Section 13. Stormwater Management Plan

SEBAGO TECHNICS

CIVIL ENGINEERING ▪ SURVEYING ▪ LANDSCAPE ARCHITECTURE

STORMWATER MANAGEMENT PLAN

For

Portland Retirement Residence
Portland, Maine

Prepared for

Hawthorn Development Group, LLC
9310 NE Vancouver Mall Drive, Suite 200
Vancouver, WA 98662

September 2015

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STORMWATER MANAGEMENT PLAN

Portland Retirement Residence
802-828 Ocean Avenue
Portland, Maine

Executive Summary

Hawthorne Development Group, LLC is submitted plans to develop within a 10.17 acre portion of 18.32 acres of undeveloped land off Ocean Avenue into a 150-unit retirement residence. The property is shown as Lot A-7 on City of Portland Tax Map 411 and Lots A-6, A-7, and A-21 on City of Portland Tax Map 416.

The development will create approximately 2.86 acres of new non-vegetated surface and 4.93 acres of new developed area as defined by the Maine Department of Environmental Protection (MDEP).

A majority of the site, roughly 90%, is tributary to Casco Bay via unnamed drainage ways. The remaining 10% of the site, located in the southwest portion of the site adjacent to Wildwood Circle appears to be tributary to Fallbrook. As the proposed development is classified by the City of Portland as a Level III development, the site is required to comply with MaineDEP chapter 500 Standards, per Chapter 5 of City of Portland Technical Manual.

The project has been designed to provide treatment for 90.1% of the new non-vegetated area and 85.4% of the new developed area, which exceeds the required treatment level of Table 1 contained in MaineDEP Chapter 500, Section 4.C.(2)(a)(iii) amended date August 12, 2015. Treatment is achieved utilizing an underdrained subsurface sand filter located within the development parking field and a grassed underdrained soil filter. Best Management Practices (BMPs) have been designed and sized in accordance with criteria published in Chapter 500 BMP's Technical Design Manual.

As the project results in an overall reduction in tributary area draining to Fallbrook and has no development within the Fallbrook watershed, the Urban Impaired Stream Standard does not need to be addressed.

14432

STORMWATER MANAGEMENT PLAN

Portland Retirement Residence
802-828 Ocean Avenue
Portland, Maine

I. Introduction

This Stormwater Management Plan has been prepared to address the potential impacts associated with this project due to the proposed modification in stormwater runoff characteristics. The stormwater management controls that are outlined in this plan have been designed to best suit the proposed development and to comply with applicable regulatory requirements.

II. Existing Conditions

The project site is currently undeveloped land with woods land cover comprising of 18.32 acres in Portland.

Land Cover: The site is undeveloped land consisting of wooded land cover. The development site abuts Ocean Ridge to the north, Ocean Avenue and single family residential structures to the east, undeveloped land to the south, and Pheasant Hill Drive development to the west.

Site Topography: The majority of the site (75%) drains in a southeasterly direction towards the existing pipe outlets in Ocean Avenue, with the drainage break located just east of the existing Central Maine Power easement at the rear of the site. The remainder of site drains in a westerly direction away from the proposed development.

Slopes on site range from 5 to 10% in the central portion of the site, within and adjacent to wetland areas, to steeper 15 to 25% slopes along Ocean Avenue and the rear of the site.

Surface Water Features: The majority of the site drains to an existing closed drainage system within Ocean Avenue and a cross culvert across Ocean Avenue. These culverts outlet to an existing drainage way along the northerly side of Eben Hill Road (Ocean's East), continuing to travel in a northeasterly direction, crossing Briarwood, Ocean Woods, Presumpscot Street, on its way to Casco Bay.

Soils: Soil characteristics were obtained from the Soil Conservation Service (SCS) Medium Intensity Soil Survey of Cumberland County. Soils identified on the site (or

within close proximity) are identified below in Table 1. These soil boundaries are identified on the attached watershed maps.

Table 1 – Proximity Soil Types and Characteristics			
Soil Type	Symbol	HSG	K Factor
Hollis fine sandy loam	HrB/HrC	D	0.32
Hollis very rock fine sandy loam	HsB/HsE	C	0.32
Scantic Silt Loam	Sn	D	0.49

The K factor is an erodibility index that relates each soil family based on a slight erosion potential of 0.10 to a high erosion potential of 0.64. An index number, greater than 0.32, indicates that a high level of erosion control measures must be taken in order to control erosion of this soil. The Hydrologic Soil Group (HSG) designation is based on a rating of the relative permeability of a soil, with Group "A" being extremely permeable such as coarse sand, to Group "D" having low permeability such as clay.

Historic Flooding: The Federal Emergency Management Agency (FEMA) lists the project site as Zone X, "Areas of 500 year flood based on the published Flood Insurance Rate Map (FEMA Community Panel Number 230051 0007C, dated December 8, 1998).

III. Proposed Development

The Applicant is proposing to a 150 unit retirement residence, consisting of 135 single units and 15 duplex units.

Alterations to Land Cover: Completion of the proposed project will result in the creation of 2.86 acres of non-vegetated area and 4.93 acres of developed area.

IV. Downstream Ponds and Waterbodies

The majority project site is tributary to Casco Bay, which is not listed by the Maine Department of Environmental Protection as impaired or threatened. A small portion of the site, located within the southwest portion of the site, is tributary to Fall Brook which is listed by Maine DEP as an Urban Impaired Stream within Chapter 502.

V. Regulatory Requirements

A. City of Portland, Maine

The proposed development is classified as a Level III development and must comply with Section 5 of the City of Portland's Technical Manual stating that this

development "shall be required to submit a Stormwater Management Plan pursuant to the regulations of the MDEP Chapter 500 Stormwater Management Rules, including Basic, General and Flooding Standards. The MDEP Chapter 500 rules describe stormwater management requirements for new development projects.

The following sections describe how this project will address these stormwater management performance standards.

Basic Standards: These standards include various erosion and sedimentation controls, inspection and maintenance procedures, and general housekeeping requirements. These performance standards are addressed in the Erosion and Sedimentation Control Plan on Plan Sheet 6 of 13 and in the Inspection, Maintenance, and Housekeeping Plan attached in Attachment 3. Please refer to these documents for more detailed information.

General Standards: This standard presents minimum treatment thresholds for new non-vegetated areas and new developed areas to be treated by stormwater Best Management Practices (BMPs). General Standard BMPs have been defined by the MDEP and are described thoroughly in their publication "Stormwater Management for Maine: Best Management Practices Manual". Volume III of this manual contains additional information and sizing requirements for the treatment measures proposed for the proposed development.

Urban Impaired Stream Standard: This standard requires a payment of a compensation fee or mitigation of a project's impact by treating, reducing, or eliminating an off-site or on-site pre-development imperious stormwater source.

Flooding Standards: The MDEP requires that projects creating impervious areas greater than three (3) acres, or developed areas greater than twenty (20) acres address various flooding standards. The proposed project will not exceed the MDEP thresholds, but is required to meet the flooding standards for the City of Portland. The development will be designed to "detain, retain or result in the infiltration of stormwater from 24-hour storms of the 2-year, 10-year, and 25-year frequencies such that the peak flows of stormwater from the project site do not exceed the peak flows of stormwater prior to undertaking the project." A detailed stormwater model has been provided to demonstrate compliance with these standards.

VI. Stormwater Management BMPs

In order to meet the applicable regulations, the project will utilize an underdrained subsurface sand filter located within the development parking field and a grassed underdrained soil filter located adjacent to the access roadway. The BMP locations are indicated on the attached plans.

A. Underdrained Subsurface Sand Filter

An underdrained subsurface sand filter must detail a runoff volume equal to 1" times the tributary impervious area and 0.4" times the tributary landscaped areas. The surface area of the system must be at least equal to 5% the impervious area and 2% of the landscaped area. Pre-treatment of the runoff must be provided by Storm-Tech Isolator Row sized based on the runoff from ta 1-year, 24 hour storm event. The runoff volume shall be discharged over a period of time not less than 24 hours and not greater than 48 hours.

The areas treated by this BMP are summarized in the stormwater treatment calculations attached in Attachment 1: *Stormwater Quality Calculations*.

B. Grassed Underdrained Soil Filter

A grassed underdrained soil filter must detail a runoff volume equal to 1" times the tributary impervious area and 0.4" times the tributary landscaped areas. The surface area of the system must be at least equal to 5% the impervious area and 2% of the landscaped area. Pre-treatment of the runoff must be provided by a sediment forebay, adequately sized to retain the anticipated winter sanding load. The runoff volume shall be discharged over a period of time not less than 24 hours and not greater than 48 hours.

The areas treated by this BMP are summarized in the stormwater treatment calculations attached in Attachment 1: *Stormwater Quality Calculations*.

VII. Peak Flow Analysis

This section has been prepared to discuss the proposed modifications to peak flow rates as a result of the development.

A. Modeling Technique

In order to evaluate drainage characteristics in pre and post-development conditions, a quantitative analysis was performed to determine peak rates of runoff for the 2, 10, and 25-year storm events. Runoff calculations were

performed following the methodology outlined in the USDA Soil Conservation Service's "Urban Hydrology for Small Watersheds, Technical Release #55" and HydroCAD Stormwater Modeling System Software. A 24-hour, SCS Type III storm distribution for the 2, 10, and 25-year storm frequencies were used for analysis.

The 24-hour rainfall values utilized in the hydrologic model for Southeast Cumberland County are as follows:

Table 2 - Storm Frequency Precipitation (in./24 hr)	
2-year	3.1
10-year	4.6
25-year	5.8

*Appendix H, MDEP Chapter 500, amended date Aug 12, 2015

B. Drainage Characteristics (Pre and Post-Development Watershed Delineation)

Two watershed study points (SP1 and SP2) were established to evaluate the pre-development and post-development peak runoff conditions for compliance with the Flooding Standard.

SP1 is located at the confluence of two outlet pipes which discharge on the east side of Ocean Avenue and just north of Eden Hill Road. Runoff from this study point continues through un-named drainage ways, before crossing Presumpscot Street and I-295, before entering Casco Bay.

SP2 is a representative study point located in the southwest quadrant of the development site, adjacent to the existing utility corridor. This study point is where runoff leaves the site and drains to an adjacent lot, before entering Fallbrook.

C. Pre-Development

SP1: SP1 has a total of twelve (12) drainage areas tributary to it, which includes four (4) drainage areas located on the development site and the remaining being offsite drainage areas, such as the east side of Ocean Avenue, Ocean Ridge development, and residential house lots along Ocean Avenue.

SP2: SP2 has a single drainage area (Subarea 4) tributary to it; this study point is located at the property line where drainage crosses the property line in the southwest portion of the site, adjacent to Wildwood Circle.

Subareas 1, 101, 301, 302, and 303 represent the portions of Ocean Ridge condominium development that is tributary to SP1. These areas remain unchanged from pre-development to post-development condition.

Subareas 100 and 300 represent the east side of Ocean Avenue which enter the closed drainage system within Ocean Avenue prior to discharging to SP1. These areas remain unchanged from pre-development to post-development.

Subarea 3 and Subarea 6 are several house lots along the west side of Ocean Avenue, with the development site located at the rear of these house lots. Subarea 3 enters the closed drainage system within Ocean Avenue. Subarea 6 enters two driveway culverts before reaching the 24" Ocean Avenue cross culvert. Both areas discharge to SP1 and remain unchanged from pre-development to post-development.

Subarea 1 is approximately 3.2 acres in area located at the northeast corner of the development site along Ocean Avenue. This area also includes a portion of Ocean Avenue, a portion of two house lots along Ocean Avenue, and a small portion of the abutting Ocean Ridge development site where runoff from developed portions of the site flows through a stormwater buffer easement prior to entering the subject site. Runoff continues along Ocean Avenue gutter/shoulder before entering the closed drainage system at a catch basin located on the west side of Ocean Avenue, roughly opposite Ashley Lane (Ocean Woods development).

