Stormwater Management Narrative

PROPOSED APARTMENT COMMUNITY
THE QUARRY

DEAN ROAD

Town of Kingsbury

Washington County, New York

Applicant:

The Quarry, LLC

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December 2018

Revised January 2021

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ENVIRONMENTAL DESIGN PARTNERSHIP, LLP.

Shaping the physical environment

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1.0 Introduction

The Quarry, LLC is proposing to develop an apartment community on an existing parcel with a total area of 75 +/- acres on the eastern side of Dean Road in the Town of Kingsbury, New York. The proposed development includes the construction of a private road, nine apartment buildings, parking areas, extension of municipal water and sewer and on-site stormwater management. The area of proposed disturbance is approximately 17.5± acres.

A stormwater management system has been designed to provide pollutant removal, reduce channel erosion, prevent overbank flooding, and safely control extreme flood events in accordance with the NYS Stormwater Management Design Manual (Design Manual). The proposed stormwater management system for the project will include two closed systems which will convey discharge to two large stormwater ponds, one in the east and one in the south of the site, and three bioretention areas. The stormwater management system will provide a total storage volume of approximately 3.3± acre-feet.

This narrative presents a review of the design concepts and parameters of the stormwater management system for the proposed development. The purpose of the stormwater management narrative is to assure that changes in the surface runoff characteristics, as a result of the proposed construction, will not adversely impact adjacent or downstream properties. On-site stormwater management will be implemented in accordance with the Design Manual to accommodate both additional stormwater runoff and to provide water quality treatment according to the green infrastructure standards.

2.0 Existing Conditions

The existing project site consists of vacant land. The ground cover consists of mostly grass and rock, a gravel roadway and a quarry. The perimeter of the property is surrounded by brushy and grassy areas. The topography of the land consists of drainage from east to west.

The typical slopes range from 0% to 12% with localized areas near the quarry around 20%. Elevations at the site vary between 476 and 518 feet above sea level.

2.1 Soil and Groundwater Conditions

The USDA Natural Resources Conservation Service Soil Survey (NRCSS) identifies the soils on the site to be Farmington Loam, Farmington – Rock, Pittsfield stony fine sand loam and pit/quarry material. Farmington Loam and Farmington – Rock are classified as Hydrologic Soil Group (HSG) “D” and are well drained with shallow depth to lithic bedrock.

Soil probing was performed on site in June, 2019. Approximately 25 test probes were performed throughout the site. Depth to bedrock ranged from 0” to 24” below the ground surface. The results of the soil probing are consistent with the data from the USDA NRCSS.

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3.0 Predevelopment Stormwater Analysis

The existing hydrologic conditions, in the area to be disturbed as a result of the proposed construction, were analyzed using Applied Microcomputer Systems' "HydroCAD" computer modeling program. The HydroCAD stormwater modeling program employs the United States Department of Agriculture's Soil Conservation Service (SCS) Technical Release 20 (TR-20) method for stormwater analysis. Using this modeling technique, the site is divided into "subcatchments" that represent specific areas contributing stormwater runoff to an existing, or proposed drainage feature. The subcatchments typically flow through "reaches" (i.e., swales, channels, or pipes) that convey the stormwater to storm basins or discharge areas.

A hydrologic model of the existing site was prepared using the Hydrocad program. Five (5) subcatchments were used to represent the existing drainage condition, see Figure 2. The existing parameters of topography, vegetation, slope and soil type are all incorporated into the predevelopment model.

Table 1 presents a summary of the pre-development stormwater peak discharge for the 1-year, 10-year and 100-year design storm events at the respective Design Points. As will be discussed in subsequent sections, the post development stormwater discharge rate has been limited to the predevelopment discharge rate for the 1-year, 10-year, and 100-year storm events.

Table 1: Pre-Development Runoff Rates

Storm Event	Design Point Discharge (cfs)				Total Discharge offsite (cfs)
	1L	2L	3L	4L	
1-Year (2.19")	1.57	9.39	6.45	1.8	17.64
10-Year (3.65")	3.68	22.14	15.32	4.25	41.71
100-Year (6.10")	7.45	44.95	31.24	8.64	84.83

The pre-development Curve Number (CN) for the grassy and rock areas was established as 84 in areas with HSG "D" soil. The HydroCAD model results for the pre-development conditions are included within Attachment B.

4.0 Stormwater Management Planning and Practice Selection

The site layout and stormwater design for this project was completed while taking into consideration the potential impacts on the existing site and downstream hydrology.

The existing soils on site are predominantly HSG "D", according to the USDA NRCSS website. Therefore, the proposed stormwater practices involve using stormwater ponds and bioretention areas for treatment and attenuation of all site stormwater. Various measures were

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taken to help ensure that the post-development hydrology of the site will closely resemble the pre-development hydrology. These measures included reduction of clearing and grading and locating the development in less sensitive areas.

The proposed development is located within areas of the existing site that are considered less sensitive. The existing site contains areas of steep slopes and wetlands. The proposed development was located in an area that would minimize the impact to these site features.

The existing parcels consists of 75± acres of land; however, the limits of development will only encompass 17.5± acres. The areas to remain undisturbed consist of open space and brushy areas. These areas will help to buffer the development as well as maintain existing drainage patterns for the parcel.

Due to the existing soil conditions and the steep grade on the site, infiltration practices were not feasible for site stormwater management. Instead, two stormwater ponds and three bioretention areas have been proposed to treat the WQv and provide RRv capacity.

According to Chapter 3 of the Design Manual, stormwater ponds are considered standard SMP's acceptable for Water Quality, while bioretention areas are considered standard SMP's acceptable for Water Quality and RRv capacity.

5.0 Post-Development Stormwater Analysis

Thirty (30) subcatchments were used to represent the post development drainage conditions of the site. Site improvements to the property will consist of constructing one public road, one private apartment access road, parking and nine apartment buildings. Stormwater management practices have been designed to provide storage and attenuation of stormwater runoff from the proposed impervious surfaces on the site.

Stormwater runoff from the proposed roadways, parking areas, grassy areas and rooftops will sheet flow toward bioretention areas or to catch basins, where it will travel through the closed stormwater management system to either Stormwater Management Area #1 (Micropool Extended Detention Pond) in the eastern portion of the site or Stormwater Management Area #2 (Micropool Extended Detention Pond) in the southern portion of the site.

A post-development Curve Number (CN) of 98 was assigned to all impervious surface within the proposed subdivision. A post-development CN of 80 was assigned to all new grassed areas directly contributing to the proposed stormwater devices. The weighted CN for the post-development conditions for the site is approximately 89. The HydroCAD model results for the post-development conditions are included within Attachment B.

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5.1 Stormwater Management Area #1 – Micro-Pool Extended Detention Pond

Stormwater Management Area (SMA) #1 will provide treatment of stormwater runoff, from the portions of the proposed roadway, several apartment buildings and portions of the lawn area and parking areas. The stormwater runoff will be collected in a closed drainage system and conveyed to the proposed SMA #1. The total usable storage volume of SMA #1 will include 1.35± acre-feet; the contributing area to this basin will include approximately 6.60± acres with approximately 3.90± acres of impervious area.

The Stormwater Management Area has been designed as a Micropool Extended Detention Pond, in accordance with Chapter 6 of the Design Manual. Chapter 6 of the Design Manual recognizes Micropool Extended Detention Ponds as suitable for projects with contributing drainage areas less than 10 acres in size when an adequate anti-clogging device is installed.

The proposed basin will include the use of a stand pipe outlet with a small diameter, low flow, orifice and a shallow catch basin with an outlet pipe to control the 1-year, 10-year and 100-year storm events, and the water level in the basin between storm events. The standpipe will be installed with an anti-clogging device. Stormwater Ponds are considered a standard stormwater management practice acceptable for water quality when the required sizing, performance and maintenance criteria area followed.

SMA #1 has been designed with one pretreatment forebay to provide pretreatment and storage of approximately 50 percent of the Water Quality Volume. The pond also contains a larger permanent pool which will hold over 50 percent of the water quality volume contributing to SMA #1. The pond has been designed with additional storage above the permanent pool for larger storm events.

SMA #1 will be located on the eastern side of the site, with drainage from the basin being directed to a wetland area offsite. The stormwater management area has been designed with a large emergency outflow weir that will discharge off site to an existing wetland area. Stormwater modelling indicates that the water elevations in SMA #1 will not exceed or reach the elevation of the overflow weir for storm events up to and including the 100-year storm event.

5.2 Stormwater Management Area #2 – Micro-Pool Extended Detention Pond

Stormwater Management Area (SMA) #2 will provide treatment of stormwater runoff from the portions of the proposed roadway, the remainder of the apartment buildings and the remainder of the lawn area and parking areas. The stormwater runoff will be collected in a closed drainage system and conveyed to the proposed SMA #2. The total usable storage volume of SMA #2 will include 1.60± acre-feet; the contributing area to this basin will include approximately 8.85± acres with approximately 4.25± acres of impervious area.

The Stormwater Management Area has been designed as a Micropool Extended Detention Pond, in accordance with Chapter 6 of the Design Manual. Chapter 6 of the Design Manual

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recognizes Micropool Extended Detention Ponds as suitable for projects with contributing drainage areas less than 10 acres in size when an adequate anti-clogging device is installed.

The proposed basin will include the use of a stand pipe outlet with a small diameter, low flow, orifice and a shallow catch basin with an outlet pipe to control the 1-year, 10-year and 100-year storm events, and the water level in the basin between storm events. The standpipe will be installed with an anticlogging device. Stormwater Ponds are considered a standard stormwater management practice acceptable for water quality when the required sizing, performance and maintenance criteria area followed.

SMA #2 has been designed with one pretreatment forebay to provide pretreatment and storage of approximately 30 percent of the water quality volume contributing to SMA #2. The pond also contains a larger permanent pool which will hold over 30 percent of the water quality volume contributing to SMA #2. The pond has been designed with additional storage above the permanent pool for larger storm events.

SMA #2 will be located on the south side of the site, with discharge from the basin being diverted to a wetland area offsite. The stormwater management area has been designed with a large emergency outflow weir that will discharge off site to an existing low-lying area. Stormwater modelling indicates that the water elevations in SMA #2 will not exceed or reach the elevation of the overflow weir for storm events up to and including the 100-year storm event.

5.3 Stormwater Management Area #3 - Bioretention Area

Stormwater Management Area (SMA) #3 will provide treatment of stormwater runoff from the portions of the proposed rooftops and lawn areas. Runoff will sheet flow across the lawn areas to the bioretention area, where it will filter through the soil media to the underdrain. The underdrain will convey excess runoff to SMA #1 via a closed stormwater management system. An overflow structure is also included in SMA #3 to accommodate excess flows from larger storm events; excess flows will be routed to SMA #1.

The total usable storage volume of SMA #3 will include 0.08 acre-feet; the contributing area to this SMA will include approximately 0.76 acres with approximately 0.34 acres of impervious area.

The Stormwater Management Area has been designed as a Bioretention Area, in accordance with Chapter 6 of the Design Manual. Chapter 6 of the Design Manual recognizes Bioretention Areas as suitable for projects with contributing drainage areas less than 10 acres in size. The proposed drainage area to SMA #3 is approximately 0.76 acres.

The proposed bioretention area will include the use of an eight-inch underdrain and a shallow catch basin to accommodate excess flow during larger storm events. Bioretention areas in HSG

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"D" soils are considered standard stormwater management practices with up to 40% RRv reduction when designed with the required elements according to Chapter 3 of the Design Manual.

SMA #3 has been designed with a grassy filter strip and a gravel layer. The bioretention area has also been designed to hold 100 percent of the water quality volume contributing to SMA #3.

SMA #3 will be located on the north side of the site, between apartment building 8 and 9. Stormwater modelling indicates that the shallow catch basin and underdrain can accommodate storm events up to and including the 100-year storm event.

5.4 Stormwater Management Area #4 - Bioretention Area

Stormwater Management Area (SMA) #4 will provide treatment of stormwater runoff from the portions of the proposed rooftops and lawn areas. Runoff will sheet flow to the bioretention area, where it will filter through the soil media to the underdrain. The underdrain will convey excess runoff to SMA #2 via a closed stormwater management system. An overflow structure is also included in SMA #4 to accommodate excess flows from larger storm events; excess flows will be routed to SMA #2.

The total usable storage volume of SMA #4 will include 0.25± acre-feet; the contributing area to this SMA will include approximately 2.41 acres with approximately 0.96 acres of impervious area.

The Stormwater Management Area has been designed as a Bioretention Area, in accordance with Chapter 6 of the Design Manual. Chapter 6 of the Design Manual recognizes Bioretention Areas as suitable for projects with contributing drainage areas less than 10 acres in size. The proposed drainage area to SMA #4 is approximately 2.41 acres.

The proposed bioretention area will include the use of an eight-inch underdrain and a shallow catch basin to accommodate excess flow during larger storm events. Bioretention areas in HSG "D" soils are considered standard stormwater management practices with up to 40% RRv reduction when designed with the required elements according to Chapter 3 of the Design Manual.

SMA #4 has been designed with a grassy filter strip and a gravel layer. The bioretention area has also been designed to hold 100 percent of the water quality volume contributing to SMA #4.

SMA #4 will be located in the center of the project site, in the circular area between buildings 3, 4, 5, 6 and 7. Stormwater modelling indicates that the shallow catch basin and underdrain can accommodate storm events up to and including the 100-year storm event.

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5.5 Stormwater Management Area #5 - Bioretention Area

Stormwater Management Area (SMA) #5 will provide treatment of stormwater runoff from the portions of the proposed rooftops and lawn areas. Runoff will sheet flow to the bioretention area, where it will filter through the soil media to the underdrain. The underdrain will convey excess runoff to SMA #2 via a closed stormwater management system. An overflow structure is also included in SMA #5 to accommodate excess flows from larger storm events; excess flows will be routed to SMA #2.

The total usable storage volume of SMA #5 will include 0.08 acre-feet; the contributing area to this SMA will include approximately 0.72 acres with approximately 0.37 acres of impervious area.

The Stormwater Management Area has been designed as a Bioretention Area, in accordance with Chapter 6 of the Design Manual. Chapter 6 of the Design Manual recognizes Bioretention Areas as suitable for projects with contributing drainage areas less than 10 acres in size. The proposed drainage area to SMA #4 is approximately 0.72 acres.

The proposed bioretention area will include the use of an eight-inch underdrain and a shallow catch basin to accommodate excess flow during larger storm events. Bioretention areas in HSG "D" soils are considered standard stormwater management practices with up to 40% RRv reduction when designed with the required elements according to Chapter 3 of the Design Manual.

SMA #5 has been designed with a grassy filter strip and a gravel layer. The bioretention area has also been designed to hold 92 percent of the water quality volume contributing to SMA #5.

SMA #5 will be located in the southern portion of the project site, in between buildings 1 and 2. Stormwater modelling indicates that the shallow catch basin and underdrain can accommodate storm events up to and including the 100-year storm event.

5.6 NYS Unified Stormwater Sizing Criteria

The area to be disturbed as a result of the proposed development was modeled under the post-development conditions using 30 subcatchment areas. Twenty-eight (28) subcatchment areas were routed into the stormwater management areas (Figure 3); the other three subcatchment areas flow offsite. The contributing area to each stormwater management area is identified on Figure 3. The post-development stormwater management system has been designed based on the Unified Stormwater Sizing Criteria as described in the following sections.

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5.6.1 Water Quality (WQ_v)

In general, small storm events and the initial runoff from larger storm events are an environmental concern as this stormwater runoff typically contains roadway pollutants and thermal energy stored by the asphalt. In accordance with the Design Manual, this initial runoff is designated as the Water Quality Volume (WQ_v) and special attention is given to this volume of runoff to meet water quality objectives.

The Design Manual identifies several standard practices, such as the proposed micro-pool extended detention ponds and bioretention areas as acceptable for water quality treatment. These acceptable Stormwater Management Practices (SMPs) can capture and treat the full water quality volume (WQ_v), are capable of 80% TSS removal and 40% TP removal, have acceptable longevity in the field, and have pretreatment mechanism.

The water quality storage volume, WQ_v, is calculated as follows:

$$WQ_v = \frac{P \cdot R_v \cdot A}{12}$$

Where: WQ_v = water quality volume (acre-feet)

P = 90% rainfall event number

R_v = 0.05+0.009(I), where I is percent impervious cover

A = site area (acres), impervious area used with I = 100%

Table 2: Required Water Quality Volume per SMA

I.D.	P	R_v	A (SF)	Required WQ_v (cf)	Provided WQ_v (cf)
SMA #1	1.15	0.60	253,643	14,625	36,200
SMA #2	1.15	0.51	249,770	12,238	36,400
SMA #3	1.15	0.45	14,795	1,434	3,611
SMA #4	1.15	0.41	104,829	4,120	11,608
SMA #5	1.15	0.51	31,330	1,543	3,515
Total				**33,950**	**148,389**

5.6.1.1 Pretreatment Practices

Per Section 6.1.4 of the Design Manual, micro-pool extended detention ponds are required to have a pretreatment forebay sized for 10% of the total contributing WQv and a permanent pool sized for at least 20% of the total contributing WQv. Up to 80% of the WQv can be treated in

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the extended detention area. The following table summarizes the treatment of the WQv in SMA #1 and SMA #2 (the Micropool ED ponds).

Table 3: MicroPool WQv Treatment

SMA ID	Section	Required WQv (Cu-FT)	WQv Provided (Cu-FT)	% Removed
SMA #1	Forebay	1,463	7,620	>10%
	Permanent Pool	2,925	6,880	>20%
	Extended Detention	11,700	21,700	>80%
	Total (SMA #1)	**14,625**	**36,200**	**100%**
SMA #2	Forebay	1,224	5,120	>10%
	Permanent Pool	2,448	7,320	>20%
	Extended Detention	9,790	23,960	>80%
	Total (SMA #2)	**12,238**	**36,400**	**100%**

5.6.2 Runoff Reduction Volume (RRv)

The Design Manual specifies that runoff shall be reduced by 100% of the site WQv using standard SMPs with RRv capacity and green infrastructure techniques, unless there are site limitations that prohibit the ability to meet this requirement. In these cases, a minimum RRv must be met. The proposed project watershed area is approximately 15.44 acres with a total proposed impervious area on the order of 8.18 acres.

The resulting WQv for these site coverages is computed as 33,950 CF.

Site constraints, including shallow rock, poor soils and steep topography prohibit the ability to meet 100% of the RRv reduction. The minimum RRv reduction has therefore been met with a combination of green infrastructure practices.

The minimum RRv is calculated as follows:

$$RR_{vmin} = \frac{P * R_v * A_{IC} * S}{12}$$

Where: RR_{vmin} = Minimum runoff reduction volume required from impervious area (acre-feet)

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P = 90% rainfall event number

R_v = 0.05+0.009(I), where I is 100 percent impervious cover

A_{ic} = Total area of new impervious cover

S = Hydrologic Soil Group (HSG) Specific Reduction Factor (0.2 for HSG D)

*RR_{vmin} = (1.15 * (0.05+0.009 * 100) * 8.18 Acres * 0.2)/12 * 43,560 FT/1 Acre*

RR_{vmin} = 6,487 CF

5.6.2.1 Stormwater Management Practices (SMP's)

The proposed micro-pool extended detention ponds are considered standard SMPs acceptable for water quality volume, however, they do not provide RRv capacity.

The proposed bioretention areas are considered standard SMPs with RRv capacity. In HSG C and HSG D soils, bioretention areas with underdrain can provide up to 40% RRv Capacity.

Table 4 provides a summary of the three bioretention areas and their contributing Runoff Reduction Volume.

Table 4: Runoff Reduction Volume Summary

Runoff Reduction Technique	RRv (cf)
SMA#3 – Bioretention Area	1,434
SMA#4 – Bioretention Area	4,120
SMA#5 – Bioretention Area	1,406
Total Site Reduction	**6,960**
RRv Min. Reduction	**6,487**
% RRv Min. Reduction	**107%**

5.6.2.2 Green Infrastructure Practices

Many of the green infrastructure practices recommended in the Design Manual were not applied to the stormwater management design on this site due to site restrictions or the use of more feasible standard SMP techniques in place of more restrictive and/or maintenance intensive practices. The following table discusses why the unused green infrastructure practices were not feasible.

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Table 5: Non-Feasible Green Infrastructure Practices

Green Infrastructure Practice	Reason use is not feasible
Conservation of Natural Areas	While natural areas will be maintained on site, their contribution to RRv reduction is minimal; these areas will also not be upstream of the SMA's.
Sheetflow to Riparian Buffers or Filter Strips	Slopes and soils on site are not conducive for buffers or vegetated filter strips.
Vegetated Swales	Vegetated swales will be used on site, however, their contribution to runoff reduction is negligible. Additional swales would result in a larger area of disturbance.
Tree Planting/Tree Pit	While trees will either be saved or be planted on the site, the resulting runoff reduction value for additional street trees is minimal.
Disconnection of Rooftop Runoff	Many of the rooftop areas which would be accounted for in Rooftop Disconnection are accounted for in the bioretention area calculations
Stream Daylighting	No existing piped streams are located on the site.
Rain Gardens	Rain gardens are typically not feasible for large roof areas over 1,000 SF; for these applications, bioretention areas are typically used instead.
Green Roofs	Green roofs are less favorable because they are more difficult to maintain. The majority of rooftop runoff will be conveyed to bioretention areas. The proposed stormwater management methods are more financially feasible and require less maintenance than to green roofs. Additionally, the proposed rooftops will be sloped, green roofs require flat rooftops.
Stormwater Planters	The majority of rooftop runoff will be treated with bioretention areas.
Rain Barrels/Cisterns	The proposed rooftops have been designed to drain towards catch basins or towards bioretention areas. Rain Barrels/Cisterns would require greater maintenance compared to the methods currently implemented for runoff reduction, they also would require a way to use the collected stormwater between storm events.
Porous Pavement	Porous pavement has not been proposed on this site due to poor soil conditions.

5.6.3 Channel Protection (Cp_v)

In accordance with the Design Manual, stream channel protection, designed to protect stream channels from erosion, is accomplished by providing 24-hour extended detention of the one-year, 24-hour storm event. The Cp_v requirement is typically satisfied by providing additional storage above the water quality (WQ_v) volume.

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The one-year storm event was analyzed using the HydroCAD stormwater modeling program (TR-20) under the post development drainage conditions shown on Figure 3. Using a one-year, 24-hour design storm of 2.19 inches the required Cp_v was calculated as presented in Table 6.

Table 6: Channel Protection Volume Summary

SMA ID	1-Year Design Storm (in)	Required Detention Time (Minutes)	Required Cp_v (ft^3)	Orifice Size (in)	Time to Discharge 1 Year Storm Event	Over 24 Hours Detention? (Y/N)
SMA #1	2.19	1440	29,098	2.3	1,503	Y
SMA #2	2.19	1440	25,788	2.0	1,715	Y

SMA #1 and SMA #2 were designed with small diameter, low flow orifices in order to allow for greater than the required 24-hour detention of the CPv, as calculated using plug-flow detention time. Since the orifice diameters are less than three (3) inches, clogging can become an issue. In order to prevent clogging in the standpipe, the low flow orifices will be encased in a perforated pipe with perforations smaller than the proposed low flow orifice.

5.6.4 Overbank Flood (Q_p)

Overbank Flood Control Criteria has been established to limit the frequency and magnitude of out-of-bank flooding generated through changes in runoff characteristics as a result of increased impervious surface area. In accordance with the Design Manual, providing sufficient storage volume to attenuate the post development 10-year, 24-hour peak discharge rate to the equivalent pre-development discharge rate controls overbank flooding.

The 10-year design storm event was analyzed using the HydroCAD stormwater modeling program (TR-20) under the post-development drainage conditions shown on Figure 3. Using a 10-year, 24-hour design storm of 3.65 inches, the stormwater devices were designed with overflow weirs to limit the post development 10-year, 24-hour peak discharge rate to the predevelopment discharge rate. The following table presents the pre-development and post-development discharge rates for the offsite discharge. As indicated, the post-development discharge rate is less than the pre-development rate as required.

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Table 7: Overbank Flow Runoff Summary

Design Point	10-year (3.65”) runoff rate (cfs)	
	Predevelopment	Post-Development
1L	3.68	2.91
2L	22.14	5.91
3L	15.32	2.08
4L	4.25	0.00
TOTAL	**45.39**	**10.90**

5.3.5 Extreme Storm (Q_f)

In accordance with the Design Manual, the stormwater management system must attenuate the post development 100-year, 24-hour peak discharge rate to the predevelopment rate while providing safe passage of this storm event.

The 100-year storm event was analyzed using the HydroCAD stormwater modeling program (TR-20) under the post-development drainage conditions shown in Figure 3. Using a 100-year, 24-hour design storm of 6.10 inches, the stormwater devices were designed with overflow weirs to limit the post development 100-year, 24-hour peak discharge rate to the predevelopment discharge rate. The following table presents the pre and post-development discharge rates for the offsite discharge. As indicated, the post-development discharge rate is less than the predevelopment rate as required.

Table 8: Extreme Storm Runoff Summary

Design Point	100-year (6.10”) runoff rate (cfs)	
	Predevelopment	Post-Development
1L	7.45	7.30
2L	44.95	19.27
3L	31.24	2.08
4L	8.64	0
TOTAL	92.28	28.65

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6.0 Pipe Sizing

The proposed storm sewer collection system was analyzed using Hydro CAD. The pipes were sized using Manning's equation to fully handle the 10-year storm event without any surcharging. The following table summarizes the pipe sizing for the project. While surcharging is anticipated for storm events greater than the 10-year design storm event, the site has been designed to ensure that the runoff is conveyed to the stormwater management areas.

Table 9: Storm Sewer Pipe Sizing

Catch Basin I.D.		Pipe Size	Pipe Slope	10 Year Capacity (cfs)	10 Year Flow (cfs)
Upstream	Downstream				
CB#8	CB#7	12"	0.53%	2.76	1.44
CB#7	CB#5 & CB#6	15"	0.51%	4.96	4.39
CB#5 & CB#6	CB#4	18"	0.50%	8.07	8.03
CB#4	CB#3	18"	0.82%	10.33	9.57
CB#3	FES#8	24"	1.05%	25.18	22.48
CB#2	CB#1	12"	0.56%	2.90	1.24
CB#1	FES#1	12"	0.50%	2.74	2.00
CB#17	CB#16	15"	0.50%	4.96	3.19
CB#16	CB#15	15"	0.63%	5.57	5.17
CB#15	CB#14	18"	0.81%	10.27	9.47
CB#14	CB#11	18"	1.06%	11.75	10.94
CB#13	CB#14	12"	6.21%	9.64	1.11
CB#10	CB#11	12"	4.79%	8.47	1.09
CB#11	CB#3	24"	2.97%	42.35	12.88
CB#31	CB#29	12"	2.57%	6.20	1.21
CB#29	CB#30 & CB#32	12"	0.71%	3.26	2.67
CB#30 & CB#32	CB#33	12"	2.07%	5.57	3.50
CB#33	CB#24	15"	0.56%	5.25	3.83
CB#24	FES#4	15"	0.49%	7.99	6.33
CB#28	CB#26	12"	1.22%	4.27	3.59
CB#26	CB#19	18"	3.11%	20.12	10.38
CB#19	CB#18	24"	0.51%	17.55	12.37
CB#18	FES#3	24"	0.7%	20.56	14.24
CB#20	CB#19	12"	0.52%	2.79	1.43
CB#25	CB#23	12"	0.56%	2.90	1.59
CB#23	CB#22	12"	0.50%	2.74	1.59
CB#21	CB#22	12"	2.36%	5.95	3.34
CB#22	CB#26	15"	0.71%	5.91	4.43

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7.0 Summary

Development of the proposed property will change the stormwater drainage characteristics of the site; impervious area will be added and the site will be re-graded to support the proposed improvements. Changes to the stormwater drainage characteristics of the site have been evaluated in accordance with the Design Manual. The proposed stormwater management system has been designed to comply with the recommendations in the Design Manual related to water quality, runoff reduction, channel protection, overbank flood control and extreme flood control for new development projects.

The proposed stormwater management system has been designed to attenuate and treat the stormwater runoff generated from the contributing areas for storm events up to and including the 100-year design storm event. The proposed stormwater management design includes the use of two Micropool Extended Detention Ponds and three Bioretention Areas to treat the WQv and provide the minimum RRv reduction. Storage will be provided above the required WQv to meet detention (Q_p) and channel protection (Cp_v) requirements. Stormwater modeling results, based on the proposed site layout, indicate the ability to reduce the overall post-development discharge rate from the site as summarized in Table 10.

Table 10: Post Development Stormwater Peak Discharge Rates

Peak Discharge Rates in cfs	1-Year Storm	10-Year Storm	100-Year Storm
Pre-Development	19.21	45.39	92.28
Post-Development	1.44	10.90	28.65
Overall Reduction (cfs)	17.77	34.49	63.63

Through the implementation of acceptable stormwater management practices, recommended by the NYS Stormwater Management Design Manual, the proposed project will not adversely affect adjacent or downstream properties.

Prepared by:
The Environmental Design Partnership, LLP

Stephanie Alessandrini, P.E.

