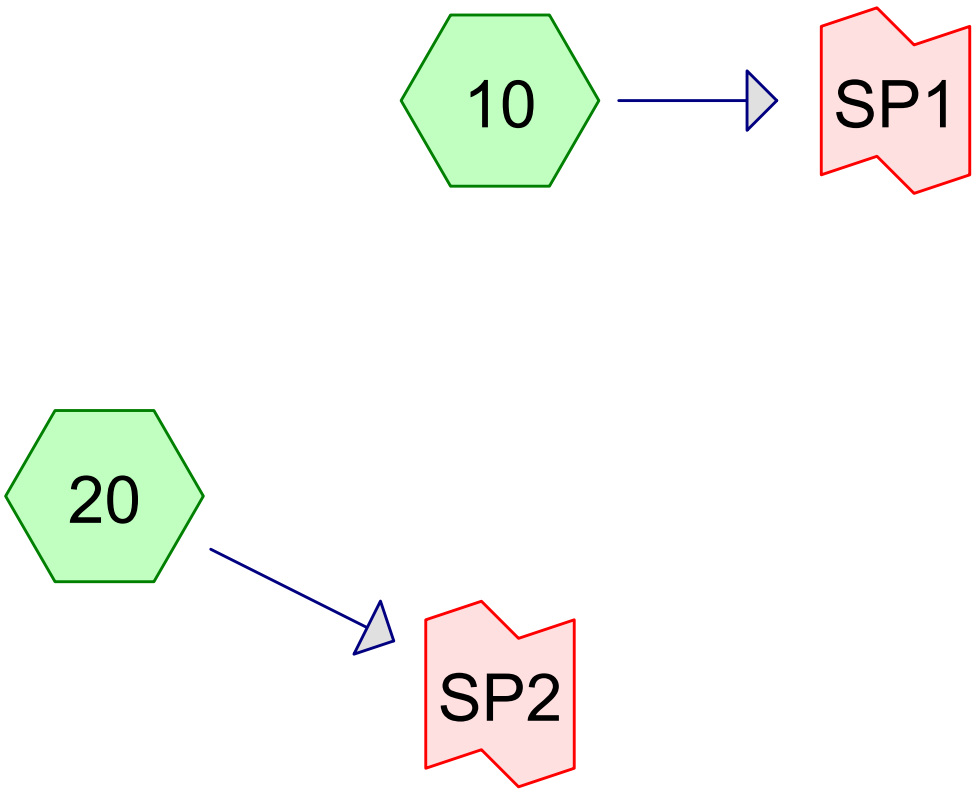
WQV (Required) = 52 cf

Drip Edge sizing:

Width	2	feet
Depth	2	feet
Effective Area	72	sf
% Void (crushed stone	40%	
Total Volume Provided:	**58**	**cf > Required**

ATTACHMENT 3

HYDROCAD OUTPUT



Subcat Reach Pond Link

Routing Diagram for 18093-PRE
Prepared by DM Roma Consulting Engineers, Printed 6/12/2019

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10: Runoff Area=7,377 sf 0.00% Impervious Runoff Depth=1.27"
Flow Length=77' Slope=0.0134 '/' Tc=9.5 min CN=WQ Runoff=0.21 cfs 780 cf

Subcatchment 20: Runoff Area=299,234 sf 3.37% Impervious Runoff Depth=0.74"
Flow Length=378' Tc=16.7 min CN=WQ Runoff=4.12 cfs 18,545 cf

Link SP1: Inflow=0.21 cfs 780 cf
Primary=0.21 cfs 780 cf

Link SP2: Inflow=4.12 cfs 18,545 cf
Primary=4.12 cfs 18,545 cf

Summary for Subcatchment 10:

Runoff = 0.21 cfs @ 12.14 hrs, Volume= 780 cf, Depth= 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	6,753	77	Newly graded area, HSG A
	0	32	Woods/grass comb., Good, HSG A
*	624	96	Existing Anglers Road, gravel
	7,377		Weighted Average
	7,377		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	77	0.0134	0.14		**Sheet Flow, Seg A to B** Grass: Short n= 0.150 P2= 3.10"

Summary for Subcatchment 20:

Runoff = 4.12 cfs @ 12.24 hrs, Volume= 18,545 cf, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	168,533	77	Newly graded area, HSG A
	120,111	32	Woods/grass comb., Good, HSG A
*	10,082	98	Existing paved roads, Anglers Road
*	508	96	Existing gravel surface, Anglers Road
	299,234		Weighted Average
	289,152		96.63% Pervious Area
	10,082		3.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	150	0.1226	0.17		**Sheet Flow, Seg A to B** Woods: Light underbrush n= 0.400 P2= 3.10"
1.2	172	0.2131	2.31		**Shallow Concentrated Flow, Seg B to C** Woodland Kv= 5.0 fps
0.9	56	0.0410	1.01		**Shallow Concentrated Flow, Seg C to D** Woodland Kv= 5.0 fps
16.7	378	Total			

Summary for Link SP1:

Inflow Area = 7,377 sf, 0.00% Impervious, Inflow Depth = 1.27" for 2-Year event
Inflow = 0.21 cfs @ 12.14 hrs, Volume= 780 cf
Primary = 0.21 cfs @ 12.14 hrs, Volume= 780 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP2:

Inflow Area = 299,234 sf, 3.37% Impervious, Inflow Depth = 0.74" for 2-Year event
Inflow = 4.12 cfs @ 12.24 hrs, Volume= 18,545 cf
Primary = 4.12 cfs @ 12.24 hrs, Volume= 18,545 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10: Runoff Area=7,377 sf 0.00% Impervious Runoff Depth=2.45"
Flow Length=77' Slope=0.0134 '/' Tc=9.5 min CN=WQ Runoff=0.42 cfs 1,505 cf

Subcatchment 20: Runoff Area=299,234 sf 3.37% Impervious Runoff Depth=1.45"
Flow Length=378' Tc=16.7 min CN=WQ Runoff=8.26 cfs 36,089 cf

Link SP1: Inflow=0.42 cfs 1,505 cf
Primary=0.42 cfs 1,505 cf

Link SP2: Inflow=8.26 cfs 36,089 cf
Primary=8.26 cfs 36,089 cf

Summary for Link SP1:

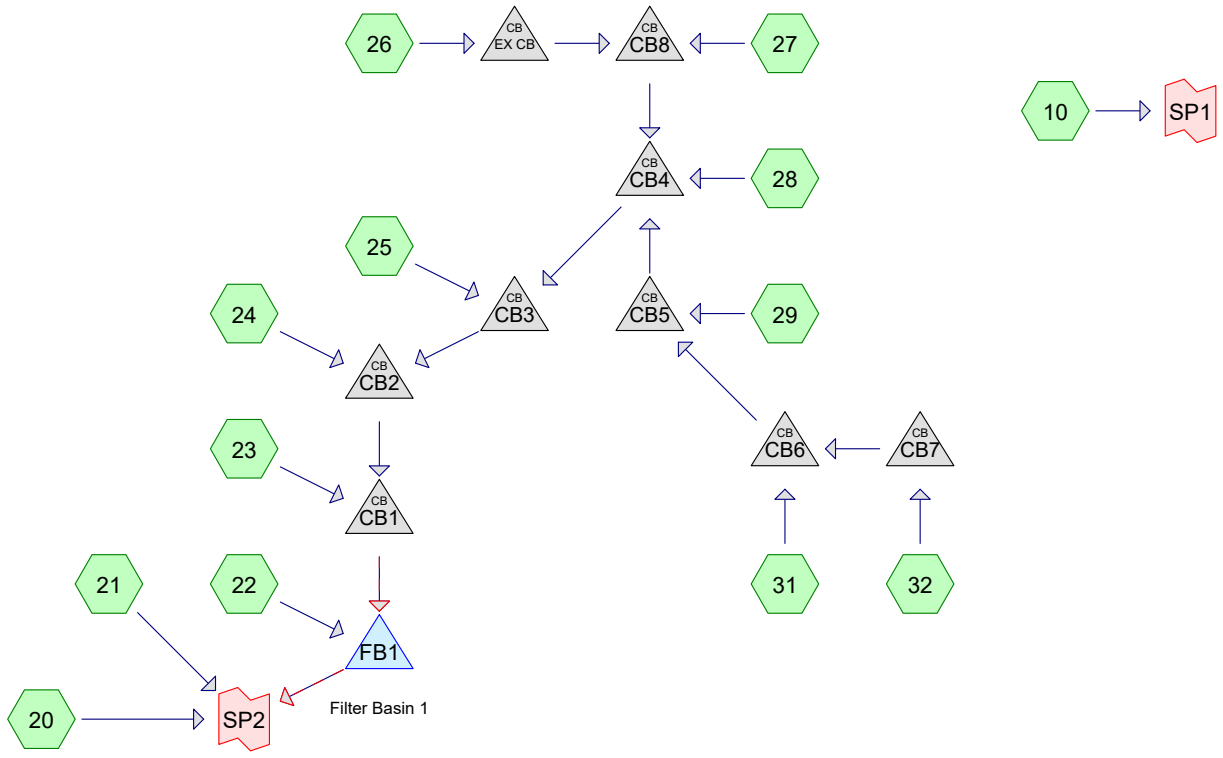
Inflow Area = 7,377 sf, 0.00% Impervious, Inflow Depth = 2.45" for 10-Year event
Inflow = 0.42 cfs @ 12.14 hrs, Volume= 1,505 cf
Primary = 0.42 cfs @ 12.14 hrs, Volume= 1,505 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP2:

Inflow Area = 299,234 sf, 3.37% Impervious, Inflow Depth = 1.45" for 10-Year event
Inflow = 8.26 cfs @ 12.23 hrs, Volume= 36,089 cf
Primary = 8.26 cfs @ 12.23 hrs, Volume= 36,089 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs



Subcat Reach Pond Link

Routing Diagram for 18093-POST

Prepared by DM Roma Consulting Engineers, Printed 6/12/2019

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment10: Runoff Area=10,177 sf 21.63% Impervious Runoff Depth=0.74"
Flow Length=75' Slope=0.0292 '/' Tc=9.9 min UI Adjusted CN=WQ Runoff=0.16 cfs 627 cf

Subcatchment20: Runoff Area=15,156 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=343' Tc=15.7 min CN=WQ Runoff=0.00 cfs 0 cf

Subcatchment21: Runoff Area=134,479 sf 4.68% Impervious Runoff Depth=0.13"
Flow Length=630' Tc=10.5 min UI Adjusted CN=WQ Runoff=0.37 cfs 1,506 cf

Subcatchment22: Runoff Area=13,632 sf 11.08% Impervious Runoff Depth=0.32"
Tc=6.0 min UI Adjusted CN=WQ Runoff=0.10 cfs 361 cf

Subcatchment23: Runoff Area=4,825 sf 71.63% Impervious Runoff Depth=2.05"
Tc=6.0 min CN=WQ Runoff=0.23 cfs 826 cf

Subcatchment24: Runoff Area=19,790 sf 64.36% Impervious Runoff Depth=1.85"
Flow Length=233' Tc=6.0 min CN=WQ Runoff=0.86 cfs 3,044 cf

Subcatchment25: Runoff Area=17,709 sf 38.60% Impervious Runoff Depth=1.11"
Flow Length=202' Tc=16.2 min CN=WQ Runoff=0.35 cfs 1,633 cf