Subarea 2 represents a majority of the site to be developed; it's roughly 11.5 acres in size which includes portions of Ocean Ridge, Ocean Avenue, and two resident house lots. Roughly 10.6 acres of the total area is the development site, which is 60% of the total site area. Runoff from Subarea 2 drains to an existing 15-inch driveway culvert prior to reaching and ultimately flowing across Ocean Avenue at the 24-inch cross culvert.

Subarea 4 is roughly 1.2 acres in area located at the southwest portion of the lot where runoff exits the site at the utility corridor adjunct to Wildwood Circle and is ultimately tributary to Fallbrook.

Subarea 5 represents the southeast portion of the site, a single house lot and a portion of Ocean Avenue. Subarea 5 is roughly 1.8 acres in size and drains to the existing Ocean Avenue cross culvert.

D. Post-Development

Pre-development subarea 1 has been divided into four subareas (11, 12, 15A and 15) in the post-development condition. Subareas 11 and 12 have limited

development within the drainage boundaries and respectively represent the south side and north sides of the proposed access. Subarea 15A represents a portion of the access road which will not receive any treatment and will discharge to the wooded area south of the access road. Subarea 15 represents the lower portion of the access which is tributary to the closed drainage system along the site frontage. The total area of these catchments is 4.84 acres, which is greater than the pre-development area of Subarea 1 in the predevelopment, 3.16 acres. The increase in area is a result of the site grading and drainage ditch along the access road.

Pre-development subarea 2 has been divided into 4 subareas in the post-development condition, subarea 20, 21, 22, and 23. Subarea 20 represents the upper and lower portion of the site which will remain undeveloped. A 3-sided box culvert is proposed along the access road so as not to alter the drainage characteristics of existing drainage way which traverses the site. Subarea 21 is the majority of the development footprint and impervious surface which will be collected in the storm drain collection system and outlet to the proposed subsurface sand filter. Subarea 22 represents the upper parking lot and associated access way which will be collected and treated by the grassed underdrain soil filter. Subarea 23 represents the grassed underdrain soil filter.

Subarea 4 in pre-development has been reduced in area by approximately 0.10 acres and is now represented by subarea 40 in the post-development model.

Subarea 50 (subarea 5 in pre-development) has been reduced in area by 0.6 acres but has a minor increase in overall curve number (80 pre vs 82 post).

E. Comparison

The watershed areas and times of concentration of the post-development watersheds vary from the existing conditions based on the proposed site development and grading. Table 3 summarizes the results of the hydrologic analysis of the project under pre-development and post-development conditions.

Table 3 – Stormwater Runoff Summary Table
Pre-Development vs. Post-Development

Study Point	Total Watershed Area (Ac)		Percent Impervious		Peak Rates of Runoff (cfs)					
					2-year		10-year		25-year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
SP1	23.01	23.10	16.15%	28.68%	17.1	15.9	31.5	31.1	44.2	44.6
SP2	1.21	1.12	0%	0%	1.4	1.3	2.9	2.7	4.1	3.9

As depicted in the above table, post-development peak runoff rates at the two study points will be below pre-development levels for the 2-year and 10 year storm event. The peak runoff rate for the 25-year storm event, at Study Point 1, is anticipated to be 0.40 cfs greater than the pre-development rate, which is a 1% increase. The downstream receiving channel, based on visual filed observations, is adequately sized to accommodate the pre-development peak-runoff rate as well as the anticipated 0.4 cfs increase without overtopping existing channel embankments.

VIII. Water Quality Analysis

To achieve the required water quality treatment, an Underdrained Subsurface Sand Filter is proposed to treat the majority of the development with a grassed underdrained soil filter providing treatment of for the upper parking lot and associated access way. Each treatment measure has been designed and sized in accordance with the current Maine DEP Stormwater Best Management Practices handbook.

The development has been designed to provide water quality treatment through implementation of approved BMP's which provide for an impervious area treatment percentage of 90.1% and a developed area treatment percentage of 85.4%, which exceeds the required treatment levels of 90% and 75%, respectively, in accordance with MaineDEP Chapter 500, Section 4.C.(2)(a)(iii) amended date August 12, 2015.

Water Quality Volumes, BMP sizing volume calculations, and other supporting calculations are attached to this report.

IX. Urban Impaired Stream Standard

As mentioned in Section VII.C of this report, Subarea 4 is tributary to Fallbrook which is listed in Chapter 502 as an Urban Impaired Stream, which requires payment of a compensation fee or mitigation of a project's impact by treating, reducing, or eliminating an off-site or on-site pre-development imperious stormwater source. As a result of the proposed development and project grading, the total drainage area tributary to Fallbrook is reduced by 8% from 1.21 acres to 1.12 acres. No developed area is anticipated within Subarea 4, so no mitigation or compensation fee is proposed.

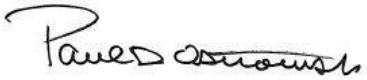
X. Conclusions

The proposed development has been designed to meet the requirements of the City of Portland's Stormwater Technical Standards. The stormwater management system will treat 90.1% of the created impervious surface and 85.4% of the total developed area. The peak flow rates have been controlled to the greatest extent practical to be at pre-

development levels. An anticipated increase of 0.4 cfs at Study Point 1 during the 25-year storm event is expected, but will not cause an unreasonable adverse effect on downstream development. Additionally, erosion and sedimentation controls have been outlined to prevent unreasonable impacts on the site and to the surrounding environment.

Prepared by,

SEBAGO TECHNICS, INC.



Paul D. Ostrowski, P.E.
Project Engineer

Robert A. McSorley, P.E.
Senior Project Manager

PDO/RAM:pdo/jf
September 9, 2015

Date: 9/17/15

Attachment A

Stormwater Quality Calculations

MDEP GENERAL STANDARD CALCULATIONS
PORTLAND RETIREMENT RESIDENCE
JOB #14432

SUBAREA #	SUBAREA TOTAL AREA	NEW ONSITE IMPERVIOUS AREA	NEW ONSITE LANDSCAPED AREA	NEW DEVELOPED AREA	UNDEVELOPED AREA	TREATMENT METHOD			IMPERVIOUS (AC.)	LANDSCAPED (AC.)
	(AC.)	(AC.)	(AC.)	(AC.)	(AC.)	ID (PRIMARY)	% IMP	% LAND	WP1	WP1
11	1.880	0.053	0.011	0.065	1.815	None				
12	2.607	0.000	0.175	0.175	2.431	None				
15A	0.086	0.059	0.027	0.086	0.000	None				
15	0.273	0.170	0.103	0.273	0.000	None				
20	6.364	0.000	0.118	0.118	6.245	None				
21	3.316	2.113	1.203	3.316	0.000	Sub. Sand Filter (210)	100%	100%	2.113	1.203
22	0.696	0.460	0.237	0.696	0.000	UDF-1 (220)	100%	100%	0.460	0.237
23	0.200	0.000	0.200	0.200	0.000	UDF-1 (220)	100%	100%	0.000	0.200
TOTAL LOTS (AC.)	**15.421**	**2.856**	**2.074**	**4.930**	**10.492**				**2.573**	**1.639**

*TREATED VALUES ONLY INCLUDE AREAS ASSOCIATED WITH THE DEVELOPMENT. OFFSITE AREA NOT INCLUDED IN SITE TREATMENT CALCULATION

TOTAL NEW IMPERVIOUS AREA (SF)	**124,410**	**TOTAL NEW DEVELOPED AREA (SF)**	**214,740**
TOTAL IMPERVIOUS AREA RECEIVING TREATMENT (SF)	**112,084**	**TOTAL DEV. AREA RECEIVING TREATMENT (SF)**	**183,495**
TOTAL IMPERVIOUS AREA NOT RECEIVING TREATMENT (SF)	**12,326**	**TOTAL DEV. AREA NOT RECEIVING TREATMENT (SF)**	**31,245**
% OF IMPERVIOUS AREA RECEIVING TREATMENT	**90.1%**	**% OF DEV. AREA RECEIVING TREATMENT**	**85.4%**

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JOB	14432 - Portland Retirement Community
SHEET NO.	1 OF 1
CALCULATED BY	PDO DATE 10/23/2014
FILE NAME	PRNT DATE 9/17/2015

Task: Determine the "Percentage of Developed Area to Land Available for Development" in accordance with MaineDEP Chapter 500 rules, Section 4.C.(2)(a)(iii) Table 1, amended date August 12, 2015

Table 1 presents Stormwater Treatment Based on Percentage of Parcel Developed

Percentage of developed area to land avail for development*	Percentage of total impervious area requiring treatment**	Percentage of total developed area requiring treatment**
>70	95	80
65	92.5	77.5
<60	90	75

*Including all contiguous land area owned by applicant, but not including land with greater than 25% sustained slope or consisting of a protected natural resource.

**Percentage may be pro-rated for values between 60% and 70% in left-hand column.

A	Total Land Area within R5A Zone:	442,875.00	square-feet
B	Wetland Areas within R5A Zone:	6,481.00	square-feet
C	25% Sustained Slopes:	32,650.00	square-feet
	Land Avail for Development (A-B-C)	403,744.00	square-feet
	Total Developed Area	214,740.00	square-feet
	Percentage of Developed Land	214740.000 / 403,744.00 = **53.19%**	

Perecentage of Developed Land to Land Available for Development is less than 60%, therefore requiring 90% treatment of proposed impervious and 75% treatment of developed area

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JOB	14432 - Portland Retirement Community		
SHEET NO.	1	OF	1
CALCULATED BY	PDO	DATE	7/9/2015
FILE NAME	14432.Subsurface Sand Filter BMP.xls	PRNT DATE	9/9/2015

UNDERDRAINED SUBSURFACE SAND FILTER

Task: Calculate water quality volume per MDEP chapter 500 regulations

References
1. Maine DEP Chapter 500, Section 4.B.(2)(b)
   a. "must detain a runoff volume equal to 1.0 inch times the subcatchment's impervious area plus 0.4 inch times the subcatchment's landscaped area"
2. Maine DEP Best Management Practices Stormwater Manual, Section 7.3.2
   a. "detain runoff volume equal to 1.0 inch times the subcatchment's impervious area plus 0.4 inch times the subcatchment's landscaped area"
   b. "surface area of the sand filter bed and chamber system must be at least equal to 5% of the impervious area draining to it and 2% of the landscaped area."
   c. "treatment flow rate for the Stormtech Isolcator Row is the projected one year peak flow rate for the drainage area feeding the Isolator Row"

Flow rates:

SC-310	0.10	cfs/chamber
SC-740	0.20	cfs/chamber
DC-780	0.20	cfs/chamber
MC-3500	0.30	cfs/chamber

Tributary to Underdrained Filter #1

Landscaped Area	52,391.00	SF
Impervious Area	92,058.00	SF

Minimum Surface Area for sand filter and chamber system

Required (2% X Landscaped + 5%" X Impervious)

Total Landscaped Area	52,387.00	SF	Area	1,047.7	SF
Total Impervious Area	92,058.00	SF	Area	4,602.9	SF
Required Minimum Surface Area				5,650.6	SF
Provided Surface Area				6,000.0	SF

Channel Protection Volume (CPV)

Required (0.4" X Landscaped + 1.0" X Impervious)