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Figures

1. Site Location map
2. Pre Development Drainage Map
3. Post Development Drainage Map

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Project Site

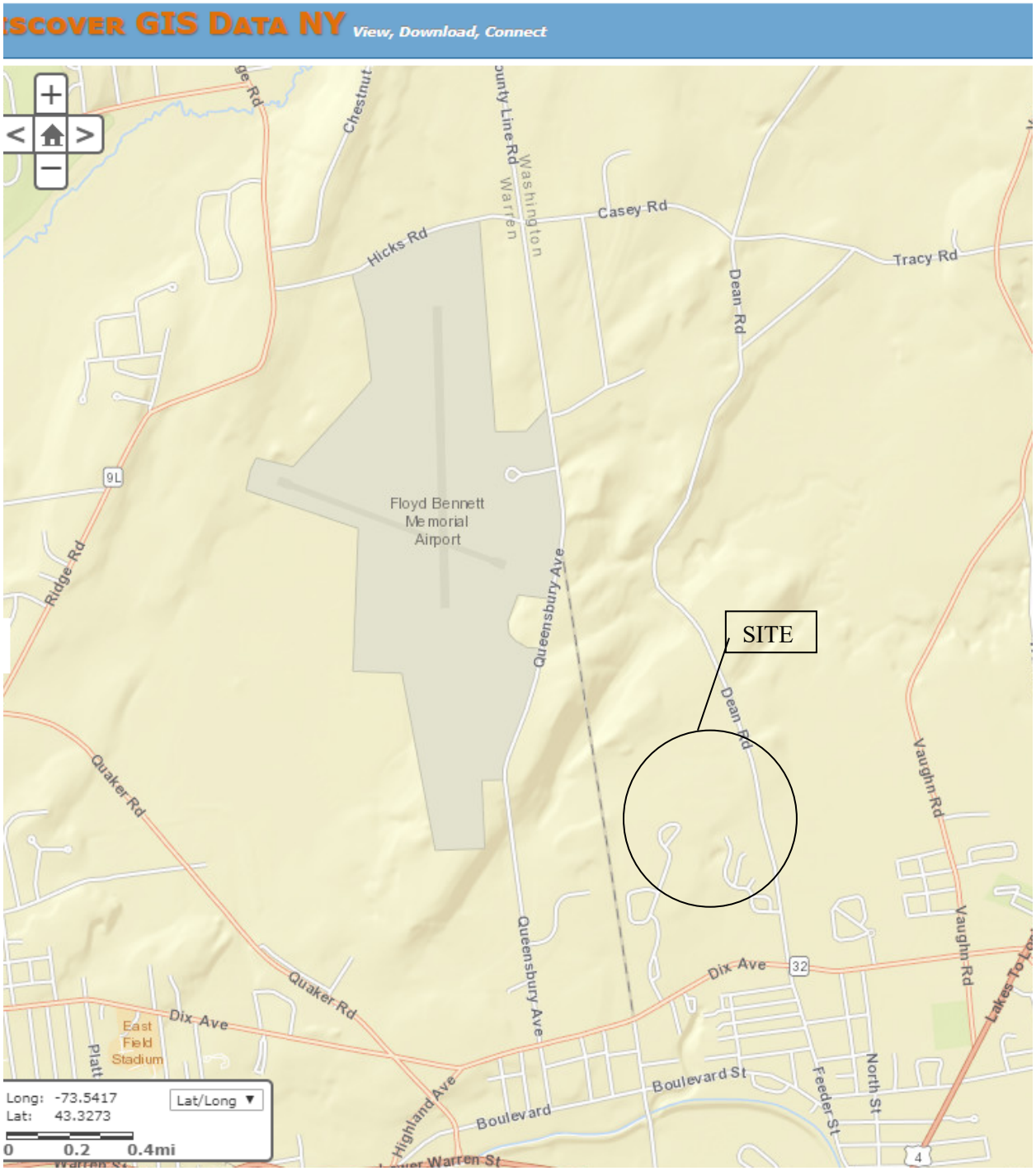

Figure 1: Site Location Map

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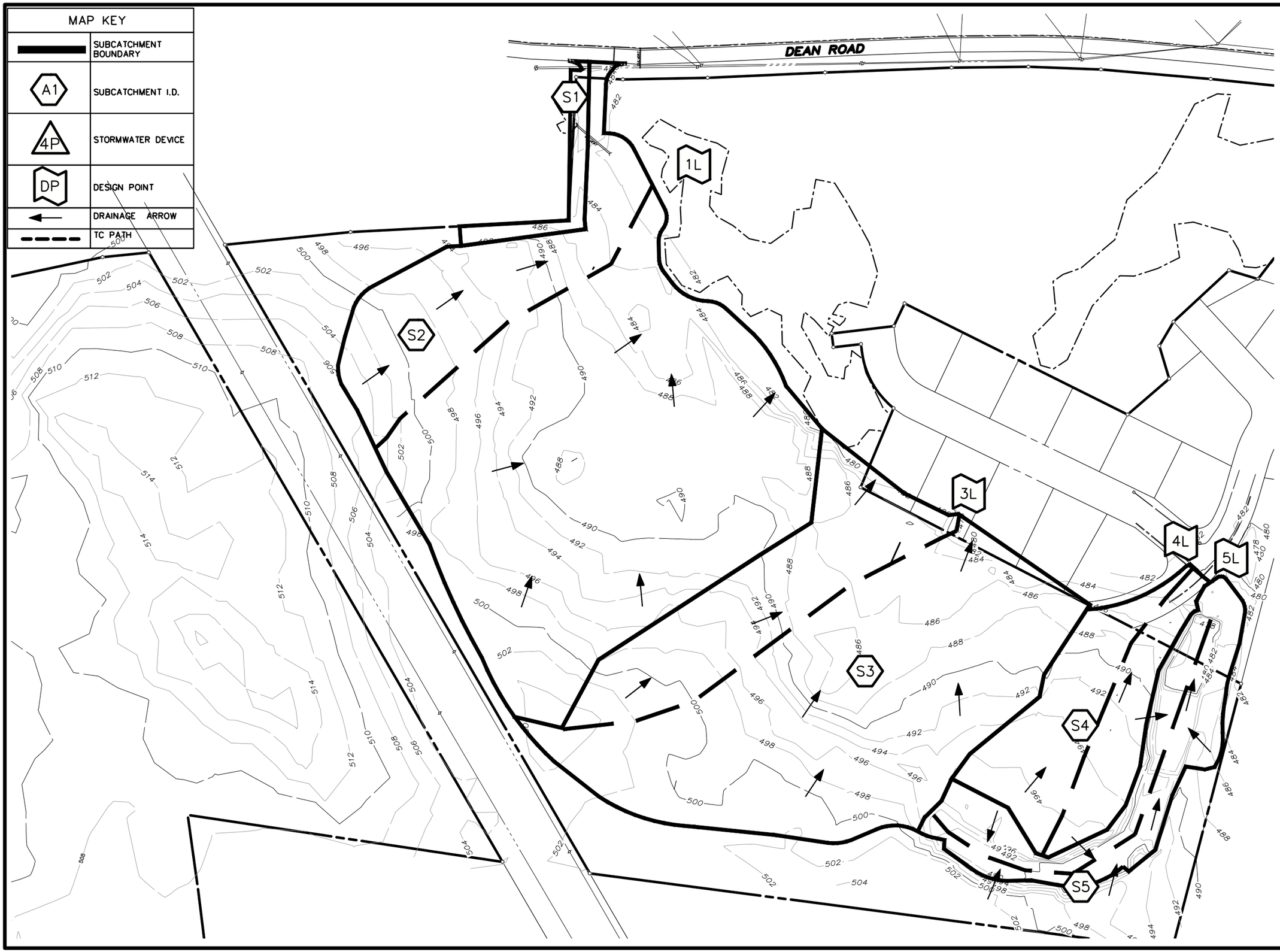

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PROPOSED APARTMENT COMMUNITY FOR

THE QUARRY

WASHINGTON COUNTY
NEW YORK
6/6/2019

DEAN ROAD
TOWN OF KINGSBURY
146.9-1-14

REVISION	DATE	BY

SCALE: 1"=130'

SHEET TITLE:
PRE-DEVELOPMENT STORMWATER

FIGURE: 2

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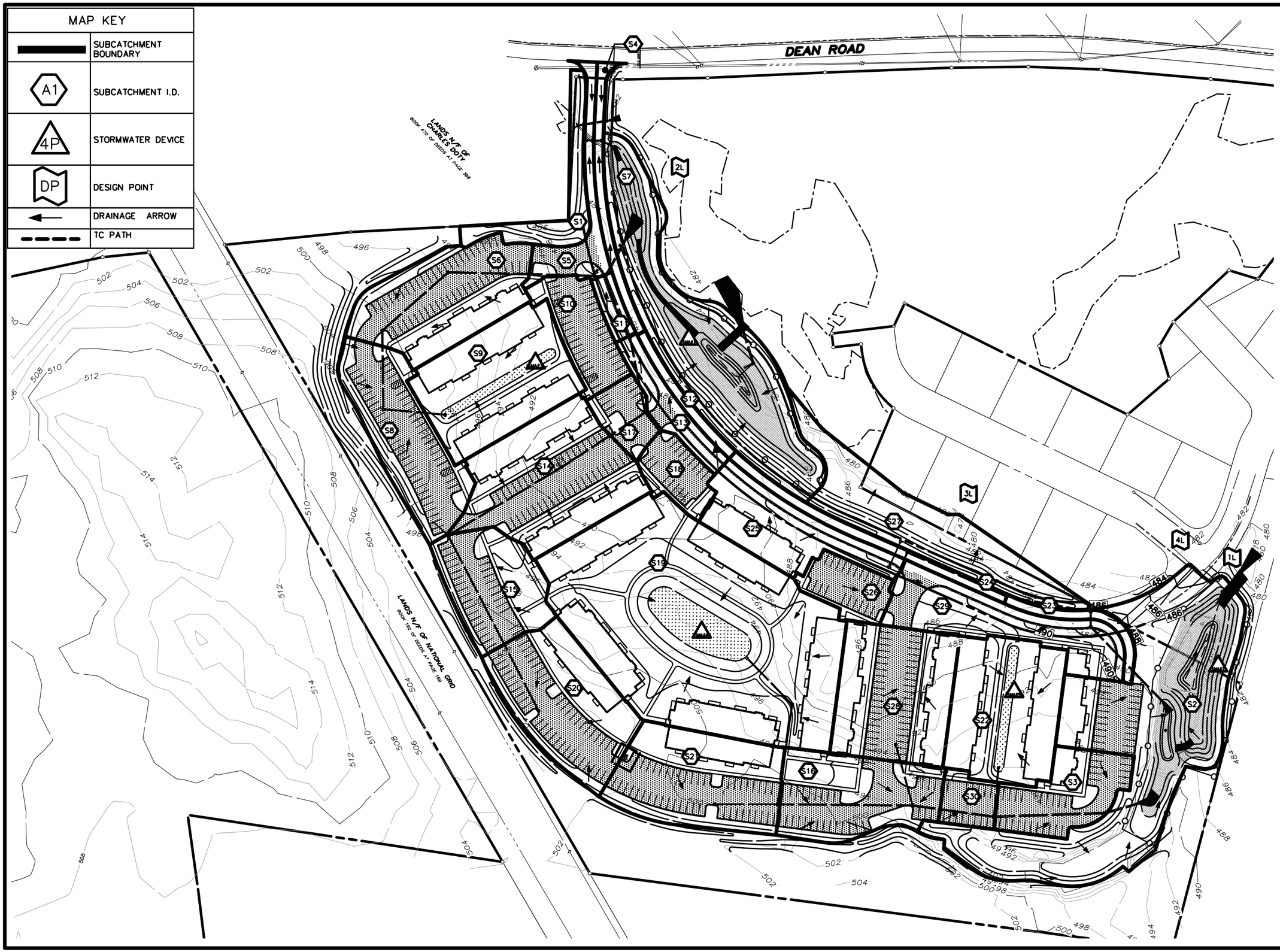

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PROPOSED APARTMENT COMMUNITY FOR

THE QUARRY

WASHINGTON COUNTY
NEW YORK
10/9/2018

DEAN ROAD
TOWN OF KINGSBURY
146.9-1-14

REVISION	DATE	BY

SCALE: 1"=130'

SHEET TITLE:
POST-DEVELOPMENT STORMWATER

FIGURE: 3

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Attachment A

Water Quality Calculation

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Water Quality Volume (WQv) Calculations

Project: THE QUARRY

Date: 1/29/2021

SMA I.D.	AREA (SF)	I (SF)	I (%)	Rv	WQv (cu-ft)	WQv Provided (cu-ft)
SMA 1	253,643	155,474	61%	0.60	14,625	36,200
SMA 2	249,770	128,008	51%	0.51	12,238	36,400
SMA 3	32,931	14,795	45%	0.45	1,434	3,611
SMA 4	104,829	41,946	40%	0.41	4,120	11,608
SMA 5	31,330	16,145	52%	0.51	1,543	3,515
Totals	**672,503**	**356,368**			**33,959**	**91,334**

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Runoff Reduction Volume (RRv) Calculations

Project: THE QUARRY

Date: 1/29/2021

Total Site Area =	15.44	acres	P =	1.15	in
I=	52.98	%	WQv =	33,950	cf
Rv =	0.527				

Minimum Reduction

Aic (ac)	S	Rv	Min Reduction (RRv) (cf)
8.18	0.2	0.95	6,487

Stormwater Management Practices

Bioretention

I.D.	WQv Provided (cf)	% Reduction	Max Reduction (cf) (Contributing WQv)	Reduction (cf)
SMA#1	36,200	0	0	0
SMA#2	36,400	0	0	0
SMA#3	3,611	40	1,434	1,434
SMA#4	11,608	40	4,120	4,120
SMA#5	3,515	40	1,406	1,406

Reduction from Standard SMPs =	**6,960**	cf
Reduction from GI =	**0**	cf
Total Overall RRv =	**6,960**	cf
% Min. Reduction=	**107%**	

Runoff Reduction Volume (RRv) Calculations

Project: THE QUARRY

Date: 10/28/2020

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Total Watershed Area =	15.4	acres	P =	1.15	in
Impervious Area Onsite =	53%		WQv =	33,950	cf
Rv =	0.527		RRv Min =	6,487	cf

Runoff Reduction Capacity for Standard SMPs

SMA #3 - Bioretention Area

Surface Area of Bioretention Area (SF)	2,588
Contributing Water Quality Volume (CF)	3,804
Depth of Drainage Layer (FT)*	1.00
Depth of Soil Media (FT)	2.5
Depth of Ponding (FT)	0.5
Porosity of the Drainage Layer	0.4
Porosity of the Soil Media	0.2
Volume of the Soil Media (ft^3)	1294
Volume of the Drainage Layer (ft^3)	1035.2
Ponding Volume (ft^3)	1282
Water Quality Volume Provided by Practice (ft^3)	3611.2
Available RRv Capacity Based on Soil Type (HSG D)	40%
Water Quality Volume Treated by Practice	**1434**

*Proposed 8" underdrain to accomdate cold climate considerations

SMA #4 - Bioretention Area

Surface Area of Bioretention Area (SF)	8,035
Contributing Water Quality Volume (CF)	11,608
Depth of Drainage Layer (FT)*	1.00
Depth of Soil Media (FT)	2.5
Depth of Ponding (FT)	0.5
Porosity of the Drainage Layer	0.4
Porosity of the Soil Media	0.2
Volume of the Soil Media (ft^3)	4017
Volume of the Drainage Layer (ft^3)	3214
Ponding Volume (ft^3)	4377
Water Quality Volume Provided by Practice (ft^3)	11608
Available RRv Capacity Based on Soil Type (HSG D)	40%
Water Quality Volume Treated by Practice	**4120**

*Proposed 8" underdrain to accomdate cold climate considerations

SMA #5 - Bioretention Area

Surface Area of Bioretention Area (SF)	2,511
Contributing Water Quality Volume (CF)	3,551
Depth of Drainage Layer (FT)*	1.00
Depth of Soil Media (FT)	2.5
Depth of Ponding (FT)	0.5
Porosity of the Drainage Layer	0.4
Porosity of the Soil Media	0.2
Volume of the Soil Media (ft^3)	1255.5
Volume of the Drainage Layer (ft^3)	1004.4
Ponding Volume (ft^3)	1255
Water Quality Volume Provided by Practice (ft^3)	3515.4
Available RRv Capacity Based on Soil Type (HSG D)	40%
Water Quality Volume Treated by Practice	**1406**

*Proposed 8" underdrain to accomdate cold climate conditions

Total RRv provided by practice = 6,960

Attachment B

Stormwater Modeling Calculations

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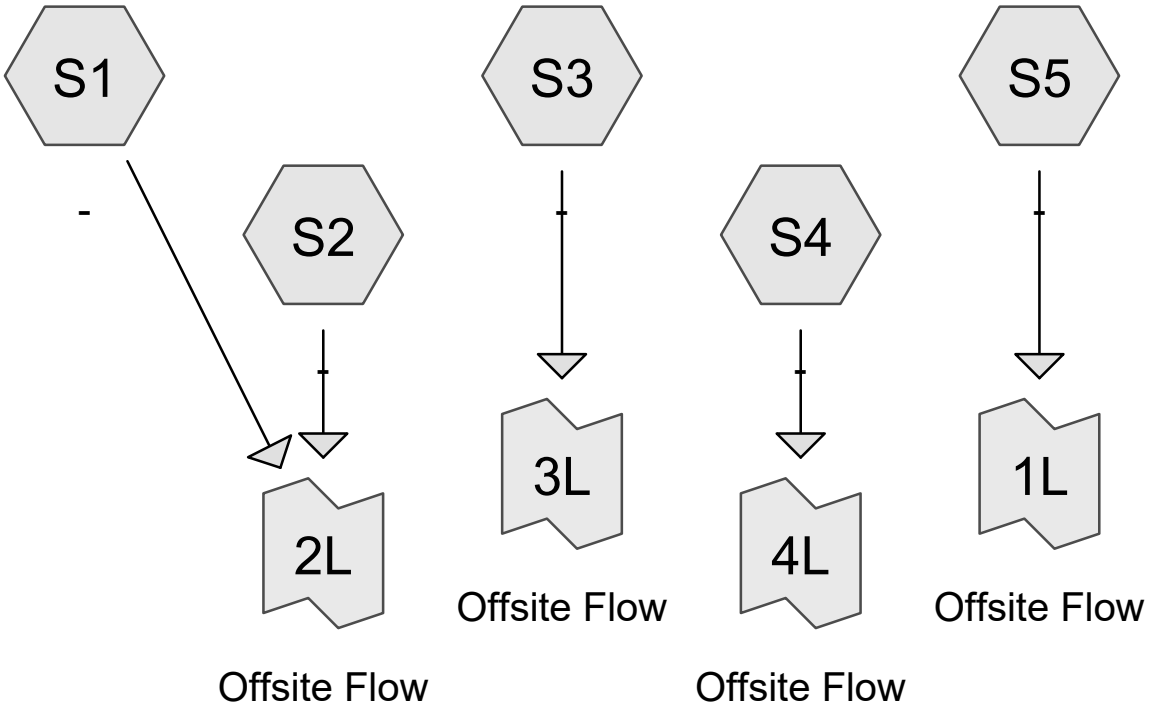
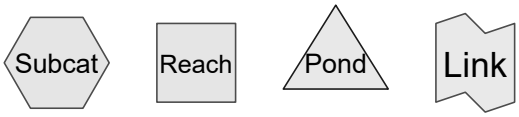




Routing Diagram for PRE-DEVELOPMENT - NIKAS
Prepared by The Environmental Design Partnership, Printed 10/29/2020
HydroCAD® 10.00-20 s/n 10197 © 2017 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
16.327	84	50-75% Grass cover, Fair, HSG D (S1, S2, S3, S4, S5)
16.327	**84**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
16.327	HSG D	S1, S2, S3, S4, S5
0.000	Other	
16.327		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	16.327	0.000	16.327	50-75% Grass cover, Fair	S1, S2, S3, S4, S5
0.000	**0.000**	**0.000**	**16.327**	**0.000**	**16.327**	**TOTAL AREA**	

Time span=0.00-200.00 hrs, dt=0.05 hrs, 4001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentS1: - Runoff Area=9,412 sf 0.00% Impervious Runoff Depth=0.88"
Flow Length=28' Slope=0.1100 '/' Tc=2.0 min CN=84 Runoff=0.37 cfs 0.016 af

SubcatchmentS2: - Runoff Area=328,500 sf 0.00% Impervious Runoff Depth=0.88"
Flow Length=561' Tc=13.1 min CN=84 Runoff=9.02 cfs 0.554 af

SubcatchmentS3: - Runoff Area=254,373 sf 0.00% Impervious Runoff Depth=0.88"
Flow Length=666' Tc=15.3 min CN=84 Runoff=6.45 cfs 0.429 af

SubcatchmentS4: - Runoff Area=65,997 sf 0.00% Impervious Runoff Depth=0.88"
Flow Length=435' Tc=13.3 min CN=84 Runoff=1.80 cfs 0.111 af

SubcatchmentS5: - Runoff Area=52,922 sf 0.00% Impervious Runoff Depth=0.88"
Flow Length=688' Tc=10.8 min CN=84 Runoff=1.57 cfs 0.089 af

Link 1L: Offsite Flow Inflow=1.57 cfs 0.089 af
Primary=1.57 cfs 0.089 af

Link 2L: Offsite Flow Inflow=9.08 cfs 0.570 af
Primary=9.08 cfs 0.570 af

Link 3L: Offsite Flow Inflow=6.45 cfs 0.429 af
Primary=6.45 cfs 0.429 af

Link 4L: Offsite Flow Inflow=1.80 cfs 0.111 af
Primary=1.80 cfs 0.111 af

Total Runoff Area = 16.327 ac Runoff Volume = 1.199 af Average Runoff Depth = 0.88"
100.00% Pervious = 16.327 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment S1: -

Runoff = 0.37 cfs @ 11.93 hrs, Volume= 0.016 af, Depth= 0.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
9,412	84	50-75% Grass cover, Fair, HSG D
9,412		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	28	0.1100	0.23		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"

Summary for Subcatchment S2: -

Runoff = 9.02 cfs @ 12.06 hrs, Volume= 0.554 af, Depth= 0.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
328,500	84	50-75% Grass cover, Fair, HSG D
328,500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	100	0.0500	0.22		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"
5.5	461	0.0400	1.40		**Shallow Concentrated Flow, SHALLOW** Short Grass Pasture Kv= 7.0 fps
13.1	561	Total			

Summary for Subcatchment S3: -

Runoff = 6.45 cfs @ 12.08 hrs, Volume= 0.429 af, Depth= 0.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
254,373	84	50-75% Grass cover, Fair, HSG D
254,373		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0300	0.18		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"
6.0	566	0.0510	1.58		**Shallow Concentrated Flow, SHALLOW** Short Grass Pasture Kv= 7.0 fps
15.3	666	Total			

Summary for Subcatchment S4: -

Runoff = 1.80 cfs @ 12.06 hrs, Volume= 0.111 af, Depth= 0.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
65,997	84	50-75% Grass cover, Fair, HSG D
65,997		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0300	0.18		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"
4.0	335	0.0390	1.38		**Shallow Concentrated Flow, SHALLOW** Short Grass Pasture Kv= 7.0 fps
13.3	435	Total			

Summary for Subcatchment S5: -

Runoff = 1.57 cfs @ 12.03 hrs, Volume= 0.089 af, Depth= 0.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
52,922	84	50-75% Grass cover, Fair, HSG D
52,922		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1000	0.29		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"
5.0	588	0.0170	1.96		**Shallow Concentrated Flow, SHALLOW** Grassed Waterway Kv= 15.0 fps
10.8	688	Total			

Summary for Link 1L: Offsite Flow

Inflow Area = 1.215 ac, 0.00% Impervious, Inflow Depth = 0.88" for 1 YR event
Inflow = 1.57 cfs @ 12.03 hrs, Volume= 0.089 af
Primary = 1.57 cfs @ 12.03 hrs, Volume= 0.089 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link 2L: Offsite Flow

Inflow Area = 7.757 ac, 0.00% Impervious, Inflow Depth = 0.88" for 1 YR event
Inflow = 9.08 cfs @ 12.05 hrs, Volume= 0.570 af
Primary = 9.08 cfs @ 12.05 hrs, Volume= 0.570 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link 3L: Offsite Flow

Inflow Area = 5.840 ac, 0.00% Impervious, Inflow Depth = 0.88" for 1 YR event
Inflow = 6.45 cfs @ 12.08 hrs, Volume= 0.429 af
Primary = 6.45 cfs @ 12.08 hrs, Volume= 0.429 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link 4L: Offsite Flow

Inflow Area = 1.515 ac, 0.00% Impervious, Inflow Depth = 0.88" for 1 YR event
Inflow = 1.80 cfs @ 12.06 hrs, Volume= 0.111 af
Primary = 1.80 cfs @ 12.06 hrs, Volume= 0.111 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Time span=0.00-200.00 hrs, dt=0.05 hrs, 4001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentS1: - Runoff Area=9,412 sf 0.00% Impervious Runoff Depth=2.07"
Flow Length=28' Slope=0.1100 '/' Tc=2.0 min CN=84 Runoff=0.84 cfs 0.037 af

SubcatchmentS2: - Runoff Area=328,500 sf 0.00% Impervious Runoff Depth=2.07"
Flow Length=561' Tc=13.1 min CN=84 Runoff=21.30 cfs 1.298 af

SubcatchmentS3: - Runoff Area=254,373 sf 0.00% Impervious Runoff Depth=2.07"
Flow Length=666' Tc=15.3 min CN=84 Runoff=15.32 cfs 1.005 af

SubcatchmentS4: - Runoff Area=65,997 sf 0.00% Impervious Runoff Depth=2.07"
Flow Length=435' Tc=13.3 min CN=84 Runoff=4.25 cfs 0.261 af

SubcatchmentS5: - Runoff Area=52,922 sf 0.00% Impervious Runoff Depth=2.07"
Flow Length=688' Tc=10.8 min CN=84 Runoff=3.68 cfs 0.209 af

Link 1L: Offsite Flow Inflow=3.68 cfs 0.209 af
Primary=3.68 cfs 0.209 af

Link 2L: Offsite Flow Inflow=21.44 cfs 1.335 af
Primary=21.44 cfs 1.335 af

Link 3L: Offsite Flow Inflow=15.32 cfs 1.005 af
Primary=15.32 cfs 1.005 af

Link 4L: Offsite Flow Inflow=4.25 cfs 0.261 af
Primary=4.25 cfs 0.261 af

Total Runoff Area = 16.327 ac Runoff Volume = 2.810 af Average Runoff Depth = 2.07"
100.00% Pervious = 16.327 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment S1: -

Runoff = 0.84 cfs @ 11.92 hrs, Volume= 0.037 af, Depth= 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
9,412	84	50-75% Grass cover, Fair, HSG D
9,412		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	28	0.1100	0.23		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"

Summary for Subcatchment S2: -

Runoff = 21.30 cfs @ 12.05 hrs, Volume= 1.298 af, Depth= 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
328,500	84	50-75% Grass cover, Fair, HSG D
328,500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	100	0.0500	0.22		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"
5.5	461	0.0400	1.40		**Shallow Concentrated Flow, SHALLOW** Short Grass Pasture Kv= 7.0 fps
13.1	561	Total			

Summary for Subcatchment S3: -

Runoff = 15.32 cfs @ 12.07 hrs, Volume= 1.005 af, Depth= 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
254,373	84	50-75% Grass cover, Fair, HSG D
254,373		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0300	0.18		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"
6.0	566	0.0510	1.58		**Shallow Concentrated Flow, SHALLOW** Short Grass Pasture Kv= 7.0 fps
15.3	666	Total			

Summary for Subcatchment S4: -

Runoff = 4.25 cfs @ 12.05 hrs, Volume= 0.261 af, Depth= 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
65,997	84	50-75% Grass cover, Fair, HSG D
65,997		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0300	0.18		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"
4.0	335	0.0390	1.38		**Shallow Concentrated Flow, SHALLOW** Short Grass Pasture Kv= 7.0 fps
13.3	435	Total			

Summary for Subcatchment S5: -

Runoff = 3.68 cfs @ 12.02 hrs, Volume= 0.209 af, Depth= 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
52,922	84	50-75% Grass cover, Fair, HSG D
52,922		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1000	0.29		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"
5.0	588	0.0170	1.96		**Shallow Concentrated Flow, SHALLOW** Grassed Waterway Kv= 15.0 fps
10.8	688	Total			

Summary for Link 1L: Offsite Flow

Inflow Area = 1.215 ac, 0.00% Impervious, Inflow Depth = 2.07" for 10 YR event
Inflow = 3.68 cfs @ 12.02 hrs, Volume= 0.209 af
Primary = 3.68 cfs @ 12.02 hrs, Volume= 0.209 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link 2L: Offsite Flow

Inflow Area = 7.757 ac, 0.00% Impervious, Inflow Depth = 2.07" for 10 YR event
Inflow = 21.44 cfs @ 12.05 hrs, Volume= 1.335 af
Primary = 21.44 cfs @ 12.05 hrs, Volume= 1.335 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link 3L: Offsite Flow

Inflow Area = 5.840 ac, 0.00% Impervious, Inflow Depth = 2.07" for 10 YR event
Inflow = 15.32 cfs @ 12.07 hrs, Volume= 1.005 af
Primary = 15.32 cfs @ 12.07 hrs, Volume= 1.005 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link 4L: Offsite Flow

Inflow Area = 1.515 ac, 0.00% Impervious, Inflow Depth = 2.07" for 10 YR event
Inflow = 4.25 cfs @ 12.05 hrs, Volume= 0.261 af
Primary = 4.25 cfs @ 12.05 hrs, Volume= 0.261 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Time span=0.00-200.00 hrs, dt=0.05 hrs, 4001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentS1: - Runoff Area=9,412 sf 0.00% Impervious Runoff Depth=4.29"
Flow Length=28' Slope=0.1100 '/' Tc=2.0 min CN=84 Runoff=1.68 cfs 0.077 af

SubcatchmentS2: - Runoff Area=328,500 sf 0.00% Impervious Runoff Depth=4.29"
Flow Length=561' Tc=13.1 min CN=84 Runoff=43.27 cfs 2.696 af

SubcatchmentS3: - Runoff Area=254,373 sf 0.00% Impervious Runoff Depth=4.29"
Flow Length=666' Tc=15.3 min CN=84 Runoff=31.24 cfs 2.088 af

SubcatchmentS4: - Runoff Area=65,997 sf 0.00% Impervious Runoff Depth=4.29"
Flow Length=435' Tc=13.3 min CN=84 Runoff=8.64 cfs 0.542 af

SubcatchmentS5: - Runoff Area=52,922 sf 0.00% Impervious Runoff Depth=4.29"
Flow Length=688' Tc=10.8 min CN=84 Runoff=7.45 cfs 0.434 af

Link 1L: Offsite Flow Inflow=7.45 cfs 0.434 af
Primary=7.45 cfs 0.434 af

Link 2L: Offsite Flow Inflow=43.57 cfs 2.773 af
Primary=43.57 cfs 2.773 af

Link 3L: Offsite Flow Inflow=31.24 cfs 2.088 af
Primary=31.24 cfs 2.088 af

Link 4L: Offsite Flow Inflow=8.64 cfs 0.542 af
Primary=8.64 cfs 0.542 af

Total Runoff Area = 16.327 ac Runoff Volume = 5.837 af Average Runoff Depth = 4.29"
100.00% Pervious = 16.327 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment S1: -