Subcatchment26: Runoff Area=12,441 sf 87.34% Impervious Runoff Depth=2.50"
Flow Length=283' Tc=6.0 min CN=WQ Runoff=0.73 cfs 2,597 cf

Subcatchment27: Runoff Area=15,483 sf 45.82% Impervious Runoff Depth=1.31"
Flow Length=160' Tc=6.0 min CN=WQ Runoff=0.48 cfs 1,695 cf

Subcatchment28: Runoff Area=24,837 sf 15.64% Impervious Runoff Depth=0.45"
Flow Length=150' Slope=0.0393 '/' Tc=15.3 min UI Adjusted CN=WQ Runoff=0.20 cfs 928 cf

Subcatchment29: Runoff Area=4,490 sf 1.80% Impervious Runoff Depth=0.05"
Tc=6.0 min CN=WQ Runoff=0.01 cfs 19 cf

Subcatchment31: Runoff Area=12,140 sf 65.85% Impervious Runoff Depth=1.89"
Flow Length=214' Tc=7.1 min CN=WQ Runoff=0.52 cfs 1,910 cf

Subcatchment32: Runoff Area=21,470 sf 64.71% Impervious Runoff Depth=1.86"
Flow Length=206' Tc=7.1 min CN=WQ Runoff=0.91 cfs 3,320 cf

Pond CB1: Peak Elev=299.82' Inflow=4.14 cfs 15,974 cf
Primary=2.02 cfs 7,814 cf Secondary=2.12 cfs 8,160 cf Outflow=4.14 cfs 15,974 cf

Pond CB2: Peak Elev=299.87' Inflow=3.91 cfs 15,148 cf
18.0" Round Culvert n=0.013 L=85.0' S=0.0041 '/' Outflow=3.91 cfs 15,148 cf

Pond CB3: Peak Elev=300.08' Inflow=3.06 cfs 12,104 cf
18.0" Round Culvert n=0.013 L=18.0' S=0.0056 '/' Outflow=3.06 cfs 12,104 cf

Pond CB4: Peak Elev=300.48' Inflow=2.80 cfs 10,471 cf
15.0" Round Culvert n=0.013 L=98.0' S=0.0046 '/' Outflow=2.80 cfs 10,471 cf

Pond CB5: Peak Elev=300.71' Inflow=1.44 cfs 5,250 cf
15.0" Round Culvert n=0.013 L=99.0' S=0.0045 '/' Outflow=1.44 cfs 5,250 cf

Pond CB6: Peak Elev=300.97' Inflow=1.44 cfs 5,231 cf
15.0" Round Culvert n=0.013 L=61.0' S=0.0049 '/' Outflow=1.44 cfs 5,231 cf

Pond CB7: Peak Elev=301.09' Inflow=0.91 cfs 3,320 cf
12.0" Round Culvert n=0.013 L=18.0' S=0.0056 '/' Outflow=0.91 cfs 3,320 cf

Pond CB8: Peak Elev=301.32' Inflow=1.21 cfs 4,292 cf
12.0" Round Culvert n=0.013 L=210.0' S=0.0057 '/' Outflow=1.21 cfs 4,292 cf

Pond EX CB: Peak Elev=301.66' Inflow=0.73 cfs 2,597 cf
12.0" Round Culvert n=0.013 L=74.0' S=0.0054 '/' Outflow=0.73 cfs 2,597 cf

Pond FB1: Filter Basin 1 Peak Elev=299.82' Storage=8,106 cf Inflow=4.25 cfs 16,335 cf
Primary=0.13 cfs 14,250 cf Secondary=0.43 cfs 2,086 cf Outflow=0.56 cfs 16,336 cf

Link SP1: Inflow=0.16 cfs 627 cf
Primary=0.16 cfs 627 cf

Link SP2: Inflow=0.62 cfs 17,842 cf
Primary=0.62 cfs 17,842 cf

Summary for Subcatchment 10:

Runoff = 0.16 cfs @ 12.14 hrs, Volume= 627 cf, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Adj	Description
	7,521	39	39	>75% Grass cover, Good, HSG A
	0	32		Woods/grass comb., Good, HSG A
*	1,541	98	98	Proposed unconnected roofs
*	82	98	98	Proposed path, unconnected pavement
*	578	98	98	Proposed access and parking, paved
*	455	96	96	Existing Anglers Road, gravel
	10,177			Weighted Average
	7,976			78.37% Pervious Area
	2,201			21.63% Impervious Area
	1,623			73.74% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	75	0.0292	0.13		**Sheet Flow, Seg A to B** Grass: Dense n= 0.240 P2= 3.10"

Summary for Subcatchment 20:

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

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	63	39	>75% Grass cover, Good, HSG A
	15,093	32	Woods/grass comb., Good, HSG A
*	0	98	Proposed unconnected roofs
*	0	98	Proposed path, unconnected pavement
	15,156		Weighted Average
	15,156		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.2	150	0.1320	0.18		**Sheet Flow, Seg A to B** Woods: Light underbrush n= 0.400 P2= 3.10"
1.5	193	0.1856	2.15		**Shallow Concentrated Flow, Seg B to C** Woodland Kv= 5.0 fps
15.7	343	Total			

Summary for Subcatchment 21:

Runoff = 0.37 cfs @ 12.14 hrs, Volume= 1,506 cf, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Adj	Description
	89,349	39	39	>75% Grass cover, Good, HSG A
	5,071	30	30	Meadow, non-grazed, HSG A
	33,759	32	32	Woods/grass comb., Good, HSG A
*	6,034	98	98	Proposed unconnected roofs
*	266	98	98	Proposed path, unconnected pavement
	134,479			Weighted Average
	128,179			95.32% Pervious Area
	6,300			4.68% Impervious Area
	6,300			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	129	0.3333	0.54		**Sheet Flow, Seg A to B** Grass: Short n= 0.150 P2= 3.10"
2.0	21	0.0476	0.17		**Sheet Flow, Seg B to C** Grass: Short n= 0.150 P2= 3.10"
2.7	304	0.0131	1.84		**Shallow Concentrated Flow, Seg C to D** Unpaved Kv= 16.1 fps
1.5	67	0.0010	0.74	4.93	**Trap/Vee/Rect Channel Flow, Seg D to E** Bot.W=0.00' D=0.50' Z= 50.0 & 3.0 '/' Top.W=26.50' n= 0.025 Earth, clean & winding
0.2	81	0.0415	7.77	31.07	**Trap/Vee/Rect Channel Flow, Seg E to F** Bot.W=0.50' D=1.00' Z= 4.0 & 3.0 '/' Top.W=7.50' n= 0.025 Earth, clean & winding
0.1	19	0.0383	3.97		**Shallow Concentrated Flow, Seg F to G** Paved Kv= 20.3 fps
0.0	9	0.3135	9.01		**Shallow Concentrated Flow, Seg G to H** Unpaved Kv= 16.1 fps
10.5	630	Total			

Summary for Subcatchment 22:

Runoff = 0.10 cfs @ 12.09 hrs, Volume= 361 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Adj	Description
	12,121	39	39	>75% Grass cover, Good, HSG A
	0	32		Woods/grass comb., Good, HSG A
*	567	98	98	Proposed unconnected roofs
*	944	98	98	Proposed path, unconnected pavement
	13,632			Weighted Average
	12,121			88.92% Pervious Area
	1,511			11.08% Impervious Area
	1,511			100.00% Unconnected

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

Summary for Subcatchment 23:

Runoff = 0.23 cfs @ 12.09 hrs, Volume= 826 cf, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	1,369	39	>75% Grass cover, Good, HSG A
	0	32	Woods/grass comb., Good, HSG A
*	0	98	Proposed unconnected roofs
*	3,456	98	Proposed path & parking, unconnected pavement
	4,825		Weighted Average
	1,369		28.37% Pervious Area
	3,456		71.63% Impervious Area
	3,456		100.00% Unconnected

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

Summary for Subcatchment 24:

Runoff = 0.86 cfs @ 12.09 hrs, Volume= 3,044 cf, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	7,054	39	Proposed >75% Grass cover, Good, HSG A
	0	32	Woods/grass comb., Good, HSG A
*	3,466	98	Proposed unconnected roofs
*	0	98	Proposed path, unconnected pavement
*	9,270	98	Proposed access and parking, paved
*	0	98	Existing Anglers Road, paved
*	0	96	Existing Anglers Road, gravel
	19,790		Weighted Average
	7,054		35.64% Pervious Area
	12,736		64.36% Impervious Area
	3,466		27.21% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	23	0.0263	0.10		**Sheet Flow, Seg A to B** Grass: Dense n= 0.240 P2= 3.10"
0.3	20	0.0200	0.98		**Sheet Flow, Seg B to C** Smooth surfaces n= 0.011 P2= 3.10"
0.7	190	0.0089	4.23	26.56	**Trap/Vee/Rect Channel Flow, Seg C to D** Bot.W=0.00' D=0.50' Z= 50.0 & 0.2 '/' Top.W=25.10' n= 0.013 Asphalt, smooth
5.0	233	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 25:

Runoff = 0.35 cfs @ 12.21 hrs, Volume= 1,633 cf, Depth= 1.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	10,874	39	Proposed >75% Grass cover, Good, HSG A
	0	32	Woods/grass comb., Good, HSG A
*	1,515	98	Proposed unconnected roofs
*	0	98	Proposed path, unconnected pavement
*	5,320	98	Proposed access and parking, paved
	17,709		Weighted Average
	10,874		61.40% Pervious Area
	6,835		38.60% Impervious Area
	1,515		22.17% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	97	0.0435	0.16		**Sheet Flow, Seg A to B** Grass: Dense n= 0.240 P2= 3.10"
5.5	36	0.0293	0.11		**Sheet Flow, Seg B to C** Grass: Dense n= 0.240 P2= 3.10"
0.3	69	0.0093	4.33	27.15	**Trap/Vee/Rect Channel Flow, Seg C to D** Bot.W=0.00' D=0.50' Z= 50.0 & 0.2 '/' Top.W=25.10' n= 0.013 Asphalt, smooth

16.2 202 Total

Summary for Subcatchment 26:

Runoff = 0.73 cfs @ 12.09 hrs, Volume= 2,597 cf, Depth= 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	1,575	39	>75% Grass cover, Good, HSG A
	0	32	Woods/grass comb., Good, HSG A
*	276	98	Proposed unconnected roofs
*	0	98	Proposed path, unconnected pavement
*	1,703	98	Proposed access and parking, paved
*	8,887	98	Existing Anglers Road, paved
	12,441		Weighted Average
	1,575		12.66% Pervious Area
	10,866		87.34% Impervious Area
	276		2.54% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	150	0.0047	0.82		**Sheet Flow, Seg A to B** Smooth surfaces n= 0.011 P2= 3.10"
0.3	49	0.0045	3.01	18.89	**Trap/Vee/Rect Channel Flow, Seg B to C** Bot.W=0.00' D=0.50' Z= 50.0 & 0.2 '/' Top.W=25.10' n= 0.013 Asphalt, smooth
0.2	52	0.0103	3.49	19.00	**Trap/Vee/Rect Channel Flow, Seg C to D** Bot.W=0.00' D=0.33' Z= 50.0 '/' Top.W=33.00' n= 0.013 Asphalt, smooth
0.1	32	0.0065	3.62	22.70	**Trap/Vee/Rect Channel Flow, Seg D to E** Bot.W=0.00' D=0.50' Z= 50.0 & 0.2 '/' Top.W=25.10' n= 0.013 Asphalt, smooth
3.6	283	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 27:

Runoff = 0.48 cfs @ 12.09 hrs, Volume= 1,695 cf, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	8,389	39	Proposed >75% Grass cover, Good, HSG A
	0	32	Woods/grass comb., Good, HSG A
*	1,104	98	Proposed unconnected roofs
*	0	98	Proposed path, unconnected pavement
*	3,942	98	Proposed access and parking, paved
*	2,048	98	Existing Anglers Road, paved
	15,483		Weighted Average
	8,389		54.18% Pervious Area
	7,094		45.82% Impervious Area
	1,104		15.56% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	26	0.0163	0.08		**Sheet Flow, Seg A to B** Grass: Dense n= 0.240 P2= 3.10"
0.0	7	0.0210	2.94		**Shallow Concentrated Flow, Seg B to C** Paved Kv= 20.3 fps
0.2	42	0.0073	3.83	24.06	**Trap/Vee/Rect Channel Flow, Seg C to D** Bot.W=0.00' D=0.50' Z= 50.0 & 0.2 '/' Top.W=25.10' n= 0.013 Asphalt, smooth
0.1	53	0.0933	10.50	57.18	**Trap/Vee/Rect Channel Flow, Seg D to E** Bot.W=0.00' D=0.33' Z= 50.0 '/' Top.W=33.00' n= 0.013 Asphalt, smooth
0.1	32	0.0075	3.89	24.38	**Trap/Vee/Rect Channel Flow, Seg E to F** Bot.W=0.00' D=0.50' Z= 50.0 & 0.2 '/' Top.W=25.10' n= 0.013 Asphalt, smooth
5.8	160	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 28:

Runoff = 0.20 cfs @ 12.20 hrs, Volume= 928 cf, Depth= 0.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Adj	Description
*	20,952	39	39	Proposed >75% Grass cover, Good, HSG A
	0	32		Woods/grass comb., Good, HSG A
*	3,885	98	98	Proposed unconnected roofs
*	0	98		Proposed path, unconnected pavement
*	0	98		Proposed access and parking, paved
*	0	98		Existing Anglers Road, paved
*	0	96		Existing Anglers Road, gravel
	24,837			Weighted Average
	20,952			84.36% Pervious Area
	3,885			15.64% Impervious Area
	3,885			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.3	150	0.0393	0.16		**Sheet Flow, Seg A to B**
					Grass: Dense n= 0.240 P2= 3.10"

Summary for Subcatchment 29:

Runoff = 0.01 cfs @ 12.09 hrs, Volume= 19 cf, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	4,409	39	Proposed >75% Grass cover, Good, HSG A
	0	32	Woods/grass comb., Good, HSG A
*	81	98	Proposed unconnected roofs
*	0	98	Proposed path, unconnected pavement
	4,490		Weighted Average
	4,409		98.20% Pervious Area
	81		1.80% Impervious Area
	81		100.00% Unconnected

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

Summary for Subcatchment 31:

Runoff = 0.52 cfs @ 12.10 hrs, Volume= 1,910 cf, Depth= 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	4,146	39	Proposed >75% Grass cover, Good, HSG A
	0	32	Woods/grass comb., Good, HSG A
*	1,797	98	Proposed unconnected roofs
*	0	98	Proposed path, unconnected pavement
*	6,197	98	Proposed access and parking, paved
*	0	98	Existing Anglers Road, paved
*	0	96	Existing Anglers Road, gravel
	12,140		Weighted Average
	4,146		34.15% Pervious Area
	7,994		65.85% Impervious Area
	1,797		22.48% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	45	0.0263	0.11		**Sheet Flow, Seg A to B** Grass: Dense n= 0.240 P2= 3.10"
0.2	169	0.0873	14.30	112.54	**Trap/Vee/Rect Channel Flow, Seg B to C** Bot.W=0.00' D=0.56' Z= 50.0 & 0.2 '/' Top.W=28.11' n= 0.013 Asphalt, smooth
7.1	214	Total			

Summary for Subcatchment 32:

Runoff = 0.91 cfs @ 12.10 hrs, Volume= 3,320 cf, Depth= 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	7,577	39	Proposed >75% Grass cover, Good, HSG A
	0	32	Woods/grass comb., Good, HSG A
*	3,878	98	Proposed unconnected roofs
*	0	98	Proposed path, unconnected pavement
*	10,015	98	Proposed access and parking, paved
*	0	98	Existing Anglers Road, paved
*	0	96	Existing Anglers Road, gravel
	21,470		Weighted Average
	7,577		35.29% Pervious Area
	13,893		64.71% Impervious Area
	3,878		27.91% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	46	0.0293	0.11		**Sheet Flow, Seg A to B** Grass: Dense n= 0.240 P2= 3.10"
0.2	11	0.0233	0.93		**Sheet Flow, Seg B to C** Smooth surfaces n= 0.011 P2= 3.10"
0.2	149	0.0864	13.19	82.76	**Trap/Vee/Rect Channel Flow, Seg C to D** Bot.W=0.00' D=0.50' Z= 50.0 & 0.2 '/' Top.W=25.10' n= 0.013 Asphalt, smooth
7.1	206	Total			

Summary for Pond CB1:

Inflow Area = 133,185 sf, 50.19% Impervious, Inflow Depth = 1.44" for 2-Year event
Inflow = 4.14 cfs @ 12.10 hrs, Volume= 15,974 cf
Outflow = 4.14 cfs @ 12.10 hrs, Volume= 15,974 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.02 cfs @ 12.10 hrs, Volume= 7,814 cf
Secondary = 2.12 cfs @ 12.10 hrs, Volume= 8,160 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 299.82' @ 12.77 hrs
Flood Elev= 302.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	298.30'	**15.0" Round Culvert - SD-1** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 298.30' / 298.25' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	298.30'	**15.0" Round Culvert - SD-2** L= 28.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 298.30' / 298.25' S= 0.0018 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.41 cfs @ 12.10 hrs HW=299.35' TW=299.22' (Dynamic Tailwater)
└**1=Culvert - SD-1** (Outlet Controls 1.41 cfs @ 1.73 fps)

Secondary OutFlow Max=1.47 cfs @ 12.10 hrs HW=299.35' TW=299.22' (Dynamic Tailwater)
└**2=Culvert - SD-2** (Outlet Controls 1.47 cfs @ 1.82 fps)

Summary for Pond CB2:

Inflow Area = 128,360 sf, 49.38% Impervious, Inflow Depth = 1.42" for 2-Year event
Inflow = 3.91 cfs @ 12.10 hrs, Volume= 15,148 cf
Outflow = 3.91 cfs @ 12.10 hrs, Volume= 15,148 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.91 cfs @ 12.10 hrs, Volume= 15,148 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 299.87' @ 12.11 hrs
Flood Elev= 304.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	298.65'	**18.0" Round Culvert - SD-3** L= 85.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 298.65' / 298.30' S= 0.0041 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.55 cfs @ 12.10 hrs HW=299.86' TW=299.35' (Dynamic Tailwater)
└**1=Culvert - SD-3** (Outlet Controls 3.55 cfs @ 3.18 fps)

Summary for Pond CB3:

Inflow Area = 108,570 sf, 46.65% Impervious, Inflow Depth = 1.34" for 2-Year event
Inflow = 3.06 cfs @ 12.10 hrs, Volume= 12,104 cf
Outflow = 3.06 cfs @ 12.10 hrs, Volume= 12,104 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.06 cfs @ 12.10 hrs, Volume= 12,104 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 300.08' @ 12.14 hrs
Flood Elev= 304.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	298.85'	**18.0" Round Culvert - SD-4** L= 18.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 298.85' / 298.75' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.41 cfs @ 12.10 hrs HW=300.04' TW=299.86' (Dynamic Tailwater)
↑**1=Culvert - SD-4** (Inlet Controls 2.41 cfs @ 1.60 fps)

Summary for Pond CB4:

Inflow Area = 90,861 sf, 48.22% Impervious, Inflow Depth = 1.38" for 2-Year event
Inflow = 2.80 cfs @ 12.10 hrs, Volume= 10,471 cf
Outflow = 2.80 cfs @ 12.10 hrs, Volume= 10,471 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.80 cfs @ 12.10 hrs, Volume= 10,471 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 300.48' @ 12.13 hrs
Flood Elev= 303.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	299.35'	**15.0" Round Culvert - SD-5** L= 98.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 299.35' / 298.90' S= 0.0046 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.35 cfs @ 12.10 hrs HW=300.46' TW=300.03' (Dynamic Tailwater)
↑**1=Culvert - SD-5** (Outlet Controls 2.35 cfs @ 2.71 fps)

Summary for Pond CB5:

Inflow Area = 38,100 sf, 57.66% Impervious, Inflow Depth = 1.65" for 2-Year event
Inflow = 1.44 cfs @ 12.10 hrs, Volume= 5,250 cf
Outflow = 1.44 cfs @ 12.10 hrs, Volume= 5,250 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.44 cfs @ 12.10 hrs, Volume= 5,250 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 300.71' @ 12.14 hrs
Flood Elev= 304.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	299.85'	**15.0" Round Culvert - SD-6** L= 99.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 299.85' / 299.40' S= 0.0045 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.15 cfs @ 12.10 hrs HW=300.69' TW=300.47' (Dynamic Tailwater)
↑**1=Culvert - SD-6** (Outlet Controls 1.15 cfs @ 1.86 fps)

Summary for Pond CB6:

Inflow Area = 33,610 sf, 65.12% Impervious, Inflow Depth = 1.87" for 2-Year event
Inflow = 1.44 cfs @ 12.10 hrs, Volume= 5,231 cf
Outflow = 1.44 cfs @ 12.10 hrs, Volume= 5,231 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.44 cfs @ 12.10 hrs, Volume= 5,231 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 300.97' @ 12.13 hrs
Flood Elev= 303.99'

Device	Routing	Invert	Outlet Devices
#1	Primary	300.20'	**15.0" Round Culvert - SD-7** L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 300.20' / 299.90' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.19 cfs @ 12.10 hrs HW=300.95' TW=300.69' (Dynamic Tailwater)
1=Culvert - SD-7 (Outlet Controls 1.19 cfs @ 2.21 fps)

Summary for Pond CB7:

Inflow Area = 21,470 sf, 64.71% Impervious, Inflow Depth = 1.86" for 2-Year event
Inflow = 0.91 cfs @ 12.10 hrs, Volume= 3,320 cf
Outflow = 0.91 cfs @ 12.10 hrs, Volume= 3,320 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.91 cfs @ 12.10 hrs, Volume= 3,320 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 301.09' @ 12.14 hrs
Flood Elev= 303.99'

Device	Routing	Invert	Outlet Devices
#1	Primary	300.40'	**12.0" Round Culvert - SD-8** L= 18.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 300.40' / 300.30' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.68 cfs @ 12.10 hrs HW=301.07' TW=300.95' (Dynamic Tailwater)
1=Culvert - SD-8 (Outlet Controls 0.68 cfs @ 1.72 fps)

Summary for Pond CB8:

Inflow Area = 27,924 sf, 64.32% Impervious, Inflow Depth = 1.84" for 2-Year event
Inflow = 1.21 cfs @ 12.09 hrs, Volume= 4,292 cf
Outflow = 1.21 cfs @ 12.09 hrs, Volume= 4,292 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.21 cfs @ 12.09 hrs, Volume= 4,292 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 301.32' @ 12.10 hrs
Flood Elev= 304.24'