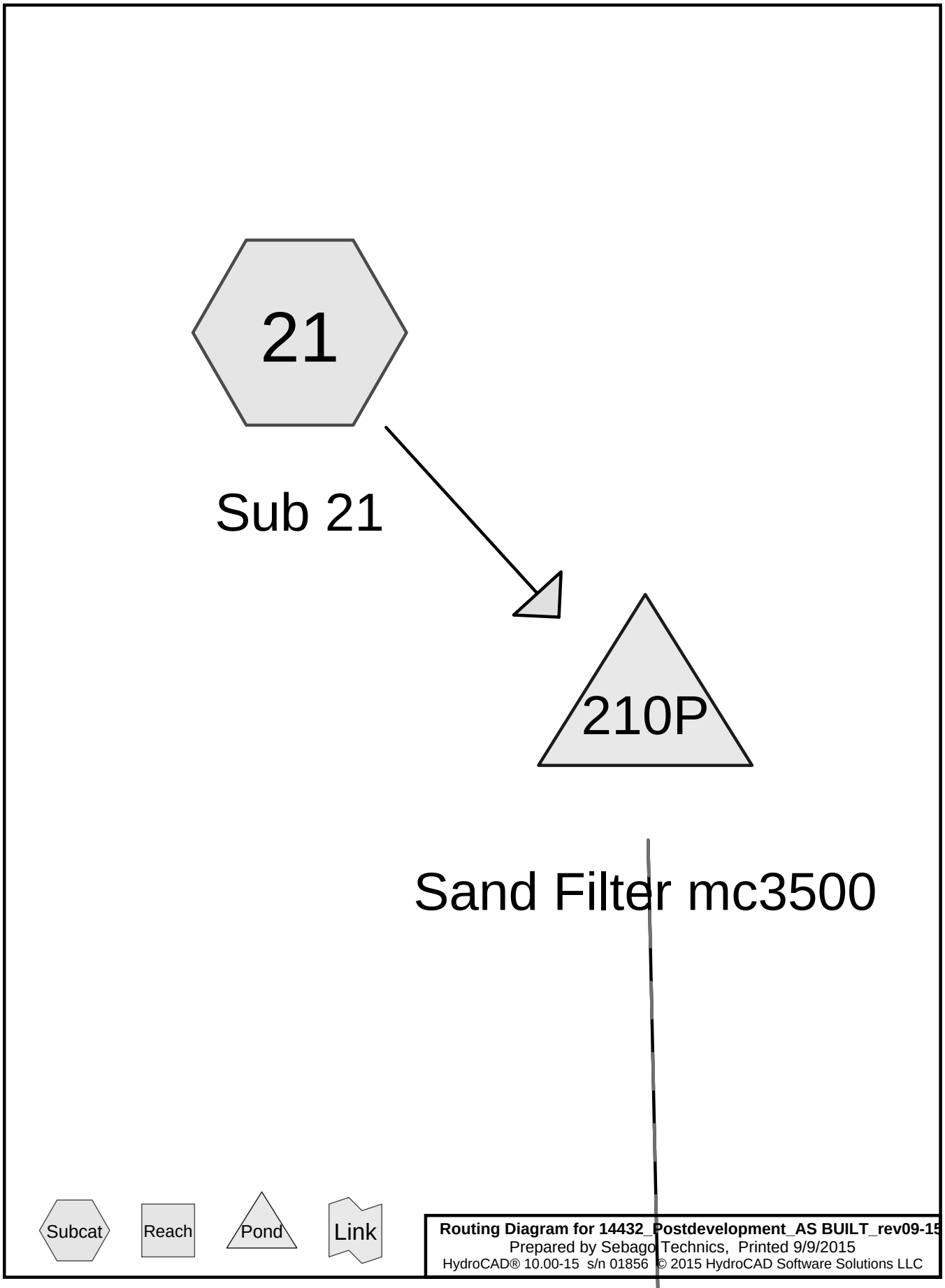
Landscaped Area	52,387.00	SF	Volume	1,746.2			
Impervious Area	92,058.00	SF	Volume	7,671.5			
CPV Required				9,417.7	CF	0.216	AF
Provided CPV				9685	CF	(Elevation 126.80)	

Sediment Pre-Treatment

Per Reference 2.c above

One year flow rate out put from Hydrocad:		6.80	cfs
Iso Row sizing for:	**MC-3500**	**0.3**	cfs
Total number of Isolator Row Chambers required:		23	

Proposing two row, each 15 chambers long, for total of 30 chambers.


21
Sub 21
210P
Sand Filter mc3500
Subcat
Reach
Pond
Link
Routing Diagram for 14432_Postdevelopment_AS BUILT_rev09-15
Prepared by Sebago Technics, Printed 9/9/2015
HydroCAD® 10.00-15 s/n 01856 © 2015 HydroCAD Software Solutions LLC

Summary for Subcatchment 21: Sub 21

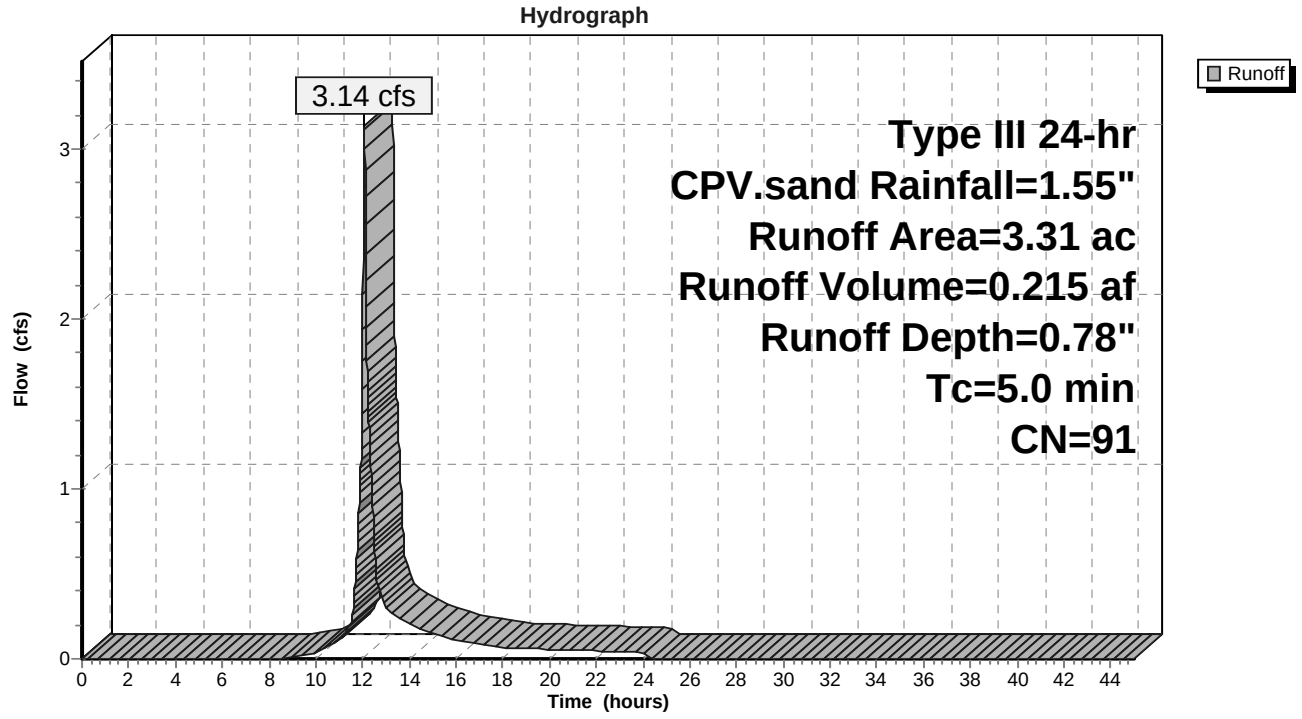
Runoff = 3.14 cfs @ 12.08 hrs, Volume= 0.215 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr CPV.sand Rainfall=1.55"

	Area (ac)	CN	Description
	1.20	80	>75% Grass cover, Good, HSG D
*	2.11	98	Site Development
	3.31	91	Weighted Average
	1.20		36.25% Pervious Area
	2.11		63.75% Impervious Area

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

Subcatchment 21: Sub 21



Summary for Pond 210P: Sand Filter mc3500

Inflow Area = 3.31 ac, 63.75% Impervious, Inflow Depth = 0.78" for CPV.sand event
Inflow = 3.14 cfs @ 12.08 hrs, Volume= 0.215 af
Outflow = 0.12 cfs @ 15.84 hrs, Volume= 0.215 af, Atten= 96%, Lag= 225.8 min
Primary = 0.12 cfs @ 15.84 hrs, Volume= 0.215 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 126.04' @ 15.84 hrs Surf.Area= 6,773 sf Storage= 5,412 cf

Plug-Flow detention time= 486.2 min calculated for 0.215 af (100% of inflow)
Center-of-Mass det. time= 486.3 min (1,318.1 - 831.9)

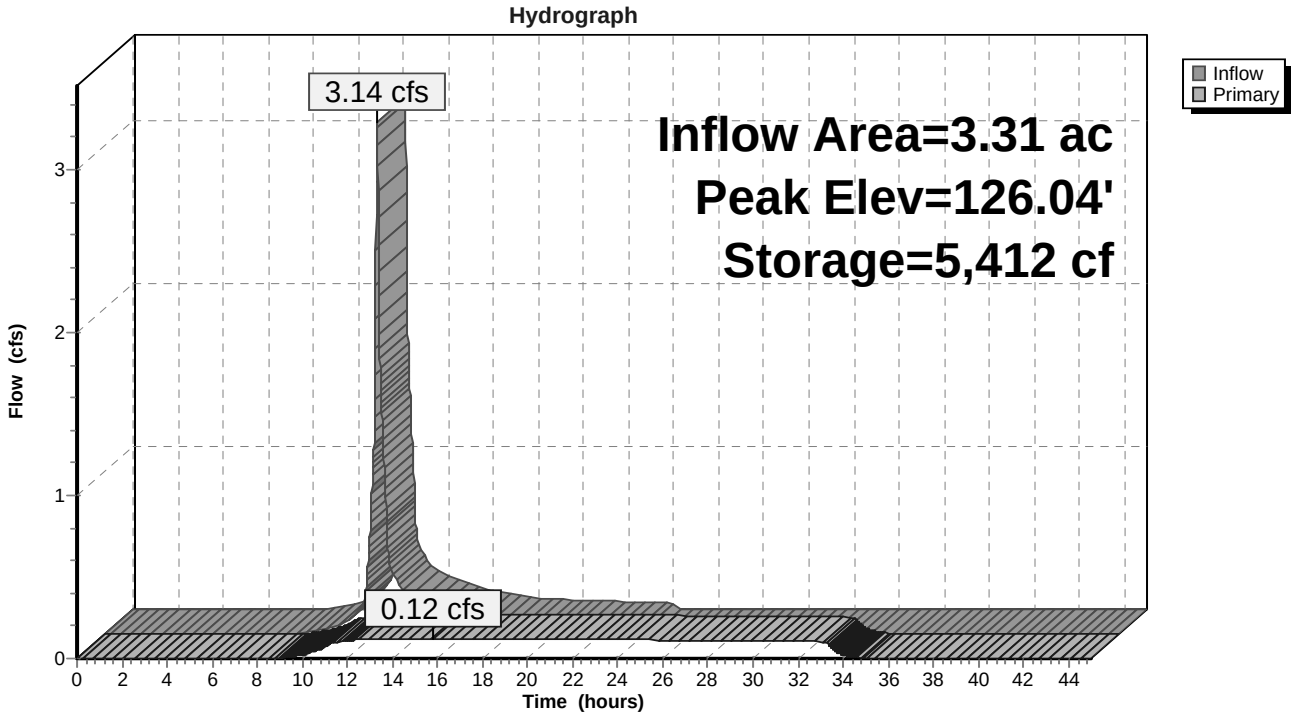
Volume	Invert	Avail.Storage	Storage Description
#1A	124.70'	9,447 cf	**80.08'W x 84.57'L x 5.50'H Field A** 37,250 cf Overall - 13,632 cf Embedded = 23,618 cf x 40.0% Voids
#2A	125.45'	13,632 cf	**ADS_StormTech MC-3500 d +Cap** x 121 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 11 Rows of 11 Chambers Cap Storage= +14.9 cf x 2 x 11 rows = 327.8 cf
		23,079 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	121.00'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 121.00' / 117.00' S= 0.0800 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	121.00'	**1.0" Vert. Orifice/Grate X 2.00** C= 0.600
#3	Device 1	126.80'	**7.0" Vert. Orifice/Grate X 2.00** C= 0.600
#4	Device 1	129.87'	**6.0' long x 1.50' rise Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)