Runoff = 1.68 cfs @ 11.92 hrs, Volume= 0.077 af, Depth= 4.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
9,412	84	50-75% Grass cover, Fair, HSG D
9,412		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	28	0.1100	0.23		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"

Summary for Subcatchment S2: -

Runoff = 43.27 cfs @ 12.05 hrs, Volume= 2.696 af, Depth= 4.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
328,500	84	50-75% Grass cover, Fair, HSG D
328,500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	100	0.0500	0.22		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"
5.5	461	0.0400	1.40		**Shallow Concentrated Flow, SHALLOW** Short Grass Pasture Kv= 7.0 fps
13.1	561	Total			

Summary for Subcatchment S3: -

Runoff = 31.24 cfs @ 12.07 hrs, Volume= 2.088 af, Depth= 4.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
254,373	84	50-75% Grass cover, Fair, HSG D
254,373		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0300	0.18		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"
6.0	566	0.0510	1.58		**Shallow Concentrated Flow, SHALLOW** Short Grass Pasture Kv= 7.0 fps
15.3	666	Total			

Summary for Subcatchment S4: -

Runoff = 8.64 cfs @ 12.05 hrs, Volume= 0.542 af, Depth= 4.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
65,997	84	50-75% Grass cover, Fair, HSG D
65,997		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0300	0.18		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"
4.0	335	0.0390	1.38		**Shallow Concentrated Flow, SHALLOW** Short Grass Pasture Kv= 7.0 fps
13.3	435	Total			

Summary for Subcatchment S5: -

Runoff = 7.45 cfs @ 12.02 hrs, Volume= 0.434 af, Depth= 4.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
52,922	84	50-75% Grass cover, Fair, HSG D
52,922		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1000	0.29		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"
5.0	588	0.0170	1.96		**Shallow Concentrated Flow, SHALLOW** Grassed Waterway Kv= 15.0 fps
10.8	688	Total			

Summary for Link 1L: Offsite Flow

Inflow Area = 1.215 ac, 0.00% Impervious, Inflow Depth = 4.29" for 100 YR event
Inflow = 7.45 cfs @ 12.02 hrs, Volume= 0.434 af
Primary = 7.45 cfs @ 12.02 hrs, Volume= 0.434 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link 2L: Offsite Flow

Inflow Area = 7.757 ac, 0.00% Impervious, Inflow Depth = 4.29" for 100 YR event
Inflow = 43.57 cfs @ 12.04 hrs, Volume= 2.773 af
Primary = 43.57 cfs @ 12.04 hrs, Volume= 2.773 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link 3L: Offsite Flow

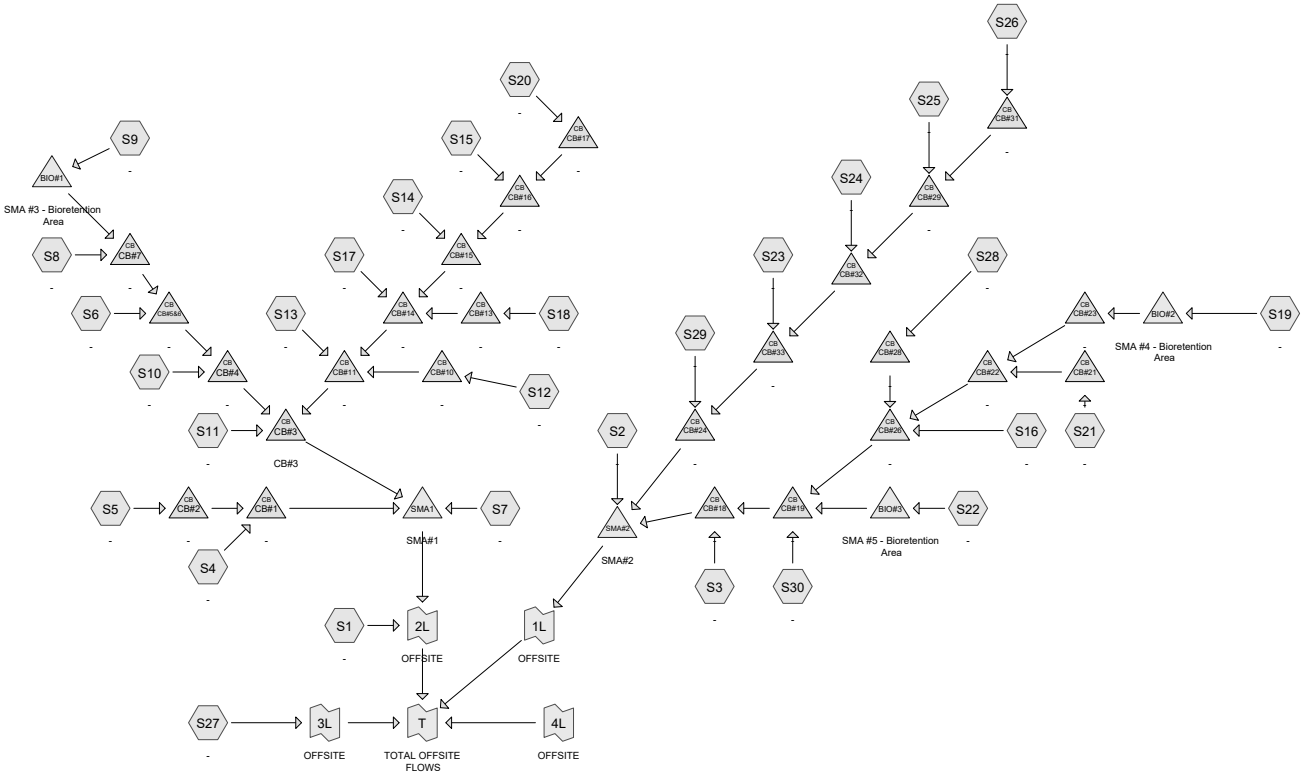
Inflow Area = 5.840 ac, 0.00% Impervious, Inflow Depth = 4.29" for 100 YR event
Inflow = 31.24 cfs @ 12.07 hrs, Volume= 2.088 af
Primary = 31.24 cfs @ 12.07 hrs, Volume= 2.088 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link 4L: Offsite Flow

Inflow Area = 1.515 ac, 0.00% Impervious, Inflow Depth = 4.29" for 100 YR event
Inflow = 8.64 cfs @ 12.05 hrs, Volume= 0.542 af
Primary = 8.64 cfs @ 12.05 hrs, Volume= 0.542 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs



Subcat Reach Pond Link

Routing Diagram for POST-DEVELOPMENT - NIKAS

Prepared by {enter your company name here}, Printed 1/29/2021

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1 YR	Type II 24-hr		Default	24.00	1	2.19	2
2	10 YR	Type II 24-hr		Default	24.00	1	3.65	2
3	25 YR	Type II 24-hr		Default	24.00	1	4.48	2
4	100 YR	Type II 24-hr		Default	24.00	1	6.10	2
5	WQv	Type II 24-hr		Default	24.00	1	1.10	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
8.148	80	>75% Grass cover, Good, HSG D (S1, S10, S11, S13, S14, S15, S16, S17, S18, S19, S2, S20, S21, S22, S25, S26, S27, S28, S29, S3, S30, S5, S6, S7, S8, S9)
8.181	98	Paved parking, HSG D (S10, S11, S12, S13, S14, S15, S16, S17, S18, S19, S2, S20, S21, S22, S23, S24, S25, S26, S28, S29, S3, S30, S4, S5, S6, S7, S8, S9)
16.328	**89**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
16.328	HSG D	S1, S10, S11, S12, S13, S14, S15, S16, S17, S18, S19, S2, S20, S21, S22, S23, S24, S25, S26, S27, S28, S29, S3, S30, S4, S5, S6, S7, S8, S9
0.000	Other	
16.328		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	8.148	0.000	8.148	>75% Grass cover, Good	S1, S10, S11, S13, S14, S15, S16, S17, S18, S19, S2, S20, S21, S22, S25, S26, S27, S28, S29, S3, S30, S5, S6, S7, S8, S9
0.000	0.000	0.000	8.181	0.000	8.181	Paved parking	S10, S11, S12, S13, S14, S15, S16, S17, S18, S19, S2, S20, S21, S22, S23, S24, S25, S26, S28, S29, S3, S30,

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	**0.000**	**0.000**	**16.328**	**0.000**	**16.328**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	BIO#1	488.80	488.35	89.0	0.0051	0.012	12.0	0.0	0.0
2	BIO#2	492.25	491.75	90.0	0.0056	0.012	12.0	0.0	0.0
3	BIO#3	486.50	486.15	70.0	0.0050	0.012	12.0	0.0	0.0
4	CB#1	482.40	482.30	20.0	0.0050	0.012	12.0	0.0	0.0
5	CB#10	489.75	488.60	24.0	0.0479	0.012	12.0	0.0	0.0
6	CB#11	487.60	484.90	91.0	0.0297	0.012	24.0	0.0	0.0
7	CB#13	491.80	489.75	33.0	0.0621	0.012	12.0	0.0	0.0
8	CB#14	489.25	488.10	106.0	0.0108	0.012	18.0	0.0	0.0
9	CB#15	490.40	489.25	139.0	0.0083	0.012	18.0	0.0	0.0
10	CB#16	491.85	490.65	187.0	0.0064	0.012	15.0	0.0	0.0
11	CB#17	493.25	491.85	281.0	0.0050	0.012	15.0	0.0	0.0
12	CB#18	484.35	484.00	52.0	0.0067	0.012	24.0	0.0	0.0
13	CB#19	485.15	484.35	161.0	0.0050	0.012	24.0	0.0	0.0
14	CB#2	482.50	482.40	18.0	0.0056	0.012	12.0	0.0	0.0
15	CB#21	493.10	491.35	91.0	0.0192	0.012	12.0	0.0	0.0
16	CB#22	490.80	489.45	190.0	0.0071	0.012	15.0	0.0	0.0
17	CB#23	491.75	491.05	140.0	0.0050	0.012	12.0	0.0	0.0
18	CB#24	483.40	482.65	148.0	0.0051	0.012	18.0	0.0	0.0
19	CB#26	489.20	485.65	114.0	0.0311	0.012	18.0	0.0	0.0
20	CB#28	490.75	489.70	86.0	0.0122	0.012	12.0	0.0	0.0
21	CB#29	489.65	489.50	21.0	0.0071	0.012	12.0	0.0	0.0
22	CB#3	484.90	484.25	60.0	0.0108	0.012	24.0	0.0	0.0
23	CB#31	490.60	489.65	37.0	0.0257	0.012	12.0	0.0	0.0
24	CB#32	489.50	484.00	272.0	0.0202	0.012	12.0	0.0	0.0
25	CB#33	483.75	483.65	18.0	0.0056	0.012	15.0	0.0	0.0
26	CB#4	485.75	485.40	40.0	0.0088	0.012	18.0	0.0	0.0
27	CB#5&6	487.30	485.75	309.5	0.0050	0.012	18.0	0.0	0.0
28	CB#7	488.10	487.55	109.0	0.0050	0.012	15.0	0.0	0.0

Time span=0.00-200.00 hrs, dt=0.01 hrs, 20001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS1: - Runoff Area=10,201 sf 0.00% Impervious Runoff Depth=0.68"
Flow Length=20' Slope=0.0200 '/' Tc=6.0 min CN=80 Runoff=0.28 cfs 0.013 af

SubcatchmentS10: - Runoff Area=12,518 sf 95.25% Impervious Runoff Depth=1.86"
Flow Length=175' Slope=0.0350 '/' Tc=6.0 min CN=97 Runoff=0.86 cfs 0.044 af

SubcatchmentS11: - Runoff Area=3,095 sf 42.81% Impervious Runoff Depth=1.12"
Flow Length=73' Tc=6.0 min CN=88 Runoff=0.14 cfs 0.007 af

SubcatchmentS12: - Runoff Area=3,166 sf 100.00% Impervious Runoff Depth=1.96"
Flow Length=100' Slope=0.0200 '/' Tc=6.0 min CN=98 Runoff=0.22 cfs 0.012 af

SubcatchmentS13: - Runoff Area=8,034 sf 53.50% Impervious Runoff Depth=1.26"
Flow Length=190' Tc=6.0 min CN=90 Runoff=0.41 cfs 0.019 af

SubcatchmentS14: - Runoff Area=37,414 sf 82.60% Impervious Runoff Depth=1.66"
Flow Length=146' Tc=6.0 min CN=95 Runoff=2.40 cfs 0.119 af

SubcatchmentS15: - Runoff Area=20,739 sf 56.50% Impervious Runoff Depth=1.26"
Flow Length=213' Tc=7.6 min CN=90 Runoff=1.00 cfs 0.050 af

SubcatchmentS16: - Runoff Area=25,352 sf 59.72% Impervious Runoff Depth=1.33"
Flow Length=189' Tc=6.8 min CN=91 Runoff=1.32 cfs 0.065 af

SubcatchmentS17: - Runoff Area=6,948 sf 80.70% Impervious Runoff Depth=1.66"
Flow Length=73' Tc=6.0 min CN=95 Runoff=0.44 cfs 0.022 af

SubcatchmentS18: - Runoff Area=8,324 sf 86.62% Impervious Runoff Depth=1.76"
Flow Length=115' Slope=0.0300 '/' Tc=6.0 min CN=96 Runoff=0.55 cfs 0.028 af

SubcatchmentS19: - Runoff Area=104,829 sf 40.01% Impervious Runoff Depth=1.06"
Flow Length=104' Tc=10.5 min CN=87 Runoff=3.85 cfs 0.212 af

SubcatchmentS2: - Runoff Area=77,270 sf 13.64% Impervious Runoff Depth=0.78"
Flow Length=150' Slope=0.1000 '/' Tc=6.0 min CN=82 Runoff=2.46 cfs 0.115 af

SubcatchmentS20: - Runoff Area=30,480 sf 68.96% Impervious Runoff Depth=1.41"
Flow Length=151' Slope=0.0300 '/' Tc=6.6 min CN=92 Runoff=1.68 cfs 0.082 af

SubcatchmentS21: - Runoff Area=31,238 sf 66.70% Impervious Runoff Depth=1.41"
Tc=6.0 min CN=92 Runoff=1.76 cfs 0.084 af

SubcatchmentS22: - Runoff Area=31,330 sf 51.53% Impervious Runoff Depth=1.19"
Flow Length=74' Tc=6.0 min CN=89 Runoff=1.52 cfs 0.071 af

SubcatchmentS23: - Runoff Area=3,650 sf 100.00% Impervious Runoff Depth=1.96"
Flow Length=140' Slope=0.0400 '/' Tc=6.0 min CN=98 Runoff=0.26 cfs 0.014 af

SubcatchmentS24: - Runoff Area=6,296 sf 100.00% Impervious Runoff Depth=1.96"
Flow Length=287' Slope=0.0250 '/' Tc=6.0 min CN=98 Runoff=0.44 cfs 0.024 af

SubcatchmentS25: - Runoff Area=19,939 sf 53.59% Impervious Runoff Depth=1.26"
Flow Length=348' Tc=8.1 min CN=90 Runoff=0.94 cfs 0.048 af

SubcatchmentS26: - Runoff Area=8,944 sf 92.87% Impervious Runoff Depth=1.86"
Flow Length=125' Slope=0.0200 '/' Tc=6.0 min CN=97 Runoff=0.61 cfs 0.032 af

SubcatchmentS27: - Runoff Area=28,775 sf 0.00% Impervious Runoff Depth=0.68"
Flow Length=75' Slope=0.1860 '/' Tc=6.0 min CN=80 Runoff=0.80 cfs 0.038 af

SubcatchmentS28: - Runoff Area=31,338 sf 66.49% Impervious Runoff Depth=1.41"
Flow Length=214' Tc=6.0 min CN=92 Runoff=1.76 cfs 0.084 af

SubcatchmentS29: - Runoff Area=22,990 sf 48.98% Impervious Runoff Depth=1.19"
Flow Length=254' Slope=0.0600 '/' Tc=6.0 min CN=89 Runoff=1.11 cfs 0.052 af

SubcatchmentS3: - Runoff Area=16,995 sf 88.43% Impervious Runoff Depth=1.76"
Flow Length=162' Slope=0.0400 '/' Tc=6.0 min CN=96 Runoff=1.13 cfs 0.057 af

SubcatchmentS30: - Runoff Area=5,749 sf 94.14% Impervious Runoff Depth=1.86"
Flow Length=100' Slope=0.0500 '/' Tc=6.0 min CN=97 Runoff=0.39 cfs 0.020 af

SubcatchmentS4: - Runoff Area=5,744 sf 100.00% Impervious Runoff Depth=1.96"
Flow Length=280' Slope=0.0250 '/' Tc=6.0 min CN=98 Runoff=0.40 cfs 0.022 af

SubcatchmentS5: - Runoff Area=9,406 sf 84.86% Impervious Runoff Depth=1.66"
Flow Length=200' Slope=0.0400 '/' Tc=6.0 min CN=95 Runoff=0.60 cfs 0.030 af

SubcatchmentS6: - Runoff Area=30,031 sf 76.82% Impervious Runoff Depth=1.57"
Flow Length=150' Tc=6.0 min CN=94 Runoff=1.85 cfs 0.090 af

SubcatchmentS7: - Runoff Area=51,256 sf 6.97% Impervious Runoff Depth=0.73"
Flow Length=42' Slope=0.3300 '/' Tc=6.0 min CN=81 Runoff=1.52 cfs 0.071 af

SubcatchmentS8: - Runoff Area=26,278 sf 68.24% Impervious Runoff Depth=1.41"
Flow Length=175' Tc=6.0 min CN=92 Runoff=1.48 cfs 0.071 af

SubcatchmentS9: - Runoff Area=32,931 sf 44.93% Impervious Runoff Depth=1.12"
Flow Length=55' Tc=6.0 min CN=88 Runoff=1.51 cfs 0.071 af

Pond BIO#1: SMA #3 - Bioretention Area Peak Elev=492.81' Storage=3,074 cf Inflow=1.51 cfs 0.071 af
Outflow=0.00 cfs 0.000 af

Pond BIO#2: SMA #4 - Bioretention Area Peak Elev=494.23' Storage=9,228 cf Inflow=3.85 cfs 0.212 af
Outflow=0.00 cfs 0.000 af

Pond BIO#3: SMA #5 - Bioretention Area Peak Elev=490.32' Storage=3,100 cf Inflow=1.52 cfs 0.071 af
Outflow=0.00 cfs 0.000 af

Pond CB#1: - Peak Elev=483.05' Inflow=1.01 cfs 0.052 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=1.01 cfs 0.052 af

Pond CB#10: - Peak Elev=490.01' Inflow=0.22 cfs 0.012 af
12.0" Round Culvert n=0.012 L=24.0' S=0.0479 '/' Outflow=0.22 cfs 0.012 af

Pond CB#11: - Peak Elev=488.91' Inflow=6.68 cfs 0.333 af
24.0" Round Culvert n=0.012 L=91.0' S=0.0297 '/' Outflow=6.68 cfs 0.333 af

Pond CB#13: - Peak Elev=492.22' Inflow=0.55 cfs 0.028 af
12.0" Round Culvert n=0.012 L=33.0' S=0.0621 '/' Outflow=0.55 cfs 0.028 af

Pond CB#14: - Peak Elev=490.81' Inflow=6.04 cfs 0.301 af
18.0" Round Culvert n=0.012 L=106.0' S=0.0108 '/' Outflow=6.04 cfs 0.301 af

Pond CB#15: - Peak Elev=491.71' Inflow=5.05 cfs 0.251 af
18.0" Round Culvert n=0.012 L=139.0' S=0.0083 '/' Outflow=5.05 cfs 0.251 af

Pond CB#16: - Peak Elev=492.81' Inflow=2.67 cfs 0.132 af
15.0" Round Culvert n=0.012 L=187.0' S=0.0064 '/' Outflow=2.67 cfs 0.132 af

Pond CB#17: - Peak Elev=493.97' Inflow=1.68 cfs 0.082 af
15.0" Round Culvert n=0.012 L=281.0' S=0.0050 '/' Outflow=1.68 cfs 0.082 af

Pond CB#18: - Peak Elev=485.65' Inflow=6.36 cfs 0.311 af
24.0" Round Culvert n=0.012 L=52.0' S=0.0067 '/' Outflow=6.36 cfs 0.311 af

Pond CB#19: - Peak Elev=486.28' Inflow=5.23 cfs 0.254 af
24.0" Round Culvert n=0.012 L=161.0' S=0.0050 '/' Outflow=5.23 cfs 0.254 af

Pond CB#2: - Peak Elev=482.98' Inflow=0.60 cfs 0.030 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0056 '/' Outflow=0.60 cfs 0.030 af

Pond CB#21: - Peak Elev=493.95' Inflow=1.76 cfs 0.084 af
12.0" Round Culvert n=0.012 L=91.0' S=0.0192 '/' Outflow=1.76 cfs 0.084 af

Pond CB#22: - Peak Elev=491.54' Inflow=1.76 cfs 0.084 af
15.0" Round Culvert n=0.012 L=190.0' S=0.0071 '/' Outflow=1.76 cfs 0.084 af

Pond CB#23: - Peak Elev=491.75' Inflow=0.00 cfs 0.000 af
12.0" Round Culvert n=0.012 L=140.0' S=0.0050 '/' Outflow=0.00 cfs 0.000 af

Pond CB#24: - Peak Elev=484.39' Inflow=3.33 cfs 0.169 af
18.0" Round Culvert n=0.012 L=148.0' S=0.0051 '/' Outflow=3.33 cfs 0.169 af

Pond CB#26: - Peak Elev=490.47' Inflow=4.84 cfs 0.233 af
18.0" Round Culvert n=0.012 L=114.0' S=0.0311 '/' Outflow=4.84 cfs 0.233 af

Pond CB#28: - Peak Elev=491.60' Inflow=1.76 cfs 0.084 af
12.0" Round Culvert n=0.012 L=86.0' S=0.0122 '/' Outflow=1.76 cfs 0.084 af

Pond CB#29: - Peak Elev=490.46' Inflow=1.53 cfs 0.080 af
12.0" Round Culvert n=0.012 L=21.0' S=0.0071 '/' Outflow=1.53 cfs 0.080 af

Pond CB#3: CB#3 Peak Elev=486.74' Inflow=11.00 cfs 0.545 af
24.0" Round Culvert n=0.012 L=60.0' S=0.0108 '/' Outflow=11.00 cfs 0.545 af

Pond CB#31: - Peak Elev=491.05' Inflow=0.61 cfs 0.032 af
12.0" Round Culvert n=0.012 L=37.0' S=0.0257 '/' Outflow=0.61 cfs 0.032 af

Pond CB#32: Peak Elev=490.43' Inflow=1.97 cfs 0.103 af
12.0" Round Culvert n=0.012 L=272.0' S=0.0202 '/' Outflow=1.97 cfs 0.103 af

Pond CB#33: - Peak Elev=484.69' Inflow=2.22 cfs 0.117 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0056 '/' Outflow=2.22 cfs 0.117 af

Pond CB#4: - Peak Elev=486.90' Inflow=4.18 cfs 0.206 af
18.0" Round Culvert n=0.012 L=40.0' S=0.0088 '/' Outflow=4.18 cfs 0.206 af

Pond CB#5&6: - Peak Elev=488.29' Inflow=3.33 cfs 0.161 af
18.0" Round Culvert n=0.012 L=309.5' S=0.0050 '/' Outflow=3.33 cfs 0.161 af

Pond CB#7: - Peak Elev=488.77' Inflow=1.48 cfs 0.071 af
15.0" Round Culvert n=0.012 L=109.0' S=0.0050 '/' Outflow=1.48 cfs 0.071 af

Pond SMA#2: SMA#2 Peak Elev=480.92' Storage=25,740 cf Inflow=12.14 cfs 0.595 af
Outflow=0.18 cfs 0.595 af

Pond SMA1: SMA#1 Peak Elev=484.39' Storage=26,915 cf Inflow=13.52 cfs 0.668 af
Outflow=0.21 cfs 0.668 af

Link 1L: OFFSITE Inflow=0.18 cfs 0.595 af
Primary=0.18 cfs 0.595 af

Link 2L: OFFSITE Inflow=0.46 cfs 0.681 af
Primary=0.46 cfs 0.681 af

Link 3L: OFFSITE Inflow=0.80 cfs 0.038 af
Primary=0.80 cfs 0.038 af

Link 4L: OFFSITE
Primary=0.00 cfs 0.000 af

Link T: TOTAL OFFSITE FLOWS Inflow=1.40 cfs 1.314 af
Primary=1.40 cfs 1.314 af

Total Runoff Area = 16.328 ac Runoff Volume = 1.667 af Average Runoff Depth = 1.23"
49.90% Pervious = 8.148 ac 50.10% Impervious = 8.181 ac

Summary for Subcatchment S1: -

Runoff = 0.28 cfs @ 11.98 hrs, Volume= 0.013 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
10,201	80	>75% Grass cover, Good, HSG D
10,201		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	20	0.0200	0.11		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
3.0	20	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S10: -

Runoff = 0.86 cfs @ 11.97 hrs, Volume= 0.044 af, Depth= 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
11,923	98	Paved parking, HSG D
595	80	>75% Grass cover, Good, HSG D
12,518	97	Weighted Average
595		4.75% Pervious Area
11,923		95.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0350	1.54		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.3	75	0.0350	3.80		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
1.4	175	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S11: -

Runoff = 0.14 cfs @ 11.97 hrs, Volume= 0.007 af, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
1,325	98	Paved parking, HSG D
1,770	80	>75% Grass cover, Good, HSG D
3,095	88	Weighted Average
1,770		57.19% Pervious Area
1,325		42.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	9	0.0400	0.12		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"
0.9	64	0.0200	1.13		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
2.1	73	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S12: -

Runoff = 0.22 cfs @ 11.97 hrs, Volume= 0.012 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
3,166	98	Paved parking, HSG D
3,166		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0200	1.23		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
1.4	100	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S13: -

Runoff = 0.41 cfs @ 11.97 hrs, Volume= 0.019 af, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
4,298	98	Paved parking, HSG D
3,736	80	>75% Grass cover, Good, HSG D
8,034	90	Weighted Average
3,736		46.50% Pervious Area
4,298		53.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	20	0.0500	0.16		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
1.0	80	0.0300	1.38		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.4	90	0.0300	3.52		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
3.5	190	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S14: -

Runoff = 2.40 cfs @ 11.97 hrs, Volume= 0.119 af, Depth= 1.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
30,904	98	Paved parking, HSG D
6,510	80	>75% Grass cover, Good, HSG D
37,414	95	Weighted Average
6,510		17.40% Pervious Area
30,904		82.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	36	0.0050	0.58		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
2.8	18	0.0200	0.11		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.7	46	0.0200	1.05		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.3	46	0.0200	2.87		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
4.8	146	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S15: -

Runoff = 1.00 cfs @ 11.99 hrs, Volume= 0.050 af, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
11,718	98	Paved parking, HSG D
9,021	80	>75% Grass cover, Good, HSG D
20,739	90	Weighted Average
9,021		43.50% Pervious Area
11,718		56.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	52	0.0200	0.13		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.6	48	0.0300	1.25		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.5	113	0.0300	3.52		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
7.6	213	Total			

Summary for Subcatchment S16: -

Runoff = 1.32 cfs @ 11.98 hrs, Volume= 0.065 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
15,141	98	Paved parking, HSG D
10,211	80	>75% Grass cover, Good, HSG D
25,352	91	Weighted Average
10,211		40.28% Pervious Area
15,141		59.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	45	0.0200	0.13		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.6	55	0.0400	1.44		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.4	89	0.0400	4.06		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
6.8	189	Total			

Summary for Subcatchment S17: -

Runoff = 0.44 cfs @ 11.97 hrs, Volume= 0.022 af, Depth= 1.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
5,607	98	Paved parking, HSG D
1,341	80	>75% Grass cover, Good, HSG D
6,948	95	Weighted Average
1,341		19.30% Pervious Area
5,607		80.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	9	0.0400	0.12		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"
0.9	64	0.0200	1.13		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
2.1	73	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S18: -

Runoff = 0.55 cfs @ 11.97 hrs, Volume= 0.028 af, Depth= 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
7,210	98	Paved parking, HSG D
1,114	80	>75% Grass cover, Good, HSG D
8,324	96	Weighted Average
1,114		13.38% Pervious Area
7,210		86.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0300	1.45		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.1	15	0.0300	3.52		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
1.3	115	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S19: -

Runoff = 3.85 cfs @ 12.03 hrs, Volume= 0.212 af, Depth= 1.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
41,946	98	Paved parking, HSG D
62,883	80	>75% Grass cover, Good, HSG D
104,829	87	Weighted Average
62,883		59.99% Pervious Area
41,946		40.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	5	0.0200	0.68		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
9.0	78	0.0200	0.14		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.1	5	0.0200	0.68		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
1.3	16	0.1000	0.20		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
10.5	104	Total			

Summary for Subcatchment S2: -

Runoff = 2.46 cfs @ 11.98 hrs, Volume= 0.115 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
66,730	80	>75% Grass cover, Good, HSG D
10,540	98	Paved parking, HSG D
77,270	82	Weighted Average
66,730		86.36% Pervious Area
10,540		13.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1000	0.29		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.2	50	0.1000	4.74		**Shallow Concentrated Flow, Shallow** Grassed Waterway Kv= 15.0 fps
6.0	150	Total			

Summary for Subcatchment S20: -

Runoff = 1.68 cfs @ 11.98 hrs, Volume= 0.082 af, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
21,020	98	Paved parking, HSG D
9,460	80	>75% Grass cover, Good, HSG D
30,480	92	Weighted Average
9,460		31.04% Pervious Area
21,020		68.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	55	0.0300	0.16		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.6	45	0.0300	1.23		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.2	51	0.0300	3.52		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
6.6	151	Total			

Summary for Subcatchment S21: -

Runoff = 1.76 cfs @ 11.97 hrs, Volume= 0.084 af, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
20,837	98	Paved parking, HSG D
10,401	80	>75% Grass cover, Good, HSG D
31,238	92	Weighted Average
10,401		33.30% Pervious Area
20,837		66.70% Impervious Area