Device	Routing	Invert	Outlet Devices
#1	Primary	300.60'	**12.0" Round Culvert - SD-9** L= 210.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 300.60' / 299.40' S= 0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.10 cfs @ 12.09 hrs HW=301.30' TW=300.43' (Dynamic Tailwater)
↑—**1=Culvert - SD-9** (Outlet Controls 1.10 cfs @ 2.61 fps)

Summary for Pond EX CB:

Inflow Area = 12,441 sf, 87.34% Impervious, Inflow Depth = 2.50" for 2-Year event
Inflow = 0.73 cfs @ 12.09 hrs, Volume= 2,597 cf
Outflow = 0.73 cfs @ 12.09 hrs, Volume= 2,597 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.73 cfs @ 12.09 hrs, Volume= 2,597 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 301.66' @ 12.10 hrs
Flood Elev= 304.72'

Device	Routing	Invert	Outlet Devices
#1	Primary	301.10'	**12.0" Round Culvert - SD-10** L= 74.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 301.10' / 300.70' S= 0.0054 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.65 cfs @ 12.09 hrs HW=301.64' TW=301.30' (Dynamic Tailwater)
↑—**1=Culvert - SD-10** (Outlet Controls 0.65 cfs @ 2.16 fps)

Summary for Pond FB1: Filter Basin 1

Inflow Area = 146,817 sf, 46.56% Impervious, Inflow Depth = 1.34" for 2-Year event
Inflow = 4.25 cfs @ 12.10 hrs, Volume= 16,335 cf
Outflow = 0.56 cfs @ 12.74 hrs, Volume= 16,336 cf, Atten= 87%, Lag= 38.9 min
Primary = 0.13 cfs @ 12.74 hrs, Volume= 14,250 cf
Secondary = 0.43 cfs @ 12.74 hrs, Volume= 2,086 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 299.82' @ 12.74 hrs Surf.Area= 6,124 sf Storage= 8,106 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 489.0 min (1,247.8 - 758.8)

Volume	Invert	Avail.Storage	Storage Description
#1	298.25'	17,601 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
298.25	4,230	396.4	0	0	4,230
299.00	5,154	424.7	3,513	3,513	6,105
300.00	6,355	325.6	5,744	9,257	12,033
301.00	7,360	344.5	6,851	16,109	13,096
301.20	7,568	348.2	1,493	17,601	13,311

Device	Routing	Invert	Outlet Devices
#1	Primary	295.50'	**1.1" Vert. 1-1/8" orifice in end cap X 2.00** C= 0.600
#2	Device 1	295.98'	**4.0" Round Culvert X 2.00** L= 38.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 295.98' / 295.50' S= 0.0126 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf
#3	Device 2	298.25'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 295.00'
#4	Secondary	299.75'	**10.0' long x 12.0' 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) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=0.13 cfs @ 12.74 hrs HW=299.82' TW=0.00' (Dynamic Tailwater)
↑**1=1-1/8" orifice in end cap** (Orifice Controls 0.13 cfs @ 9.95 fps)
↑**2=Culvert** (Passes 0.13 cfs of 1.08 cfs potential flow)
↑**3=Exfiltration** (Passes 0.13 cfs of 0.48 cfs potential flow)

Secondary OutFlow Max=0.43 cfs @ 12.74 hrs HW=299.82' TW=0.00' (Dynamic Tailwater)
↑**4=Broad-Crested Rectangular Weir** (Weir Controls 0.43 cfs @ 0.66 fps)

Summary for Link SP1:

Inflow Area = 10,177 sf, 21.63% Impervious, Inflow Depth = 0.74" for 2-Year event
Inflow = 0.16 cfs @ 12.14 hrs, Volume= 627 cf
Primary = 0.16 cfs @ 12.14 hrs, Volume= 627 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP2:

Inflow Area = 296,452 sf, 25.18% Impervious, Inflow Depth = 0.72" for 2-Year event
Inflow = 0.62 cfs @ 12.72 hrs, Volume= 17,842 cf
Primary = 0.62 cfs @ 12.72 hrs, Volume= 17,842 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment10: Runoff Area=10,177 sf 21.63% Impervious Runoff Depth=1.22"
Flow Length=75' Slope=0.0292 '/' Tc=9.9 min UI Adjusted CN=WQ Runoff=0.24 cfs 1,037 cf

Subcatchment20: Runoff Area=15,156 sf 0.00% Impervious Runoff Depth=0.01"
Flow Length=343' Tc=15.7 min CN=WQ Runoff=0.00 cfs 8 cf

Subcatchment21: Runoff Area=134,479 sf 4.68% Impervious Runoff Depth=0.29"
Flow Length=630' Tc=10.5 min UI Adjusted CN=WQ Runoff=0.56 cfs 3,249 cf

Subcatchment22: Runoff Area=13,632 sf 11.08% Impervious Runoff Depth=0.60"
Tc=6.0 min UI Adjusted CN=WQ Runoff=0.15 cfs 677 cf

Subcatchment23: Runoff Area=4,825 sf 71.63% Impervious Runoff Depth=3.16"
Tc=6.0 min CN=WQ Runoff=0.35 cfs 1,271 cf

Subcatchment24: Runoff Area=19,790 sf 64.36% Impervious Runoff Depth=2.85"
Flow Length=233' Tc=6.0 min CN=WQ Runoff=1.28 cfs 4,706 cf

Subcatchment25: Runoff Area=17,709 sf 38.60% Impervious Runoff Depth=1.76"
Flow Length=202' Tc=16.2 min CN=WQ Runoff=0.52 cfs 2,600 cf

Subcatchment26: Runoff Area=12,441 sf 87.34% Impervious Runoff Depth=3.83"
Flow Length=283' Tc=6.0 min CN=WQ Runoff=1.10 cfs 3,968 cf

Subcatchment27: Runoff Area=15,483 sf 45.82% Impervious Runoff Depth=2.07"
Flow Length=160' Tc=6.0 min CN=WQ Runoff=0.71 cfs 2,668 cf

Subcatchment28: Runoff Area=24,837 sf 15.64% Impervious Runoff Depth=0.79"
Flow Length=150' Slope=0.0393 '/' Tc=15.3 min UI Adjusted CN=WQ Runoff=0.30 cfs 1,634 cf

Subcatchment29: Runoff Area=4,490 sf 1.80% Impervious Runoff Depth=0.20"
Tc=6.0 min CN=WQ Runoff=0.01 cfs 76 cf

Subcatchment31: Runoff Area=12,140 sf 65.85% Impervious Runoff Depth=2.92"
Flow Length=214' Tc=7.1 min CN=WQ Runoff=0.78 cfs 2,951 cf

Subcatchment32: Runoff Area=21,470 sf 64.71% Impervious Runoff Depth=2.87"
Flow Length=206' Tc=7.1 min CN=WQ Runoff=1.36 cfs 5,132 cf

Pond CB1: Peak Elev=300.15' Inflow=6.20 cfs 25,006 cf
Primary=3.10 cfs 12,312 cf Secondary=3.10 cfs 12,694 cf Outflow=6.20 cfs 25,006 cf

Pond CB2: Peak Elev=300.66' Inflow=5.85 cfs 23,735 cf
18.0" Round Culvert n=0.013 L=85.0' S=0.0041 '/' Outflow=5.85 cfs 23,735 cf

Pond CB3: Peak Elev=300.99' Inflow=4.58 cfs 19,029 cf
18.0" Round Culvert n=0.013 L=18.0' S=0.0056 '/' Outflow=4.58 cfs 19,029 cf

Pond CB4: Peak Elev=301.32' Inflow=4.19 cfs 16,429 cf
15.0" Round Culvert n=0.013 L=98.0' S=0.0046 '/' Outflow=4.19 cfs 16,429 cf

Pond CB5: Peak Elev=301.39' Inflow=2.16 cfs 8,159 cf
15.0" Round Culvert n=0.013 L=99.0' S=0.0045 '/' Outflow=2.16 cfs 8,159 cf

Pond CB6: Peak Elev=301.44' Inflow=2.15 cfs 8,083 cf
15.0" Round Culvert n=0.013 L=61.0' S=0.0049 '/' Outflow=2.15 cfs 8,083 cf

Pond CB7: Peak Elev=301.47' Inflow=1.36 cfs 5,132 cf
12.0" Round Culvert n=0.013 L=18.0' S=0.0056 '/' Outflow=1.36 cfs 5,132 cf

Pond CB8: Peak Elev=301.62' Inflow=1.81 cfs 6,636 cf
12.0" Round Culvert n=0.013 L=210.0' S=0.0057 '/' Outflow=1.81 cfs 6,636 cf

Pond EX CB: Peak Elev=301.85' Inflow=1.10 cfs 3,968 cf
12.0" Round Culvert n=0.013 L=74.0' S=0.0054 '/' Outflow=1.10 cfs 3,968 cf

Pond FB1: Filter Basin 1 Peak Elev=300.01' Storage=9,346 cf Inflow=6.35 cfs 25,684 cf
Primary=0.13 cfs 16,102 cf Secondary=3.51 cfs 9,589 cf Outflow=3.64 cfs 25,691 cf

Link SP1: Inflow=0.24 cfs 1,037 cf
Primary=0.24 cfs 1,037 cf

Link SP2: Inflow=4.04 cfs 28,948 cf
Primary=4.04 cfs 28,948 cf

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment10: Runoff Area=10,177 sf 21.63% Impervious Runoff Depth=1.73"
Flow Length=75' Slope=0.0292 '/' Tc=9.9 min UI Adjusted CN=WQ Runoff=0.30 cfs 1,467 cf

Subcatchment20: Runoff Area=15,156 sf 0.00% Impervious Runoff Depth=0.11"
Flow Length=343' Tc=15.7 min CN=WQ Runoff=0.00 cfs 135 cf

Subcatchment21: Runoff Area=134,479 sf 4.68% Impervious Runoff Depth=0.55"
Flow Length=630' Tc=10.5 min UI Adjusted CN=WQ Runoff=0.74 cfs 6,141 cf

Subcatchment22: Runoff Area=13,632 sf 11.08% Impervious Runoff Depth=0.96"
Tc=6.0 min UI Adjusted CN=WQ Runoff=0.19 cfs 1,094 cf

Subcatchment23: Runoff Area=4,825 sf 71.63% Impervious Runoff Depth=4.09"
Tc=6.0 min CN=WQ Runoff=0.44 cfs 1,646 cf

Subcatchment24: Runoff Area=19,790 sf 64.36% Impervious Runoff Depth=3.72"
Flow Length=233' Tc=6.0 min CN=WQ Runoff=1.62 cfs 6,132 cf

Subcatchment25: Runoff Area=17,709 sf 38.60% Impervious Runoff Depth=2.39"
Flow Length=202' Tc=16.2 min CN=WQ Runoff=0.67 cfs 3,521 cf

Subcatchment26: Runoff Area=12,441 sf 87.34% Impervious Runoff Depth=4.91"
Flow Length=283' Tc=6.0 min CN=WQ Runoff=1.38 cfs 5,088 cf

Subcatchment27: Runoff Area=15,483 sf 45.82% Impervious Runoff Depth=2.76"
Flow Length=160' Tc=6.0 min CN=WQ Runoff=0.91 cfs 3,561 cf

Subcatchment28: Runoff Area=24,837 sf 15.64% Impervious Runoff Depth=1.20"
Flow Length=150' Slope=0.0393 '/' Tc=15.3 min UI Adjusted CN=WQ Runoff=0.39 cfs 2,481 cf