Primary OutFlow Max=0.12 cfs @ 15.84 hrs HW=126.04' (Free Discharge)
└**1=Culvert** (Passes 0.12 cfs of 12.41 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.12 cfs @ 10.76 fps)
  ├**3=Orifice/Grate** (Controls 0.00 cfs)
  └**4=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond 210P: Sand Filter mc3500



Stage-Area-Storage for Pond 210P: Sand Filter mc3500

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
124.70	0	125.76	3,832	126.82	9,793	127.88	15,254
124.72	54	125.78	3,948	126.84	9,902	127.90	15,350
124.74	108	125.80	4,063	126.86	10,011	127.92	15,445
124.76	163	125.82	4,178	126.88	10,119	127.94	15,540
124.78	217	125.84	4,293	126.90	10,227	127.96	15,635
124.80	271	125.86	4,408	126.92	10,335	127.98	15,729
124.82	325	125.88	4,523	126.94	10,443	128.00	15,823
124.84	379	125.90	4,638	126.96	10,550	128.02	15,916
124.86	433	125.92	4,753	126.98	10,658	128.04	16,009
124.88	488	125.94	4,867	127.00	10,765	128.06	16,102
124.90	542	125.96	4,982	127.02	10,872	128.08	16,195
124.92	596	125.98	5,096	127.04	10,979	128.10	16,287
124.94	650	126.00	5,211	127.06	11,085	128.12	16,378
124.96	704	126.02	5,325	127.08	11,192	128.14	16,469
124.98	759	126.04	5,439	127.10	11,298	128.16	16,560
125.00	813	126.06	5,553	127.12	11,404	128.18	16,651
125.02	867	126.08	5,667	127.14	11,510	128.20	16,740
125.04	921	126.10	5,781	127.16	11,615	128.22	16,830
125.06	975	126.12	5,895	127.18	11,721	128.24	16,919
125.08	1,029	126.14	6,008	127.20	11,826	128.26	17,007
125.10	1,084	126.16	6,122	127.22	11,931	128.28	17,096
125.12	1,138	126.18	6,235	127.24	12,036	128.30	17,183
125.14	1,192	126.20	6,349	127.26	12,140	128.32	17,270
125.16	1,246	126.22	6,462	127.28	12,244	128.34	17,357
125.18	1,300	126.24	6,575	127.30	12,349	128.36	17,443
125.20	1,355	126.26	6,688	127.32	12,452	128.38	17,529
125.22	1,409	126.28	6,800	127.34	12,556	128.40	17,614
125.24	1,463	126.30	6,913	127.36	12,659	128.42	17,698
125.26	1,517	126.32	7,025	127.38	12,763	128.44	17,782
125.28	1,571	126.34	7,138	127.40	12,866	128.46	17,866
125.30	1,625	126.36	7,250	127.42	12,968	128.48	17,949
125.32	1,680	126.38	7,362	127.44	13,071	128.50	18,031
125.34	1,734	126.40	7,474	127.46	13,173	128.52	18,113
125.36	1,788	126.42	7,586	127.48	13,275	128.54	18,194
125.38	1,842	126.44	7,698	127.50	13,376	128.56	18,274
125.40	1,896	126.46	7,809	127.52	13,478	128.58	18,354
125.42	1,951	126.48	7,921	127.54	13,579	128.60	18,433
125.44	2,005	126.50	8,032	127.56	13,680	128.62	18,511
125.46	2,090	126.52	8,143	127.58	13,780	128.64	18,588
125.48	2,207	126.54	8,254	127.60	13,881	128.66	18,665
125.50	2,324	126.56	8,365	127.62	13,981	128.68	18,741
125.52	2,440	126.58	8,476	127.64	14,080	128.70	18,816
125.54	2,557	126.60	8,587	127.66	14,180	128.72	18,889
125.56	2,673	126.62	8,697	127.68	14,279	128.74	18,962
125.58	2,789	126.64	8,808	127.70	14,378	128.76	19,034
125.60	2,906	126.66	8,918	127.72	14,477	128.78	19,104
125.62	3,022	126.68	9,028	127.74	14,575	128.80	19,173
125.64	3,138	126.70	9,138	127.76	14,673	128.82	19,241
125.66	3,254	126.72	9,247	127.78	14,770	128.84	19,307
125.68	3,370	126.74	9,357	127.80	14,868	128.86	19,372
125.70	3,485	126.76	9,466	127.82	14,965	128.88	19,436
125.72	3,601	126.78	9,576	127.84	15,061	128.90	19,499
125.74	3,717	126.80	9,685	127.86	15,158	128.92	19,561

Stage-Area-Storage for Pond 210P: Sand Filter mc3500 (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
128.94	19,622	130.00	22,537	131.06	23,079
128.96	19,682	130.02	22,591	131.08	23,079
128.98	19,742	130.04	22,646	131.10	23,079
129.00	19,802	130.06	22,700	131.12	23,079
129.02	19,861	130.08	22,754	131.14	23,079
129.04	19,920	130.10	22,808	131.16	23,079
129.06	19,978	130.12	22,862	131.18	23,079
129.08	20,035	130.14	22,916	131.20	23,079
129.10	20,092	130.16	22,971	131.22	23,079
129.12	20,149	130.18	23,025	131.24	23,079
129.14	20,205	130.20	**23,079**	131.26	23,079
129.16	20,261	130.22	23,079	131.28	23,079
129.18	20,316	130.24	23,079	131.30	23,079
129.20	20,370	130.26	23,079	131.32	23,079
129.22	20,424	130.28	23,079	131.34	23,079
129.24	20,478	130.30	23,079	131.36	23,079
129.26	20,533	130.32	23,079		
129.28	20,587	130.34	23,079		
129.30	20,641	130.36	23,079		
129.32	20,695	130.38	23,079		
129.34	20,749	130.40	23,079		
129.36	20,803	130.42	23,079		
129.38	20,858	130.44	23,079		
129.40	20,912	130.46	23,079		
129.42	20,966	130.48	23,079		
129.44	21,020	130.50	23,079		
129.46	21,074	130.52	23,079		
129.48	21,128	130.54	23,079		
129.50	21,183	130.56	23,079		
129.52	21,237	130.58	23,079		
129.54	21,291	130.60	23,079		
129.56	21,345	130.62	23,079		
129.58	21,399	130.64	23,079		
129.60	21,454	130.66	23,079		
129.62	21,508	130.68	23,079		
129.64	21,562	130.70	23,079		
129.66	21,616	130.72	23,079		
129.68	21,670	130.74	23,079		
129.70	21,724	130.76	23,079		
129.72	21,779	130.78	23,079		
129.74	21,833	130.80	23,079		
129.76	21,887	130.82	23,079		
129.78	21,941	130.84	23,079		
129.80	21,995	130.86	23,079		
129.82	22,050	130.88	23,079		
129.84	22,104	130.90	23,079		
129.86	22,158	130.92	23,079		
129.88	22,212	130.94	23,079		
129.90	22,266	130.96	23,079		
129.92	22,320	130.98	23,079		
129.94	22,375	131.00	23,079		
129.96	22,429	131.02	23,079		
129.98	22,483	131.04	23,079		

Summary for Subcatchment 21: Sub 21

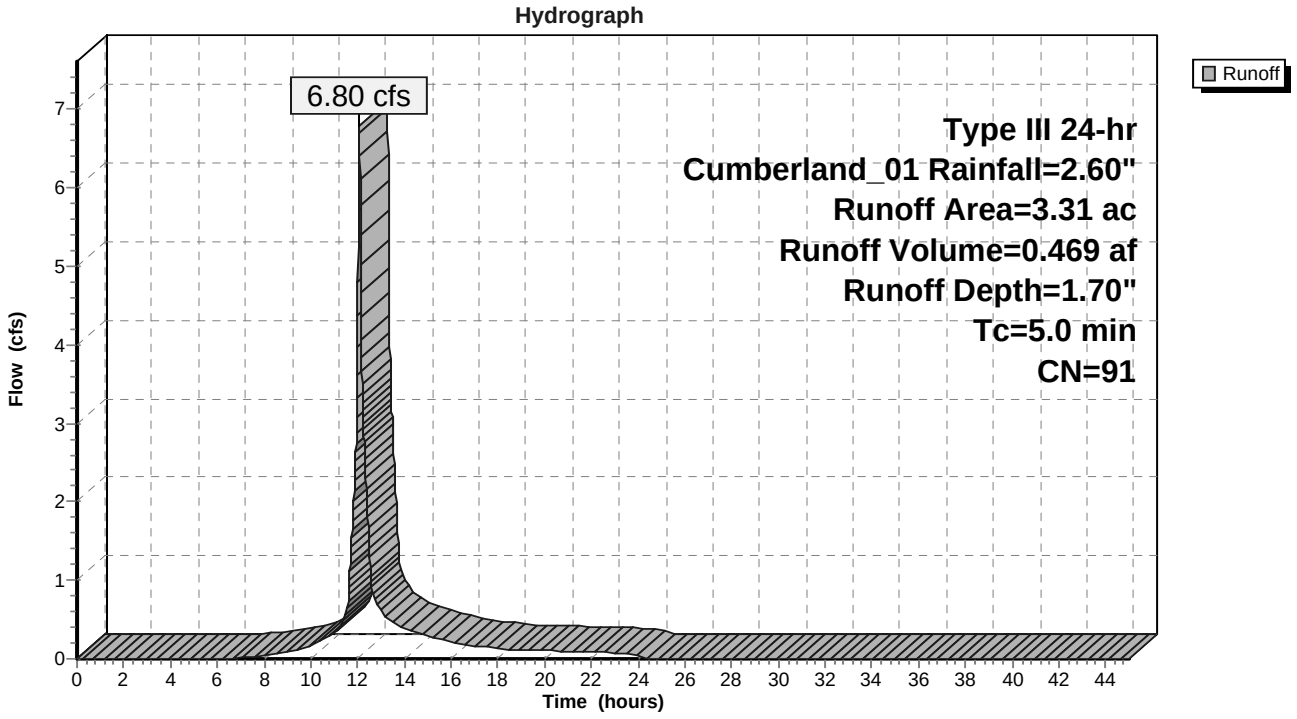
Runoff = 6.80 cfs @ 12.07 hrs, Volume= 0.469 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_01 Rainfall=2.60"

	Area (ac)	CN	Description
	1.20	80	>75% Grass cover, Good, HSG D
*	2.11	98	Site Development
	3.31	91	Weighted Average
	1.20		36.25% Pervious Area
	2.11		63.75% Impervious Area

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

Subcatchment 21: Sub 21



Summary for Pond 210P: Sand Filter mc3500

Inflow Area = 3.31 ac, 63.75% Impervious, Inflow Depth = 1.70" for Cumberland_01 event
Inflow = 6.80 cfs @ 12.07 hrs, Volume= 0.469 af
Outflow = 0.53 cfs @ 13.21 hrs, Volume= 0.457 af, Atten= 92%, Lag= 68.2 min
Primary = 0.53 cfs @ 13.21 hrs, Volume= 0.457 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 127.06' @ 13.21 hrs Surf.Area= 6,773 sf Storage= 11,078 cf

Plug-Flow detention time= 639.1 min calculated for 0.457 af (97% of inflow)
Center-of-Mass det. time= 623.4 min (1,432.9 - 809.5)