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

Summary for Subcatchment S22: -

Runoff = 1.52 cfs @ 11.97 hrs, Volume= 0.071 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
16,145	98	Paved parking, HSG D
15,185	80	>75% Grass cover, Good, HSG D
31,330	89	Weighted Average
15,185		48.47% Pervious Area
16,145		51.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	38	0.0050	0.58		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.1	36	0.1670	6.13		**Shallow Concentrated Flow, Shallow** Grassed Waterway Kv= 15.0 fps
1.2	74	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S23: -

Runoff = 0.26 cfs @ 11.97 hrs, Volume= 0.014 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
3,650	98	Paved parking, HSG D
3,650		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0400	1.62		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.2	40	0.0400	4.06		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
1.2	140	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S24: -

Runoff = 0.44 cfs @ 11.97 hrs, Volume= 0.024 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
6,296	98	Paved parking, HSG D
6,296		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0250	1.35		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
1.0	187	0.0250	3.21		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
2.2	287	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S25: -

Runoff = 0.94 cfs @ 12.00 hrs, Volume= 0.048 af, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
10,685	98	Paved parking, HSG D
9,254	80	>75% Grass cover, Good, HSG D
19,939	90	Weighted Average
9,254		46.41% Pervious Area
10,685		53.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	41	0.0050	0.59		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
5.4	41	0.0200	0.13		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
1.5	266	0.0200	2.87		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
8.1	348	Total			

Summary for Subcatchment S26: -

Runoff = 0.61 cfs @ 11.97 hrs, Volume= 0.032 af, Depth= 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
8,306	98	Paved parking, HSG D
638	80	>75% Grass cover, Good, HSG D
8,944	97	Weighted Average
638		7.13% Pervious Area
8,306		92.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0200	1.23		**Sheet Flow, SHEET** Smooth surfaces n= 0.011 P2= 2.56"
0.1	25	0.0200	2.87		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
1.5	125	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S27: -

Runoff = 0.80 cfs @ 11.98 hrs, Volume= 0.038 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
28,775	80	>75% Grass cover, Good, HSG D
28,775		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	75	0.1860	0.35		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
3.6	75	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S28: -

Runoff = 1.76 cfs @ 11.97 hrs, Volume= 0.084 af, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
20,837	98	Paved parking, HSG D
10,501	80	>75% Grass cover, Good, HSG D
31,338	92	Weighted Average
10,501		33.51% Pervious Area
20,837		66.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	25	0.0050	0.54		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
2.0	19	0.0500	0.16		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
1.0	170	0.0200	2.87		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
3.8	214	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S29: -

Runoff = 1.11 cfs @ 11.97 hrs, Volume= 0.052 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
11,260	98	Paved parking, HSG D
11,730	80	>75% Grass cover, Good, HSG D
22,990	89	Weighted Average
11,730		51.02% Pervious Area
11,260		48.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	65	0.0600	0.22		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.4	35	0.0600	1.55		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.5	154	0.0600	4.97		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
5.9	254	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S3: -

Runoff = 1.13 cfs @ 11.97 hrs, Volume= 0.057 af, Depth= 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
15,028	98	Paved parking, HSG D
1,967	80	>75% Grass cover, Good, HSG D
16,995	96	Weighted Average
1,967		11.57% Pervious Area
15,028		88.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0400	1.62		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.3	62	0.0400	4.06		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
1.3	162	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S30: -

Runoff = 0.39 cfs @ 11.97 hrs, Volume= 0.020 af, Depth= 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
5,412	98	Paved parking, HSG D
337	80	>75% Grass cover, Good, HSG D
5,749	97	Weighted Average
337		5.86% Pervious Area
5,412		94.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0500	1.77		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.9	100	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S4: -

Runoff = 0.40 cfs @ 11.97 hrs, Volume= 0.022 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
5,744	98	Paved parking, HSG D
5,744		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0250	1.35		**Sheet Flow, SHEET** Smooth surfaces n= 0.011 P2= 2.56"
0.9	180	0.0250	3.21		**Shallow Concentrated Flow, SHALLOW** Paved Kv= 20.3 fps
2.1	280	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S5: -

Runoff = 0.60 cfs @ 11.97 hrs, Volume= 0.030 af, Depth= 1.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
1,424	80	>75% Grass cover, Good, HSG D
7,982	98	Paved parking, HSG D
9,406	95	Weighted Average
1,424		15.14% Pervious Area
7,982		84.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0400	1.62		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.4	100	0.0400	4.06		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
1.4	200	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S6: -

Runoff = 1.85 cfs @ 11.97 hrs, Volume= 0.090 af, Depth= 1.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
23,071	98	Paved parking, HSG D
6,960	80	>75% Grass cover, Good, HSG D
30,031	94	Weighted Average
6,960		23.18% Pervious Area
23,071		76.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	34	0.0050	0.57		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
1.4	12	0.0500	0.14		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.8	54	0.0200	1.09		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
3.5	150	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S7: -

Runoff = 1.52 cfs @ 11.98 hrs, Volume= 0.071 af, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
47,682	80	>75% Grass cover, Good, HSG D
3,574	98	Paved parking, HSG D
51,256	81	Weighted Average
47,682		93.03% Pervious Area
3,574		6.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	42	0.3300	0.39		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
1.8	42	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S8: -

Runoff = 1.48 cfs @ 11.97 hrs, Volume= 0.071 af, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
17,932	98	Paved parking, HSG D
8,346	80	>75% Grass cover, Good, HSG D
26,278	92	Weighted Average
8,346		31.76% Pervious Area
17,932		68.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	36	0.3300	0.38		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.8	64	0.0350	1.41		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.3	75	0.0350	3.80		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
2.7	175	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S9: -

Runoff = 1.51 cfs @ 11.97 hrs, Volume= 0.071 af, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 1 YR Rainfall=2.19"

Area (sf)	CN	Description
14,795	98	Paved parking, HSG D
18,136	80	>75% Grass cover, Good, HSG D
32,931	88	Weighted Average
18,136		55.07% Pervious Area
14,795		44.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	35	0.0100	0.76		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
1.2	20	0.2000	0.28		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
2.0	55	Total, Increased to minimum Tc = 6.0 min			

Summary for Pond BIO#1: SMA #3 - Bioretention Area

Inflow Area = 0.756 ac, 44.93% Impervious, Inflow Depth = 1.12" for 1 YR event
Inflow = 1.51 cfs @ 11.97 hrs, Volume= 0.071 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 492.81' @ 24.34 hrs Surf.Area= 8,064 sf Storage= 3,074 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	488.80'	1,011 cf	**Drainage Layer (Irregular)** Listed below (Recalc) 2,588 cf Overall - 59 cf Embedded = 2,529 cf x 40.0% Voids
#2	489.80'	1,294 cf	**Soil Media (Irregular)** Listed below (Recalc) 6,470 cf Overall x 20.0% Voids
#3	492.55'	3,437 cf	**Ponding Layer (Irregular)** Listed below (Recalc)
#4	489.13'	59 cf	**8.0" Round Pipe Storage** Inside #1 L= 170.0'
		5,802 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
488.80	2,588	392.0	0	0	2,588
489.80	2,588	392.0	2,588	2,588	2,980

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
489.80	2,588	392.0	0	0	2,588
492.30	2,588	392.0	6,470	6,470	3,568

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
492.55	2,587	392.0	0	0	2,587
493.05	3,182	401.0	1,440	1,440	3,189
493.50	5,826	431.0	1,997	3,437	5,184

Device	Routing	Invert	Outlet Devices
#1	Device 2	493.05'	**1.8" x 4.2" Horiz. Orifice/Grate X 65.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	488.80'	**12.0" Round CMP_Round 12"** L= 89.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 488.80' / 488.35' S= 0.0051 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=488.80' (Free Discharge)
└─**2=CMP_Round 12"** (Controls 0.00 cfs)
  └─**1=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond BIO#2: SMA #4 - Bioretention Area

Inflow Area = 2.407 ac, 40.01% Impervious, Inflow Depth = 1.06" for 1 YR event
Inflow = 3.85 cfs @ 12.03 hrs, Volume= 0.212 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 494.23' @ 24.60 hrs Surf.Area= 24,773 sf Storage= 9,228 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	494.00'	22,299 cf	**Ponding Area (Irregular)** Listed below (Recalc)
#2	491.50'	4,018 cf	**Soil Media (Irregular)** Listed below (Recalc) 20,088 cf Overall x 20.0% Voids
#3	490.50'	3,192 cf	**Drainage Layer (Irregular)** Listed below (Recalc) 8,035 cf Overall - 56 cf Embedded = 7,979 cf x 40.0% Voids
#4	490.66'	56 cf	**8.0" Round Pipe Storage** Inside #3 L= 160.0'
		29,564 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
494.00	8,035	385.0	0	0	8,035
496.00	14,587	479.9	22,299	22,299	14,624

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
491.50	8,035	385.0	0	0	8,035
494.00	8,035	385.0	20,088	20,088	8,998

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.50	8,035	385.0	0	0	8,035
491.50	8,035	385.0	8,035	8,035	8,420

Device	Routing	Invert	Outlet Devices
#1	Device 2	494.50'	**4.8" x 1.2" Horiz. Orifice/Grate X 65.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	492.25'	**12.0" Round CMP_Round 12"** L= 90.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 492.25' / 491.75' S= 0.0056 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=490.50' (Free Discharge)
└─**2=CMP_Round 12"** (Controls 0.00 cfs)
  └─**1=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond BIO#3: SMA #5 - Bioretention Area

Inflow Area = 0.719 ac, 51.53% Impervious, Inflow Depth = 1.19" for 1 YR event
Inflow = 1.52 cfs @ 11.97 hrs, Volume= 0.071 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 490.32' @ 24.34 hrs Surf.Area= 7,534 sf Storage= 3,100 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	7,424 cf	**Ponding Area (Irregular)** Listed below (Recalc)
#2	487.50'	1,256 cf	**Soil Media (Irregular)** Listed below (Recalc) 6,278 cf Overall x 20.0% Voids
#3	486.50'	981 cf	**Drainage Layer (Irregular)** Listed below (Recalc) 2,512 cf Overall - 59 cf Embedded = 2,453 cf x 40.0% Voids
#4	486.66'	59 cf	**8.0" Round Pipe Storage** Inside #3 L= 170.0'
		9,720 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	2,511	381.0	0	0	2,511
491.00	2,511	381.0	2,511	2,511	2,892
492.00	7,803	439.0	4,913	7,424	6,699

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
487.50	2,511	385.0	0	0	2,511
490.00	2,511	385.0	6,278	6,278	3,474

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
486.50	2,512	380.0	0	0	2,512
487.50	2,512	380.0	2,512	2,512	2,892

Device	Routing	Invert	Outlet Devices
#1	Primary	486.50'	**12.0" Round CMP_Round 12"** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 486.50' / 486.15' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	490.50'	**4.8" x 1.2" Horiz. Orifice/Grate X 65.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=486.50' (Free Discharge)
└─**1=CMP_Round 12"** (Controls 0.00 cfs)
  └─**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond CB#1: -

Inflow Area = 0.348 ac, 90.60% Impervious, Inflow Depth = 1.78" for 1 YR event
Inflow = 1.01 cfs @ 11.97 hrs, Volume= 0.052 af
Outflow = 1.01 cfs @ 11.97 hrs, Volume= 0.052 af, Atten= 0%, Lag= 0.0 min
Primary = 1.01 cfs @ 11.97 hrs, Volume= 0.052 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 483.05' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	482.40'	**12.0" Round CMP_Round 12"** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 482.40' / 482.30' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.00 cfs @ 11.97 hrs HW=483.05' (Free Discharge)
└**1=CMP_Round 12"** (Barrel Controls 1.00 cfs @ 2.63 fps)

Summary for Pond CB#10: -

Inflow Area = 0.073 ac,100.00% Impervious, Inflow Depth = 1.96" for 1 YR event
Inflow = 0.22 cfs @ 11.97 hrs, Volume= 0.012 af
Outflow = 0.22 cfs @ 11.97 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
Primary = 0.22 cfs @ 11.97 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 490.01' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	489.75'	**12.0" Round CMP_Round 12"** L= 24.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.75' / 488.60' S= 0.0479 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.22 cfs @ 11.97 hrs HW=490.01' (Free Discharge)
└**1=CMP_Round 12"** (Inlet Controls 0.22 cfs @ 1.37 fps)

Summary for Pond CB#11: -

Inflow Area = 2.642 ac, 72.91% Impervious, Inflow Depth = 1.51" for 1 YR event
Inflow = 6.68 cfs @ 11.97 hrs, Volume= 0.333 af
Outflow = 6.68 cfs @ 11.97 hrs, Volume= 0.333 af, Atten= 0%, Lag= 0.0 min
Primary = 6.68 cfs @ 11.97 hrs, Volume= 0.333 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 488.91' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	487.60'	**24.0" Round CMP_Round 24"** L= 91.0' CMP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 487.60' / 484.90' S= 0.0297 '/' Cc= 0.900
n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=6.66 cfs @ 11.97 hrs HW=488.90' (Free Discharge)
└─**1=CMP_Round 24"** (Inlet Controls 6.66 cfs @ 3.07 fps)

Summary for Pond CB#13: -

Inflow Area = 0.191 ac, 86.62% Impervious, Inflow Depth = 1.76" for 1 YR event
Inflow = 0.55 cfs @ 11.97 hrs, Volume= 0.028 af
Outflow = 0.55 cfs @ 11.97 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min
Primary = 0.55 cfs @ 11.97 hrs, Volume= 0.028 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 492.22' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	491.80'	**12.0" Round CMP_Round 12"** L= 33.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 491.80' / 489.75' S= 0.0621 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.55 cfs @ 11.97 hrs HW=492.22' (Free Discharge)
└─**1=CMP_Round 12"** (Inlet Controls 0.55 cfs @ 1.75 fps)

Summary for Pond CB#14: -

Inflow Area = 2.385 ac, 73.59% Impervious, Inflow Depth = 1.52" for 1 YR event
Inflow = 6.04 cfs @ 11.97 hrs, Volume= 0.301 af
Outflow = 6.04 cfs @ 11.97 hrs, Volume= 0.301 af, Atten= 0%, Lag= 0.0 min
Primary = 6.04 cfs @ 11.97 hrs, Volume= 0.301 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 490.81' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	489.25'	**18.0" Round CMP_Round 18"** L= 106.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.25' / 488.10' S= 0.0108 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=6.03 cfs @ 11.97 hrs HW=490.81' (Free Discharge)
└─**1=CMP_Round 18"** (Inlet Controls 6.03 cfs @ 3.41 fps)

Summary for Pond CB#15: -

Inflow Area = 2.035 ac, 71.80% Impervious, Inflow Depth = 1.48" for 1 YR event
Inflow = 5.05 cfs @ 11.98 hrs, Volume= 0.251 af
Outflow = 5.05 cfs @ 11.98 hrs, Volume= 0.251 af, Atten= 0%, Lag= 0.0 min
Primary = 5.05 cfs @ 11.98 hrs, Volume= 0.251 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 491.71' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	490.40'	**18.0" Round CMP_Round 18"** L= 139.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 490.40' / 489.25' S= 0.0083 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.04 cfs @ 11.98 hrs HW=491.71' (Free Discharge)
└─**1=CMP_Round 18"** (Inlet Controls 5.04 cfs @ 3.08 fps)

Summary for Pond CB#16: -

Inflow Area = 1.176 ac, 63.92% Impervious, Inflow Depth = 1.35" for 1 YR event
Inflow = 2.67 cfs @ 11.98 hrs, Volume= 0.132 af
Outflow = 2.67 cfs @ 11.98 hrs, Volume= 0.132 af, Atten= 0%, Lag= 0.0 min
Primary = 2.67 cfs @ 11.98 hrs, Volume= 0.132 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 492.81' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	491.85'	**15.0" Round CMP_Round 15"** L= 187.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 491.85' / 490.65' S= 0.0064 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.67 cfs @ 11.98 hrs HW=492.81' (Free Discharge)
└─**1=CMP_Round 15"** (Inlet Controls 2.67 cfs @ 2.64 fps)

Summary for Pond CB#17: -

Inflow Area = 0.700 ac, 68.96% Impervious, Inflow Depth = 1.41" for 1 YR event
Inflow = 1.68 cfs @ 11.98 hrs, Volume= 0.082 af
Outflow = 1.68 cfs @ 11.98 hrs, Volume= 0.082 af, Atten= 0%, Lag= 0.0 min
Primary = 1.68 cfs @ 11.98 hrs, Volume= 0.082 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 493.97' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	493.25'	**15.0" Round CMP_Round 15"** L= 281.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 493.25' / 491.85' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.68 cfs @ 11.98 hrs HW=493.97' (Free Discharge)
└─**1=CMP_Round 15"** (Inlet Controls 1.68 cfs @ 2.28 fps)

Summary for Pond CB#18: -

Inflow Area = 5.666 ac, 54.83% Impervious, Inflow Depth = 0.66" for 1 YR event
Inflow = 6.36 cfs @ 11.97 hrs, Volume= 0.311 af
Outflow = 6.36 cfs @ 11.97 hrs, Volume= 0.311 af, Atten= 0%, Lag= 0.0 min
Primary = 6.36 cfs @ 11.97 hrs, Volume= 0.311 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 485.65' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	484.35'	**24.0" Round CMP_Round 24"** L= 52.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 484.35' / 484.00' S= 0.0067 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=6.35 cfs @ 11.97 hrs HW=485.65' (Free Discharge)
└─**1=CMP_Round 24"** (Barrel Controls 6.35 cfs @ 4.19 fps)

Summary for Pond CB#19: -

Inflow Area = 5.276 ac, 52.35% Impervious, Inflow Depth = 0.58" for 1 YR event
Inflow = 5.23 cfs @ 11.97 hrs, Volume= 0.254 af
Outflow = 5.23 cfs @ 11.97 hrs, Volume= 0.254 af, Atten= 0%, Lag= 0.0 min
Primary = 5.23 cfs @ 11.97 hrs, Volume= 0.254 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 486.28' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	485.15'	**24.0" Round CMP_Round 24"** L= 161.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 485.15' / 484.35' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=5.22 cfs @ 11.97 hrs HW=486.28' (Free Discharge)
└─**1=CMP_Round 24"** (Inlet Controls 5.22 cfs @ 2.86 fps)

Summary for Pond CB#2: -

Inflow Area = 0.216 ac, 84.86% Impervious, Inflow Depth = 1.66" for 1 YR event
Inflow = 0.60 cfs @ 11.97 hrs, Volume= 0.030 af
Outflow = 0.60 cfs @ 11.97 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min
Primary = 0.60 cfs @ 11.97 hrs, Volume= 0.030 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 482.98' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	482.50'	**12.0" Round CMP_Round 12"** L= 18.0' CMP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 482.50' / 482.40' S= 0.0056 '/' Cc= 0.900
n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.60 cfs @ 11.97 hrs HW=482.98' (Free Discharge)
└─**1=CMP_Round 12"** (Barrel Controls 0.60 cfs @ 2.36 fps)

Summary for Pond CB#21: -

Inflow Area = 0.717 ac, 66.70% Impervious, Inflow Depth = 1.41" for 1 YR event
Inflow = 1.76 cfs @ 11.97 hrs, Volume= 0.084 af
Outflow = 1.76 cfs @ 11.97 hrs, Volume= 0.084 af, Atten= 0%, Lag= 0.0 min
Primary = 1.76 cfs @ 11.97 hrs, Volume= 0.084 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 493.95' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	493.10'	**12.0" Round CMP_Round 12"** L= 91.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 493.10' / 491.35' S= 0.0192 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.76 cfs @ 11.97 hrs HW=493.95' (Free Discharge)
└─**1=CMP_Round 12"** (Inlet Controls 1.76 cfs @ 2.48 fps)

Summary for Pond CB#22: -

Inflow Area = 3.124 ac, 46.14% Impervious, Inflow Depth = 0.32" for 1 YR event
Inflow = 1.76 cfs @ 11.97 hrs, Volume= 0.084 af
Outflow = 1.76 cfs @ 11.97 hrs, Volume= 0.084 af, Atten= 0%, Lag= 0.0 min
Primary = 1.76 cfs @ 11.97 hrs, Volume= 0.084 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 491.54' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	490.80'	**15.0" Round CMP_Round 15"** L= 190.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 490.80' / 489.45' S= 0.0071 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.76 cfs @ 11.97 hrs HW=491.54' (Free Discharge)
└─**1=CMP_Round 15"** (Inlet Controls 1.76 cfs @ 2.32 fps)

Summary for Pond CB#23: -

Inflow Area = 2.407 ac, 40.01% Impervious, Inflow Depth = 0.00" for 1 YR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 491.75' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	491.75'	**12.0" Round CMP_Round 12"** L= 140.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 491.75' / 491.05' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=491.75' (Free Discharge)
└**1=CMP_Round 12"** (Controls 0.00 cfs)

Summary for Pond CB#24: -

Inflow Area = 1.419 ac, 65.02% Impervious, Inflow Depth = 1.43" for 1 YR event
Inflow = 3.33 cfs @ 11.98 hrs, Volume= 0.169 af
Outflow = 3.33 cfs @ 11.98 hrs, Volume= 0.169 af, Atten= 0%, Lag= 0.0 min
Primary = 3.33 cfs @ 11.98 hrs, Volume= 0.169 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 484.39' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	483.40'	**18.0" Round Culvert** L= 148.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 483.40' / 482.65' S= 0.0051 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.33 cfs @ 11.98 hrs HW=484.39' (Free Discharge)
└**1=Culvert** (Inlet Controls 3.33 cfs @ 2.68 fps)

Summary for Pond CB#26: -

Inflow Area = 4.425 ac, 51.24% Impervious, Inflow Depth = 0.63" for 1 YR event
Inflow = 4.84 cfs @ 11.97 hrs, Volume= 0.233 af
Outflow = 4.84 cfs @ 11.97 hrs, Volume= 0.233 af, Atten= 0%, Lag= 0.0 min
Primary = 4.84 cfs @ 11.97 hrs, Volume= 0.233 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 490.47' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	489.20'	**18.0" Round CMP_Round 18"** L= 114.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.20' / 485.65' S= 0.0311 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=4.83 cfs @ 11.97 hrs HW=490.47' (Free Discharge)
└**1=CMP_Round 18"** (Inlet Controls 4.83 cfs @ 3.03 fps)

Summary for Pond CB#28: -

Inflow Area = 0.719 ac, 66.49% Impervious, Inflow Depth = 1.41" for 1 YR event
Inflow = 1.76 cfs @ 11.97 hrs, Volume= 0.084 af
Outflow = 1.76 cfs @ 11.97 hrs, Volume= 0.084 af, Atten= 0%, Lag= 0.0 min
Primary = 1.76 cfs @ 11.97 hrs, Volume= 0.084 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 491.60' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	490.75'	**12.0" Round CMP_Round 12"** L= 86.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 490.75' / 489.70' S= 0.0122 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.76 cfs @ 11.97 hrs HW=491.60' (Free Discharge)
└─**1=CMP_Round 12"** (Inlet Controls 1.76 cfs @ 2.48 fps)

Summary for Pond CB#29: -

Inflow Area = 0.663 ac, 65.75% Impervious, Inflow Depth = 1.44" for 1 YR event
Inflow = 1.53 cfs @ 11.98 hrs, Volume= 0.080 af
Outflow = 1.53 cfs @ 11.98 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min
Primary = 1.53 cfs @ 11.98 hrs, Volume= 0.080 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 490.46' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	489.65'	**12.0" Round CMP_Round 12"** L= 21.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.65' / 489.50' S= 0.0071 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.53 cfs @ 11.98 hrs HW=490.46' (Free Discharge)
└─**1=CMP_Round 12"** (Barrel Controls 1.53 cfs @ 3.08 fps)

Summary for Pond CB#3: CB#3

Inflow Area = 5.050 ac, 69.54% Impervious, Inflow Depth = 1.30" for 1 YR event
Inflow = 11.00 cfs @ 11.97 hrs, Volume= 0.545 af
Outflow = 11.00 cfs @ 11.97 hrs, Volume= 0.545 af, Atten= 0%, Lag= 0.0 min
Primary = 11.00 cfs @ 11.97 hrs, Volume= 0.545 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 486.74' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	484.90'	**24.0" Round CMP_Round 24"** L= 60.0' CMP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 484.90' / 484.25' S= 0.0108 '/' Cc= 0.900
n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=10.98 cfs @ 11.97 hrs HW=486.73' (Free Discharge)
└**1=CMP_Round 24"** (Inlet Controls 10.98 cfs @ 3.64 fps)

Summary for Pond CB#31: -

Inflow Area = 0.205 ac, 92.87% Impervious, Inflow Depth = 1.86" for 1 YR event
Inflow = 0.61 cfs @ 11.97 hrs, Volume= 0.032 af
Outflow = 0.61 cfs @ 11.97 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min
Primary = 0.61 cfs @ 11.97 hrs, Volume= 0.032 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 491.05' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	490.60'	**12.0" Round CMP_Round 12"** L= 37.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 490.60' / 489.65' S= 0.0257 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.61 cfs @ 11.97 hrs HW=491.05' (Free Discharge)
└**1=CMP_Round 12"** (Inlet Controls 0.61 cfs @ 1.80 fps)

Summary for Pond CB#32:

Inflow Area = 0.808 ac, 71.88% Impervious, Inflow Depth = 1.54" for 1 YR event
Inflow = 1.97 cfs @ 11.98 hrs, Volume= 0.103 af
Outflow = 1.97 cfs @ 11.98 hrs, Volume= 0.103 af, Atten= 0%, Lag= 0.0 min
Primary = 1.97 cfs @ 11.98 hrs, Volume= 0.103 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 490.43' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	489.50'	**12.0" Round CMP_Round 12"** L= 272.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.50' / 484.00' S= 0.0202 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.97 cfs @ 11.98 hrs HW=490.43' (Free Discharge)
└**1=CMP_Round 12"** (Inlet Controls 1.97 cfs @ 2.59 fps)

Summary for Pond CB#33: -

Inflow Area = 0.891 ac, 74.52% Impervious, Inflow Depth = 1.58" for 1 YR event
Inflow = 2.22 cfs @ 11.98 hrs, Volume= 0.117 af
Outflow = 2.22 cfs @ 11.98 hrs, Volume= 0.117 af, Atten= 0%, Lag= 0.0 min
Primary = 2.22 cfs @ 11.98 hrs, Volume= 0.117 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 484.69' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	483.75'	**15.0" Round CMP_Round 15"** L= 18.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 483.75' / 483.65' S= 0.0056 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.22 cfs @ 11.98 hrs HW=484.69' (Free Discharge)
└**1=CMP_Round 15"** (Barrel Controls 2.22 cfs @ 3.11 fps)

Summary for Pond CB#4: -

Inflow Area = 2.336 ac, 66.55% Impervious, Inflow Depth = 1.06" for 1 YR event
Inflow = 4.18 cfs @ 11.97 hrs, Volume= 0.206 af
Outflow = 4.18 cfs @ 11.97 hrs, Volume= 0.206 af, Atten= 0%, Lag= 0.0 min
Primary = 4.18 cfs @ 11.97 hrs, Volume= 0.206 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 486.90' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	485.75'	**18.0" Round CMP_Round 18"** L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 485.75' / 485.40' S= 0.0088 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=4.18 cfs @ 11.97 hrs HW=486.90' (Free Discharge)
└**1=CMP_Round 18"** (Inlet Controls 4.18 cfs @ 2.88 fps)

Summary for Pond CB#5&6: -

Inflow Area = 2.049 ac, 62.53% Impervious, Inflow Depth = 0.94" for 1 YR event
Inflow = 3.33 cfs @ 11.97 hrs, Volume= 0.161 af
Outflow = 3.33 cfs @ 11.97 hrs, Volume= 0.161 af, Atten= 0%, Lag= 0.0 min
Primary = 3.33 cfs @ 11.97 hrs, Volume= 0.161 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 488.29' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	487.30'	**18.0" Round CMP_Round 18"** L= 309.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 487.30' / 485.75' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.33 cfs @ 11.97 hrs HW=488.29' (Free Discharge)
└**1=CMP_Round 18"** (Inlet Controls 3.33 cfs @ 2.68 fps)

Summary for Pond CB#7: -

Inflow Area = 1.359 ac, 55.27% Impervious, Inflow Depth = 0.63" for 1 YR event
Inflow = 1.48 cfs @ 11.97 hrs, Volume= 0.071 af
Outflow = 1.48 cfs @ 11.97 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min
Primary = 1.48 cfs @ 11.97 hrs, Volume= 0.071 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 488.77' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	488.10'	**15.0" Round CMP_Round 15"** L= 109.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 488.10' / 487.55' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.48 cfs @ 11.97 hrs HW=488.77' (Free Discharge)
└─**1=CMP_Round 15"** (Barrel Controls 1.48 cfs @ 3.19 fps)

Summary for Pond SMA#2: SMA#2

Inflow Area = 8.860 ac, 48.22% Impervious, Inflow Depth = 0.81" for 1 YR event
Inflow = 12.14 cfs @ 11.97 hrs, Volume= 0.595 af
Outflow = 0.18 cfs @ 18.54 hrs, Volume= 0.595 af, Atten= 99%, Lag= 394.1 min
Primary = 0.18 cfs @ 18.54 hrs, Volume= 0.595 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 478.00' Surf.Area= 2,870 sf Storage= 7,302 cf
Peak Elev= 480.92' @ 18.54 hrs Surf.Area= 9,217 sf Storage= 25,740 cf (18,437 cf above start)

Plug-Flow detention time= 1,715.7 min calculated for 0.427 af (72% of inflow)
Center-of-Mass det. time= 1,213.6 min (2,025.4 - 811.8)

Volume	Invert	Avail.Storage	Storage Description
#1	474.00'	90,867 cf	**Permanent Pool (Irregular)** Listed below (Recalc) 96,891 cf Overall - 6,024 cf Embedded = 90,867 cf
#2	481.00'	6,024 cf	**Forebay (Irregular)** Listed below (Recalc) Inside #1
		96,891 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
474.00	870	185.0	0	0	870
476.00	1,830	247.0	2,641	2,641	3,045
478.00	2,870	273.0	4,661	7,302	4,240
480.00	8,040	472.0	10,476	17,778	16,061
482.00	10,690	513.0	18,667	36,445	19,422
484.00	13,580	555.0	24,212	60,658	23,148
486.00	23,070	829.0	36,233	96,891	53,357