Subcatchment29: Runoff Area=4,490 sf 1.80% Impervious Runoff Depth=0.48"
Tc=6.0 min CN=WQ Runoff=0.02 cfs 181 cf

Subcatchment31: Runoff Area=12,140 sf 65.85% Impervious Runoff Depth=3.80"
Flow Length=214' Tc=7.1 min CN=WQ Runoff=0.99 cfs 3,840 cf

Subcatchment32: Runoff Area=21,470 sf 64.71% Impervious Runoff Depth=3.74"
Flow Length=206' Tc=7.1 min CN=WQ Runoff=1.72 cfs 6,686 cf

Pond CB1: Peak Elev=300.71' Inflow=7.84 cfs 33,136 cf
Primary=3.92 cfs 16,369 cf Secondary=3.92 cfs 16,767 cf Outflow=7.84 cfs 33,136 cf

Pond CB2: Peak Elev=301.72' Inflow=7.40 cfs 31,490 cf
18.0" Round Culvert n=0.013 L=85.0' S=0.0041 '/' Outflow=7.40 cfs 31,490 cf

Pond CB3: Peak Elev=302.25' Inflow=5.79 cfs 25,357 cf
18.0" Round Culvert n=0.013 L=18.0' S=0.0056 '/' Outflow=5.79 cfs 25,357 cf

Pond CB4: Peak Elev=302.83' Inflow=5.30 cfs 21,836 cf
15.0" Round Culvert n=0.013 L=98.0' S=0.0046 '/' Outflow=5.30 cfs 21,836 cf

Pond CB5: Peak Elev=302.95' Inflow=2.73 cfs 10,706 cf
15.0" Round Culvert n=0.013 L=99.0' S=0.0045 '/' Outflow=2.73 cfs 10,706 cf

Pond CB6: Peak Elev=303.03' Inflow=2.72 cfs 10,526 cf
15.0" Round Culvert n=0.013 L=61.0' S=0.0049 '/' Outflow=2.72 cfs 10,526 cf

Pond CB7: Peak Elev=303.08' Inflow=1.72 cfs 6,686 cf
12.0" Round Culvert n=0.013 L=18.0' S=0.0056 '/' Outflow=1.72 cfs 6,686 cf

Pond CB8: Peak Elev=303.11' Inflow=2.29 cfs 8,648 cf
12.0" Round Culvert n=0.013 L=210.0' S=0.0057 '/' Outflow=2.29 cfs 8,648 cf

Pond EX CB: Peak Elev=303.15' Inflow=1.38 cfs 5,088 cf
12.0" Round Culvert n=0.013 L=74.0' S=0.0054 '/' Outflow=1.38 cfs 5,088 cf

Pond FB1: Filter Basin 1 Peak Elev=300.14' Storage=10,147 cf Inflow=8.04 cfs 34,230 cf
Primary=0.14 cfs 17,036 cf Secondary=6.33 cfs 17,203 cf Outflow=6.47 cfs 34,239 cf

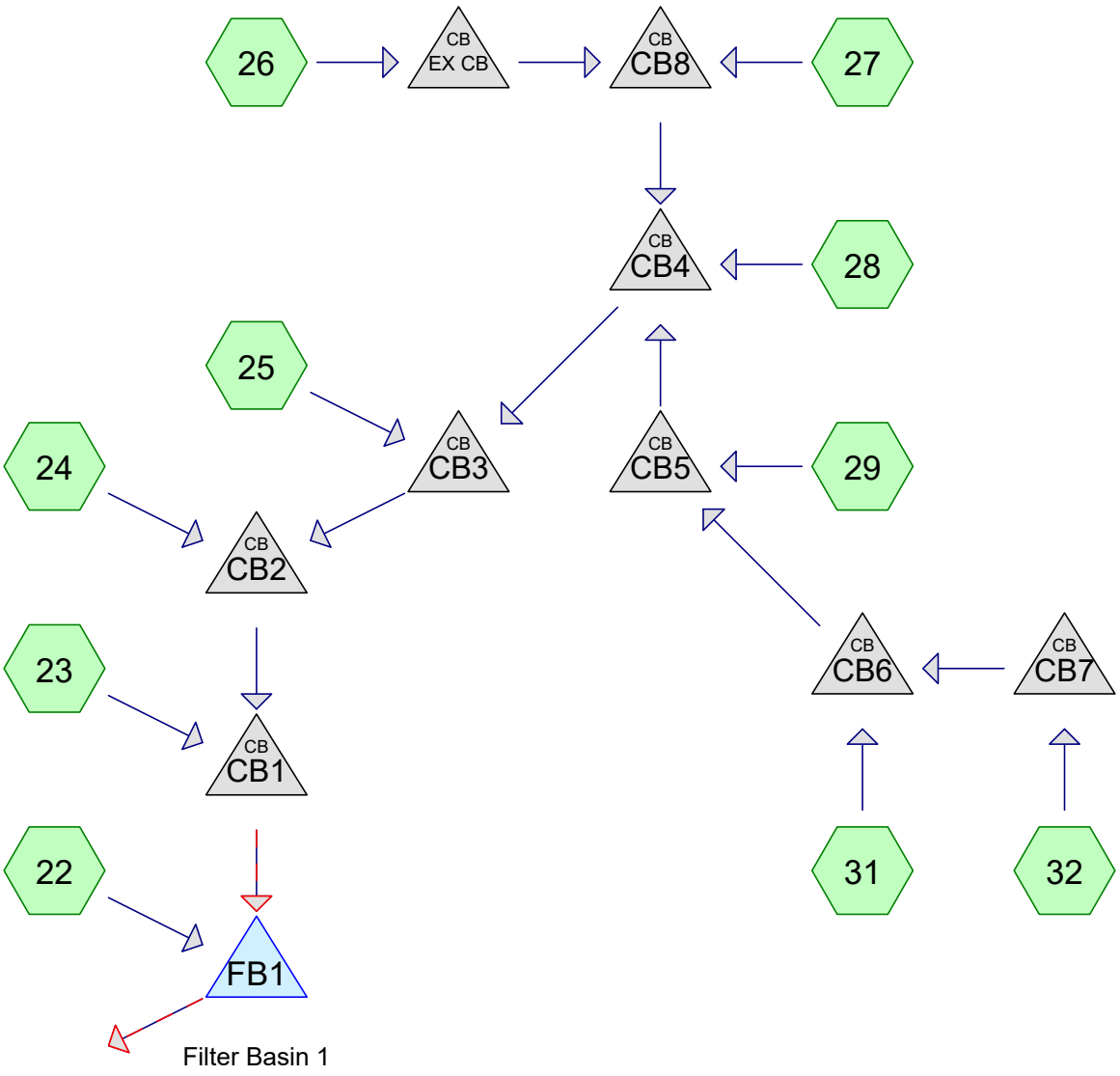
Link SP1: Inflow=0.30 cfs 1,467 cf
Primary=0.30 cfs 1,467 cf

Link SP2: Inflow=7.21 cfs 40,515 cf
Primary=7.21 cfs 40,515 cf

Hydrograph for Pond FB1: Filter Basin 1

DRAW DOWN TIME RANGE

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	298.25	0.00	0.00	0.00
1.00	0.00	0	298.25	0.00	0.00	0.00
2.00	0.01	0	298.25	0.01	0.01	0.00
3.00	0.02	0	298.25	0.02	0.02	0.00
4.00	0.03	0	298.25	0.03	0.03	0.00
5.00	0.04	0	298.25	0.04	0.04	0.00
6.00	0.06	0	298.25	0.06	0.06	0.00
7.00	0.08	0	298.25	0.08	0.08	0.00
8.00	0.10	1	298.25	0.10	0.10	0.00
9.00	0.16	88	298.27	0.10	0.10	0.00
10.00	0.22	377	298.34	0.11	0.11	0.00
11.00	0.33	954	298.47	0.11	0.11	0.00
12.00	**2.70**	**3,478**	**298.99**	**0.12**	**0.12**	**0.00**
13.00	**0.41**	**8,058**	**299.81**	**0.49**	**0.13**	**0.36**
14.00	0.25	7,905	299.78	0.28	0.13	0.15
15.00	0.19	7,832	299.77	0.21	0.13	0.08
16.00	0.13	7,766	299.76	0.15	0.13	0.02
17.00	0.11	7,694	299.75	0.13	0.13	0.00
18.00	0.08	7,561	299.73	0.13	0.13	0.00
19.00	0.07	7,366	299.69	0.13	0.13	0.00
20.00	0.06	7,146	299.66	0.13	0.13	0.00
21.00	0.06	6,905	299.62	0.13	0.13	0.00
22.00	0.05	6,645	299.57	0.13	0.13	0.00
23.00	0.07	6,368	299.52	0.13	0.13	0.00
24.00	0.06	6,075	299.47	0.13	0.13	0.00
25.00	0.00	5,644	299.40	0.12	0.12	0.00
26.00	0.00	5,197	299.32	0.12	0.12	0.00
27.00	0.00	4,755	299.23	0.12	0.12	0.00
28.00	0.00	4,318	299.15	0.12	0.12	0.00
29.00	0.00	3,886	299.07	0.12	0.12	0.00
30.00	0.00	3,459	298.99	0.12	0.12	0.00
31.00	0.00	3,037	298.91	0.12	0.12	0.00
32.00	0.00	2,620	298.82	0.12	0.12	0.00
33.00	0.00	2,209	298.74	0.11	0.11	0.00
34.00	0.00	1,803	298.65	0.11	0.11	0.00
35.00	0.00	1,402	298.57	0.11	0.11	0.00
36.00	0.00	1,007	298.48	0.11	0.11	0.00
37.00	0.00	618	298.39	0.11	0.11	0.00
38.00	0.00	235	298.31	0.11	0.11	0.00
39.00	0.00	0	298.25	0.00	0.00	0.00
40.00	0.00	0	298.25	0.00	0.00	0.00
41.00	0.00	0	298.25	0.00	0.00	0.00
42.00	0.00	0	298.25	0.00	0.00	0.00
43.00	0.00	0	298.25	0.00	0.00	0.00
44.00	0.00	0	298.25	0.00	0.00	0.00
45.00	0.00	0	298.25	0.00	0.00	0.00
46.00	0.00	0	298.25	0.00	0.00	0.00
47.00	0.00	0	298.25	0.00	0.00	0.00
48.00	0.00	0	298.25	0.00	0.00	0.00



Subcat Reach Pond Link

Routing Diagram for 18093-POST-SPILLWAY
Prepared by DM Roma Consulting Engineers, Printed 4/26/2019

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 22: Runoff Area=13,632 sf 11.08% Impervious Runoff Depth=0.96"
Tc=6.0 min UI Adjusted CN=WQ Runoff=0.19 cfs 1,094 cf

Subcatchment 23: Runoff Area=4,825 sf 71.63% Impervious Runoff Depth=4.09"
Tc=6.0 min CN=WQ Runoff=0.44 cfs 1,646 cf

Subcatchment 24: Runoff Area=19,790 sf 64.36% Impervious Runoff Depth=3.72"
Flow Length=233' Tc=6.0 min CN=WQ Runoff=1.62 cfs 6,132 cf

Subcatchment 25: Runoff Area=17,709 sf 38.60% Impervious Runoff Depth=2.39"
Flow Length=202' Tc=16.2 min CN=WQ Runoff=0.67 cfs 3,521 cf