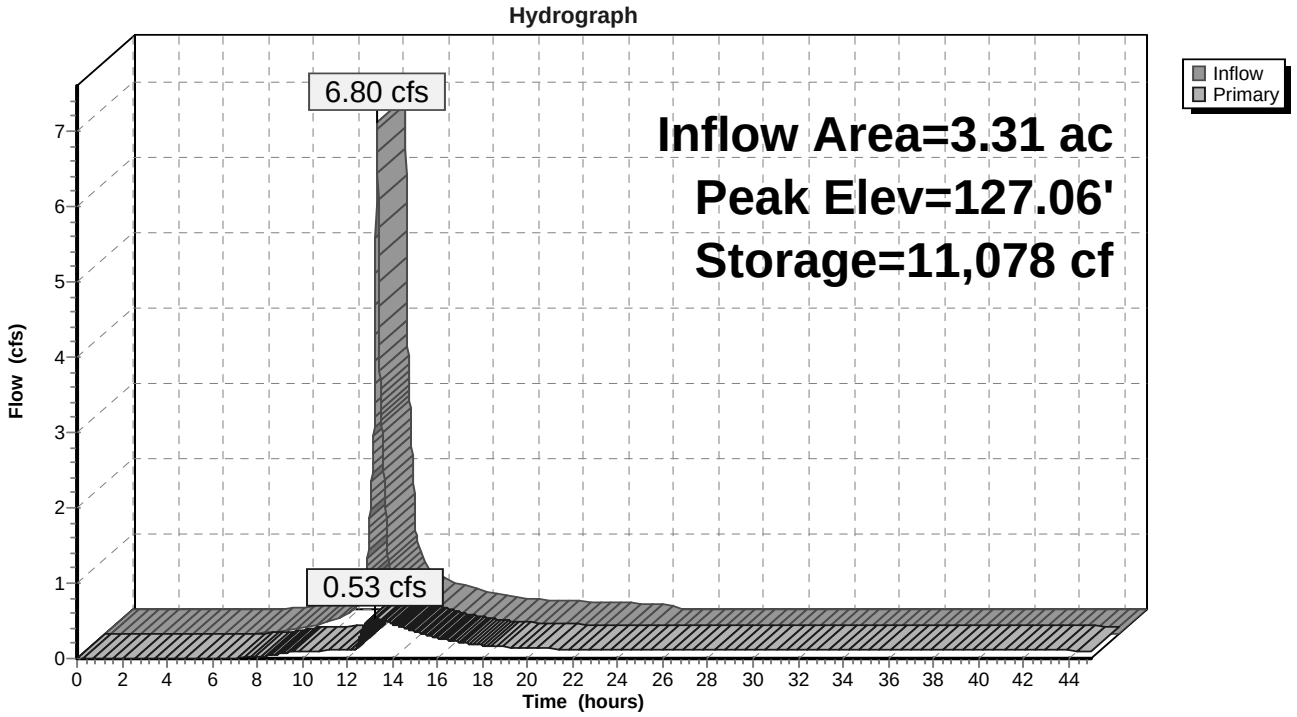
Volume	Invert	Avail.Storage	Storage Description
#1A	124.70'	9,447 cf	**80.08'W x 84.57'L x 5.50'H Field A** 37,250 cf Overall - 13,632 cf Embedded = 23,618 cf x 40.0% Voids
#2A	125.45'	13,632 cf	**ADS_StormTech MC-3500 d +Cap** x 121 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 11 Rows of 11 Chambers Cap Storage= +14.9 cf x 2 x 11 rows = 327.8 cf
		23,079 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	121.00'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 121.00' / 117.00' S= 0.0800 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	121.00'	**1.0" Vert. Orifice/Grate X 2.00** C= 0.600
#3	Device 1	126.80'	**7.0" Vert. Orifice/Grate X 2.00** C= 0.600
#4	Device 1	129.87'	**6.0' long x 1.50' rise Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)

Primary OutFlow Max=0.52 cfs @ 13.21 hrs HW=127.06' (Free Discharge)
└**1=Culvert** (Passes 0.52 cfs of 13.77 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.13 cfs @ 11.81 fps)
  ├**3=Orifice/Grate** (Orifice Controls 0.40 cfs @ 1.73 fps)
  └**4=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond 210P: Sand Filter mc3500



Stage-Area-Storage for Pond 210P: Sand Filter mc3500

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
124.70	0	125.76	3,832	126.82	9,793	127.88	15,254
124.72	54	125.78	3,948	126.84	9,902	127.90	15,350
124.74	108	125.80	4,063	126.86	10,011	127.92	15,445
124.76	163	125.82	4,178	126.88	10,119	127.94	15,540
124.78	217	125.84	4,293	126.90	10,227	127.96	15,635
124.80	271	125.86	4,408	126.92	10,335	127.98	15,729
124.82	325	125.88	4,523	126.94	10,443	128.00	15,823
124.84	379	125.90	4,638	126.96	10,550	128.02	15,916
124.86	433	125.92	4,753	126.98	10,658	128.04	16,009
124.88	488	125.94	4,867	127.00	10,765	128.06	16,102
124.90	542	125.96	4,982	127.02	10,872	128.08	16,195
124.92	596	125.98	5,096	127.04	10,979	128.10	16,287
124.94	650	126.00	5,211	127.06	11,085	128.12	16,378
124.96	704	126.02	5,325	127.08	11,192	128.14	16,469
124.98	759	126.04	5,439	127.10	11,298	128.16	16,560
125.00	813	126.06	5,553	127.12	11,404	128.18	16,651
125.02	867	126.08	5,667	127.14	11,510	128.20	16,740
125.04	921	126.10	5,781	127.16	11,615	128.22	16,830
125.06	975	126.12	5,895	127.18	11,721	128.24	16,919
125.08	1,029	126.14	6,008	127.20	11,826	128.26	17,007
125.10	1,084	126.16	6,122	127.22	11,931	128.28	17,096
125.12	1,138	126.18	6,235	127.24	12,036	128.30	17,183
125.14	1,192	126.20	6,349	127.26	12,140	128.32	17,270
125.16	1,246	126.22	6,462	127.28	12,244	128.34	17,357
125.18	1,300	126.24	6,575	127.30	12,349	128.36	17,443
125.20	1,355	126.26	6,688	127.32	12,452	128.38	17,529
125.22	1,409	126.28	6,800	127.34	12,556	128.40	17,614
125.24	1,463	126.30	6,913	127.36	12,659	128.42	17,698
125.26	1,517	126.32	7,025	127.38	12,763	128.44	17,782
125.28	1,571	126.34	7,138	127.40	12,866	128.46	17,866
125.30	1,625	126.36	7,250	127.42	12,968	128.48	17,949
125.32	1,680	126.38	7,362	127.44	13,071	128.50	18,031
125.34	1,734	126.40	7,474	127.46	13,173	128.52	18,113
125.36	1,788	126.42	7,586	127.48	13,275	128.54	18,194
125.38	1,842	126.44	7,698	127.50	13,376	128.56	18,274
125.40	1,896	126.46	7,809	127.52	13,478	128.58	18,354
125.42	1,951	126.48	7,921	127.54	13,579	128.60	18,433
125.44	2,005	126.50	8,032	127.56	13,680	128.62	18,511
125.46	2,090	126.52	8,143	127.58	13,780	128.64	18,588
125.48	2,207	126.54	8,254	127.60	13,881	128.66	18,665
125.50	2,324	126.56	8,365	127.62	13,981	128.68	18,741
125.52	2,440	126.58	8,476	127.64	14,080	128.70	18,816
125.54	2,557	126.60	8,587	127.66	14,180	128.72	18,889
125.56	2,673	126.62	8,697	127.68	14,279	128.74	18,962
125.58	2,789	126.64	8,808	127.70	14,378	128.76	19,034
125.60	2,906	126.66	8,918	127.72	14,477	128.78	19,104
125.62	3,022	126.68	9,028	127.74	14,575	128.80	19,173
125.64	3,138	126.70	9,138	127.76	14,673	128.82	19,241
125.66	3,254	126.72	9,247	127.78	14,770	128.84	19,307
125.68	3,370	126.74	9,357	127.80	14,868	128.86	19,372
125.70	3,485	126.76	9,466	127.82	14,965	128.88	19,436
125.72	3,601	126.78	9,576	127.84	15,061	128.90	19,499
125.74	3,717	126.80	9,685	127.86	15,158	128.92	19,561

Stage-Area-Storage for Pond 210P: Sand Filter mc3500 (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
128.94	19,622	130.00	22,537	131.06	23,079
128.96	19,682	130.02	22,591	131.08	23,079
128.98	19,742	130.04	22,646	131.10	23,079
129.00	19,802	130.06	22,700	131.12	23,079
129.02	19,861	130.08	22,754	131.14	23,079
129.04	19,920	130.10	22,808	131.16	23,079
129.06	19,978	130.12	22,862	131.18	23,079
129.08	20,035	130.14	22,916	131.20	23,079
129.10	20,092	130.16	22,971	131.22	23,079
129.12	20,149	130.18	23,025	131.24	23,079
129.14	20,205	130.20	**23,079**	131.26	23,079
129.16	20,261	130.22	23,079	131.28	23,079
129.18	20,316	130.24	23,079	131.30	23,079
129.20	20,370	130.26	23,079	131.32	23,079
129.22	20,424	130.28	23,079	131.34	23,079
129.24	20,478	130.30	23,079	131.36	23,079
129.26	20,533	130.32	23,079		
129.28	20,587	130.34	23,079		
129.30	20,641	130.36	23,079		
129.32	20,695	130.38	23,079		
129.34	20,749	130.40	23,079		
129.36	20,803	130.42	23,079		
129.38	20,858	130.44	23,079		
129.40	20,912	130.46	23,079		
129.42	20,966	130.48	23,079		
129.44	21,020	130.50	23,079		
129.46	21,074	130.52	23,079		
129.48	21,128	130.54	23,079		
129.50	21,183	130.56	23,079		
129.52	21,237	130.58	23,079		
129.54	21,291	130.60	23,079		
129.56	21,345	130.62	23,079		
129.58	21,399	130.64	23,079		
129.60	21,454	130.66	23,079		
129.62	21,508	130.68	23,079		
129.64	21,562	130.70	23,079		
129.66	21,616	130.72	23,079		
129.68	21,670	130.74	23,079		
129.70	21,724	130.76	23,079		
129.72	21,779	130.78	23,079		
129.74	21,833	130.80	23,079		
129.76	21,887	130.82	23,079		
129.78	21,941	130.84	23,079		
129.80	21,995	130.86	23,079		
129.82	22,050	130.88	23,079		
129.84	22,104	130.90	23,079		
129.86	22,158	130.92	23,079		
129.88	22,212	130.94	23,079		
129.90	22,266	130.96	23,079		
129.92	22,320	130.98	23,079		
129.94	22,375	131.00	23,079		
129.96	22,429	131.02	23,079		
129.98	22,483	131.04	23,079		

SEBAGO TECHNICS, INC.
75 John Roberts Road Suite 1A
South Portland, Maine 04106
Tel. (207) 200-2100

JOB	14432 - Portland Retirement Residence		
SHEET NO.	1	OF	1
CALCULATED BY	PDO	DATE	8/7/2015
FILE NAME		PRNT DATE	9/9/2015

UNDERDRAINED SOIL FILTER

Task: Calculate water quality volume per MDEP chapter 500 regulations

References
1. Maine DEP Chapter 500, Section 4.B.(2)(b)
   a. "must detain a runoff volume equal to 1.0 inch times the subcatchment's impervious area plus 0.4 inch times the subcatchment's landscaped area"
2. Maine DEP Best Management Practices Stormwater Manual, Section 7.1
   a. "surface should represent 5% of impervious area and 2% of landscaped area"