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
481.00	577	154.0	0	0	577
482.00	1,066	173.0	809	809	1,098
484.00	3,478	349.0	4,313	5,122	8,427
484.25	3,742	354.0	902	6,024	8,720

Device	Routing	Invert	Outlet Devices
#1	Primary	478.00'	**2.0" Vert. CPV** C= 0.600 Limited to weir flow at low heads
#2	Primary	481.50'	**12.0" Horiz. STANDPIPE** C= 0.600 Limited to weir flow at low heads
#3	Primary	484.75'	**1.2" x 4.8" Horiz. GRATE X 13.00 columns** X 5 rows C= 0.600 in 30.0" x 30.0" Grate (42% open area) Limited to weir flow at low heads
#4	Primary	485.50'	**10.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.18 cfs @ 18.54 hrs HW=480.92' (Free Discharge)
- **1=CPV** (Orifice Controls 0.18 cfs @ 8.11 fps)
- **2=STANDPIPE** (Controls 0.00 cfs)
- **3=GRATE** (Controls 0.00 cfs)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond SMA1: SMA#1

Inflow Area = 6.574 ac, 59.46% Impervious, Inflow Depth = 1.22" for 1 YR event
Inflow = 13.52 cfs @ 11.97 hrs, Volume= 0.668 af
Outflow = 0.21 cfs @ 17.55 hrs, Volume= 0.668 af, Atten= 98%, Lag= 334.3 min
Primary = 0.21 cfs @ 17.55 hrs, Volume= 0.668 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 482.00' Surf.Area= 2,942 sf Storage= 6,883 cf
Peak Elev= 484.39' @ 17.55 hrs Surf.Area= 14,823 sf Storage= 26,915 cf (20,033 cf above start)

Plug-Flow detention time= 1,439.6 min calculated for 0.510 af (76% of inflow)
Center-of-Mass det. time= 1,048.2 min (1,851.4 - 803.3)

Volume	Invert	Avail.Storage	Storage Description
#1	478.00'	55,539 cf	**Permanent Pool (Irregular)** Listed below (Recalc) 63,163 cf Overall - 7,624 cf Embedded = 55,539 cf
#2	480.00'	7,624 cf	**Forebay (Irregular)** Listed below (Recalc) Inside #1
		63,163 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
478.00	683	193.0	0	0	683
480.00	1,695	257.0	2,303	2,303	3,019
482.00	2,942	305.0	4,580	6,883	5,238
484.00	12,839	665.0	14,618	21,501	33,043
486.00	24,461	1,887.0	36,681	58,182	281,222
486.20	25,352	1,192.0	4,981	63,163	451,510

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.00	395	151.0	0	0	395
482.00	1,855	264.0	2,071	2,071	4,150
484.00	3,815	336.0	5,553	7,624	7,640

Device	Routing	Invert	Outlet Devices
#1	Primary	482.00'	**2.3" Horiz. CPV ORFICE** C= 0.600 Limited to weir flow at low heads
#2	Primary	486.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Primary	484.50'	**12.0" Horiz. STAND PIPE** C= 0.600 Limited to weir flow at low heads
#4	Primary	484.75'	**4.8" x 1.2" Horiz. GRATE X 5.00 columns** X 13 rows C= 0.600 in 30.0" x 30.0" Grate (42% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.21 cfs @ 17.55 hrs HW=484.39' (Free Discharge)
- **1=CPV ORFICE** (Orifice Controls 0.21 cfs @ 7.45 fps)
- **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **3=STAND PIPE** (Controls 0.00 cfs)
- **4=GRATE** (Controls 0.00 cfs)

Summary for Link 1L: OFFSITE

Inflow Area = 8.860 ac, 48.22% Impervious, Inflow Depth = 0.81" for 1 YR event
Inflow = 0.18 cfs @ 18.54 hrs, Volume= 0.595 af
Primary = 0.18 cfs @ 18.54 hrs, Volume= 0.595 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Summary for Link 2L: OFFSITE

Inflow Area = 6.808 ac, 57.41% Impervious, Inflow Depth = 1.20" for 1 YR event
Inflow = 0.46 cfs @ 11.98 hrs, Volume= 0.681 af
Primary = 0.46 cfs @ 11.98 hrs, Volume= 0.681 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Summary for Link 3L: OFFSITE

Inflow Area = 0.661 ac, 0.00% Impervious, Inflow Depth = 0.68" for 1 YR event
Inflow = 0.80 cfs @ 11.98 hrs, Volume= 0.038 af
Primary = 0.80 cfs @ 11.98 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Summary for Link 4L: OFFSITE

Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Summary for Link T: TOTAL OFFSITE FLOWS

Inflow Area = 16.328 ac, 50.10% Impervious, Inflow Depth = 0.97" for 1 YR event
Inflow = 1.40 cfs @ 11.98 hrs, Volume= 1.314 af
Primary = 1.40 cfs @ 11.98 hrs, Volume= 1.314 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Time span=0.00-200.00 hrs, dt=0.01 hrs, 20001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS1: - Runoff Area=10,201 sf 0.00% Impervious Runoff Depth=1.76"
Flow Length=20' Slope=0.0200 '/' Tc=6.0 min CN=80 Runoff=0.74 cfs 0.034 af

SubcatchmentS10: - Runoff Area=12,518 sf 95.25% Impervious Runoff Depth=3.30"
Flow Length=175' Slope=0.0350 '/' Tc=6.0 min CN=97 Runoff=1.47 cfs 0.079 af

SubcatchmentS11: - Runoff Area=3,095 sf 42.81% Impervious Runoff Depth=2.41"
Flow Length=73' Tc=6.0 min CN=88 Runoff=0.30 cfs 0.014 af

SubcatchmentS12: - Runoff Area=3,166 sf 100.00% Impervious Runoff Depth=3.42"
Flow Length=100' Slope=0.0200 '/' Tc=6.0 min CN=98 Runoff=0.38 cfs 0.021 af

SubcatchmentS13: - Runoff Area=8,034 sf 53.50% Impervious Runoff Depth=2.59"
Flow Length=190' Tc=6.0 min CN=90 Runoff=0.82 cfs 0.040 af

SubcatchmentS14: - Runoff Area=37,414 sf 82.60% Impervious Runoff Depth=3.09"
Flow Length=146' Tc=6.0 min CN=95 Runoff=4.26 cfs 0.221 af

SubcatchmentS15: - Runoff Area=20,739 sf 56.50% Impervious Runoff Depth=2.59"
Flow Length=213' Tc=7.6 min CN=90 Runoff=1.99 cfs 0.103 af

SubcatchmentS16: - Runoff Area=25,352 sf 59.72% Impervious Runoff Depth=2.68"
Flow Length=189' Tc=6.8 min CN=91 Runoff=2.57 cfs 0.130 af

SubcatchmentS17: - Runoff Area=6,948 sf 80.70% Impervious Runoff Depth=3.09"
Flow Length=73' Tc=6.0 min CN=95 Runoff=0.79 cfs 0.041 af

SubcatchmentS18: - Runoff Area=8,324 sf 86.62% Impervious Runoff Depth=3.19"
Flow Length=115' Slope=0.0300 '/' Tc=6.0 min CN=96 Runoff=0.96 cfs 0.051 af

SubcatchmentS19: - Runoff Area=104,829 sf 40.01% Impervious Runoff Depth=2.32"
Flow Length=104' Tc=10.5 min CN=87 Runoff=8.32 cfs 0.465 af

SubcatchmentS2: - Runoff Area=77,270 sf 13.64% Impervious Runoff Depth=1.91"
Flow Length=150' Slope=0.1000 '/' Tc=6.0 min CN=82 Runoff=6.03 cfs 0.282 af

SubcatchmentS20: - Runoff Area=30,480 sf 68.96% Impervious Runoff Depth=2.78"
Flow Length=151' Slope=0.0300 '/' Tc=6.6 min CN=92 Runoff=3.19 cfs 0.162 af

SubcatchmentS21: - Runoff Area=31,238 sf 66.70% Impervious Runoff Depth=2.78"
Tc=6.0 min CN=92 Runoff=3.34 cfs 0.166 af

SubcatchmentS22: - Runoff Area=31,330 sf 51.53% Impervious Runoff Depth=2.50"
Flow Length=74' Tc=6.0 min CN=89 Runoff=3.09 cfs 0.150 af

SubcatchmentS23: - Runoff Area=3,650 sf 100.00% Impervious Runoff Depth=3.42"
Flow Length=140' Slope=0.0400 '/' Tc=6.0 min CN=98 Runoff=0.43 cfs 0.024 af

SubcatchmentS24: - Runoff Area=6,296 sf 100.00% Impervious Runoff Depth=3.42"
Flow Length=287' Slope=0.0250 '/' Tc=6.0 min CN=98 Runoff=0.75 cfs 0.041 af

SubcatchmentS25: - Runoff Area=19,939 sf 53.59% Impervious Runoff Depth=2.59"
Flow Length=348' Tc=8.1 min CN=90 Runoff=1.88 cfs 0.099 af

SubcatchmentS26: - Runoff Area=8,944 sf 92.87% Impervious Runoff Depth=3.30"
Flow Length=125' Slope=0.0200 '/' Tc=6.0 min CN=97 Runoff=1.05 cfs 0.057 af

SubcatchmentS27: - Runoff Area=28,775 sf 0.00% Impervious Runoff Depth=1.76"
Flow Length=75' Slope=0.1860 '/' Tc=6.0 min CN=80 Runoff=2.08 cfs 0.097 af

SubcatchmentS28: - Runoff Area=31,338 sf 66.49% Impervious Runoff Depth=2.78"
Flow Length=214' Tc=6.0 min CN=92 Runoff=3.35 cfs 0.167 af

SubcatchmentS29: - Runoff Area=22,990 sf 48.98% Impervious Runoff Depth=2.50"
Flow Length=254' Slope=0.0600 '/' Tc=6.0 min CN=89 Runoff=2.27 cfs 0.110 af

SubcatchmentS3: - Runoff Area=16,995 sf 88.43% Impervious Runoff Depth=3.19"
Flow Length=162' Slope=0.0400 '/' Tc=6.0 min CN=96 Runoff=1.97 cfs 0.104 af

SubcatchmentS30: - Runoff Area=5,749 sf 94.14% Impervious Runoff Depth=3.30"
Flow Length=100' Slope=0.0500 '/' Tc=6.0 min CN=97 Runoff=0.68 cfs 0.036 af

SubcatchmentS4: - Runoff Area=5,744 sf 100.00% Impervious Runoff Depth=3.42"
Flow Length=280' Slope=0.0250 '/' Tc=6.0 min CN=98 Runoff=0.68 cfs 0.038 af

SubcatchmentS5: - Runoff Area=9,406 sf 84.86% Impervious Runoff Depth=3.09"
Flow Length=200' Slope=0.0400 '/' Tc=6.0 min CN=95 Runoff=1.07 cfs 0.056 af

SubcatchmentS6: - Runoff Area=30,031 sf 76.82% Impervious Runoff Depth=2.98"
Flow Length=150' Tc=6.0 min CN=94 Runoff=3.36 cfs 0.171 af

SubcatchmentS7: - Runoff Area=51,256 sf 6.97% Impervious Runoff Depth=1.83"
Flow Length=42' Slope=0.3300 '/' Tc=6.0 min CN=81 Runoff=3.85 cfs 0.180 af

SubcatchmentS8: - Runoff Area=26,278 sf 68.24% Impervious Runoff Depth=2.78"
Flow Length=175' Tc=6.0 min CN=92 Runoff=2.81 cfs 0.140 af

SubcatchmentS9: - Runoff Area=32,931 sf 44.93% Impervious Runoff Depth=2.41"
Flow Length=55' Tc=6.0 min CN=88 Runoff=3.15 cfs 0.152 af

Pond BIO#1: SMA #3 - Bioretention Area Peak Elev=493.06' Storage=3,838 cf Inflow=3.15 cfs 0.152 af
Outflow=0.37 cfs 0.064 af

Pond BIO#2: SMA #4 - Bioretention Area Peak Elev=494.53' Storage=11,891 cf Inflow=8.32 cfs 0.465 af
Outflow=0.99 cfs 0.198 af

Pond BIO#3: SMA #5 - Bioretention Area Peak Elev=490.52' Storage=3,600 cf Inflow=3.09 cfs 0.150 af
Outflow=0.62 cfs 0.068 af

Pond CB#1: - Peak Elev=483.32' Inflow=1.75 cfs 0.093 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=1.75 cfs 0.093 af

Pond CB#10: - Peak Elev=490.09' Inflow=0.38 cfs 0.021 af
12.0" Round Culvert n=0.012 L=24.0' S=0.0479 '/' Outflow=0.38 cfs 0.021 af

Pond CB#11: - Peak Elev=489.67' Inflow=12.35 cfs 0.638 af
24.0" Round Culvert n=0.012 L=91.0' S=0.0297 '/' Outflow=12.35 cfs 0.638 af

Pond CB#13: - Peak Elev=492.38' Inflow=0.96 cfs 0.051 af
12.0" Round Culvert n=0.012 L=33.0' S=0.0621 '/' Outflow=0.96 cfs 0.051 af

Pond CB#14: - Peak Elev=492.76' Inflow=11.16 cfs 0.578 af
18.0" Round Culvert n=0.012 L=106.0' S=0.0108 '/' Outflow=11.16 cfs 0.578 af

Pond CB#15: - Peak Elev=493.11' Inflow=9.41 cfs 0.486 af
18.0" Round Culvert n=0.012 L=139.0' S=0.0083 '/' Outflow=9.41 cfs 0.486 af

Pond CB#16: - Peak Elev=493.70' Inflow=5.17 cfs 0.265 af
15.0" Round Culvert n=0.012 L=187.0' S=0.0064 '/' Outflow=5.17 cfs 0.265 af

Pond CB#17: - Peak Elev=494.34' Inflow=3.19 cfs 0.162 af
15.0" Round Culvert n=0.012 L=281.0' S=0.0050 '/' Outflow=3.19 cfs 0.162 af

Pond CB#18: - Peak Elev=486.34' Inflow=11.89 cfs 0.869 af
24.0" Round Culvert n=0.012 L=52.0' S=0.0067 '/' Outflow=11.89 cfs 0.869 af

Pond CB#19: - Peak Elev=486.84' Inflow=9.92 cfs 0.765 af
24.0" Round Culvert n=0.012 L=161.0' S=0.0050 '/' Outflow=9.92 cfs 0.765 af

Pond CB#2: - Peak Elev=483.17' Inflow=1.07 cfs 0.056 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0056 '/' Outflow=1.07 cfs 0.056 af

Pond CB#21: - Peak Elev=494.85' Inflow=3.34 cfs 0.166 af
12.0" Round Culvert n=0.012 L=91.0' S=0.0192 '/' Outflow=3.34 cfs 0.166 af

Pond CB#22: - Peak Elev=491.93' Inflow=3.34 cfs 0.364 af
15.0" Round Culvert n=0.012 L=190.0' S=0.0071 '/' Outflow=3.34 cfs 0.364 af

Pond CB#23: - Peak Elev=492.34' Inflow=0.99 cfs 0.198 af
12.0" Round Culvert n=0.012 L=140.0' S=0.0050 '/' Outflow=0.99 cfs 0.198 af

Pond CB#24: - Peak Elev=485.04' Inflow=6.33 cfs 0.330 af
18.0" Round Culvert n=0.012 L=148.0' S=0.0051 '/' Outflow=6.33 cfs 0.330 af

Pond CB#26: - Peak Elev=491.84' Inflow=9.25 cfs 0.661 af
18.0" Round Culvert n=0.012 L=114.0' S=0.0311 '/' Outflow=9.25 cfs 0.661 af

Pond CB#28: - Peak Elev=492.51' Inflow=3.35 cfs 0.167 af
12.0" Round Culvert n=0.012 L=86.0' S=0.0122 '/' Outflow=3.35 cfs 0.167 af

Pond CB#29: - Peak Elev=491.09' Inflow=2.90 cfs 0.155 af
12.0" Round Culvert n=0.012 L=21.0' S=0.0071 '/' Outflow=2.90 cfs 0.155 af

Pond CB#3: CB#3 Peak Elev=488.78' Inflow=20.27 cfs 1.107 af
24.0" Round Culvert n=0.012 L=60.0' S=0.0108 '/' Outflow=20.27 cfs 1.107 af

Pond CB#31: - Peak Elev=491.21' Inflow=1.05 cfs 0.057 af
12.0" Round Culvert n=0.012 L=37.0' S=0.0257 '/' Outflow=1.05 cfs 0.057 af

Pond CB#32: Peak Elev=491.48' Inflow=3.64 cfs 0.196 af
12.0" Round Culvert n=0.012 L=272.0' S=0.0202 '/' Outflow=3.64 cfs 0.196 af

Pond CB#33: - Peak Elev=485.16' Inflow=4.07 cfs 0.220 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0056 '/' Outflow=4.07 cfs 0.220 af

Pond CB#4: - Peak Elev=487.79' Inflow=7.63 cfs 0.454 af
18.0" Round Culvert n=0.012 L=40.0' S=0.0088 '/' Outflow=7.63 cfs 0.454 af

Pond CB#5&6: - Peak Elev=488.89' Inflow=6.16 cfs 0.375 af
18.0" Round Culvert n=0.012 L=309.5' S=0.0050 '/' Outflow=6.16 cfs 0.375 af

Pond CB#7: - Peak Elev=489.09' Inflow=2.81 cfs 0.204 af
15.0" Round Culvert n=0.012 L=109.0' S=0.0050 '/' Outflow=2.81 cfs 0.204 af

Pond SMA#2: SMA#2 Peak Elev=482.01' Storage=36,562 cf Inflow=24.24 cfs 1.481 af
Outflow=2.91 cfs 1.481 af

Pond SMA1: SMA#1 Peak Elev=484.95' Storage=36,038 cf Inflow=25.87 cfs 1.379 af
Outflow=5.74 cfs 1.379 af

Link 1L: OFFSITE Inflow=2.91 cfs 1.481 af
Primary=2.91 cfs 1.481 af

Link 2L: OFFSITE Inflow=5.91 cfs 1.414 af
Primary=5.91 cfs 1.414 af

Link 3L: OFFSITE Inflow=2.08 cfs 0.097 af
Primary=2.08 cfs 0.097 af

Link 4L: OFFSITE
Primary=0.00 cfs 0.000 af

Link T: TOTAL OFFSITE FLOWS Inflow=8.85 cfs 2.991 af
Primary=8.85 cfs 2.991 af

Total Runoff Area = 16.328 ac Runoff Volume = 3.427 af Average Runoff Depth = 2.52"
49.90% Pervious = 8.148 ac 50.10% Impervious = 8.181 ac

Summary for Subcatchment S1: -

Runoff = 0.74 cfs @ 11.97 hrs, Volume= 0.034 af, Depth= 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
10,201	80	>75% Grass cover, Good, HSG D
10,201		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	20	0.0200	0.11		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
3.0	20	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S10: -

Runoff = 1.47 cfs @ 11.97 hrs, Volume= 0.079 af, Depth= 3.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
11,923	98	Paved parking, HSG D
595	80	>75% Grass cover, Good, HSG D
12,518	97	Weighted Average
595		4.75% Pervious Area
11,923		95.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0350	1.54		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.3	75	0.0350	3.80		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
1.4	175	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S11: -

Runoff = 0.30 cfs @ 11.97 hrs, Volume= 0.014 af, Depth= 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
1,325	98	Paved parking, HSG D
1,770	80	>75% Grass cover, Good, HSG D
3,095	88	Weighted Average
1,770		57.19% Pervious Area
1,325		42.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	9	0.0400	0.12		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"
0.9	64	0.0200	1.13		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
2.1	73	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S12: -

Runoff = 0.38 cfs @ 11.97 hrs, Volume= 0.021 af, Depth= 3.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
3,166	98	Paved parking, HSG D
3,166		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0200	1.23		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
1.4	100	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S13: -

Runoff = 0.82 cfs @ 11.97 hrs, Volume= 0.040 af, Depth= 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
4,298	98	Paved parking, HSG D
3,736	80	>75% Grass cover, Good, HSG D
8,034	90	Weighted Average
3,736		46.50% Pervious Area
4,298		53.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	20	0.0500	0.16		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
1.0	80	0.0300	1.38		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.4	90	0.0300	3.52		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
3.5	190	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S14: -

Runoff = 4.26 cfs @ 11.97 hrs, Volume= 0.221 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
30,904	98	Paved parking, HSG D
6,510	80	>75% Grass cover, Good, HSG D
37,414	95	Weighted Average
6,510		17.40% Pervious Area
30,904		82.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	36	0.0050	0.58		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
2.8	18	0.0200	0.11		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.7	46	0.0200	1.05		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.3	46	0.0200	2.87		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
4.8	146	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S15: -

Runoff = 1.99 cfs @ 11.99 hrs, Volume= 0.103 af, Depth= 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
11,718	98	Paved parking, HSG D
9,021	80	>75% Grass cover, Good, HSG D
20,739	90	Weighted Average
9,021		43.50% Pervious Area
11,718		56.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	52	0.0200	0.13		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.6	48	0.0300	1.25		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.5	113	0.0300	3.52		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
7.6	213	Total			

Summary for Subcatchment S16: -

Runoff = 2.57 cfs @ 11.98 hrs, Volume= 0.130 af, Depth= 2.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
15,141	98	Paved parking, HSG D
10,211	80	>75% Grass cover, Good, HSG D
25,352	91	Weighted Average
10,211		40.28% Pervious Area
15,141		59.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	45	0.0200	0.13		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.6	55	0.0400	1.44		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.4	89	0.0400	4.06		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
6.8	189	Total			

Summary for Subcatchment S17: -

Runoff = 0.79 cfs @ 11.97 hrs, Volume= 0.041 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
5,607	98	Paved parking, HSG D
1,341	80	>75% Grass cover, Good, HSG D
6,948	95	Weighted Average
1,341		19.30% Pervious Area
5,607		80.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	9	0.0400	0.12		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"
0.9	64	0.0200	1.13		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
2.1	73	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S18: -

Runoff = 0.96 cfs @ 11.97 hrs, Volume= 0.051 af, Depth= 3.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
7,210	98	Paved parking, HSG D
1,114	80	>75% Grass cover, Good, HSG D
8,324	96	Weighted Average
1,114		13.38% Pervious Area
7,210		86.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0300	1.45		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.1	15	0.0300	3.52		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
1.3	115	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S19: -

Runoff = 8.32 cfs @ 12.02 hrs, Volume= 0.465 af, Depth= 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
41,946	98	Paved parking, HSG D
62,883	80	>75% Grass cover, Good, HSG D
104,829	87	Weighted Average
62,883		59.99% Pervious Area
41,946		40.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	5	0.0200	0.68		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
9.0	78	0.0200	0.14		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.1	5	0.0200	0.68		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
1.3	16	0.1000	0.20		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
10.5	104	Total			

Summary for Subcatchment S2: -

Runoff = 6.03 cfs @ 11.97 hrs, Volume= 0.282 af, Depth= 1.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
66,730	80	>75% Grass cover, Good, HSG D
10,540	98	Paved parking, HSG D
77,270	82	Weighted Average
66,730		86.36% Pervious Area
10,540		13.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1000	0.29		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.2	50	0.1000	4.74		**Shallow Concentrated Flow, Shallow** Grassed Waterway Kv= 15.0 fps
6.0	150	Total			

Summary for Subcatchment S20: -

Runoff = 3.19 cfs @ 11.98 hrs, Volume= 0.162 af, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
21,020	98	Paved parking, HSG D
9,460	80	>75% Grass cover, Good, HSG D
30,480	92	Weighted Average
9,460		31.04% Pervious Area
21,020		68.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	55	0.0300	0.16		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.6	45	0.0300	1.23		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.2	51	0.0300	3.52		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
6.6	151	Total			

Summary for Subcatchment S21: -

Runoff = 3.34 cfs @ 11.97 hrs, Volume= 0.166 af, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
20,837	98	Paved parking, HSG D
10,401	80	>75% Grass cover, Good, HSG D
31,238	92	Weighted Average
10,401		33.30% Pervious Area
20,837		66.70% Impervious Area

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

Summary for Subcatchment S22: -

Runoff = 3.09 cfs @ 11.97 hrs, Volume= 0.150 af, Depth= 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
16,145	98	Paved parking, HSG D
15,185	80	>75% Grass cover, Good, HSG D
31,330	89	Weighted Average
15,185		48.47% Pervious Area
16,145		51.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	38	0.0050	0.58		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.1	36	0.1670	6.13		**Shallow Concentrated Flow, Shallow** Grassed Waterway Kv= 15.0 fps
1.2	74	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S23: -

Runoff = 0.43 cfs @ 11.97 hrs, Volume= 0.024 af, Depth= 3.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
3,650	98	Paved parking, HSG D
3,650		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0400	1.62		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.2	40	0.0400	4.06		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
1.2	140	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S24: -

Runoff = 0.75 cfs @ 11.97 hrs, Volume= 0.041 af, Depth= 3.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
6,296	98	Paved parking, HSG D
6,296		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0250	1.35		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
1.0	187	0.0250	3.21		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
2.2	287	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S25: -

Runoff = 1.88 cfs @ 11.99 hrs, Volume= 0.099 af, Depth= 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
10,685	98	Paved parking, HSG D
9,254	80	>75% Grass cover, Good, HSG D
19,939	90	Weighted Average
9,254		46.41% Pervious Area
10,685		53.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	41	0.0050	0.59		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
5.4	41	0.0200	0.13		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
1.5	266	0.0200	2.87		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
8.1	348	Total			

Summary for Subcatchment S26: -

Runoff = 1.05 cfs @ 11.97 hrs, Volume= 0.057 af, Depth= 3.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
8,306	98	Paved parking, HSG D
638	80	>75% Grass cover, Good, HSG D
8,944	97	Weighted Average
638		7.13% Pervious Area
8,306		92.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0200	1.23		**Sheet Flow, SHEET** Smooth surfaces n= 0.011 P2= 2.56"
0.1	25	0.0200	2.87		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
1.5	125	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S27: -

Runoff = 2.08 cfs @ 11.97 hrs, Volume= 0.097 af, Depth= 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
28,775	80	>75% Grass cover, Good, HSG D
28,775		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	75	0.1860	0.35		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
3.6	75	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S28: -

Runoff = 3.35 cfs @ 11.97 hrs, Volume= 0.167 af, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
20,837	98	Paved parking, HSG D
10,501	80	>75% Grass cover, Good, HSG D
31,338	92	Weighted Average
10,501		33.51% Pervious Area
20,837		66.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	25	0.0050	0.54		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
2.0	19	0.0500	0.16		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
1.0	170	0.0200	2.87		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
3.8	214	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S29: -

Runoff = 2.27 cfs @ 11.97 hrs, Volume= 0.110 af, Depth= 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
11,260	98	Paved parking, HSG D
11,730	80	>75% Grass cover, Good, HSG D
22,990	89	Weighted Average
11,730		51.02% Pervious Area
11,260		48.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	65	0.0600	0.22		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.4	35	0.0600	1.55		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.5	154	0.0600	4.97		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
5.9	254	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S3: -

Runoff = 1.97 cfs @ 11.97 hrs, Volume= 0.104 af, Depth= 3.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
15,028	98	Paved parking, HSG D
1,967	80	>75% Grass cover, Good, HSG D
16,995	96	Weighted Average
1,967		11.57% Pervious Area
15,028		88.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0400	1.62		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.3	62	0.0400	4.06		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
1.3	162	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S30: -

Runoff = 0.68 cfs @ 11.97 hrs, Volume= 0.036 af, Depth= 3.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
5,412	98	Paved parking, HSG D
337	80	>75% Grass cover, Good, HSG D
5,749	97	Weighted Average
337		5.86% Pervious Area
5,412		94.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0500	1.77		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.9	100	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S4: -

Runoff = 0.68 cfs @ 11.97 hrs, Volume= 0.038 af, Depth= 3.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
5,744	98	Paved parking, HSG D
5,744		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0250	1.35		**Sheet Flow, SHEET** Smooth surfaces n= 0.011 P2= 2.56"
0.9	180	0.0250	3.21		**Shallow Concentrated Flow, SHALLOW** Paved Kv= 20.3 fps
2.1	280	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S5: -

Runoff = 1.07 cfs @ 11.97 hrs, Volume= 0.056 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
1,424	80	>75% Grass cover, Good, HSG D
7,982	98	Paved parking, HSG D
9,406	95	Weighted Average
1,424		15.14% Pervious Area
7,982		84.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0400	1.62		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.4	100	0.0400	4.06		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
1.4	200	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S6: -

Runoff = 3.36 cfs @ 11.97 hrs, Volume= 0.171 af, Depth= 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
23,071	98	Paved parking, HSG D
6,960	80	>75% Grass cover, Good, HSG D
30,031	94	Weighted Average
6,960		23.18% Pervious Area
23,071		76.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	34	0.0050	0.57		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
1.4	12	0.0500	0.14		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.8	54	0.0200	1.09		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
3.5	150	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S7: -

Runoff = 3.85 cfs @ 11.97 hrs, Volume= 0.180 af, Depth= 1.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
47,682	80	>75% Grass cover, Good, HSG D
3,574	98	Paved parking, HSG D
51,256	81	Weighted Average
47,682		93.03% Pervious Area
3,574		6.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	42	0.3300	0.39		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
1.8	42	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S8: -

Runoff = 2.81 cfs @ 11.97 hrs, Volume= 0.140 af, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
17,932	98	Paved parking, HSG D
8,346	80	>75% Grass cover, Good, HSG D
26,278	92	Weighted Average
8,346		31.76% Pervious Area
17,932		68.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	36	0.3300	0.38		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.8	64	0.0350	1.41		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.3	75	0.0350	3.80		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
2.7	175	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S9: -

Runoff = 3.15 cfs @ 11.97 hrs, Volume= 0.152 af, Depth= 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=3.65"