Subcatchment 26: Runoff Area=12,441 sf 87.34% Impervious Runoff Depth=4.91"
Flow Length=283' Tc=6.0 min CN=WQ Runoff=1.38 cfs 5,088 cf

Subcatchment 27: Runoff Area=15,483 sf 45.82% Impervious Runoff Depth=2.76"
Flow Length=160' Tc=6.0 min CN=WQ Runoff=0.91 cfs 3,561 cf

Subcatchment 28: Runoff Area=24,837 sf 15.64% Impervious Runoff Depth=1.20"
Flow Length=150' Slope=0.0393 '/' Tc=15.3 min UI Adjusted CN=WQ Runoff=0.39 cfs 2,481 cf

Subcatchment 29: Runoff Area=4,490 sf 1.80% Impervious Runoff Depth=0.48"
Tc=6.0 min CN=WQ Runoff=0.02 cfs 181 cf

Subcatchment 31: Runoff Area=12,140 sf 65.85% Impervious Runoff Depth=3.80"
Flow Length=214' Tc=7.1 min CN=WQ Runoff=0.99 cfs 3,840 cf

Subcatchment 32: Runoff Area=21,470 sf 64.71% Impervious Runoff Depth=3.74"
Flow Length=206' Tc=7.1 min CN=WQ Runoff=1.72 cfs 6,686 cf

Pond CB1: Peak Elev=300.78' Inflow=7.84 cfs 33,136 cf
Primary=3.92 cfs 16,457 cf Secondary=3.92 cfs 16,679 cf Outflow=7.84 cfs 33,136 cf

Pond CB2: Peak Elev=301.84' Inflow=7.40 cfs 31,490 cf
18.0" Round Culvert n=0.013 L=85.0' S=0.0041 '/' Outflow=7.40 cfs 31,490 cf

Pond CB3: Peak Elev=302.38' Inflow=5.79 cfs 25,357 cf
18.0" Round Culvert n=0.013 L=18.0' S=0.0056 '/' Outflow=5.79 cfs 25,357 cf

Pond CB4: Peak Elev=303.00' Inflow=5.30 cfs 21,836 cf
15.0" Round Culvert n=0.013 L=98.0' S=0.0046 '/' Outflow=5.30 cfs 21,836 cf

Pond CB5: Peak Elev=303.10' Inflow=2.73 cfs 10,706 cf
15.0" Round Culvert n=0.013 L=99.0' S=0.0045 '/' Outflow=2.73 cfs 10,706 cf

Pond CB6: Peak Elev=303.18' Inflow=2.72 cfs 10,526 cf
15.0" Round Culvert n=0.013 L=61.0' S=0.0049 '/' Outflow=2.72 cfs 10,526 cf

Pond CB7: Peak Elev=303.25' Inflow=1.72 cfs 6,686 cf
12.0" Round Culvert n=0.013 L=18.0' S=0.0056 '/' Outflow=1.72 cfs 6,686 cf

Pond CB8: Peak Elev=303.30' Inflow=2.29 cfs 8,648 cf
12.0" Round Culvert n=0.013 L=210.0' S=0.0057 '/' Outflow=2.29 cfs 8,648 cf

Pond EX CB: Peak Elev=303.35' Inflow=1.38 cfs 5,088 cf
12.0" Round Culvert n=0.013 L=74.0' S=0.0054 '/' Outflow=1.38 cfs 5,088 cf

Pond FB1: Filter Basin 1 Peak Elev=300.16' Storage=10,283 cf Inflow=8.04 cfs 34,230 cf
Primary=0.00 cfs 0 cf Secondary=6.87 cfs 26,522 cf Outflow=6.87 cfs 26,522 cf

Total Runoff Area = 146,817 sf Runoff Volume = 34,230 cf Average Runoff Depth = 2.80"
53.44% Pervious = 78,466 sf 46.56% Impervious = 68,351 sf

Summary for Subcatchment 22:

Runoff = 0.19 cfs @ 12.09 hrs, Volume= 1,094 cf, Depth= 0.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Adj	Description
	12,121	39	39	>75% Grass cover, Good, HSG A
	0	32		Woods/grass comb., Good, HSG A
*	567	98	98	Proposed unconnected roofs
*	944	98	98	Proposed path, unconnected pavement
	13,632			Weighted Average
	12,121			88.92% Pervious Area
	1,511			11.08% Impervious Area
	1,511			100.00% Unconnected

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

Summary for Subcatchment 23:

Runoff = 0.44 cfs @ 12.09 hrs, Volume= 1,646 cf, Depth= 4.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	1,369	39	>75% Grass cover, Good, HSG A
	0	32	Woods/grass comb., Good, HSG A
*	0	98	Proposed unconnected roofs
*	3,456	98	Proposed path & parking, unconnected pavement
	4,825		Weighted Average
	1,369		28.37% Pervious Area
	3,456		71.63% Impervious Area
	3,456		100.00% Unconnected

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

Summary for Subcatchment 24:

Runoff = 1.62 cfs @ 12.09 hrs, Volume= 6,132 cf, Depth= 3.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	7,054	39	Proposed >75% Grass cover, Good, HSG A
	0	32	Woods/grass comb., Good, HSG A
*	3,466	98	Proposed unconnected roofs
*	0	98	Proposed path, unconnected pavement
*	9,270	98	Proposed access and parking, paved
*	0	98	Existing Anglers Road, paved
*	0	96	Existing Anglers Road, gravel
	19,790		Weighted Average
	7,054		35.64% Pervious Area
	12,736		64.36% Impervious Area
	3,466		27.21% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	23	0.0263	0.10		**Sheet Flow, Seg A to B** Grass: Dense n= 0.240 P2= 3.10"
0.3	20	0.0200	0.98		**Sheet Flow, Seg B to C** Smooth surfaces n= 0.011 P2= 3.10"
0.7	190	0.0089	4.23	26.56	**Trap/Vee/Rect Channel Flow, Seg C to D** Bot.W=0.00' D=0.50' Z= 50.0 & 0.2 '/' Top.W=25.10' n= 0.013 Asphalt, smooth
5.0	233	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 25:

Runoff = 0.67 cfs @ 12.22 hrs, Volume= 3,521 cf, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	10,874	39	Proposed >75% Grass cover, Good, HSG A
	0	32	Woods/grass comb., Good, HSG A
*	1,515	98	Proposed unconnected roofs
*	0	98	Proposed path, unconnected pavement
*	5,320	98	Proposed access and parking, paved
	17,709		Weighted Average
	10,874		61.40% Pervious Area
	6,835		38.60% Impervious Area
	1,515		22.17% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	97	0.0435	0.16		**Sheet Flow, Seg A to B** Grass: Dense n= 0.240 P2= 3.10"
5.5	36	0.0293	0.11		**Sheet Flow, Seg B to C** Grass: Dense n= 0.240 P2= 3.10"
0.3	69	0.0093	4.33	27.15	**Trap/Vee/Rect Channel Flow, Seg C to D** Bot.W=0.00' D=0.50' Z= 50.0 & 0.2 '/' Top.W=25.10' n= 0.013 Asphalt, smooth

16.2 202 Total

Summary for Subcatchment 26:

Runoff = 1.38 cfs @ 12.09 hrs, Volume= 5,088 cf, Depth= 4.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	1,575	39	>75% Grass cover, Good, HSG A
	0	32	Woods/grass comb., Good, HSG A
*	276	98	Proposed unconnected roofs
*	0	98	Proposed path, unconnected pavement
*	1,703	98	Proposed access and parking, paved
*	8,887	98	Existing Anglers Road, paved
	12,441		Weighted Average
	1,575		12.66% Pervious Area
	10,866		87.34% Impervious Area
	276		2.54% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	150	0.0047	0.82		**Sheet Flow, Seg A to B** Smooth surfaces n= 0.011 P2= 3.10"
0.3	49	0.0045	3.01	18.89	**Trap/Vee/Rect Channel Flow, Seg B to C** Bot.W=0.00' D=0.50' Z= 50.0 & 0.2 '/' Top.W=25.10' n= 0.013 Asphalt, smooth
0.2	52	0.0103	3.49	19.00	**Trap/Vee/Rect Channel Flow, Seg C to D** Bot.W=0.00' D=0.33' Z= 50.0 '/' Top.W=33.00' n= 0.013 Asphalt, smooth
0.1	32	0.0065	3.62	22.70	**Trap/Vee/Rect Channel Flow, Seg D to E** Bot.W=0.00' D=0.50' Z= 50.0 & 0.2 '/' Top.W=25.10' n= 0.013 Asphalt, smooth
3.6	283	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 27:

Runoff = 0.91 cfs @ 12.09 hrs, Volume= 3,561 cf, Depth= 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	8,389	39	Proposed >75% Grass cover, Good, HSG A
	0	32	Woods/grass comb., Good, HSG A
*	1,104	98	Proposed unconnected roofs
*	0	98	Proposed path, unconnected pavement
*	3,942	98	Proposed access and parking, paved
*	2,048	98	Existing Anglers Road, paved
	15,483		Weighted Average
	8,389		54.18% Pervious Area
	7,094		45.82% Impervious Area
	1,104		15.56% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	26	0.0163	0.08		**Sheet Flow, Seg A to B** Grass: Dense n= 0.240 P2= 3.10"
0.0	7	0.0210	2.94		**Shallow Concentrated Flow, Seg B to C** Paved Kv= 20.3 fps
0.2	42	0.0073	3.83	24.06	**Trap/Vee/Rect Channel Flow, Seg C to D** Bot.W=0.00' D=0.50' Z= 50.0 & 0.2 '/' Top.W=25.10' n= 0.013 Asphalt, smooth
0.1	53	0.0933	10.50	57.18	**Trap/Vee/Rect Channel Flow, Seg D to E** Bot.W=0.00' D=0.33' Z= 50.0 '/' Top.W=33.00' n= 0.013 Asphalt, smooth
0.1	32	0.0075	3.89	24.38	**Trap/Vee/Rect Channel Flow, Seg E to F** Bot.W=0.00' D=0.50' Z= 50.0 & 0.2 '/' Top.W=25.10' n= 0.013 Asphalt, smooth
5.8	160	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 28:

Runoff = 0.39 cfs @ 12.21 hrs, Volume= 2,481 cf, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Adj	Description
*	20,952	39	39	Proposed >75% Grass cover, Good, HSG A
	0	32		Woods/grass comb., Good, HSG A
*	3,885	98	98	Proposed unconnected roofs
*	0	98		Proposed path, unconnected pavement
*	0	98		Proposed access and parking, paved
*	0	98		Existing Anglers Road, paved
*	0	96		Existing Anglers Road, gravel
	24,837			Weighted Average
	20,952			84.36% Pervious Area
	3,885			15.64% Impervious Area
	3,885			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.3	150	0.0393	0.16		**Sheet Flow, Seg A to B**
					Grass: Dense n= 0.240 P2= 3.10"

Summary for Subcatchment 29:

Runoff = 0.02 cfs @ 12.34 hrs, Volume= 181 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	4,409	39	Proposed >75% Grass cover, Good, HSG A
	0	32	Woods/grass comb., Good, HSG A
*	81	98	Proposed unconnected roofs
*	0	98	Proposed path, unconnected pavement
	4,490		Weighted Average
	4,409		98.20% Pervious Area
	81		1.80% Impervious Area
	81		100.00% Unconnected

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

Summary for Subcatchment 31:

Runoff = 0.99 cfs @ 12.10 hrs, Volume= 3,840 cf, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	4,146	39	Proposed >75% Grass cover, Good, HSG A
	0	32	Woods/grass comb., Good, HSG A
*	1,797	98	Proposed unconnected roofs
*	0	98	Proposed path, unconnected pavement
*	6,197	98	Proposed access and parking, paved
*	0	98	Existing Anglers Road, paved
*	0	96	Existing Anglers Road, gravel
	12,140		Weighted Average
	4,146		34.15% Pervious Area
	7,994		65.85% Impervious Area
	1,797		22.48% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	45	0.0263	0.11		**Sheet Flow, Seg A to B** Grass: Dense n= 0.240 P2= 3.10"
0.2	169	0.0873	14.30	112.54	**Trap/Vee/Rect Channel Flow, Seg B to C** Bot.W=0.00' D=0.56' Z= 50.0 & 0.2 '/' Top.W=28.11' n= 0.013 Asphalt, smooth
7.1	214	Total			

Summary for Subcatchment 32:

Runoff = 1.72 cfs @ 12.10 hrs, Volume= 6,686 cf, Depth= 3.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	7,577	39	Proposed >75% Grass cover, Good, HSG A
	0	32	Woods/grass comb., Good, HSG A
*	3,878	98	Proposed unconnected roofs
*	0	98	Proposed path, unconnected pavement
*	10,015	98	Proposed access and parking, paved
*	0	98	Existing Anglers Road, paved
*	0	96	Existing Anglers Road, gravel
	21,470		Weighted Average
	7,577		35.29% Pervious Area
	13,893		64.71% Impervious Area
	3,878		27.91% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	46	0.0293	0.11		**Sheet Flow, Seg A to B** Grass: Dense n= 0.240 P2= 3.10"
0.2	11	0.0233	0.93		**Sheet Flow, Seg B to C** Smooth surfaces n= 0.011 P2= 3.10"
0.2	149	0.0864	13.19	82.76	**Trap/Vee/Rect Channel Flow, Seg C to D** Bot.W=0.00' D=0.50' Z= 50.0 & 0.2 '/' Top.W=25.10' n= 0.013 Asphalt, smooth
7.1	206	Total			

Summary for Pond CB1:

Inflow Area = 133,185 sf, 50.19% Impervious, Inflow Depth = 2.99" for 25-Year event
Inflow = 7.84 cfs @ 12.10 hrs, Volume= 33,136 cf
Outflow = 7.84 cfs @ 12.10 hrs, Volume= 33,136 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.92 cfs @ 12.10 hrs, Volume= 16,457 cf
Secondary = 3.92 cfs @ 12.10 hrs, Volume= 16,679 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 300.78' @ 12.11 hrs
Flood Elev= 302.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	298.30'	**15.0" Round Culvert - SD-1** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 298.30' / 298.25' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	298.30'	**15.0" Round Culvert - SD-2** L= 28.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 298.30' / 298.25' S= 0.0018 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.72 cfs @ 12.10 hrs HW=300.77' TW=300.13' (Dynamic Tailwater)
└**1=Culvert - SD-1** (Inlet Controls 3.72 cfs @ 3.03 fps)

Secondary OutFlow Max=3.72 cfs @ 12.10 hrs HW=300.77' TW=300.13' (Dynamic Tailwater)
└**2=Culvert - SD-2** (Inlet Controls 3.72 cfs @ 3.03 fps)

Summary for Pond CB2:

Inflow Area = 128,360 sf, 49.38% Impervious, Inflow Depth = 2.94" for 25-Year event
Inflow = 7.40 cfs @ 12.10 hrs, Volume= 31,490 cf
Outflow = 7.40 cfs @ 12.10 hrs, Volume= 31,490 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.40 cfs @ 12.10 hrs, Volume= 31,490 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 301.84' @ 12.12 hrs
Flood Elev= 304.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	298.65'	**18.0" Round Culvert - SD-3** L= 85.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 298.65' / 298.30' S= 0.0041 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.71 cfs @ 12.10 hrs HW=301.77' TW=300.77' (Dynamic Tailwater)
└**1=Culvert - SD-3** (Inlet Controls 6.71 cfs @ 3.80 fps)

Summary for Pond CB3:

Inflow Area = 108,570 sf, 46.65% Impervious, Inflow Depth = 2.80" for 25-Year event
Inflow = 5.79 cfs @ 12.10 hrs, Volume= 25,357 cf
Outflow = 5.79 cfs @ 12.10 hrs, Volume= 25,357 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.79 cfs @ 12.10 hrs, Volume= 25,357 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 302.38' @ 12.15 hrs
Flood Elev= 304.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	298.85'	**18.0" Round Culvert - SD-4** L= 18.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 298.85' / 298.75' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.91 cfs @ 12.10 hrs HW=301.99' TW=301.80' (Dynamic Tailwater)
↑**1=Culvert - SD-4** (Inlet Controls 2.91 cfs @ 1.65 fps)

Summary for Pond CB4:

Inflow Area = 90,861 sf, 48.22% Impervious, Inflow Depth = 2.88" for 25-Year event
Inflow = 5.30 cfs @ 12.10 hrs, Volume= 21,836 cf
Outflow = 5.30 cfs @ 12.10 hrs, Volume= 21,836 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.30 cfs @ 12.10 hrs, Volume= 21,836 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 303.00' @ 12.18 hrs
Flood Elev= 303.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	299.35'	**15.0" Round Culvert - SD-5** L= 98.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 299.35' / 298.90' S= 0.0046 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.27 cfs @ 12.10 hrs HW=302.42' TW=301.93' (Dynamic Tailwater)
↑**1=Culvert - SD-5** (Inlet Controls 3.27 cfs @ 2.67 fps)

Summary for Pond CB5:

Inflow Area = 38,100 sf, 57.66% Impervious, Inflow Depth = 3.37" for 25-Year event
Inflow = 2.73 cfs @ 12.10 hrs, Volume= 10,706 cf
Outflow = 2.73 cfs @ 12.10 hrs, Volume= 10,706 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.73 cfs @ 12.10 hrs, Volume= 10,706 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 303.10' @ 12.22 hrs
Flood Elev= 304.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	299.85'	**15.0" Round Culvert - SD-6** L= 99.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 299.85' / 299.40' S= 0.0045 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.00 cfs @ 12.10 hrs HW=301.99' TW=302.48' (Dynamic Tailwater)
↑**1=Culvert - SD-6** (Controls 0.00 cfs)

Summary for Pond CB6:

Inflow Area = 33,610 sf, 65.12% Impervious, Inflow Depth = 3.76" for 25-Year event
Inflow = 2.72 cfs @ 12.10 hrs, Volume= 10,526 cf
Outflow = 2.72 cfs @ 12.10 hrs, Volume= 10,526 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.72 cfs @ 12.10 hrs, Volume= 10,526 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 303.18' @ 12.27 hrs
Flood Elev= 303.99'

Device	Routing	Invert	Outlet Devices
#1	Primary	300.20'	**15.0" Round Culvert - SD-7** L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 300.20' / 299.90' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.00 cfs @ 12.10 hrs HW=301.52' TW=301.99' (Dynamic Tailwater)
1=Culvert - SD-7 (Controls 0.00 cfs)

Summary for Pond CB7:

Inflow Area = 21,470 sf, 64.71% Impervious, Inflow Depth = 3.74" for 25-Year event
Inflow = 1.72 cfs @ 12.10 hrs, Volume= 6,686 cf
Outflow = 1.72 cfs @ 12.10 hrs, Volume= 6,686 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.72 cfs @ 12.10 hrs, Volume= 6,686 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 303.25' @ 12.32 hrs
Flood Elev= 303.99'

Device	Routing	Invert	Outlet Devices
#1	Primary	300.40'	**12.0" Round Culvert - SD-8** L= 18.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 300.40' / 300.30' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.83 cfs @ 12.10 hrs HW=301.60' TW=301.52' (Dynamic Tailwater)
1=Culvert - SD-8 (Inlet Controls 0.83 cfs @ 1.06 fps)

Summary for Pond CB8:

Inflow Area = 27,924 sf, 64.32% Impervious, Inflow Depth = 3.72" for 25-Year event
Inflow = 2.29 cfs @ 12.09 hrs, Volume= 8,648 cf
Outflow = 2.29 cfs @ 12.09 hrs, Volume= 8,648 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.29 cfs @ 12.09 hrs, Volume= 8,648 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 303.30' @ 12.20 hrs
Flood Elev= 304.24'

Device	Routing	Invert	Outlet Devices
#1	Primary	300.60'	**12.0" Round Culvert - SD-9** L= 210.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 300.60' / 299.40' S= 0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.06 cfs @ 12.09 hrs HW=302.50' TW=302.26' (Dynamic Tailwater)
↑—**1=Culvert - SD-9** (Outlet Controls 1.06 cfs @ 1.35 fps)

Summary for Pond EX CB:

Inflow Area = 12,441 sf, 87.34% Impervious, Inflow Depth = 4.91" for 25-Year event
Inflow = 1.38 cfs @ 12.09 hrs, Volume= 5,088 cf
Outflow = 1.38 cfs @ 12.09 hrs, Volume= 5,088 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.38 cfs @ 12.09 hrs, Volume= 5,088 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 303.35' @ 12.25 hrs
Flood Elev= 304.72'

Device	Routing	Invert	Outlet Devices
#1	Primary	301.10'	**12.0" Round Culvert - SD-10** L= 74.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 301.10' / 300.70' S= 0.0054 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=302.03' TW=302.49' (Dynamic Tailwater)
↑—**1=Culvert - SD-10** (Controls 0.00 cfs)

Summary for Pond FB1: Filter Basin 1

Inflow Area = 146,817 sf, 46.56% Impervious, Inflow Depth = 2.80" for 25-Year event
Inflow = 8.04 cfs @ 12.10 hrs, Volume= 34,230 cf
Outflow = 6.87 cfs @ 12.16 hrs, Volume= 26,522 cf, Atten= 14%, Lag= 3.7 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Secondary = 6.87 cfs @ 12.16 hrs, Volume= 26,522 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 300.16' @ 12.16 hrs Surf.Area= 6,510 sf Storage= 10,283 cf

Plug-Flow detention time= 172.9 min calculated for 26,494 cf (77% of inflow)
Center-of-Mass det. time= 85.2 min (849.3 - 764.1)

Volume	Invert	Avail.Storage	Storage Description
#1	298.25'	17,601 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
298.25	4,230	396.4	0	0	4,230
299.00	5,154	424.7	3,513	3,513	6,105
300.00	6,355	325.6	5,744	9,257	12,033
301.00	7,360	344.5	6,851	16,109	13,096
301.20	7,568	348.2	1,493	17,601	13,311

Device	Routing	Invert	Outlet Devices
#1	Primary	295.50'	**1.1" Vert. 1-1/8" orifice in end cap X 0.00** C= 0.600
#2	Device 1	295.98'	**4.0" Round Culvert X 2.00** L= 38.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 295.98' / 295.50' S= 0.0126 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf
#3	Device 2	298.25'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 295.00'
#4	Secondary	299.75'	**10.0' long x 12.0' 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) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=298.25' TW=0.00' (Dynamic Tailwater)
↑└**1=1-1/8" orifice in end cap** (Controls 0.00 cfs)
↑└**2=Culvert** (Passes 0.00 cfs of 0.84 cfs potential flow)
↑└**3=Exfiltration** (Passes 0.00 cfs of 0.24 cfs potential flow)

Secondary OutFlow Max=6.81 cfs @ 12.16 hrs HW=300.16' TW=0.00' (Dynamic Tailwater)
↑└**4=Broad-Crested Rectangular Weir** (Weir Controls 6.81 cfs @ 1.67 fps)

ATTACHMENT 4

INSPECTION, MAINTENANCE & HOUSEKEEPING PLAN

DM ROMA
CONSULTING ENGINEERS

INSPECTION, MAINTENANCE, AND HOUSEKEEPING PLAN

ANGLERS ROAD COMMONS APARTMENTS
ANGLERS ROAD
WINDHAM, MAINE

Responsible Party

Owner: Anglers Road Commons LLC
7 Fay Road
Scituate, MA 02066

The owner is responsible for the maintenance of all stormwater management structures and related site components and the keeping of a maintenance log book with service records. Records of all inspections and maintenance work performed must be kept on file with the owner and retained for a minimum of five years. The maintenance log will be made available to the Town and Maine Department of Environmental Protection (MDEP) upon request. At a minimum, the maintenance of stormwater management systems will be performed on the prescribed schedule.