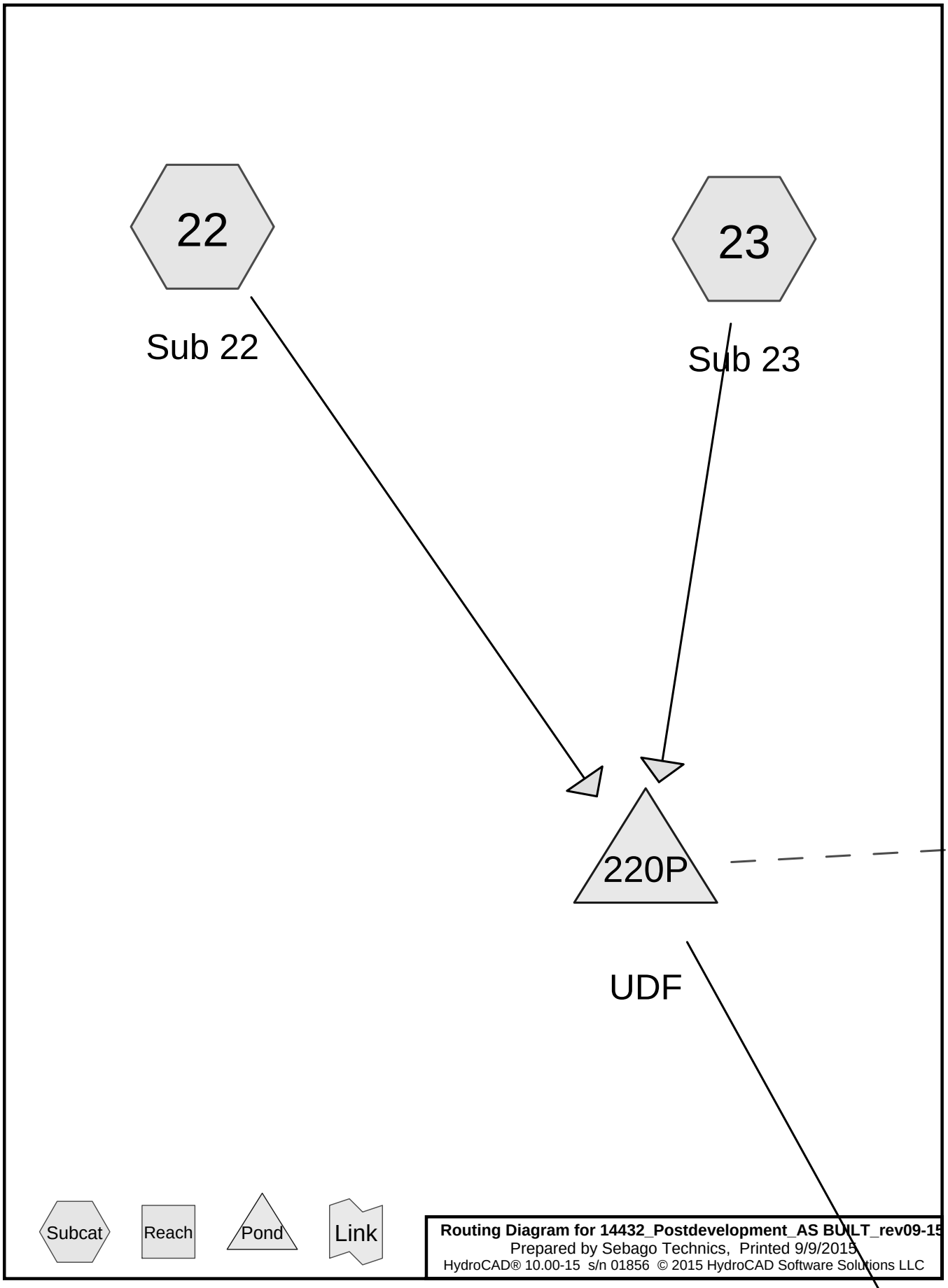
Tributary to Underdrained Filter #1

Landscaped Area	19,020.00	SF					
Impervious Area	20,026.00	SF					
Minimum Surface Area							
Required	(2% X Landscaped + 5%" X Impervious)						
Total Landscaped Area	19,020.00	SF	Area	380.4	SF		
Total Impervious Area	20,026.00	SF	Area	1,001.3	SF		
Required Minimum Surface Area				1,381.7	SF		
Provided Surface Area				2,326.0	SF		
Channel Protection Volume (CPV)							
Required	(0.4" X Landscaped + 1.0" X Impervious)						
Landscaped Area	19,020.00	SF	Volume	634.0			
Impervious Area	20,026.00	SF	Volume	1,668.8			
CPV Required				2,302.8	CF	0.053	AF
Provided CPV				2,900.0	CF	(Elevation 125.00 to 126.00)	

Sediment Pre-Treatment

Per Reference 2, Chapter 7.13 "Pretreatment devices shall be provided to minimize discharge of sediment to the soil filter"

Annual Sediment Load:	50 cubic feet per acre per year of sanded area						
Area to be sanded:	20,026.00	SF					
Sediment Volume	23	CF					
Provided	52	CF	6	Inch Deep Forebay	with area of	104	sf



Routing Diagram for 14432_Postdevelopment_AS BUILT_rev09-15
Prepared by Sebago Technics, Printed 9/9/2015

Summary for Subcatchment 22: Sub 22

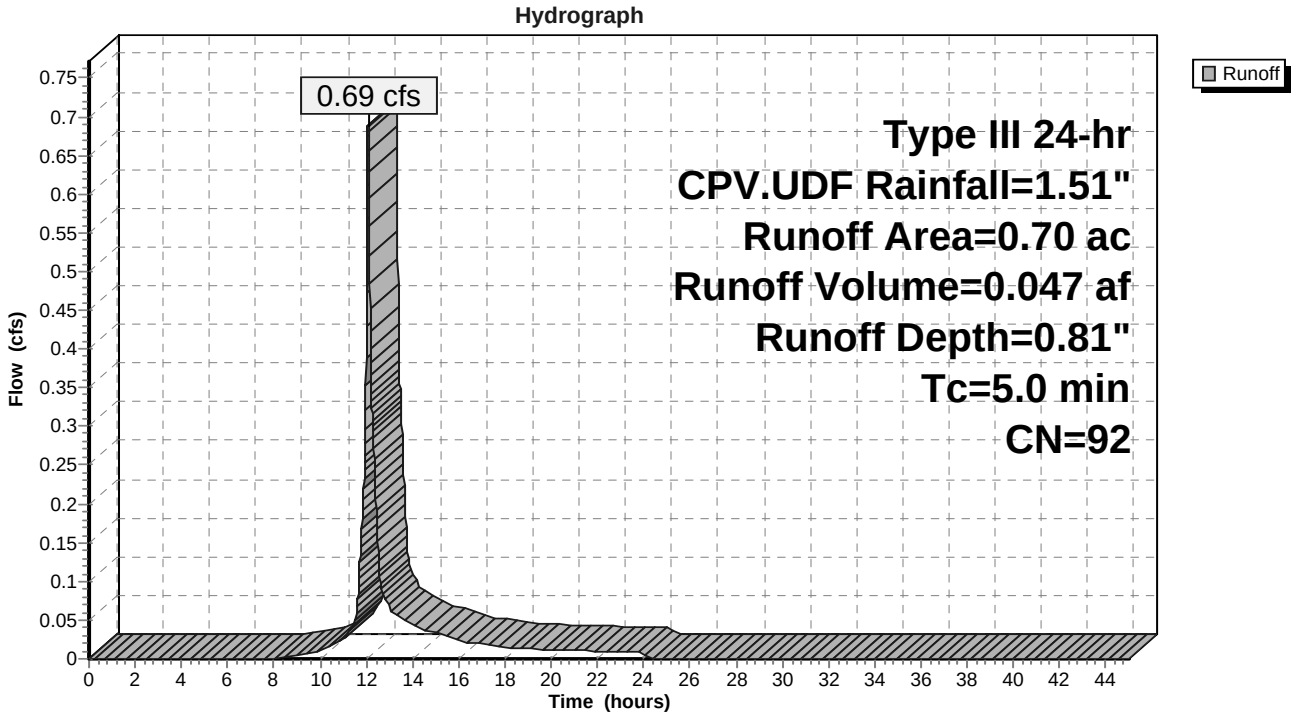
Runoff = 0.69 cfs @ 12.08 hrs, Volume= 0.047 af, Depth= 0.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr CPV.UDF Rainfall=1.51"

	Area (ac)	CN	Description
*	0.45	98	Site Development
	0.25	80	>75% Grass cover, Good, HSG D
	0.70	92	Weighted Average
	0.25		35.71% Pervious Area
	0.45		64.29% Impervious Area

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

Subcatchment 22: Sub 22



Summary for Subcatchment 23: Sub 23

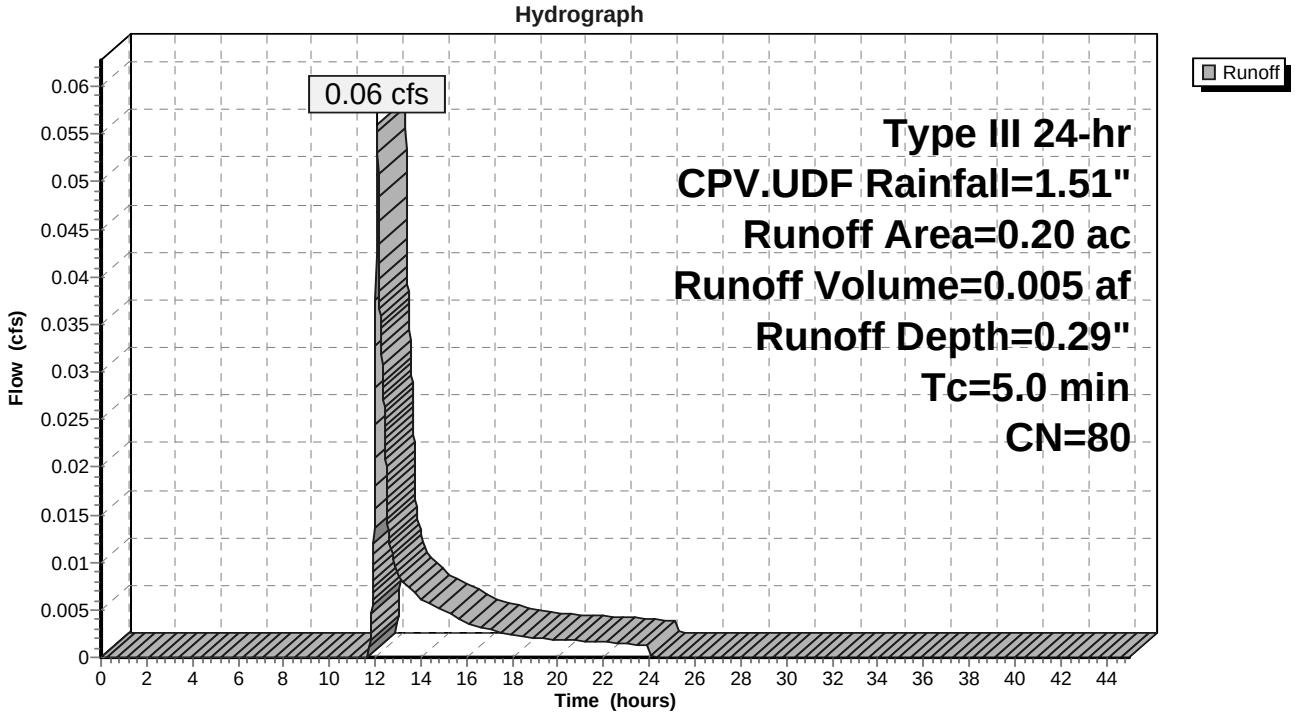
Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr CPV.UDF Rainfall=1.51"