Area (sf)	CN	Description
14,795	98	Paved parking, HSG D
18,136	80	>75% Grass cover, Good, HSG D
32,931	88	Weighted Average
18,136		55.07% Pervious Area
14,795		44.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	35	0.0100	0.76		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
1.2	20	0.2000	0.28		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
2.0	55	Total, Increased to minimum Tc = 6.0 min			

Summary for Pond BIO#1: SMA #3 - Bioretention Area

Inflow Area = 0.756 ac, 44.93% Impervious, Inflow Depth = 2.41" for 10 YR event
Inflow = 3.15 cfs @ 11.97 hrs, Volume= 0.152 af
Outflow = 0.37 cfs @ 12.31 hrs, Volume= 0.064 af, Atten= 88%, Lag= 20.1 min
Primary = 0.37 cfs @ 12.31 hrs, Volume= 0.064 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 493.06' @ 12.31 hrs Surf.Area= 8,410 sf Storage= 3,838 cf

Plug-Flow detention time= 269.5 min calculated for 0.064 af (42% of inflow)
Center-of-Mass det. time= 150.4 min (957.1 - 806.7)

Volume	Invert	Avail.Storage	Storage Description
#1	488.80'	1,011 cf	**Drainage Layer (Irregular)** Listed below (Recalc) 2,588 cf Overall - 59 cf Embedded = 2,529 cf x 40.0% Voids
#2	489.80'	1,294 cf	**Soil Media (Irregular)** Listed below (Recalc) 6,470 cf Overall x 20.0% Voids
#3	492.55'	3,437 cf	**Ponding Layer (Irregular)** Listed below (Recalc)
#4	489.13'	59 cf	**8.0" Round Pipe Storage** Inside #1 L= 170.0'
		5,802 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
488.80	2,588	392.0	0	0	2,588
489.80	2,588	392.0	2,588	2,588	2,980

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
489.80	2,588	392.0	0	0	2,588
492.30	2,588	392.0	6,470	6,470	3,568

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
492.55	2,587	392.0	0	0	2,587
493.05	3,182	401.0	1,440	1,440	3,189
493.50	5,826	431.0	1,997	3,437	5,184

Device	Routing	Invert	Outlet Devices
#1	Device 2	493.05'	**1.8" x 4.2" Horiz. Orifice/Grate X 65.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	488.80'	**12.0" Round CMP_Round 12"** L= 89.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 488.80' / 488.35' S= 0.0051 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.23 cfs @ 12.31 hrs HW=493.06' (Free Discharge)
└─**2=CMP_Round 12"** (Passes 0.23 cfs of 5.79 cfs potential flow)
└─**1=Orifice/Grate** (Weir Controls 0.23 cfs @ 0.33 fps)

Summary for Pond BIO#2: SMA #4 - Bioretention Area

Inflow Area = 2.407 ac, 40.01% Impervious, Inflow Depth = 2.32" for 10 YR event
Inflow = 8.32 cfs @ 12.02 hrs, Volume= 0.465 af
Outflow = 0.99 cfs @ 12.48 hrs, Volume= 0.198 af, Atten= 88%, Lag= 27.4 min
Primary = 0.99 cfs @ 12.48 hrs, Volume= 0.198 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 494.53' @ 12.48 hrs Surf.Area= 25,641 sf Storage= 11,891 cf

Plug-Flow detention time= 274.9 min calculated for 0.198 af (43% of inflow)
Center-of-Mass det. time= 155.3 min (969.8 - 814.5)

Volume	Invert	Avail.Storage	Storage Description
#1	494.00'	22,299 cf	**Ponding Area (Irregular)** Listed below (Recalc)
#2	491.50'	4,018 cf	**Soil Media (Irregular)** Listed below (Recalc) 20,088 cf Overall x 20.0% Voids
#3	490.50'	3,192 cf	**Drainage Layer (Irregular)** Listed below (Recalc) 8,035 cf Overall - 56 cf Embedded = 7,979 cf x 40.0% Voids
#4	490.66'	56 cf	**8.0" Round Pipe Storage** Inside #3 L= 160.0'
		29,564 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
494.00	8,035	385.0	0	0	8,035
496.00	14,587	479.9	22,299	22,299	14,624

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
491.50	8,035	385.0	0	0	8,035
494.00	8,035	385.0	20,088	20,088	8,998

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.50	8,035	385.0	0	0	8,035
491.50	8,035	385.0	8,035	8,035	8,420

Device	Routing	Invert	Outlet Devices
#1	Device 2	494.50'	**4.8" x 1.2" Horiz. Orifice/Grate X 65.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	492.25'	**12.0" Round CMP_Round 12"** L= 90.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 492.25' / 491.75' S= 0.0056 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.90 cfs @ 12.48 hrs HW=494.53' (Free Discharge)
└─**2=CMP_Round 12"** (Passes 0.90 cfs of 3.98 cfs potential flow)
└─**1=Orifice/Grate** (Weir Controls 0.90 cfs @ 0.53 fps)

Summary for Pond BIO#3: SMA #5 - Bioretention Area

Inflow Area = 0.719 ac, 51.53% Impervious, Inflow Depth = 2.50" for 10 YR event
Inflow = 3.09 cfs @ 11.97 hrs, Volume= 0.150 af
Outflow = 0.62 cfs @ 12.14 hrs, Volume= 0.068 af, Atten= 80%, Lag= 10.0 min
Primary = 0.62 cfs @ 12.14 hrs, Volume= 0.068 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 490.52' @ 12.14 hrs Surf.Area= 7,534 sf Storage= 3,600 cf

Plug-Flow detention time= 250.6 min calculated for 0.068 af (46% of inflow)
Center-of-Mass det. time= 134.1 min (936.9 - 802.8)

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	7,424 cf	**Ponding Area (Irregular)** Listed below (Recalc)
#2	487.50'	1,256 cf	**Soil Media (Irregular)** Listed below (Recalc) 6,278 cf Overall x 20.0% Voids
#3	486.50'	981 cf	**Drainage Layer (Irregular)** Listed below (Recalc) 2,512 cf Overall - 59 cf Embedded = 2,453 cf x 40.0% Voids
#4	486.66'	59 cf	**8.0" Round Pipe Storage** Inside #3 L= 170.0'
		9,720 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	2,511	381.0	0	0	2,511
491.00	2,511	381.0	2,511	2,511	2,892
492.00	7,803	439.0	4,913	7,424	6,699

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
487.50	2,511	385.0	0	0	2,511
490.00	2,511	385.0	6,278	6,278	3,474

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
486.50	2,512	380.0	0	0	2,512
487.50	2,512	380.0	2,512	2,512	2,892

Device	Routing	Invert	Outlet Devices
#1	Primary	486.50'	**12.0" Round CMP_Round 12"** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 486.50' / 486.15' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	490.50'	**4.8" x 1.2" Horiz. Orifice/Grate X 65.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.56 cfs @ 12.14 hrs HW=490.52' (Free Discharge)
└─**1=CMP_Round 12"** (Passes 0.56 cfs of 5.60 cfs potential flow)
└─**2=Orifice/Grate** (Weir Controls 0.56 cfs @ 0.45 fps)

Summary for Pond CB#1: -

Inflow Area = 0.348 ac, 90.60% Impervious, Inflow Depth = 3.21" for 10 YR event
Inflow = 1.75 cfs @ 11.97 hrs, Volume= 0.093 af
Outflow = 1.75 cfs @ 11.97 hrs, Volume= 0.093 af, Atten= 0%, Lag= 0.0 min
Primary = 1.75 cfs @ 11.97 hrs, Volume= 0.093 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 483.32' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	482.40'	**12.0" Round CMP_Round 12"** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 482.40' / 482.30' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.75 cfs @ 11.97 hrs HW=483.32' (Free Discharge)
└**1=CMP_Round 12"** (Barrel Controls 1.75 cfs @ 3.02 fps)

Summary for Pond CB#10: -

Inflow Area = 0.073 ac,100.00% Impervious, Inflow Depth = 3.42" for 10 YR event
Inflow = 0.38 cfs @ 11.97 hrs, Volume= 0.021 af
Outflow = 0.38 cfs @ 11.97 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 11.97 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 490.09' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	489.75'	**12.0" Round CMP_Round 12"** L= 24.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.75' / 488.60' S= 0.0479 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.38 cfs @ 11.97 hrs HW=490.09' (Free Discharge)
└**1=CMP_Round 12"** (Inlet Controls 0.38 cfs @ 1.57 fps)

Summary for Pond CB#11: -

Inflow Area = 2.642 ac, 72.91% Impervious, Inflow Depth = 2.90" for 10 YR event
Inflow = 12.35 cfs @ 11.97 hrs, Volume= 0.638 af
Outflow = 12.35 cfs @ 11.97 hrs, Volume= 0.638 af, Atten= 0%, Lag= 0.0 min
Primary = 12.35 cfs @ 11.97 hrs, Volume= 0.638 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 489.67' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	487.60'	**24.0" Round CMP_Round 24"** L= 91.0' CMP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 487.60' / 484.90' S= 0.0297 '/' Cc= 0.900
n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=12.33 cfs @ 11.97 hrs HW=489.67' (Free Discharge)
└**1=CMP_Round 24"** (Inlet Controls 12.33 cfs @ 3.92 fps)

Summary for Pond CB#13: -

Inflow Area = 0.191 ac, 86.62% Impervious, Inflow Depth = 3.19" for 10 YR event
Inflow = 0.96 cfs @ 11.97 hrs, Volume= 0.051 af
Outflow = 0.96 cfs @ 11.97 hrs, Volume= 0.051 af, Atten= 0%, Lag= 0.0 min
Primary = 0.96 cfs @ 11.97 hrs, Volume= 0.051 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 492.38' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	491.80'	**12.0" Round CMP_Round 12"** L= 33.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 491.80' / 489.75' S= 0.0621 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.96 cfs @ 11.97 hrs HW=492.38' (Free Discharge)
└**1=CMP_Round 12"** (Inlet Controls 0.96 cfs @ 2.04 fps)

Summary for Pond CB#14: -

Inflow Area = 2.385 ac, 73.59% Impervious, Inflow Depth = 2.91" for 10 YR event
Inflow = 11.16 cfs @ 11.97 hrs, Volume= 0.578 af
Outflow = 11.16 cfs @ 11.97 hrs, Volume= 0.578 af, Atten= 0%, Lag= 0.0 min
Primary = 11.16 cfs @ 11.97 hrs, Volume= 0.578 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 492.76' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	489.25'	**18.0" Round CMP_Round 18"** L= 106.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.25' / 488.10' S= 0.0108 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=11.14 cfs @ 11.97 hrs HW=492.75' (Free Discharge)
└**1=CMP_Round 18"** (Inlet Controls 11.14 cfs @ 6.30 fps)

Summary for Pond CB#15: -

Inflow Area = 2.035 ac, 71.80% Impervious, Inflow Depth = 2.86" for 10 YR event
Inflow = 9.41 cfs @ 11.97 hrs, Volume= 0.486 af
Outflow = 9.41 cfs @ 11.97 hrs, Volume= 0.486 af, Atten= 0%, Lag= 0.0 min
Primary = 9.41 cfs @ 11.97 hrs, Volume= 0.486 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 493.11' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	490.40'	**18.0" Round CMP_Round 18"** L= 139.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 490.40' / 489.25' S= 0.0083 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=9.39 cfs @ 11.97 hrs HW=493.10' (Free Discharge)
└**1=CMP_Round 18"** (Inlet Controls 9.39 cfs @ 5.31 fps)

Summary for Pond CB#16: -

Inflow Area = 1.176 ac, 63.92% Impervious, Inflow Depth = 2.70" for 10 YR event
Inflow = 5.17 cfs @ 11.98 hrs, Volume= 0.265 af
Outflow = 5.17 cfs @ 11.98 hrs, Volume= 0.265 af, Atten= 0%, Lag= 0.0 min
Primary = 5.17 cfs @ 11.98 hrs, Volume= 0.265 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 493.70' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	491.85'	**15.0" Round CMP_Round 15"** L= 187.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 491.85' / 490.65' S= 0.0064 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=5.17 cfs @ 11.98 hrs HW=493.70' (Free Discharge)
└**1=CMP_Round 15"** (Inlet Controls 5.17 cfs @ 4.22 fps)

Summary for Pond CB#17: -

Inflow Area = 0.700 ac, 68.96% Impervious, Inflow Depth = 2.78" for 10 YR event
Inflow = 3.19 cfs @ 11.98 hrs, Volume= 0.162 af
Outflow = 3.19 cfs @ 11.98 hrs, Volume= 0.162 af, Atten= 0%, Lag= 0.0 min
Primary = 3.19 cfs @ 11.98 hrs, Volume= 0.162 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 494.34' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	493.25'	**15.0" Round CMP_Round 15"** L= 281.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 493.25' / 491.85' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=3.19 cfs @ 11.98 hrs HW=494.34' (Free Discharge)
└**1=CMP_Round 15"** (Inlet Controls 3.19 cfs @ 2.81 fps)

Summary for Pond CB#18: -

Inflow Area = 5.666 ac, 54.83% Impervious, Inflow Depth = 1.84" for 10 YR event
Inflow = 11.89 cfs @ 11.97 hrs, Volume= 0.869 af
Outflow = 11.89 cfs @ 11.97 hrs, Volume= 0.869 af, Atten= 0%, Lag= 0.0 min
Primary = 11.89 cfs @ 11.97 hrs, Volume= 0.869 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 486.34' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	484.35'	**24.0" Round CMP_Round 24"** L= 52.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 484.35' / 484.00' S= 0.0067 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=11.89 cfs @ 11.97 hrs HW=486.34' (Free Discharge)
└─**1=CMP_Round 24"** (Inlet Controls 11.89 cfs @ 3.79 fps)

Summary for Pond CB#19: -

Inflow Area = 5.276 ac, 52.35% Impervious, Inflow Depth = 1.74" for 10 YR event
Inflow = 9.92 cfs @ 11.97 hrs, Volume= 0.765 af
Outflow = 9.92 cfs @ 11.97 hrs, Volume= 0.765 af, Atten= 0%, Lag= 0.0 min
Primary = 9.92 cfs @ 11.97 hrs, Volume= 0.765 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 486.84' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	485.15'	**24.0" Round CMP_Round 24"** L= 161.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 485.15' / 484.35' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=9.91 cfs @ 11.97 hrs HW=486.84' (Free Discharge)
└─**1=CMP_Round 24"** (Inlet Controls 9.91 cfs @ 3.50 fps)

Summary for Pond CB#2: -

Inflow Area = 0.216 ac, 84.86% Impervious, Inflow Depth = 3.09" for 10 YR event
Inflow = 1.07 cfs @ 11.97 hrs, Volume= 0.056 af
Outflow = 1.07 cfs @ 11.97 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min
Primary = 1.07 cfs @ 11.97 hrs, Volume= 0.056 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 483.17' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	482.50'	**12.0" Round CMP_Round 12"** L= 18.0' CMP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 482.50' / 482.40' S= 0.0056 '/' Cc= 0.900
n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.07 cfs @ 11.97 hrs HW=483.17' (Free Discharge)
└─**1=CMP_Round 12"** (Barrel Controls 1.07 cfs @ 2.69 fps)

Summary for Pond CB#21: -

Inflow Area = 0.717 ac, 66.70% Impervious, Inflow Depth = 2.78" for 10 YR event
Inflow = 3.34 cfs @ 11.97 hrs, Volume= 0.166 af
Outflow = 3.34 cfs @ 11.97 hrs, Volume= 0.166 af, Atten= 0%, Lag= 0.0 min
Primary = 3.34 cfs @ 11.97 hrs, Volume= 0.166 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 494.85' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	493.10'	**12.0" Round CMP_Round 12"** L= 91.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 493.10' / 491.35' S= 0.0192 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.34 cfs @ 11.97 hrs HW=494.85' (Free Discharge)
└─**1=CMP_Round 12"** (Inlet Controls 3.34 cfs @ 4.25 fps)

Summary for Pond CB#22: -

Inflow Area = 3.124 ac, 46.14% Impervious, Inflow Depth = 1.40" for 10 YR event
Inflow = 3.34 cfs @ 11.97 hrs, Volume= 0.364 af
Outflow = 3.34 cfs @ 11.97 hrs, Volume= 0.364 af, Atten= 0%, Lag= 0.0 min
Primary = 3.34 cfs @ 11.97 hrs, Volume= 0.364 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 491.93' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	490.80'	**15.0" Round CMP_Round 15"** L= 190.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 490.80' / 489.45' S= 0.0071 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=3.34 cfs @ 11.97 hrs HW=491.93' (Free Discharge)
└─**1=CMP_Round 15"** (Inlet Controls 3.34 cfs @ 2.86 fps)

Summary for Pond CB#23: -

Inflow Area = 2.407 ac, 40.01% Impervious, Inflow Depth = 0.99" for 10 YR event
Inflow = 0.99 cfs @ 12.48 hrs, Volume= 0.198 af
Outflow = 0.99 cfs @ 12.48 hrs, Volume= 0.198 af, Atten= 0%, Lag= 0.0 min
Primary = 0.99 cfs @ 12.48 hrs, Volume= 0.198 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 492.34' @ 12.48 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	491.75'	**12.0" Round CMP_Round 12"** L= 140.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 491.75' / 491.05' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.98 cfs @ 12.48 hrs HW=492.34' (Free Discharge)
└─**1=CMP_Round 12"** (Inlet Controls 0.98 cfs @ 2.06 fps)

Summary for Pond CB#24: -

Inflow Area = 1.419 ac, 65.02% Impervious, Inflow Depth = 2.79" for 10 YR event
Inflow = 6.33 cfs @ 11.97 hrs, Volume= 0.330 af
Outflow = 6.33 cfs @ 11.97 hrs, Volume= 0.330 af, Atten= 0%, Lag= 0.0 min
Primary = 6.33 cfs @ 11.97 hrs, Volume= 0.330 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 485.04' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	483.40'	**18.0" Round Culvert** L= 148.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 483.40' / 482.65' S= 0.0051 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=6.32 cfs @ 11.97 hrs HW=485.03' (Free Discharge)
└─**1=Culvert** (Inlet Controls 6.32 cfs @ 3.57 fps)

Summary for Pond CB#26: -

Inflow Area = 4.425 ac, 51.24% Impervious, Inflow Depth = 1.79" for 10 YR event
Inflow = 9.25 cfs @ 11.97 hrs, Volume= 0.661 af
Outflow = 9.25 cfs @ 11.97 hrs, Volume= 0.661 af, Atten= 0%, Lag= 0.0 min
Primary = 9.25 cfs @ 11.97 hrs, Volume= 0.661 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 491.84' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	489.20'	**18.0" Round CMP_Round 18"** L= 114.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.20' / 485.65' S= 0.0311 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=9.24 cfs @ 11.97 hrs HW=491.84' (Free Discharge)
└─**1=CMP_Round 18"** (Inlet Controls 9.24 cfs @ 5.23 fps)

Summary for Pond CB#28: -

Inflow Area = 0.719 ac, 66.49% Impervious, Inflow Depth = 2.78" for 10 YR event
Inflow = 3.35 cfs @ 11.97 hrs, Volume= 0.167 af
Outflow = 3.35 cfs @ 11.97 hrs, Volume= 0.167 af, Atten= 0%, Lag= 0.0 min
Primary = 3.35 cfs @ 11.97 hrs, Volume= 0.167 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 492.51' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	490.75'	**12.0" Round CMP_Round 12"** L= 86.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 490.75' / 489.70' S= 0.0122 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.35 cfs @ 11.97 hrs HW=492.51' (Free Discharge)
└─**1=CMP_Round 12"** (Inlet Controls 3.35 cfs @ 4.26 fps)

Summary for Pond CB#29: -

Inflow Area = 0.663 ac, 65.75% Impervious, Inflow Depth = 2.81" for 10 YR event
Inflow = 2.90 cfs @ 11.98 hrs, Volume= 0.155 af
Outflow = 2.90 cfs @ 11.98 hrs, Volume= 0.155 af, Atten= 0%, Lag= 0.0 min
Primary = 2.90 cfs @ 11.98 hrs, Volume= 0.155 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 491.09' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	489.65'	**12.0" Round CMP_Round 12"** L= 21.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.65' / 489.50' S= 0.0071 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.90 cfs @ 11.98 hrs HW=491.09' (Free Discharge)
└─**1=CMP_Round 12"** (Inlet Controls 2.90 cfs @ 3.69 fps)

Summary for Pond CB#3: CB#3

Inflow Area = 5.050 ac, 69.54% Impervious, Inflow Depth = 2.63" for 10 YR event
Inflow = 20.27 cfs @ 11.97 hrs, Volume= 1.107 af
Outflow = 20.27 cfs @ 11.97 hrs, Volume= 1.107 af, Atten= 0%, Lag= 0.0 min
Primary = 20.27 cfs @ 11.97 hrs, Volume= 1.107 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 488.78' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	484.90'	**24.0" Round CMP_Round 24"** L= 60.0' CMP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 484.90' / 484.25' S= 0.0108 '/' Cc= 0.900
n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=20.26 cfs @ 11.97 hrs HW=488.78' (Free Discharge)
└─**1=CMP_Round 24"** (Inlet Controls 20.26 cfs @ 6.45 fps)

Summary for Pond CB#31: -

Inflow Area = 0.205 ac, 92.87% Impervious, Inflow Depth = 3.30" for 10 YR event
Inflow = 1.05 cfs @ 11.97 hrs, Volume= 0.057 af
Outflow = 1.05 cfs @ 11.97 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.0 min
Primary = 1.05 cfs @ 11.97 hrs, Volume= 0.057 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 491.21' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	490.60'	**12.0" Round CMP_Round 12"** L= 37.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 490.60' / 489.65' S= 0.0257 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.05 cfs @ 11.97 hrs HW=491.21' (Free Discharge)
└─**1=CMP_Round 12"** (Inlet Controls 1.05 cfs @ 2.10 fps)

Summary for Pond CB#32:

Inflow Area = 0.808 ac, 71.88% Impervious, Inflow Depth = 2.92" for 10 YR event
Inflow = 3.64 cfs @ 11.98 hrs, Volume= 0.196 af
Outflow = 3.64 cfs @ 11.98 hrs, Volume= 0.196 af, Atten= 0%, Lag= 0.0 min
Primary = 3.64 cfs @ 11.98 hrs, Volume= 0.196 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 491.48' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	489.50'	**12.0" Round CMP_Round 12"** L= 272.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.50' / 484.00' S= 0.0202 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.63 cfs @ 11.98 hrs HW=491.48' (Free Discharge)
└─**1=CMP_Round 12"** (Inlet Controls 3.63 cfs @ 4.63 fps)

Summary for Pond CB#33: -

Inflow Area = 0.891 ac, 74.52% Impervious, Inflow Depth = 2.97" for 10 YR event
Inflow = 4.07 cfs @ 11.98 hrs, Volume= 0.220 af
Outflow = 4.07 cfs @ 11.98 hrs, Volume= 0.220 af, Atten= 0%, Lag= 0.0 min
Primary = 4.07 cfs @ 11.98 hrs, Volume= 0.220 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 485.16' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	483.75'	**15.0" Round CMP_Round 15"** L= 18.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 483.75' / 483.65' S= 0.0056 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=4.06 cfs @ 11.98 hrs HW=485.16' (Free Discharge)
└─**1=CMP_Round 15"** (Barrel Controls 4.06 cfs @ 3.66 fps)

Summary for Pond CB#4: -

Inflow Area = 2.336 ac, 66.55% Impervious, Inflow Depth = 2.33" for 10 YR event
Inflow = 7.63 cfs @ 11.97 hrs, Volume= 0.454 af
Outflow = 7.63 cfs @ 11.97 hrs, Volume= 0.454 af, Atten= 0%, Lag= 0.0 min
Primary = 7.63 cfs @ 11.97 hrs, Volume= 0.454 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 487.79' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	485.75'	**18.0" Round CMP_Round 18"** L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 485.75' / 485.40' S= 0.0088 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=7.63 cfs @ 11.97 hrs HW=487.79' (Free Discharge)
└─**1=CMP_Round 18"** (Inlet Controls 7.63 cfs @ 4.32 fps)

Summary for Pond CB#5&6: -

Inflow Area = 2.049 ac, 62.53% Impervious, Inflow Depth = 2.20" for 10 YR event
Inflow = 6.16 cfs @ 11.97 hrs, Volume= 0.375 af
Outflow = 6.16 cfs @ 11.97 hrs, Volume= 0.375 af, Atten= 0%, Lag= 0.0 min
Primary = 6.16 cfs @ 11.97 hrs, Volume= 0.375 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 488.89' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	487.30'	**18.0" Round CMP_Round 18"** L= 309.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 487.30' / 485.75' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=6.16 cfs @ 11.97 hrs HW=488.89' (Free Discharge)
└─**1=CMP_Round 18"** (Inlet Controls 6.16 cfs @ 3.48 fps)

Summary for Pond CB#7: -

Inflow Area = 1.359 ac, 55.27% Impervious, Inflow Depth = 1.80" for 10 YR event
Inflow = 2.81 cfs @ 11.97 hrs, Volume= 0.204 af
Outflow = 2.81 cfs @ 11.97 hrs, Volume= 0.204 af, Atten= 0%, Lag= 0.0 min
Primary = 2.81 cfs @ 11.97 hrs, Volume= 0.204 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 489.09' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	488.10'	**15.0" Round CMP_Round 15"** L= 109.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 488.10' / 487.55' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.81 cfs @ 11.97 hrs HW=489.09' (Free Discharge)
└─**1=CMP_Round 15"** (Inlet Controls 2.81 cfs @ 2.68 fps)

Summary for Pond SMA#2: SMA#2

Inflow Area = 8.860 ac, 48.22% Impervious, Inflow Depth = 2.01" for 10 YR event
Inflow = 24.24 cfs @ 11.97 hrs, Volume= 1.481 af
Outflow = 2.91 cfs @ 12.56 hrs, Volume= 1.481 af, Atten= 88%, Lag= 35.3 min
Primary = 2.91 cfs @ 12.56 hrs, Volume= 1.481 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 478.00' Surf.Area= 2,870 sf Storage= 7,302 cf
Peak Elev= 482.01' @ 12.56 hrs Surf.Area= 10,705 sf Storage= 36,562 cf (29,259 cf above start)

Plug-Flow detention time= 957.8 min calculated for 1.313 af (89% of inflow)
Center-of-Mass det. time= 784.6 min (1,609.1 - 824.5)

Volume	Invert	Avail.Storage	Storage Description
#1	474.00'	90,867 cf	**Permanent Pool (Irregular)** Listed below (Recalc) 96,891 cf Overall - 6,024 cf Embedded = 90,867 cf
#2	481.00'	6,024 cf	**Forebay (Irregular)** Listed below (Recalc) Inside #1
		96,891 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
474.00	870	185.0	0	0	870
476.00	1,830	247.0	2,641	2,641	3,045
478.00	2,870	273.0	4,661	7,302	4,240
480.00	8,040	472.0	10,476	17,778	16,061
482.00	10,690	513.0	18,667	36,445	19,422
484.00	13,580	555.0	24,212	60,658	23,148
486.00	23,070	829.0	36,233	96,891	53,357

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
481.00	577	154.0	0	0	577
482.00	1,066	173.0	809	809	1,098
484.00	3,478	349.0	4,313	5,122	8,427
484.25	3,742	354.0	902	6,024	8,720

Device	Routing	Invert	Outlet Devices
#1	Primary	478.00'	**2.0" Vert. CPV** C= 0.600 Limited to weir flow at low heads
#2	Primary	481.50'	**12.0" Horiz. STANDPIPE** C= 0.600 Limited to weir flow at low heads
#3	Primary	484.75'	**1.2" x 4.8" Horiz. GRATE X 13.00 columns** X 5 rows C= 0.600 in 30.0" x 30.0" Grate (42% open area) Limited to weir flow at low heads
#4	Primary	485.50'	**10.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=2.91 cfs @ 12.56 hrs HW=482.01' (Free Discharge)
- **1=CPV** (Orifice Controls 0.21 cfs @ 9.54 fps)
- **2=STANDPIPE** (Orifice Controls 2.70 cfs @ 3.44 fps)
- **3=GRATE** (Controls 0.00 cfs)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond SMA1: SMA#1

Inflow Area = 6.574 ac, 59.46% Impervious, Inflow Depth = 2.52" for 10 YR event
Inflow = 25.87 cfs @ 11.97 hrs, Volume= 1.379 af
Outflow = 5.74 cfs @ 12.13 hrs, Volume= 1.379 af, Atten= 78%, Lag= 9.4 min
Primary = 5.74 cfs @ 12.13 hrs, Volume= 1.379 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 482.00' Surf.Area= 2,942 sf Storage= 6,883 cf
Peak Elev= 484.95' @ 12.13 hrs Surf.Area= 17,898 sf Storage= 36,038 cf (29,155 cf above start)

Plug-Flow detention time= 817.2 min calculated for 1.221 af (89% of inflow)
Center-of-Mass det. time= 657.8 min (1,452.6 - 794.8)

Volume	Invert	Avail.Storage	Storage Description
#1	478.00'	55,539 cf	**Permanent Pool (Irregular)** Listed below (Recalc) 63,163 cf Overall - 7,624 cf Embedded = 55,539 cf
#2	480.00'	7,624 cf	**Forebay (Irregular)** Listed below (Recalc) Inside #1
		63,163 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
478.00	683	193.0	0	0	683
480.00	1,695	257.0	2,303	2,303	3,019
482.00	2,942	305.0	4,580	6,883	5,238
484.00	12,839	665.0	14,618	21,501	33,043
486.00	24,461	1,887.0	36,681	58,182	281,222
486.20	25,352	1,192.0	4,981	63,163	451,510

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.00	395	151.0	0	0	395
482.00	1,855	264.0	2,071	2,071	4,150
484.00	3,815	336.0	5,553	7,624	7,640

Device	Routing	Invert	Outlet Devices
#1	Primary	482.00'	**2.3" Horiz. CPV ORFICE** C= 0.600 Limited to weir flow at low heads
#2	Primary	486.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Primary	484.50'	**12.0" Horiz. STAND PIPE** C= 0.600 Limited to weir flow at low heads
#4	Primary	484.75'	**4.8" x 1.2" Horiz. GRATE X 5.00 columns** X 13 rows C= 0.600 in 30.0" x 30.0" Grate (42% open area) Limited to weir flow at low heads