The procedures outlined in this plan are provided as a general overview of the anticipated practices to be utilized on this site. In some instances, additional measures may be required due to unexpected conditions. *The Maine Erosion and Sedimentation Control BMP* and *Stormwater Management for Maine: Best Management Practices* Manuals published by the MDEP should be referenced for additional information.

During Construction

1. **Inspection and Corrective Action:** It is the contractor's responsibility to comply with the inspection and maintenance procedures outlined in this section. Inspection shall occur on all disturbed and impervious areas, erosion control measures, material storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. These areas shall be inspected at least once a week as well as 24 hours before and after a storm event and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections.

2. **Maintenance:** Erosion controls shall be maintained in effective operating condition until areas are permanently stabilized. If best management practices (BMPs) need to be repaired, the repair work should be initiated upon discovery of the problem but no later than the end of the next workday. If BMPs need to be maintained or modified, additional

BMPs are necessary, or other corrective action is needed, implementation must be completed within seven calendar days and prior to any rainfall event.

3. **Construction vehicles and equipment:** Construction vehicles and equipment shall not be driven or stored within the underdrained filter basins. To ensure the basins function as designed perpetually, prohibiting vehicles and equipment from these areas will limit the risk of inhibiting the function of the basins due to compaction.

4. **Snow Storage:** The proposed underdrained filter basins (FB) shall not be utilized for snow storage. Snow storage areas shall be located away from the basins, and in areas that will direct snow melt runoff into one of the basins on site.

5. **Documentation:** A report summarizing the inspections and any corrective action taken must be maintained on site. The log must include the name(s) and qualifications of the person making the inspections; the date(s) of the inspections; and the major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicle access points to the parcel. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and location(s) where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken. The log must be made accessible to Town staff, and a copy must be provided upon request. The owner shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

Housekeeping

1. **Spill prevention:** Controls must be used to prevent pollutants from construction and waste materials on site to enter stormwater, which includes storage practices to minimize exposure of the materials to stormwater. The site contractor or operator must develop, and implement as necessary, appropriate spill prevention, containment, and response planning measures.

2. **Groundwater protection:** During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials. Any project proposing infiltration of stormwater must provide adequate pre-treatment of stormwater prior to discharge of stormwater to the infiltration area, or provide for treatment within the infiltration area, in order to prevent the accumulation of fines, reduction in infiltration rate, and consequent flooding and destabilization.

3. **Fugitive sediment and dust:** Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control, but other water additives may be considered as needed. A stabilized construction entrance (SCE) should be included to minimize tracking of mud and sediment. If off-site tracking occurs, public roads should be swept immediately and no less than once a week and prior to significant storm events. Operations during dry months, that experience fugitive dust problems, should wet down unpaved access roads once a week or more frequently as needed with a water additive to suppress fugitive sediment and dust.

4. **Debris and other materials:** Minimize the exposure of construction debris, building and landscaping materials, trash, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials to precipitation and stormwater runoff. These materials must be prevented from becoming a pollutant source.

5. **Excavation de-watering:** Excavation de-watering is the removal of water from trenches, foundations, coffer dams, ponds, and other areas within the construction area that retain water after excavation. In most cases the collected water is heavily silted and hinders correct and safe construction practices. The collected water removed from the ponded area, either through gravity or pumping, must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved by the Department.

6. **Authorized Non-stormwater discharges:** Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:
   (a) Discharges from firefighting activity;
   (b) Fire hydrant flushings;
   (c) Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
   (d) Dust control runoff in accordance with permit conditions and Appendix (C)(3);
   (e) Routine external building washdown, not including surface paint removal, that does not involve detergents;
   (f) Pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;
   (g) Uncontaminated air conditioning or compressor condensate;
   (h) Uncontaminated groundwater or spring water;
   (i) Foundation or footer drain-water where flows are not contaminated;

(j) Uncontaminated excavation dewatering (see requirements in Appendix C(5));
(k) Potable water sources including waterline flushings; and
(l) Landscape irrigation.

7. **Unauthorized non-stormwater discharges:** Approval from the MDEP does not authorize a discharge that is mixed with a source of non-stormwater, other than those discharges in compliance with Section 6 above. Specifically, the MDEP's approval does not authorize discharges of the following:
(a) Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
(b) Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;
(c) Soaps, solvents, or detergents used in vehicle and equipment washing; and
(d) Toxic or hazardous substances from a spill or other release.

Post construction

1. **Inspection and Corrective Action:** All measures must be maintained by the owner in effective operating condition. A qualified third party inspector hired by the owner shall at least annually inspect the stormwater management facilities. This person should have knowledge of erosion and stormwater control including the standards and conditions of the site's approvals. The inspector shall be certified through the MDEP to inspect the stormwater infrastructure. The following areas, facilities, and measures must be inspected, and identified deficiencies must be corrected. Areas, facilities, and measures other than those listed below may also require inspection on a specific site.

   A. **Vegetated Areas:** Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.

   B. **Ditches, Swales, and Open Channels:** Inspect ditches, swales, and other open channels in the spring, late fall, and after heavy rains to remove any obstructions to flow, remove accumulated sediments and debris, control vegetative growth that could obstruct flow, and repair any erosion of the ditch lining. Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. The channel must receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or side slopes.

C. **Culverts:** Inspect culverts in the spring, late fall, and after heavy rains to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the culvert's inlet and outlet.

D. **Catch Basins:** Inspect and, if required, clean out catch basins at least once a year, preferably in early spring. Clean out must include the removal and legal disposal of any accumulated sediments and debris at the bottom of the basin, at any inlet grates, at any inflow channels to the basin, and at any pipes between basins. If the basin outlet is designed to trap floatable materials, then remove the floating debris and any floating oils (using oil-absorptive pads).

E. **Underdrained Filter Basins:** Underdrained filter basins are not intended to function as snow storage areas, and winter plowing operations shall ensure that snow is not plowed or dumped into the basins. The basins should be inspected semi-annually and following major storm events for the first year and every six months thereafter. The basin should drain within 48 hours following a one-inch storm and if a larger storm fills the system to overflow, it shall drain within 36 to 60 hours. If ponding exceeds 48 hours, the top of the filter bed must be rototilled to reestablish the soil's filtration capacity. If water ponds on the surface of the bed for more than 72 hours, the top several inches of the filter shall be replaced with fresh material. Inspect for debris and sediment build up in the forebay and basin and remove as needed. Mowing of the basin can only occur semi-annually to a height of no less than 6 inches utilizing a hand-held string trimmer or push-mower. Any bare areas or erosion rills shall be repaired with new filter media or sandy loam then seeded and mulched. The basin should also be inspected annually for destabilization of side slopes, embankment settling and other signs of structural failure.

F. **Roofline Drip edges:** The drip edges should be inspected semi-annually and following major storm events for the first year and every six months thereafter. The reservoir crushed stone should drain within 48 hours following a one-inch storm and if a larger storm fills the system to overflow, it shall drain within 36 to 60 hours. If ponding exceeds 48 hours, the stone reservoir course shall be removed and the filter bed be rototilled to reestablish the soil's filtration capacity. If water ponds in the reservoir course for more than 72 hours, the top several inches of the filter shall be replaced with fresh material. Inspect for debris and sediment build up at surface and remove as needed. The drip edges are part of the stormwater management plan and cannot be paved over or altered in anyway.

G. **Regular Maintenance:** Clear accumulations of winter sand along roadway once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. Accumulations of sand along pavement shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader.

H. Documentation: Keep a log (report) summarizing inspections, maintenance, and any corrective actions taken. The log must include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean-out of any sediments or debris, indicate where the sediment and debris was disposed after removal. The log must be made accessible to Town staff upon request. The permittee shall retain a copy of the log for a period of at least five years from the completion of permanent stabilization. Attached is a sample log.

Re-certification

Submit a certification of the following to the MDEP within three months of the expiration of each five-year interval from the date of issuance of the permit.

(a) **Identification and repair of erosion problems**. All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.

(b) **Inspection and repair of stormwater control system**. All aspects of the stormwater control system have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system.

(c) **Maintenance**. The erosion and stormwater maintenance plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the Department, and the maintenance log is being maintained.

Municipalities with separate storm sewer systems regulated under the Maine Pollutant Discharge Elimination System (MPDES) Program may report on all regulated systems under their control as part of their required annual reporting in lieu of separate certification of each system. Municipalities not regulated by the MPDES Program, but that are responsible for maintenance of permitted stormwater systems, may report on multiple stormwater systems in one report.

Duration of Maintenance

Perform maintenance as described.

STORMWATER MAINTENANCE LOG

(SHEET 1 OF 2)

ANGLERS ROAD COMMONS APARTMENTS
ANGLERS ROAD
WINDHAM, MAINE

The following stormwater management and erosion control items shall be inspected and maintained as prescribed in the Maintenance Plan with recommended frequencies as identified below. The owner is responsible for keeping this maintenance log on file for a minimum of five years and shall provide a copy to the Town and MDEP upon request. Inspections are to be performed by a qualified third-party inspector and all corrective actions shall be performed by personnel familiar with stormwater management systems and erosion controls.

Maintenance Item	Maintenance Event	Date Performed	Responsible Personnel	Comments
Vegetated Areas	Inspect slopes and embankments early in Spring.			
Ditches, swales, and other open channels	Inspect after major rainfall event producing 1" of rain in two hours.			
	Inspect for erosion or slumping & repair			
	Mowed at least annually.			
Culverts	Inspect semiannually and after major rainfall.			
	Repair erosion at inlet or outlet of pipe.			
	Repair displaced riprap.			
	Clean accumulated sediment in culverts when >20% full.			
Catch Basins	Inspect to ensure that structure is properly draining.			
	Remove accumulated sediment semiannually.			
	Inspect grates/inlets and remove debris as needed.			

STORMWATER MAINTENANCE LOG

(SHEET 2 OF 2)

ANGLERS ROAD COMMONS APARTMENTS
ANGLERS ROAD
WINDHAM, MAINE

Maintenance Item	Maintenance Event	Date Performed	Responsible Personnel	Comments
Underdrained Filter Basins And Roofline Drip edges	Check after each rainfall event to ensure that pond drains within 24-48 hours.			
	Replace top several inches of filter if pond does not drain within 72 hours.			
	Mow grass no more than twice a year to no less than 6 inches in height.			
	Inspect semi-annually for erosion or sediment accumulation and repair as necessary.			
Regular Maintenance	Clear accumulation of winter sand in paved areas annually.			