Area (ac)	CN	Description
0.20	80	>75% Grass cover, Good, HSG D
0.20		100.00% Pervious Area

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

Subcatchment 23: Sub 23



Summary for Pond 220P: UDF

Inflow Area = 0.90 ac, 50.00% Impervious, Inflow Depth = 0.69" for CPV.UDF event
Inflow = 0.74 cfs @ 12.08 hrs, Volume= 0.052 af
Outflow = 0.03 cfs @ 15.33 hrs, Volume= 0.052 af, Atten= 95%, Lag= 194.9 min
Primary = 0.03 cfs @ 15.33 hrs, Volume= 0.052 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 125.49' @ 15.33 hrs Surf.Area= 2,643 sf Storage= 1,215 cf

Plug-Flow detention time= 375.9 min calculated for 0.052 af (100% of inflow)
Center-of-Mass det. time= 376.0 min (1,209.2 - 833.2)

Volume	Invert	Avail.Storage	Storage Description
#1	125.00'	10,527 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

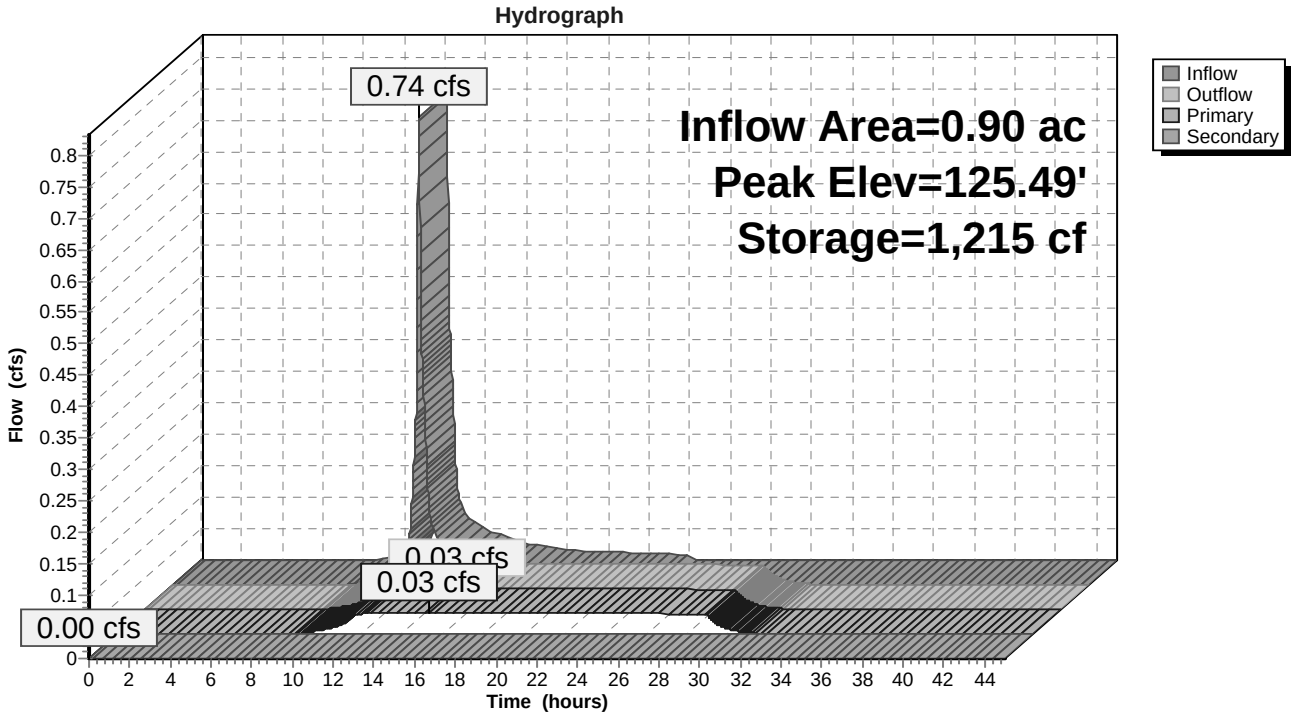
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
125.00	2,326	0	0
126.00	2,974	2,650	2,650
127.00	4,000	3,487	6,137
128.00	4,780	4,390	10,527

Device	Routing	Invert	Outlet Devices
#1	Primary	122.83'	**12.0" Round Culvert** L= 78.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 122.83' / 122.28' S= 0.0071 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	122.83'	**0.9" Vert. Orifice/Grate** C= 0.600
#3	Device 2	125.00'	**2.400 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'
#4	Device 1	126.00'	**4.0" Vert. Orifice/Grate X 4.00** C= 0.600
#5	Device 1	127.00'	**20.0" Vert. Orifice/Grate** C= 0.600
#6	Secondary	127.50'	**10.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=0.03 cfs @ 15.33 hrs HW=125.49' (Free Discharge)
└**1=Culvert** (Passes 0.03 cfs of 4.95 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.03 cfs @ 7.80 fps)
  │ └**3=Exfiltration** (Passes 0.03 cfs of 0.15 cfs potential flow)
  ├**4=Orifice/Grate** (Controls 0.00 cfs)
  └**5=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=125.00' (Free Discharge)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 220P: UDF



Stage-Area-Storage for Pond 220P: UDF

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
125.00	2,326	0	125.53	2,669	1,324
125.01	2,332	23	125.54	2,676	1,351
125.02	2,339	47	125.55	2,682	1,377
125.03	2,345	70	125.56	2,689	1,404
125.04	2,352	94	125.57	2,695	1,431
125.05	2,358	117	125.58	2,702	1,458
125.06	2,365	141	125.59	2,708	1,485
125.07	2,371	164	125.60	2,715	1,512
125.08	2,378	188	125.61	2,721	1,539
125.09	2,384	212	125.62	2,728	1,567
125.10	2,391	236	125.63	2,734	1,594
125.11	2,397	260	125.64	2,741	1,621
125.12	2,404	284	125.65	2,747	1,649
125.13	2,410	308	125.66	2,754	1,676
125.14	2,417	332	125.67	2,760	1,704
125.15	2,423	356	125.68	2,767	1,731
125.16	2,430	380	125.69	2,773	1,759
125.17	2,436	405	125.70	2,780	1,787
125.18	2,443	429	125.71	2,786	1,815
125.19	2,449	454	125.72	2,793	1,843
125.20	2,456	478	125.73	2,799	1,871
125.21	2,462	503	125.74	2,806	1,899
125.22	2,469	527	125.75	2,812	1,927
125.23	2,475	552	125.76	2,818	1,955
125.24	2,482	577	125.77	2,825	1,983
125.25	2,488	602	125.78	2,831	2,011
125.26	2,494	627	125.79	2,838	2,040
125.27	2,501	652	125.80	2,844	2,068
125.28	2,507	677	125.81	2,851	2,097
125.29	2,514	702	125.82	2,857	2,125
125.30	2,520	727	125.83	2,864	2,154
125.31	2,527	752	125.84	2,870	2,182
125.32	2,533	777	125.85	2,877	2,211
125.33	2,540	803	125.86	2,883	2,240
125.34	2,546	828	125.87	2,890	2,269
125.35	2,553	854	125.88	2,896	2,298
125.36	2,559	879	125.89	2,903	2,327
125.37	2,566	905	125.90	2,909	2,356
125.38	2,572	931	125.91	2,916	2,385
125.39	2,579	956	125.92	2,922	2,414
125.40	2,585	982	125.93	2,929	2,443
125.41	2,592	1,008	125.94	2,935	2,473
125.42	2,598	1,034	125.95	2,942	2,502
125.43	2,605	1,060	125.96	2,948	2,532
125.44	2,611	1,086	125.97	2,955	2,561
125.45	2,618	1,112	125.98	2,961	2,591
125.46	2,624	1,139	125.99	2,968	2,620
125.47	2,631	1,165	126.00	2,974	2,650
125.48	2,637	1,191	126.01	2,984	2,680
125.49	2,644	1,218	126.02	2,995	2,710
125.50	2,650	1,244	126.03	3,005	2,740
125.51	2,656	1,271	126.04	3,015	2,770
125.52	2,663	1,297	126.05	3,025	2,800

Stage-Area-Storage for Pond 220P: UDF (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
126.06	3,036	2,830	126.59	3,579	4,583
126.07	3,046	2,861	126.60	3,590	4,619
126.08	3,056	2,891	126.61	3,600	4,655
126.09	3,066	2,922	126.62	3,610	4,691
126.10	3,077	2,953	126.63	3,620	4,727
126.11	3,087	2,983	126.64	3,631	4,763
126.12	3,097	3,014	126.65	3,641	4,800
126.13	3,107	3,045	126.66	3,651	4,836
126.14	3,118	3,076	126.67	3,661	4,873
126.15	3,128	3,108	126.68	3,672	4,910
126.16	3,138	3,139	126.69	3,682	4,946
126.17	3,148	3,170	126.70	3,692	4,983
126.18	3,159	3,202	126.71	3,702	5,020
126.19	3,169	3,234	126.72	3,713	5,057
126.20	3,179	3,265	126.73	3,723	5,094
126.21	3,189	3,297	126.74	3,733	5,132
126.22	3,200	3,329	126.75	3,744	5,169
126.23	3,210	3,361	126.76	3,754	5,207
126.24	3,220	3,393	126.77	3,764	5,244
126.25	3,231	3,426	126.78	3,774	5,282
126.26	3,241	3,458	126.79	3,785	5,320
126.27	3,251	3,490	126.80	3,795	5,358
126.28	3,261	3,523	126.81	3,805	5,396
126.29	3,272	3,556	126.82	3,815	5,434
126.30	3,282	3,588	126.83	3,826	5,472
126.31	3,292	3,621	126.84	3,836	5,510
126.32	3,302	3,654	126.85	3,846	5,549
126.33	3,313	3,687	126.86	3,856	5,587
126.34	3,323	3,720	126.87	3,867	5,626
126.35	3,333	3,754	126.88	3,877	5,664
126.36	3,343	3,787	126.89	3,887	5,703
126.37	3,354	3,821	126.90	3,897	5,742
126.38	3,364	3,854	126.91	3,908	5,781
126.39	3,374	3,888	126.92	3,918	5,820
126.40	3,384	3,922	126.93	3,928	5,860
126.41	3,395	3,956	126.94	3,938	5,899
126.42	3,405	3,990	126.95	3,949	5,938
126.43	3,415	4,024	126.96	3,959	5,978
126.44	3,425	4,058	126.97	3,969	6,017
126.45	3,436	4,092	126.98	3,979	6,057
126.46	3,446	4,127	126.99	3,990	6,097
126.47	3,456	4,161	127.00	4,000	6,137
126.48	3,466	4,196	127.01	4,008	6,177
126.49	3,477	4,230	127.02	4,016	6,217
126.50	3,487	4,265	127.03	4,023	6,257
126.51	3,497	4,300	127.04	4,031	6,298
126.52	3,508	4,335	127.05	4,039	6,338
126.53	3,518	4,370	127.06	4,047	6,378
126.54	3,528	4,406	127.07	4,055	6,419
126.55	3,538	4,441	127.08	4,062	6,459
126.56	3,549	4,476	127.09	4,070	6,500
126.57	3,559	4,512	127.10	4,078	6,541
126.58	3,569	4,547	127.11	4,086	6,582