Primary OutFlow Max=5.70 cfs @ 12.13 hrs HW=484.95' (Free Discharge)
- **1=CPV ORFICE** (Orifice Controls 0.24 cfs @ 8.27 fps)
- **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **3=STAND PIPE** (Orifice Controls 2.54 cfs @ 3.23 fps)
- **4=GRATE** (Weir Controls 2.93 cfs @ 1.46 fps)

Summary for Link 1L: OFFSITE

Inflow Area = 8.860 ac, 48.22% Impervious, Inflow Depth = 2.01" for 10 YR event
Inflow = 2.91 cfs @ 12.56 hrs, Volume= 1.481 af
Primary = 2.91 cfs @ 12.56 hrs, Volume= 1.481 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Summary for Link 2L: OFFSITE

Inflow Area = 6.808 ac, 57.41% Impervious, Inflow Depth = 2.49" for 10 YR event
Inflow = 5.91 cfs @ 12.12 hrs, Volume= 1.414 af
Primary = 5.91 cfs @ 12.12 hrs, Volume= 1.414 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Summary for Link 3L: OFFSITE

Inflow Area = 0.661 ac, 0.00% Impervious, Inflow Depth = 1.76" for 10 YR event
Inflow = 2.08 cfs @ 11.97 hrs, Volume= 0.097 af
Primary = 2.08 cfs @ 11.97 hrs, Volume= 0.097 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Summary for Link 4L: OFFSITE

Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Summary for Link T: TOTAL OFFSITE FLOWS

Inflow Area = 16.328 ac, 50.10% Impervious, Inflow Depth = 2.20" for 10 YR event
Inflow = 8.85 cfs @ 12.14 hrs, Volume= 2.991 af
Primary = 8.85 cfs @ 12.14 hrs, Volume= 2.991 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Time span=0.00-200.00 hrs, dt=0.01 hrs, 20001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS1: - Runoff Area=10,201 sf 0.00% Impervious Runoff Depth=3.87"
Flow Length=20' Slope=0.0200 '/' Tc=6.0 min CN=80 Runoff=1.58 cfs 0.076 af

SubcatchmentS10: - Runoff Area=12,518 sf 95.25% Impervious Runoff Depth=5.74"
Flow Length=175' Slope=0.0350 '/' Tc=6.0 min CN=97 Runoff=2.49 cfs 0.138 af

SubcatchmentS11: - Runoff Area=3,095 sf 42.81% Impervious Runoff Depth=4.72"
Flow Length=73' Tc=6.0 min CN=88 Runoff=0.56 cfs 0.028 af

SubcatchmentS12: - Runoff Area=3,166 sf 100.00% Impervious Runoff Depth=5.86"
Flow Length=100' Slope=0.0200 '/' Tc=6.0 min CN=98 Runoff=0.63 cfs 0.036 af

SubcatchmentS13: - Runoff Area=8,034 sf 53.50% Impervious Runoff Depth=4.94"
Flow Length=190' Tc=6.0 min CN=90 Runoff=1.49 cfs 0.076 af

SubcatchmentS14: - Runoff Area=37,414 sf 82.60% Impervious Runoff Depth=5.51"
Flow Length=146' Tc=6.0 min CN=95 Runoff=7.34 cfs 0.394 af

SubcatchmentS15: - Runoff Area=20,739 sf 56.50% Impervious Runoff Depth=4.94"
Flow Length=213' Tc=7.6 min CN=90 Runoff=3.66 cfs 0.196 af

SubcatchmentS16: - Runoff Area=25,352 sf 59.72% Impervious Runoff Depth=5.06"
Flow Length=189' Tc=6.8 min CN=91 Runoff=4.65 cfs 0.245 af

SubcatchmentS17: - Runoff Area=6,948 sf 80.70% Impervious Runoff Depth=5.51"
Flow Length=73' Tc=6.0 min CN=95 Runoff=1.36 cfs 0.073 af

SubcatchmentS18: - Runoff Area=8,324 sf 86.62% Impervious Runoff Depth=5.63"
Flow Length=115' Slope=0.0300 '/' Tc=6.0 min CN=96 Runoff=1.65 cfs 0.090 af

SubcatchmentS19: - Runoff Area=104,829 sf 40.01% Impervious Runoff Depth=4.61"
Flow Length=104' Tc=10.5 min CN=87 Runoff=16.03 cfs 0.925 af

SubcatchmentS2: - Runoff Area=77,270 sf 13.64% Impervious Runoff Depth=4.08"
Flow Length=150' Slope=0.1000 '/' Tc=6.0 min CN=82 Runoff=12.51 cfs 0.603 af

SubcatchmentS20: - Runoff Area=30,480 sf 68.96% Impervious Runoff Depth=5.17"
Flow Length=151' Slope=0.0300 '/' Tc=6.6 min CN=92 Runoff=5.69 cfs 0.301 af

SubcatchmentS21: - Runoff Area=31,238 sf 66.70% Impervious Runoff Depth=5.17"
Tc=6.0 min CN=92 Runoff=5.95 cfs 0.309 af

SubcatchmentS22: - Runoff Area=31,330 sf 51.53% Impervious Runoff Depth=4.83"
Flow Length=74' Tc=6.0 min CN=89 Runoff=5.74 cfs 0.290 af

SubcatchmentS23: - Runoff Area=3,650 sf 100.00% Impervious Runoff Depth=5.86"
Flow Length=140' Slope=0.0400 '/' Tc=6.0 min CN=98 Runoff=0.73 cfs 0.041 af

SubcatchmentS24: - Runoff Area=6,296 sf 100.00% Impervious Runoff Depth=5.86"
Flow Length=287' Slope=0.0250 '/' Tc=6.0 min CN=98 Runoff=1.26 cfs 0.071 af

SubcatchmentS25: - Runoff Area=19,939 sf 53.59% Impervious Runoff Depth=4.94"
Flow Length=348' Tc=8.1 min CN=90 Runoff=3.46 cfs 0.189 af

SubcatchmentS26: - Runoff Area=8,944 sf 92.87% Impervious Runoff Depth=5.74"
Flow Length=125' Slope=0.0200 '/' Tc=6.0 min CN=97 Runoff=1.78 cfs 0.098 af

SubcatchmentS27: - Runoff Area=28,775 sf 0.00% Impervious Runoff Depth=3.87"
Flow Length=75' Slope=0.1860 '/' Tc=6.0 min CN=80 Runoff=4.46 cfs 0.213 af

SubcatchmentS28: - Runoff Area=31,338 sf 66.49% Impervious Runoff Depth=5.17"
Flow Length=214' Tc=6.0 min CN=92 Runoff=5.97 cfs 0.310 af

SubcatchmentS29: - Runoff Area=22,990 sf 48.98% Impervious Runoff Depth=4.83"
Flow Length=254' Slope=0.0600 '/' Tc=6.0 min CN=89 Runoff=4.21 cfs 0.213 af

SubcatchmentS3: - Runoff Area=16,995 sf 88.43% Impervious Runoff Depth=5.63"
Flow Length=162' Slope=0.0400 '/' Tc=6.0 min CN=96 Runoff=3.36 cfs 0.183 af

SubcatchmentS30: - Runoff Area=5,749 sf 94.14% Impervious Runoff Depth=5.74"
Flow Length=100' Slope=0.0500 '/' Tc=6.0 min CN=97 Runoff=1.14 cfs 0.063 af

SubcatchmentS4: - Runoff Area=5,744 sf 100.00% Impervious Runoff Depth=5.86"
Flow Length=280' Slope=0.0250 '/' Tc=6.0 min CN=98 Runoff=1.15 cfs 0.064 af

SubcatchmentS5: - Runoff Area=9,406 sf 84.86% Impervious Runoff Depth=5.51"
Flow Length=200' Slope=0.0400 '/' Tc=6.0 min CN=95 Runoff=1.85 cfs 0.099 af

SubcatchmentS6: - Runoff Area=30,031 sf 76.82% Impervious Runoff Depth=5.40"
Flow Length=150' Tc=6.0 min CN=94 Runoff=5.84 cfs 0.310 af

SubcatchmentS7: - Runoff Area=51,256 sf 6.97% Impervious Runoff Depth=3.97"
Flow Length=42' Slope=0.3300 '/' Tc=6.0 min CN=81 Runoff=8.13 cfs 0.390 af

SubcatchmentS8: - Runoff Area=26,278 sf 68.24% Impervious Runoff Depth=5.17"
Flow Length=175' Tc=6.0 min CN=92 Runoff=5.01 cfs 0.260 af

SubcatchmentS9: - Runoff Area=32,931 sf 44.93% Impervious Runoff Depth=4.72"
Flow Length=55' Tc=6.0 min CN=88 Runoff=5.95 cfs 0.297 af

Pond BIO#1: SMA #3 - Bioretention Area Peak Elev=493.17' Storage=4,216 cf Inflow=5.95 cfs 0.297 af
Outflow=5.63 cfs 0.210 af

Pond BIO#2: SMA #4 - Bioretention Area Peak Elev=495.20' Storage=19,018 cf Inflow=16.03 cfs 0.925 af
Outflow=4.67 cfs 0.658 af

Pond BIO#3: SMA #5 - Bioretention Area Peak Elev=490.68' Storage=4,005 cf Inflow=5.74 cfs 0.290 af
Outflow=5.32 cfs 0.208 af

Pond CB#1: - Peak Elev=483.90' Inflow=2.99 cfs 0.164 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=2.99 cfs 0.164 af

Pond CB#10: - Peak Elev=490.21' Inflow=0.63 cfs 0.036 af
12.0" Round Culvert n=0.012 L=24.0' S=0.0479 '/' Outflow=0.63 cfs 0.036 af

Pond CB#11: - Peak Elev=491.92' Inflow=21.76 cfs 1.166 af
24.0" Round Culvert n=0.012 L=91.0' S=0.0297 '/' Outflow=21.76 cfs 1.166 af

Pond CB#13: - Peak Elev=492.61' Inflow=1.65 cfs 0.090 af
12.0" Round Culvert n=0.012 L=33.0' S=0.0621 '/' Outflow=1.65 cfs 0.090 af

Pond CB#14: - Peak Elev=498.54' Inflow=19.63 cfs 1.055 af
18.0" Round Culvert n=0.012 L=106.0' S=0.0108 '/' Outflow=19.63 cfs 1.055 af

Pond CB#15: - Peak Elev=497.28' Inflow=16.63 cfs 0.892 af
18.0" Round Culvert n=0.012 L=139.0' S=0.0083 '/' Outflow=16.63 cfs 0.892 af

Pond CB#16: - Peak Elev=496.94' Inflow=9.33 cfs 0.497 af
15.0" Round Culvert n=0.012 L=187.0' S=0.0064 '/' Outflow=9.33 cfs 0.497 af

Pond CB#17: - Peak Elev=495.60' Inflow=5.69 cfs 0.301 af
15.0" Round Culvert n=0.012 L=281.0' S=0.0050 '/' Outflow=5.69 cfs 0.301 af

Pond CB#18: - Peak Elev=491.79' Inflow=30.31 cfs 1.976 af
24.0" Round Culvert n=0.012 L=52.0' S=0.0067 '/' Outflow=30.31 cfs 1.976 af

Pond CB#19: - Peak Elev=491.25' Inflow=26.96 cfs 1.793 af
24.0" Round Culvert n=0.012 L=161.0' S=0.0050 '/' Outflow=26.96 cfs 1.793 af

Pond CB#2: - Peak Elev=483.45' Inflow=1.85 cfs 0.099 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0056 '/' Outflow=1.85 cfs 0.099 af

Pond CB#21: - Peak Elev=497.58' Inflow=5.95 cfs 0.309 af
12.0" Round Culvert n=0.012 L=91.0' S=0.0192 '/' Outflow=5.95 cfs 0.309 af

Pond CB#22: - Peak Elev=496.65' Inflow=10.08 cfs 0.967 af
15.0" Round Culvert n=0.012 L=190.0' S=0.0071 '/' Outflow=10.08 cfs 0.967 af

Pond CB#23: - Peak Elev=495.15' Inflow=4.67 cfs 0.658 af
12.0" Round Culvert n=0.012 L=140.0' S=0.0050 '/' Outflow=4.67 cfs 0.658 af

Pond CB#24: - Peak Elev=487.00' Inflow=11.34 cfs 0.611 af
18.0" Round Culvert n=0.012 L=148.0' S=0.0051 '/' Outflow=11.34 cfs 0.611 af

Pond CB#26: - Peak Elev=499.43' Inflow=20.69 cfs 1.522 af
18.0" Round Culvert n=0.012 L=114.0' S=0.0311 '/' Outflow=20.69 cfs 1.522 af

Pond CB#28: - Peak Elev=495.25' Inflow=5.97 cfs 0.310 af
12.0" Round Culvert n=0.012 L=86.0' S=0.0122 '/' Outflow=5.97 cfs 0.310 af

Pond CB#29: - Peak Elev=493.17' Inflow=5.19 cfs 0.287 af
12.0" Round Culvert n=0.012 L=21.0' S=0.0071 '/' Outflow=5.19 cfs 0.287 af

Pond CB#3: CB#3 Peak Elev=497.74' Inflow=41.09 cfs 2.112 af
24.0" Round Culvert n=0.012 L=60.0' S=0.0108 '/' Outflow=41.09 cfs 2.112 af

Pond CB#31: - Peak Elev=491.46' Inflow=1.78 cfs 0.098 af
12.0" Round Culvert n=0.012 L=37.0' S=0.0257 '/' Outflow=1.78 cfs 0.098 af

Pond CB#32: Peak Elev=494.63' Inflow=6.43 cfs 0.357 af
12.0" Round Culvert n=0.012 L=272.0' S=0.0202 '/' Outflow=6.43 cfs 0.357 af

Pond CB#33: - Peak Elev=486.72' Inflow=7.15 cfs 0.398 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0056 '/' Outflow=7.15 cfs 0.398 af

Pond CB#4: - Peak Elev=494.32' Inflow=18.78 cfs 0.917 af
18.0" Round Culvert n=0.012 L=40.0' S=0.0088 '/' Outflow=18.78 cfs 0.917 af

Pond CB#5&6: - Peak Elev=496.14' Inflow=16.30 cfs 0.780 af
18.0" Round Culvert n=0.012 L=309.5' S=0.0050 '/' Outflow=16.30 cfs 0.780 af

Pond CB#7: - Peak Elev=493.80' Inflow=10.50 cfs 0.470 af
15.0" Round Culvert n=0.012 L=109.0' S=0.0050 '/' Outflow=10.50 cfs 0.470 af

Pond SMA#2: SMA#2 Peak Elev=484.78' Storage=72,470 cf Inflow=54.16 cfs 3.190 af
Outflow=7.30 cfs 3.190 af

Pond SMA1: SMA#1 Peak Elev=485.96' Storage=57,185 cf Inflow=52.21 cfs 2.665 af
Outflow=18.61 cfs 2.665 af

Link 1L: OFFSITE Inflow=7.30 cfs 3.190 af
Primary=7.30 cfs 3.190 af

Link 2L: OFFSITE Inflow=19.27 cfs 2.741 af
Primary=19.27 cfs 2.741 af

Link 3L: OFFSITE Inflow=4.46 cfs 0.213 af
Primary=4.46 cfs 0.213 af

Link 4L: OFFSITE
Primary=0.00 cfs 0.000 af

Link T: TOTAL OFFSITE FLOWS Inflow=28.59 cfs 6.144 af
Primary=28.59 cfs 6.144 af

Total Runoff Area = 16.328 ac Runoff Volume = 6.580 af Average Runoff Depth = 4.84"
49.90% Pervious = 8.148 ac 50.10% Impervious = 8.181 ac

Summary for Subcatchment S1: -

Runoff = 1.58 cfs @ 11.97 hrs, Volume= 0.076 af, Depth= 3.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
10,201	80	>75% Grass cover, Good, HSG D
10,201		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	20	0.0200	0.11		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
3.0	20	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S10: -

Runoff = 2.49 cfs @ 11.97 hrs, Volume= 0.138 af, Depth= 5.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
11,923	98	Paved parking, HSG D
595	80	>75% Grass cover, Good, HSG D
12,518	97	Weighted Average
595		4.75% Pervious Area
11,923		95.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0350	1.54		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.3	75	0.0350	3.80		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
1.4	175	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S11: -

Runoff = 0.56 cfs @ 11.97 hrs, Volume= 0.028 af, Depth= 4.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
1,325	98	Paved parking, HSG D
1,770	80	>75% Grass cover, Good, HSG D
3,095	88	Weighted Average
1,770		57.19% Pervious Area
1,325		42.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	9	0.0400	0.12		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"
0.9	64	0.0200	1.13		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
2.1	73	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S12: -

Runoff = 0.63 cfs @ 11.97 hrs, Volume= 0.036 af, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
3,166	98	Paved parking, HSG D
3,166		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0200	1.23		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
1.4	100	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S13: -

Runoff = 1.49 cfs @ 11.97 hrs, Volume= 0.076 af, Depth= 4.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
4,298	98	Paved parking, HSG D
3,736	80	>75% Grass cover, Good, HSG D
8,034	90	Weighted Average
3,736		46.50% Pervious Area
4,298		53.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	20	0.0500	0.16		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
1.0	80	0.0300	1.38		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.4	90	0.0300	3.52		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
3.5	190	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S14: -

Runoff = 7.34 cfs @ 11.97 hrs, Volume= 0.394 af, Depth= 5.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
30,904	98	Paved parking, HSG D
6,510	80	>75% Grass cover, Good, HSG D
37,414	95	Weighted Average
6,510		17.40% Pervious Area
30,904		82.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	36	0.0050	0.58		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
2.8	18	0.0200	0.11		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.7	46	0.0200	1.05		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.3	46	0.0200	2.87		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
4.8	146	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S15: -

Runoff = 3.66 cfs @ 11.99 hrs, Volume= 0.196 af, Depth= 4.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
11,718	98	Paved parking, HSG D
9,021	80	>75% Grass cover, Good, HSG D
20,739	90	Weighted Average
9,021		43.50% Pervious Area
11,718		56.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	52	0.0200	0.13		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.6	48	0.0300	1.25		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.5	113	0.0300	3.52		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
7.6	213	Total			

Summary for Subcatchment S16: -

Runoff = 4.65 cfs @ 11.98 hrs, Volume= 0.245 af, Depth= 5.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
15,141	98	Paved parking, HSG D
10,211	80	>75% Grass cover, Good, HSG D
25,352	91	Weighted Average
10,211		40.28% Pervious Area
15,141		59.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	45	0.0200	0.13		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.6	55	0.0400	1.44		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.4	89	0.0400	4.06		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
6.8	189	Total			

Summary for Subcatchment S17: -

Runoff = 1.36 cfs @ 11.97 hrs, Volume= 0.073 af, Depth= 5.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
5,607	98	Paved parking, HSG D
1,341	80	>75% Grass cover, Good, HSG D
6,948	95	Weighted Average
1,341		19.30% Pervious Area
5,607		80.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	9	0.0400	0.12		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.56"
0.9	64	0.0200	1.13		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
2.1	73	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S18: -

Runoff = 1.65 cfs @ 11.97 hrs, Volume= 0.090 af, Depth= 5.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
7,210	98	Paved parking, HSG D
1,114	80	>75% Grass cover, Good, HSG D
8,324	96	Weighted Average
1,114		13.38% Pervious Area
7,210		86.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0300	1.45		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.1	15	0.0300	3.52		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
1.3	115	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S19: -

Runoff = 16.03 cfs @ 12.02 hrs, Volume= 0.925 af, Depth= 4.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
41,946	98	Paved parking, HSG D
62,883	80	>75% Grass cover, Good, HSG D
104,829	87	Weighted Average
62,883		59.99% Pervious Area
41,946		40.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	5	0.0200	0.68		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
9.0	78	0.0200	0.14		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.1	5	0.0200	0.68		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
1.3	16	0.1000	0.20		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
10.5	104	Total			

Summary for Subcatchment S2: -

Runoff = 12.51 cfs @ 11.97 hrs, Volume= 0.603 af, Depth= 4.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
66,730	80	>75% Grass cover, Good, HSG D
10,540	98	Paved parking, HSG D
77,270	82	Weighted Average
66,730		86.36% Pervious Area
10,540		13.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1000	0.29		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.2	50	0.1000	4.74		**Shallow Concentrated Flow, Shallow** Grassed Waterway Kv= 15.0 fps
6.0	150	Total			

Summary for Subcatchment S20: -

Runoff = 5.69 cfs @ 11.97 hrs, Volume= 0.301 af, Depth= 5.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
21,020	98	Paved parking, HSG D
9,460	80	>75% Grass cover, Good, HSG D
30,480	92	Weighted Average
9,460		31.04% Pervious Area
21,020		68.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	55	0.0300	0.16		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.6	45	0.0300	1.23		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.2	51	0.0300	3.52		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
6.6	151	Total			

Summary for Subcatchment S21: -

Runoff = 5.95 cfs @ 11.97 hrs, Volume= 0.309 af, Depth= 5.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
20,837	98	Paved parking, HSG D
10,401	80	>75% Grass cover, Good, HSG D
31,238	92	Weighted Average
10,401		33.30% Pervious Area
20,837		66.70% Impervious Area

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

Summary for Subcatchment S22: -

Runoff = 5.74 cfs @ 11.97 hrs, Volume= 0.290 af, Depth= 4.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
16,145	98	Paved parking, HSG D
15,185	80	>75% Grass cover, Good, HSG D
31,330	89	Weighted Average
15,185		48.47% Pervious Area
16,145		51.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	38	0.0050	0.58		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.1	36	0.1670	6.13		**Shallow Concentrated Flow, Shallow** Grassed Waterway Kv= 15.0 fps
1.2	74	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S23: -

Runoff = 0.73 cfs @ 11.97 hrs, Volume= 0.041 af, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
3,650	98	Paved parking, HSG D
3,650		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0400	1.62		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.2	40	0.0400	4.06		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
1.2	140	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S24: -

Runoff = 1.26 cfs @ 11.97 hrs, Volume= 0.071 af, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
6,296	98	Paved parking, HSG D
6,296		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0250	1.35		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
1.0	187	0.0250	3.21		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
2.2	287	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S25: -

Runoff = 3.46 cfs @ 11.99 hrs, Volume= 0.189 af, Depth= 4.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
10,685	98	Paved parking, HSG D
9,254	80	>75% Grass cover, Good, HSG D
19,939	90	Weighted Average
9,254		46.41% Pervious Area
10,685		53.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	41	0.0050	0.59		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
5.4	41	0.0200	0.13		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
1.5	266	0.0200	2.87		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
8.1	348	Total			

Summary for Subcatchment S26: -

Runoff = 1.78 cfs @ 11.97 hrs, Volume= 0.098 af, Depth= 5.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
8,306	98	Paved parking, HSG D
638	80	>75% Grass cover, Good, HSG D
8,944	97	Weighted Average
638		7.13% Pervious Area
8,306		92.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0200	1.23		**Sheet Flow, SHEET** Smooth surfaces n= 0.011 P2= 2.56"
0.1	25	0.0200	2.87		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
1.5	125	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S27: -

Runoff = 4.46 cfs @ 11.97 hrs, Volume= 0.213 af, Depth= 3.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
28,775	80	>75% Grass cover, Good, HSG D
28,775		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	75	0.1860	0.35		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
3.6	75	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S28: -

Runoff = 5.97 cfs @ 11.97 hrs, Volume= 0.310 af, Depth= 5.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
20,837	98	Paved parking, HSG D
10,501	80	>75% Grass cover, Good, HSG D
31,338	92	Weighted Average
10,501		33.51% Pervious Area
20,837		66.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	25	0.0050	0.54		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
2.0	19	0.0500	0.16		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
1.0	170	0.0200	2.87		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
3.8	214	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S29: -

Runoff = 4.21 cfs @ 11.97 hrs, Volume= 0.213 af, Depth= 4.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
11,260	98	Paved parking, HSG D
11,730	80	>75% Grass cover, Good, HSG D
22,990	89	Weighted Average
11,730		51.02% Pervious Area
11,260		48.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	65	0.0600	0.22		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.4	35	0.0600	1.55		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.5	154	0.0600	4.97		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
5.9	254	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S3: -

Runoff = 3.36 cfs @ 11.97 hrs, Volume= 0.183 af, Depth= 5.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
15,028	98	Paved parking, HSG D
1,967	80	>75% Grass cover, Good, HSG D
16,995	96	Weighted Average
1,967		11.57% Pervious Area
15,028		88.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0400	1.62		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.3	62	0.0400	4.06		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
1.3	162	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S30: -

Runoff = 1.14 cfs @ 11.97 hrs, Volume= 0.063 af, Depth= 5.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
5,412	98	Paved parking, HSG D
337	80	>75% Grass cover, Good, HSG D
5,749	97	Weighted Average
337		5.86% Pervious Area
5,412		94.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0500	1.77		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.9	100	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S4: -

Runoff = 1.15 cfs @ 11.97 hrs, Volume= 0.064 af, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
5,744	98	Paved parking, HSG D
5,744		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0250	1.35		**Sheet Flow, SHEET** Smooth surfaces n= 0.011 P2= 2.56"
0.9	180	0.0250	3.21		**Shallow Concentrated Flow, SHALLOW** Paved Kv= 20.3 fps
2.1	280	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S5: -

Runoff = 1.85 cfs @ 11.97 hrs, Volume= 0.099 af, Depth= 5.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
1,424	80	>75% Grass cover, Good, HSG D
7,982	98	Paved parking, HSG D
9,406	95	Weighted Average
1,424		15.14% Pervious Area
7,982		84.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0400	1.62		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.4	100	0.0400	4.06		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
1.4	200	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S6: -

Runoff = 5.84 cfs @ 11.97 hrs, Volume= 0.310 af, Depth= 5.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
23,071	98	Paved parking, HSG D
6,960	80	>75% Grass cover, Good, HSG D
30,031	94	Weighted Average
6,960		23.18% Pervious Area
23,071		76.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	34	0.0050	0.57		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
1.4	12	0.0500	0.14		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.8	54	0.0200	1.09		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
3.5	150	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S7: -

Runoff = 8.13 cfs @ 11.97 hrs, Volume= 0.390 af, Depth= 3.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
47,682	80	>75% Grass cover, Good, HSG D
3,574	98	Paved parking, HSG D
51,256	81	Weighted Average
47,682		93.03% Pervious Area
3,574		6.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	42	0.3300	0.39		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
1.8	42	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S8: -

Runoff = 5.01 cfs @ 11.97 hrs, Volume= 0.260 af, Depth= 5.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
17,932	98	Paved parking, HSG D
8,346	80	>75% Grass cover, Good, HSG D
26,278	92	Weighted Average
8,346		31.76% Pervious Area
17,932		68.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	36	0.3300	0.38		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
0.8	64	0.0350	1.41		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
0.3	75	0.0350	3.80		**Shallow Concentrated Flow, Shallow** Paved Kv= 20.3 fps
2.7	175	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S9: -

Runoff = 5.95 cfs @ 11.97 hrs, Volume= 0.297 af, Depth= 4.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=6.10"

Area (sf)	CN	Description
14,795	98	Paved parking, HSG D
18,136	80	>75% Grass cover, Good, HSG D
32,931	88	Weighted Average
18,136		55.07% Pervious Area
14,795		44.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	35	0.0100	0.76		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 2.56"
1.2	20	0.2000	0.28		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 2.56"
2.0	55	Total, Increased to minimum Tc = 6.0 min			

Summary for Pond BIO#1: SMA #3 - Bioretention Area

Inflow Area = 0.756 ac, 44.93% Impervious, Inflow Depth = 4.72" for 100 YR event
Inflow = 5.95 cfs @ 11.97 hrs, Volume= 0.297 af
Outflow = 5.63 cfs @ 11.99 hrs, Volume= 0.210 af, Atten= 5%, Lag= 1.5 min
Primary = 5.63 cfs @ 11.99 hrs, Volume= 0.210 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 493.17' @ 11.99 hrs Surf.Area= 8,975 sf Storage= 4,216 cf

Plug-Flow detention time= 156.0 min calculated for 0.210 af (71% of inflow)
Center-of-Mass det. time= 60.8 min (848.5 - 787.7)

Volume	Invert	Avail.Storage	Storage Description
#1	488.80'	1,011 cf	**Drainage Layer (Irregular)** Listed below (Recalc) 2,588 cf Overall - 59 cf Embedded = 2,529 cf x 40.0% Voids
#2	489.80'	1,294 cf	**Soil Media (Irregular)** Listed below (Recalc) 6,470 cf Overall x 20.0% Voids
#3	492.55'	3,437 cf	**Ponding Layer (Irregular)** Listed below (Recalc)
#4	489.13'	59 cf	**8.0" Round Pipe Storage** Inside #1 L= 170.0'
		5,802 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
488.80	2,588	392.0	0	0	2,588
489.80	2,588	392.0	2,588	2,588	2,980

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
489.80	2,588	392.0	0	0	2,588
492.30	2,588	392.0	6,470	6,470	3,568

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
492.55	2,587	392.0	0	0	2,587
493.05	3,182	401.0	1,440	1,440	3,189
493.50	5,826	431.0	1,997	3,437	5,184

Device	Routing	Invert	Outlet Devices
#1	Device 2	493.05'	**1.8" x 4.2" Horiz. Orifice/Grate X 65.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	488.80'	**12.0" Round CMP_Round 12"** L= 89.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 488.80' / 488.35' S= 0.0051 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=5.64 cfs @ 11.99 hrs HW=493.17' (Free Discharge)
└─**2=CMP_Round 12"** (Passes 5.64 cfs of 5.87 cfs potential flow)
  └─**1=Orifice/Grate** (Orifice Controls 5.64 cfs @ 1.65 fps)

Summary for Pond BIO#2: SMA #4 - Bioretention Area

Inflow Area = 2.407 ac, 40.01% Impervious, Inflow Depth = 4.61" for 100 YR event
Inflow = 16.03 cfs @ 12.02 hrs, Volume= 0.925 af
Outflow = 4.67 cfs @ 12.21 hrs, Volume= 0.658 af, Atten= 71%, Lag= 11.3 min
Primary = 4.67 cfs @ 12.21 hrs, Volume= 0.658 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 495.20' @ 12.21 hrs Surf.Area= 27,792 sf Storage= 19,018 cf

Plug-Flow detention time= 164.6 min calculated for 0.658 af (71% of inflow)
Center-of-Mass det. time= 69.7 min (864.7 - 795.1)

Volume	Invert	Avail.Storage	Storage Description
#1	494.00'	22,299 cf	**Ponding Area (Irregular)** Listed below (Recalc)
#2	491.50'	4,018 cf	**Soil Media (Irregular)** Listed below (Recalc) 20,088 cf Overall x 20.0% Voids
#3	490.50'	3,192 cf	**Drainage Layer (Irregular)** Listed below (Recalc) 8,035 cf Overall - 56 cf Embedded = 7,979 cf x 40.0% Voids
#4	490.66'	56 cf	**8.0" Round Pipe Storage** Inside #3 L= 160.0'
		29,564 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
494.00	8,035	385.0	0	0	8,035
496.00	14,587	479.9	22,299	22,299	14,624

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
491.50	8,035	385.0	0	0	8,035
494.00	8,035	385.0	20,088	20,088	8,998

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.50	8,035	385.0	0	0	8,035
491.50	8,035	385.0	8,035	8,035	8,420

Device	Routing	Invert	Outlet Devices
#1	Device 2	494.50'	**4.8" x 1.2" Horiz. Orifice/Grate X 65.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	492.25'	**12.0" Round CMP_Round 12"** L= 90.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 492.25' / 491.75' S= 0.0056 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=4.67 cfs @ 12.21 hrs HW=495.20' (Free Discharge)
└─**2=CMP_Round 12"** (Inlet Controls 4.67 cfs @ 5.95 fps)
  └─**1=Orifice/Grate** (Passes 4.67 cfs of 10.45 cfs potential flow)

Summary for Pond BIO#3: SMA #5 - Bioretention Area

Inflow Area = 0.719 ac, 51.53% Impervious, Inflow Depth = 4.83" for 100 YR event
Inflow = 5.74 cfs @ 11.97 hrs, Volume= 0.290 af
Outflow = 5.32 cfs @ 12.00 hrs, Volume= 0.208 af, Atten= 7%, Lag= 1.8 min
Primary = 5.32 cfs @ 12.00 hrs, Volume= 0.208 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 490.68' @ 12.00 hrs Surf.Area= 7,534 sf Storage= 4,005 cf

Plug-Flow detention time= 153.2 min calculated for 0.208 af (72% of inflow)
Center-of-Mass det. time= 59.8 min (844.1 - 784.4)

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	7,424 cf	**Ponding Area (Irregular)** Listed below (Recalc)
#2	487.50'	1,256 cf	**Soil Media (Irregular)** Listed below (Recalc) 6,278 cf Overall x 20.0% Voids
#3	486.50'	981 cf	**Drainage Layer (Irregular)** Listed below (Recalc) 2,512 cf Overall - 59 cf Embedded = 2,453 cf x 40.0% Voids
#4	486.66'	59 cf	**8.0" Round Pipe Storage** Inside #3 L= 170.0'
		9,720 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	2,511	381.0	0	0	2,511
491.00	2,511	381.0	2,511	2,511	2,892
492.00	7,803	439.0	4,913	7,424	6,699

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
487.50	2,511	385.0	0	0	2,511
490.00	2,511	385.0	6,278	6,278	3,474

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
486.50	2,512	380.0	0	0	2,512
487.50	2,512	380.0	2,512	2,512	2,892

Device	Routing	Invert	Outlet Devices
#1	Primary	486.50'	**12.0" Round CMP_Round 12"** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 486.50' / 486.15' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	490.50'	**4.8" x 1.2" Horiz. Orifice/Grate X 65.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.31 cfs @ 12.00 hrs HW=490.68' (Free Discharge)
└─**1=CMP_Round 12"** (Passes 5.31 cfs of 5.73 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 5.31 cfs @ 2.04 fps)

Summary for Pond CB#1: -

Inflow Area = 0.348 ac, 90.60% Impervious, Inflow Depth = 5.64" for 100 YR event
Inflow = 2.99 cfs @ 11.97 hrs, Volume= 0.164 af
Outflow = 2.99 cfs @ 11.97 hrs, Volume= 0.164 af, Atten= 0%, Lag= 0.0 min
Primary = 2.99 cfs @ 11.97 hrs, Volume= 0.164 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 483.90' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	482.40'	**12.0" Round CMP_Round 12"** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 482.40' / 482.30' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.99 cfs @ 11.97 hrs HW=483.90' (Free Discharge)
└─**1=CMP_Round 12"** (Inlet Controls 2.99 cfs @ 3.80 fps)

Summary for Pond CB#10: -

Inflow Area = 0.073 ac,100.00% Impervious, Inflow Depth = 5.86" for 100 YR event
Inflow = 0.63 cfs @ 11.97 hrs, Volume= 0.036 af
Outflow = 0.63 cfs @ 11.97 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min
Primary = 0.63 cfs @ 11.97 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 490.21' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	489.75'	**12.0" Round CMP_Round 12"** L= 24.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.75' / 488.60' S= 0.0479 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.63 cfs @ 11.97 hrs HW=490.21' (Free Discharge)
└─**1=CMP_Round 12"** (Inlet Controls 0.63 cfs @ 1.81 fps)

Summary for Pond CB#11: -

Inflow Area = 2.642 ac, 72.91% Impervious, Inflow Depth = 5.30" for 100 YR event
Inflow = 21.76 cfs @ 11.97 hrs, Volume= 1.166 af
Outflow = 21.76 cfs @ 11.97 hrs, Volume= 1.166 af, Atten= 0%, Lag= 0.0 min
Primary = 21.76 cfs @ 11.97 hrs, Volume= 1.166 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 491.92' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	487.60'	**24.0" Round CMP_Round 24"** L= 91.0' CMP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 487.60' / 484.90' S= 0.0297 '/' Cc= 0.900
n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=21.73 cfs @ 11.97 hrs HW=491.91' (Free Discharge)
└**1=CMP_Round 24"** (Inlet Controls 21.73 cfs @ 6.92 fps)

Summary for Pond CB#13: -

Inflow Area = 0.191 ac, 86.62% Impervious, Inflow Depth = 5.63" for 100 YR event
Inflow = 1.65 cfs @ 11.97 hrs, Volume= 0.090 af
Outflow = 1.65 cfs @ 11.97 hrs, Volume= 0.090 af, Atten= 0%, Lag= 0.0 min
Primary = 1.65 cfs @ 11.97 hrs, Volume= 0.090 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 492.61' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	491.80'	**12.0" Round CMP_Round 12"** L= 33.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 491.80' / 489.75' S= 0.0621 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.64 cfs @ 11.97 hrs HW=492.61' (Free Discharge)
└**1=CMP_Round 12"** (Inlet Controls 1.64 cfs @ 2.42 fps)

Summary for Pond CB#14: -

Inflow Area = 2.385 ac, 73.59% Impervious, Inflow Depth = 5.31" for 100 YR event
Inflow = 19.63 cfs @ 11.97 hrs, Volume= 1.055 af
Outflow = 19.63 cfs @ 11.97 hrs, Volume= 1.055 af, Atten= 0%, Lag= 0.0 min
Primary = 19.63 cfs @ 11.97 hrs, Volume= 1.055 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 498.54' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	489.25'	**18.0" Round CMP_Round 18"** L= 106.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.25' / 488.10' S= 0.0108 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=19.61 cfs @ 11.97 hrs HW=498.52' (Free Discharge)
└**1=CMP_Round 18"** (Inlet Controls 19.61 cfs @ 11.10 fps)

Summary for Pond CB#15: -

Inflow Area = 2.035 ac, 71.80% Impervious, Inflow Depth = 5.26" for 100 YR event
Inflow = 16.63 cfs @ 11.97 hrs, Volume= 0.892 af
Outflow = 16.63 cfs @ 11.97 hrs, Volume= 0.892 af, Atten= 0%, Lag= 0.0 min
Primary = 16.63 cfs @ 11.97 hrs, Volume= 0.892 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 497.28' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	490.40'	**18.0" Round CMP_Round 18"** L= 139.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 490.40' / 489.25' S= 0.0083 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=16.61 cfs @ 11.97 hrs HW=497.26' (Free Discharge)
└**1=CMP_Round 18"** (Inlet Controls 16.61 cfs @ 9.40 fps)

Summary for Pond CB#16: -

Inflow Area = 1.176 ac, 63.92% Impervious, Inflow Depth = 5.08" for 100 YR event
Inflow = 9.33 cfs @ 11.98 hrs, Volume= 0.497 af
Outflow = 9.33 cfs @ 11.98 hrs, Volume= 0.497 af, Atten= 0%, Lag= 0.0 min
Primary = 9.33 cfs @ 11.98 hrs, Volume= 0.497 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 496.94' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	491.85'	**15.0" Round CMP_Round 15"** L= 187.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 491.85' / 490.65' S= 0.0064 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=9.32 cfs @ 11.98 hrs HW=496.93' (Free Discharge)
└**1=CMP_Round 15"** (Barrel Controls 9.32 cfs @ 7.60 fps)

Summary for Pond CB#17: -

Inflow Area = 0.700 ac, 68.96% Impervious, Inflow Depth = 5.17" for 100 YR event
Inflow = 5.69 cfs @ 11.97 hrs, Volume= 0.301 af
Outflow = 5.69 cfs @ 11.97 hrs, Volume= 0.301 af, Atten= 0%, Lag= 0.0 min
Primary = 5.69 cfs @ 11.97 hrs, Volume= 0.301 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 495.60' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	493.25'	**15.0" Round CMP_Round 15"** L= 281.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 493.25' / 491.85' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=5.68 cfs @ 11.97 hrs HW=495.59' (Free Discharge)
└**1=CMP_Round 15"** (Barrel Controls 5.68 cfs @ 4.63 fps)

Summary for Pond CB#18: -

Inflow Area = 5.666 ac, 54.83% Impervious, Inflow Depth = 4.18" for 100 YR event
Inflow = 30.31 cfs @ 11.97 hrs, Volume= 1.976 af
Outflow = 30.31 cfs @ 11.97 hrs, Volume= 1.976 af, Atten= 0%, Lag= 0.0 min
Primary = 30.31 cfs @ 11.97 hrs, Volume= 1.976 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 491.79' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	484.35'	**24.0" Round CMP_Round 24"** L= 52.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 484.35' / 484.00' S= 0.0067 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=30.26 cfs @ 11.97 hrs HW=491.77' (Free Discharge)
└─**1=CMP_Round 24"** (Inlet Controls 30.26 cfs @ 9.63 fps)

Summary for Pond CB#19: -

Inflow Area = 5.276 ac, 52.35% Impervious, Inflow Depth = 4.08" for 100 YR event
Inflow = 26.96 cfs @ 11.98 hrs, Volume= 1.793 af
Outflow = 26.96 cfs @ 11.98 hrs, Volume= 1.793 af, Atten= 0%, Lag= 0.0 min
Primary = 26.96 cfs @ 11.98 hrs, Volume= 1.793 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 491.25' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	485.15'	**24.0" Round CMP_Round 24"** L= 161.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 485.15' / 484.35' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=26.92 cfs @ 11.98 hrs HW=491.23' (Free Discharge)
└─**1=CMP_Round 24"** (Inlet Controls 26.92 cfs @ 8.57 fps)

Summary for Pond CB#2: -

Inflow Area = 0.216 ac, 84.86% Impervious, Inflow Depth = 5.51" for 100 YR event
Inflow = 1.85 cfs @ 11.97 hrs, Volume= 0.099 af
Outflow = 1.85 cfs @ 11.97 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.0 min
Primary = 1.85 cfs @ 11.97 hrs, Volume= 0.099 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 483.45' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	482.50'	**12.0" Round CMP_Round 12"** L= 18.0' CMP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 482.50' / 482.40' S= 0.0056 '/' Cc= 0.900
n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.84 cfs @ 11.97 hrs HW=483.45' (Free Discharge)
└**1=CMP_Round 12"** (Barrel Controls 1.84 cfs @ 3.08 fps)

Summary for Pond CB#21: -

Inflow Area = 0.717 ac, 66.70% Impervious, Inflow Depth = 5.17" for 100 YR event
Inflow = 5.95 cfs @ 11.97 hrs, Volume= 0.309 af
Outflow = 5.95 cfs @ 11.97 hrs, Volume= 0.309 af, Atten= 0%, Lag= 0.0 min
Primary = 5.95 cfs @ 11.97 hrs, Volume= 0.309 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 497.58' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	493.10'	**12.0" Round CMP_Round 12"** L= 91.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 493.10' / 491.35' S= 0.0192 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=5.94 cfs @ 11.97 hrs HW=497.57' (Free Discharge)
└**1=CMP_Round 12"** (Inlet Controls 5.94 cfs @ 7.57 fps)

Summary for Pond CB#22: -

Inflow Area = 3.124 ac, 46.14% Impervious, Inflow Depth = 3.71" for 100 YR event
Inflow = 10.08 cfs @ 11.97 hrs, Volume= 0.967 af
Outflow = 10.08 cfs @ 11.97 hrs, Volume= 0.967 af, Atten= 0%, Lag= 0.0 min
Primary = 10.08 cfs @ 11.97 hrs, Volume= 0.967 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 496.65' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	490.80'	**15.0" Round CMP_Round 15"** L= 190.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 490.80' / 489.45' S= 0.0071 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=10.06 cfs @ 11.97 hrs HW=496.62' (Free Discharge)
└**1=CMP_Round 15"** (Barrel Controls 10.06 cfs @ 8.20 fps)

Summary for Pond CB#23: -

Inflow Area = 2.407 ac, 40.01% Impervious, Inflow Depth = 3.28" for 100 YR event
Inflow = 4.67 cfs @ 12.21 hrs, Volume= 0.658 af
Outflow = 4.67 cfs @ 12.21 hrs, Volume= 0.658 af, Atten= 0%, Lag= 0.0 min
Primary = 4.67 cfs @ 12.21 hrs, Volume= 0.658 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 495.15' @ 12.21 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	491.75'	**12.0" Round CMP_Round 12"** L= 140.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 491.75' / 491.05' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=4.67 cfs @ 12.21 hrs HW=495.15' (Free Discharge)
└**1=CMP_Round 12"** (Barrel Controls 4.67 cfs @ 5.95 fps)

Summary for Pond CB#24: -

Inflow Area = 1.419 ac, 65.02% Impervious, Inflow Depth = 5.17" for 100 YR event
Inflow = 11.34 cfs @ 11.97 hrs, Volume= 0.611 af
Outflow = 11.34 cfs @ 11.97 hrs, Volume= 0.611 af, Atten= 0%, Lag= 0.0 min
Primary = 11.34 cfs @ 11.97 hrs, Volume= 0.611 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 487.00' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	483.40'	**18.0" Round Culvert** L= 148.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 483.40' / 482.65' S= 0.0051 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=11.32 cfs @ 11.97 hrs HW=486.99' (Free Discharge)
└**1=Culvert** (Inlet Controls 11.32 cfs @ 6.41 fps)

Summary for Pond CB#26: -

Inflow Area = 4.425 ac, 51.24% Impervious, Inflow Depth = 4.13" for 100 YR event
Inflow = 20.69 cfs @ 11.97 hrs, Volume= 1.522 af
Outflow = 20.69 cfs @ 11.97 hrs, Volume= 1.522 af, Atten= 0%, Lag= 0.0 min
Primary = 20.69 cfs @ 11.97 hrs, Volume= 1.522 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 499.43' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	489.20'	**18.0" Round CMP_Round 18"** L= 114.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.20' / 485.65' S= 0.0311 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=20.65 cfs @ 11.97 hrs HW=499.40' (Free Discharge)
└**1=CMP_Round 18"** (Inlet Controls 20.65 cfs @ 11.69 fps)

Summary for Pond CB#28: -

Inflow Area = 0.719 ac, 66.49% Impervious, Inflow Depth = 5.17" for 100 YR event
Inflow = 5.97 cfs @ 11.97 hrs, Volume= 0.310 af
Outflow = 5.97 cfs @ 11.97 hrs, Volume= 0.310 af, Atten= 0%, Lag= 0.0 min
Primary = 5.97 cfs @ 11.97 hrs, Volume= 0.310 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 495.25' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	490.75'	**12.0" Round CMP_Round 12"** L= 86.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 490.75' / 489.70' S= 0.0122 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=5.96 cfs @ 11.97 hrs HW=495.24' (Free Discharge)
└─**1=CMP_Round 12"** (Inlet Controls 5.96 cfs @ 7.59 fps)

Summary for Pond CB#29: -

Inflow Area = 0.663 ac, 65.75% Impervious, Inflow Depth = 5.19" for 100 YR event
Inflow = 5.19 cfs @ 11.98 hrs, Volume= 0.287 af
Outflow = 5.19 cfs @ 11.98 hrs, Volume= 0.287 af, Atten= 0%, Lag= 0.0 min
Primary = 5.19 cfs @ 11.98 hrs, Volume= 0.287 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 493.17' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	489.65'	**12.0" Round CMP_Round 12"** L= 21.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.65' / 489.50' S= 0.0071 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=5.18 cfs @ 11.98 hrs HW=493.16' (Free Discharge)
└─**1=CMP_Round 12"** (Inlet Controls 5.18 cfs @ 6.60 fps)

Summary for Pond CB#3: CB#3

Inflow Area = 5.050 ac, 69.54% Impervious, Inflow Depth = 5.02" for 100 YR event
Inflow = 41.09 cfs @ 11.97 hrs, Volume= 2.112 af
Outflow = 41.09 cfs @ 11.97 hrs, Volume= 2.112 af, Atten= 0%, Lag= 0.0 min
Primary = 41.09 cfs @ 11.97 hrs, Volume= 2.112 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 497.74' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	484.90'	**24.0" Round CMP_Round 24"** L= 60.0' CMP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 484.90' / 484.25' S= 0.0108 '/' Cc= 0.900
n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=41.04 cfs @ 11.97 hrs HW=497.71' (Free Discharge)
└**1=CMP_Round 24"** (Inlet Controls 41.04 cfs @ 13.06 fps)

Summary for Pond CB#31: -

Inflow Area = 0.205 ac, 92.87% Impervious, Inflow Depth = 5.74" for 100 YR event
Inflow = 1.78 cfs @ 11.97 hrs, Volume= 0.098 af
Outflow = 1.78 cfs @ 11.97 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.0 min
Primary = 1.78 cfs @ 11.97 hrs, Volume= 0.098 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 491.46' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	490.60'	**12.0" Round CMP_Round 12"** L= 37.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 490.60' / 489.65' S= 0.0257 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.77 cfs @ 11.97 hrs HW=491.45' (Free Discharge)
└**1=CMP_Round 12"** (Inlet Controls 1.77 cfs @ 2.48 fps)

Summary for Pond CB#32:

Inflow Area = 0.808 ac, 71.88% Impervious, Inflow Depth = 5.31" for 100 YR event
Inflow = 6.43 cfs @ 11.98 hrs, Volume= 0.357 af
Outflow = 6.43 cfs @ 11.98 hrs, Volume= 0.357 af, Atten= 0%, Lag= 0.0 min
Primary = 6.43 cfs @ 11.98 hrs, Volume= 0.357 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 494.63' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	489.50'	**12.0" Round CMP_Round 12"** L= 272.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.50' / 484.00' S= 0.0202 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=6.42 cfs @ 11.98 hrs HW=494.62' (Free Discharge)
└**1=CMP_Round 12"** (Inlet Controls 6.42 cfs @ 8.17 fps)

Summary for Pond CB#33: -

Inflow Area = 0.891 ac, 74.52% Impervious, Inflow Depth = 5.36" for 100 YR event
Inflow = 7.15 cfs @ 11.98 hrs, Volume= 0.398 af
Outflow = 7.15 cfs @ 11.98 hrs, Volume= 0.398 af, Atten= 0%, Lag= 0.0 min
Primary = 7.15 cfs @ 11.98 hrs, Volume= 0.398 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 486.72' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	483.75'	**15.0" Round CMP_Round 15"** L= 18.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 483.75' / 483.65' S= 0.0056 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=7.14 cfs @ 11.98 hrs HW=486.71' (Free Discharge)
└─**1=CMP_Round 15"** (Inlet Controls 7.14 cfs @ 5.81 fps)

Summary for Pond CB#4: -

Inflow Area = 2.336 ac, 66.55% Impervious, Inflow Depth = 4.71" for 100 YR event
Inflow = 18.78 cfs @ 11.97 hrs, Volume= 0.917 af
Outflow = 18.78 cfs @ 11.97 hrs, Volume= 0.917 af, Atten= 0%, Lag= 0.0 min
Primary = 18.78 cfs @ 11.97 hrs, Volume= 0.917 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 494.32' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	485.75'	**18.0" Round CMP_Round 18"** L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 485.75' / 485.40' S= 0.0088 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=18.75 cfs @ 11.97 hrs HW=494.29' (Free Discharge)
└─**1=CMP_Round 18"** (Inlet Controls 18.75 cfs @ 10.61 fps)

Summary for Pond CB#5&6: -

Inflow Area = 2.049 ac, 62.53% Impervious, Inflow Depth = 4.57" for 100 YR event
Inflow = 16.30 cfs @ 11.97 hrs, Volume= 0.780 af
Outflow = 16.30 cfs @ 11.97 hrs, Volume= 0.780 af, Atten= 0%, Lag= 0.0 min
Primary = 16.30 cfs @ 11.97 hrs, Volume= 0.780 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 496.14' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	487.30'	**18.0" Round CMP_Round 18"** L= 309.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 487.30' / 485.75' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=16.27 cfs @ 11.97 hrs HW=496.10' (Free Discharge)
└─**1=CMP_Round 18"** (Barrel Controls 16.27 cfs @ 9.21 fps)

Summary for Pond CB#7: -

Inflow Area = 1.359 ac, 55.27% Impervious, Inflow Depth = 4.15" for 100 YR event
Inflow = 10.50 cfs @ 11.98 hrs, Volume= 0.470 af
Outflow = 10.50 cfs @ 11.98 hrs, Volume= 0.470 af, Atten= 0%, Lag= 0.0 min
Primary = 10.50 cfs @ 11.98 hrs, Volume= 0.470 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 493.80' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	488.10'	**15.0" Round CMP_Round 15"** L= 109.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 488.10' / 487.55' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=10.50 cfs @ 11.98 hrs HW=493.79' (Free Discharge)
└**1=CMP_Round 15"** (Inlet Controls 10.50 cfs @ 8.56 fps)

Summary for Pond SMA#2: SMA#2

Inflow Area = 8.860 ac, 48.22% Impervious, Inflow Depth = 4.32" for 100 YR event
Inflow = 54.16 cfs @ 11.97 hrs, Volume= 3.190 af
Outflow = 7.30 cfs @ 12.72 hrs, Volume= 3.190 af, Atten= 87%, Lag= 44.8 min
Primary = 7.30 cfs @ 12.72 hrs, Volume= 3.190 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 478.00' Surf.Area= 2,870 sf Storage= 7,302 cf
Peak Elev= 484.78' @ 12.72 hrs Surf.Area= 16,961 sf Storage= 72,470 cf (65,168 cf above start)

Plug-Flow detention time= 482.6 min calculated for 3.022 af (95% of inflow)
Center-of-Mass det. time= 420.6 min (1,221.5 - 800.9)

Volume	Invert	Avail.Storage	Storage Description
#1	474.00'	90,867 cf	**Permanent Pool (Irregular)** Listed below (Recalc) 96,891 cf Overall - 6,024 cf Embedded = 90,867 cf
#2	481.00'	6,024 cf	**Forebay (Irregular)** Listed below (Recalc) Inside #1
		96,891 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
474.00	870	185.0	0	0	870
476.00	1,830	247.0	2,641	2,641	3,045
478.00	2,870	273.0	4,661	7,302	4,240
480.00	8,040	472.0	10,476	17,778	16,061
482.00	10,690	513.0	18,667	36,445	19,422
484.00	13,580	555.0	24,212	60,658	23,148
486.00	23,070	829.0	36,233	96,891	53,357

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
481.00	577	154.0	0	0	577
482.00	1,066	173.0	809	809	1,098
484.00	3,478	349.0	4,313	5,122	8,427
484.25	3,742	354.0	902	6,024	8,720

Device	Routing	Invert	Outlet Devices
#1	Primary	478.00'	**2.0" Vert. CPV** C= 0.600 Limited to weir flow at low heads
#2	Primary	481.50'	**12.0" Horiz. STANDPIPE** C= 0.600 Limited to weir flow at low heads
#3	Primary	484.75'	**1.2" x 4.8" Horiz. GRATE X 13.00 columns** X 5 rows C= 0.600 in 30.0" x 30.0" Grate (42% open area) Limited to weir flow at low heads
#4	Primary	485.50'	**10.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=7.25 cfs @ 12.72 hrs HW=484.78' (Free Discharge)
- **1=CPV** (Orifice Controls 0.27 cfs @ 12.46 fps)
- **2=STANDPIPE** (Orifice Controls 6.84 cfs @ 8.71 fps)
- **3=GRATE** (Weir Controls 0.13 cfs @ 0.52 fps)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond SMA1: SMA#1

Inflow Area = 6.574 ac, 59.46% Impervious, Inflow Depth = 4.86" for 100 YR event
Inflow = 52.21 cfs @ 11.97 hrs, Volume= 2.665 af
Outflow = 18.61 cfs @ 12.09 hrs, Volume= 2.665 af, Atten= 64%, Lag= 7.0 min
Primary = 18.61 cfs @ 12.09 hrs, Volume= 2.665 af

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 482.00' Surf.Area= 2,942 sf Storage= 6,883 cf
Peak Elev= 485.96' @ 12.09 hrs Surf.Area= 24,186 sf Storage= 57,185 cf (50,302 cf above start)

Plug-Flow detention time= 443.4 min calculated for 2.507 af (94% of inflow)
Center-of-Mass det. time= 374.5 min (1,152.7 - 778.2)

Volume	Invert	Avail.Storage	Storage Description
#1	478.00'	55,539 cf	**Permanent Pool (Irregular)** Listed below (Recalc) 63,163 cf Overall - 7,624 cf Embedded = 55,539 cf
#2	480.00'	7,624 cf	**Forebay (Irregular)** Listed below (Recalc) Inside #1
		63,163 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
478.00	683	193.0	0	0	683
480.00	1,695	257.0	2,303	2,303	3,019
482.00	2,942	305.0	4,580	6,883	5,238
484.00	12,839	665.0	14,618	21,501	33,043
486.00	24,461	1,887.0	36,681	58,182	281,222
486.20	25,352	1,192.0	4,981	63,163	451,510

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.00	395	151.0	0	0	395
482.00	1,855	264.0	2,071	2,071	4,150
484.00	3,815	336.0	5,553	7,624	7,640

Device	Routing	Invert	Outlet Devices
#1	Primary	482.00'	**2.3" Horiz. CPV ORFICE** C= 0.600 Limited to weir flow at low heads
#2	Primary	486.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Primary	484.50'	**12.0" Horiz. STAND PIPE** C= 0.600 Limited to weir flow at low heads
#4	Primary	484.75'	**4.8" x 1.2" Horiz. GRATE X 5.00 columns** X 13 rows C= 0.600 in 30.0" x 30.0" Grate (42% open area) Limited to weir flow at low heads

Primary OutFlow Max=18.61 cfs @ 12.09 hrs HW=485.96' (Free Discharge)
- **1=CPV ORFICE** (Orifice Controls 0.28 cfs @ 9.58 fps)
- **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **3=STAND PIPE** (Orifice Controls 4.57 cfs @ 5.82 fps)
- **4=GRATE** (Orifice Controls 13.76 cfs @ 5.29 fps)

Summary for Link 1L: OFFSITE

Inflow Area = 8.860 ac, 48.22% Impervious, Inflow Depth = 4.32" for 100 YR event
Inflow = 7.30 cfs @ 12.72 hrs, Volume= 3.190 af
Primary = 7.30 cfs @ 12.72 hrs, Volume= 3.190 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Summary for Link 2L: OFFSITE

Inflow Area = 6.808 ac, 57.41% Impervious, Inflow Depth = 4.83" for 100 YR event
Inflow = 19.27 cfs @ 12.06 hrs, Volume= 2.741 af
Primary = 19.27 cfs @ 12.06 hrs, Volume= 2.741 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Summary for Link 3L: OFFSITE

Inflow Area = 0.661 ac, 0.00% Impervious, Inflow Depth = 3.87" for 100 YR event
Inflow = 4.46 cfs @ 11.97 hrs, Volume= 0.213 af
Primary = 4.46 cfs @ 11.97 hrs, Volume= 0.213 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Summary for Link 4L: OFFSITE

Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Summary for Link T: TOTAL OFFSITE FLOWS

Inflow Area = 16.328 ac, 50.10% Impervious, Inflow Depth = 4.52" for 100 YR event
Inflow = 28.59 cfs @ 12.02 hrs, Volume= 6.144 af
Primary = 28.59 cfs @ 12.02 hrs, Volume= 6.144 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

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14 Subcat S12: -
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15 Subcat S14: -
15 Subcat S15: -
16 Subcat S16: -
16 Subcat S17: -
17 Subcat S18: -
17 Subcat S19: -
18 Subcat S2: -
18 Subcat S20: -
19 Subcat S21: -
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20 Subcat S24: -
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21 Subcat S26: -
21 Subcat S27: -
22 Subcat S28: -
22 Subcat S29: -
23 Subcat S3: -
23 Subcat S30: -
24 Subcat S4: -
24 Subcat S5: -
24 Subcat S6: -
25 Subcat S7: -
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26 Subcat S9: -
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30 Pond CB#10: -
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32 Pond CB#17: -
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33 Pond CB#19: -
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51 Subcat S19: -
52 Subcat S2: -
52 Subcat S20: -
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53 Subcat S23: -

54 Subcat S24: -
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84 Subcat S16: -
84 Subcat S17: -
85 Subcat S18: -
85 Subcat S19: -
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86 Subcat S20: -
87 Subcat S21: -
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90 Subcat S29: -
91 Subcat S3: -
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99 Pond CB#13: -
99 Pond CB#14: -
99 Pond CB#15: -
100 Pond CB#16: -
100 Pond CB#17: -
100 Pond CB#18: -
101 Pond CB#19: -
101 Pond CB#2: -

102 Pond CB#21: -
102 Pond CB#22: -
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