Stage-Area-Storage for Pond 220P: UDF (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
127.12	4,094	6,623	127.65	4,507	8,902
127.13	4,101	6,664	127.66	4,515	8,947
127.14	4,109	6,705	127.67	4,523	8,992
127.15	4,117	6,746	127.68	4,530	9,037
127.16	4,125	6,787	127.69	4,538	9,083
127.17	4,133	6,828	127.70	4,546	9,128
127.18	4,140	6,870	127.71	4,554	9,174
127.19	4,148	6,911	127.72	4,562	9,219
127.20	4,156	6,953	127.73	4,569	9,265
127.21	4,164	6,994	127.74	4,577	9,311
127.22	4,172	7,036	127.75	4,585	9,356
127.23	4,179	7,078	127.76	4,593	9,402
127.24	4,187	7,119	127.77	4,601	9,448
127.25	4,195	7,161	127.78	4,608	9,494
127.26	4,203	7,203	127.79	4,616	9,540
127.27	4,211	7,245	127.80	4,624	9,587
127.28	4,218	7,288	127.81	4,632	9,633
127.29	4,226	7,330	127.82	4,640	9,679
127.30	4,234	7,372	127.83	4,647	9,726
127.31	4,242	7,414	127.84	4,655	9,772
127.32	4,250	7,457	127.85	4,663	9,819
127.33	4,257	7,499	127.86	4,671	9,865
127.34	4,265	7,542	127.87	4,679	9,912
127.35	4,273	7,585	127.88	4,686	9,959
127.36	4,281	7,628	127.89	4,694	10,006
127.37	4,289	7,670	127.90	4,702	10,053
127.38	4,296	7,713	127.91	4,710	10,100
127.39	4,304	7,756	127.92	4,718	10,147
127.40	4,312	7,799	127.93	4,725	10,194
127.41	4,320	7,843	127.94	4,733	10,242
127.42	4,328	7,886	127.95	4,741	10,289
127.43	4,335	7,929	127.96	4,749	10,336
127.44	4,343	7,973	127.97	4,757	10,384
127.45	4,351	8,016	127.98	4,764	10,432
127.46	4,359	8,060	127.99	4,772	10,479
127.47	4,367	8,103	128.00	**4,780**	**10,527**
127.48	4,374	8,147	128.01	4,780	10,527
127.49	4,382	8,191	128.02	4,780	10,527
127.50	4,390	8,235	128.03	4,780	10,527
127.51	4,398	8,278	128.04	4,780	10,527
127.52	4,406	8,322	128.05	4,780	10,527
127.53	4,413	8,367	128.06	4,780	10,527
127.54	4,421	8,411	128.07	4,780	10,527
127.55	4,429	8,455	128.08	4,780	10,527
127.56	4,437	8,499	128.09	4,780	10,527
127.57	4,445	8,544	128.10	4,780	10,527
127.58	4,452	8,588	128.11	4,780	10,527
127.59	4,460	8,633	128.12	4,780	10,527
127.60	4,468	8,677	128.13	4,780	10,527
127.61	4,476	8,722	128.14	4,780	10,527
127.62	4,484	8,767	128.15	4,780	10,527
127.63	4,491	8,812	128.16	4,780	10,527
127.64	4,499	8,857	128.17	4,780	10,527

Stage-Area-Storage for Pond 220P: UDF (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
128.18	4,780	10,527
128.19	4,780	10,527
128.20	4,780	10,527
128.21	4,780	10,527
128.22	4,780	10,527
128.23	4,780	10,527
128.24	4,780	10,527
128.25	4,780	10,527
128.26	4,780	10,527
128.27	4,780	10,527
128.28	4,780	10,527
128.29	4,780	10,527
128.30	4,780	10,527
128.31	4,780	10,527
128.32	4,780	10,527
128.33	4,780	10,527
128.34	4,780	10,527
128.35	4,780	10,527
128.36	4,780	10,527
128.37	4,780	10,527
128.38	4,780	10,527
128.39	4,780	10,527
128.40	4,780	10,527
128.41	4,780	10,527
128.42	4,780	10,527
128.43	4,780	10,527
128.44	4,780	10,527
128.45	4,780	10,527
128.46	4,780	10,527
128.47	4,780	10,527
128.48	4,780	10,527
128.49	4,780	10,527
128.50	4,780	10,527
128.51	4,780	10,527
128.52	4,780	10,527
128.53	4,780	10,527
128.54	4,780	10,527
128.55	4,780	10,527
128.56	4,780	10,527
128.57	4,780	10,527
128.58	4,780	10,527
128.59	4,780	10,527
128.60	4,780	10,527
128.61	4,780	10,527
128.62	4,780	10,527
128.63	4,780	10,527
128.64	4,780	10,527
128.65	4,780	10,527
128.66	4,780	10,527
128.67	4,780	10,527

Summary for Subcatchment 22: Sub 22

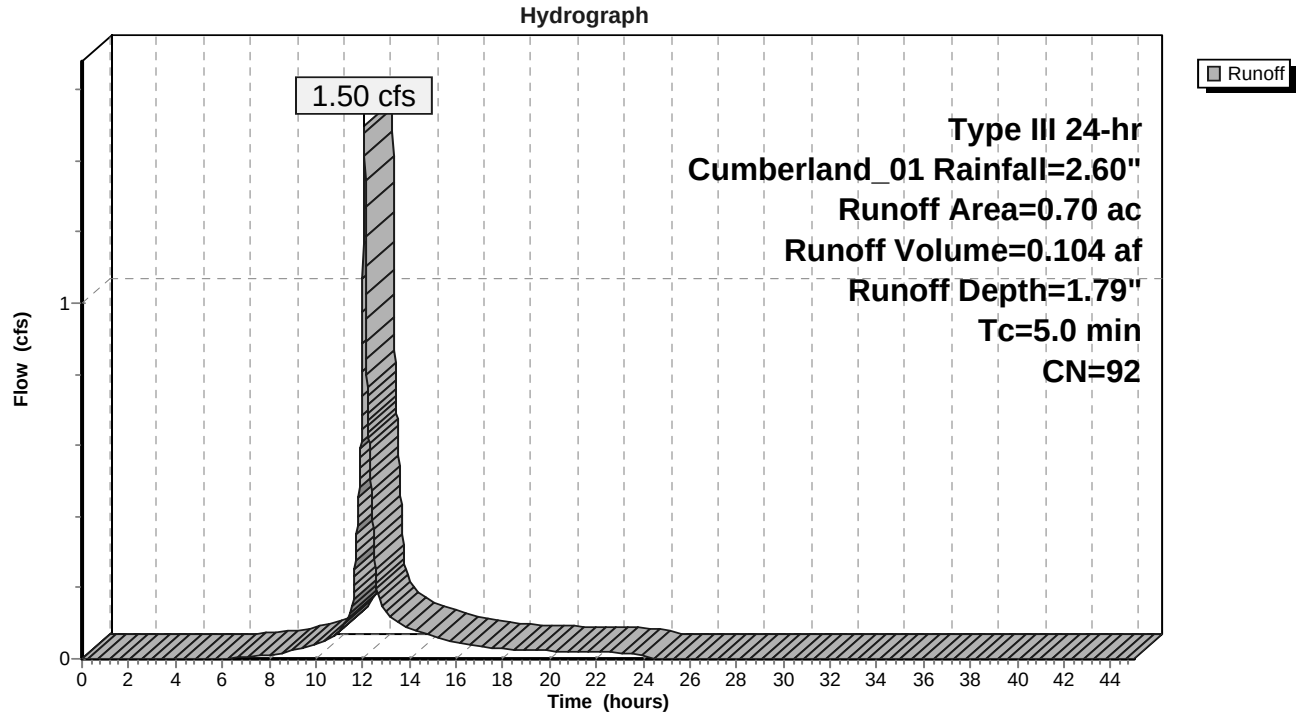
Runoff = 1.50 cfs @ 12.07 hrs, Volume= 0.104 af, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_01 Rainfall=2.60"

	Area (ac)	CN	Description
*	0.45	98	Site Development
	0.25	80	>75% Grass cover, Good, HSG D
	0.70	92	Weighted Average
	0.25		35.71% Pervious Area
	0.45		64.29% Impervious Area

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

Subcatchment 22: Sub 22



Summary for Subcatchment 23: Sub 23

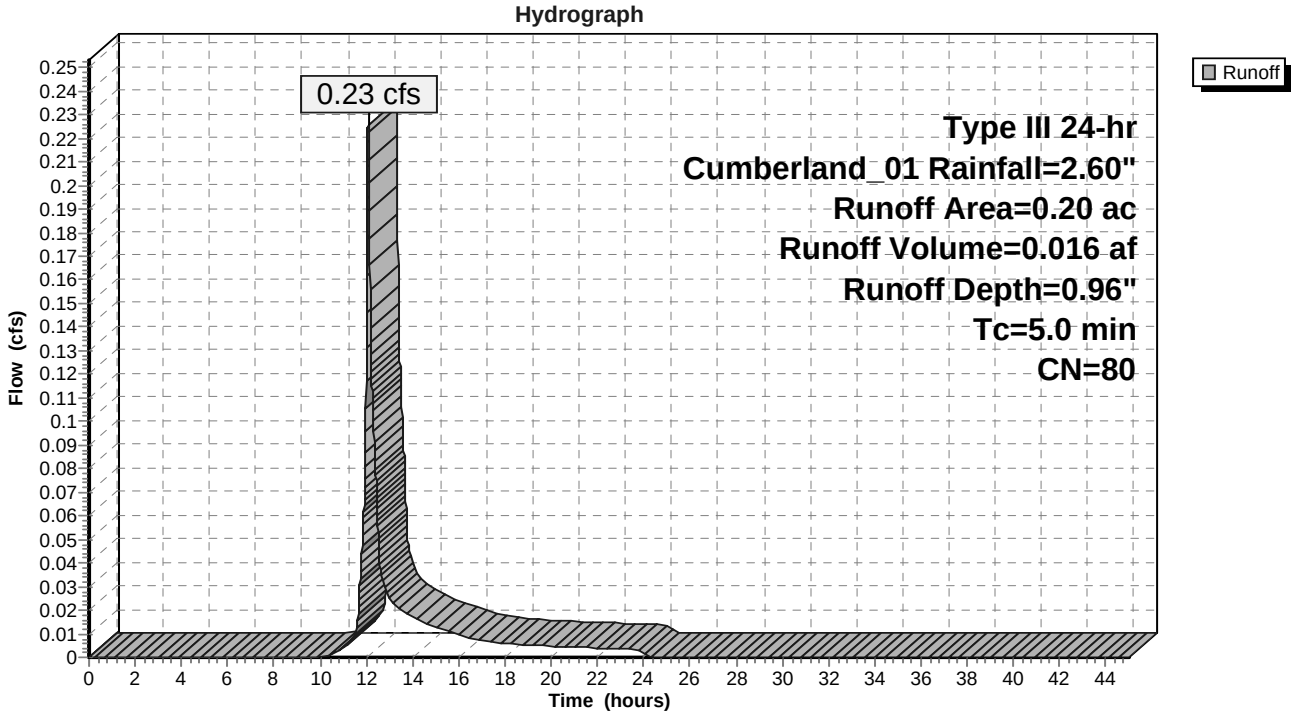
Runoff = 0.23 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 0.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_01 Rainfall=2.60"

Area (ac)	CN	Description
0.20	80	>75% Grass cover, Good, HSG D
0.20		100.00% Pervious Area

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

Subcatchment 23: Sub 23



Summary for Pond 220P: UDF

Inflow Area = 0.90 ac, 50.00% Impervious, Inflow Depth = 1.60" for Cumberland_01 event
Inflow = 1.73 cfs @ 12.07 hrs, Volume= 0.120 af
Outflow = 0.12 cfs @ 13.69 hrs, Volume= 0.120 af, Atten= 93%, Lag= 97.1 min
Primary = 0.12 cfs @ 13.69 hrs, Volume= 0.120 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 126.09' @ 13.69 hrs Surf.Area= 3,064 sf Storage= 2,916 cf

Plug-Flow detention time= 641.7 min calculated for 0.120 af (100% of inflow)
Center-of-Mass det. time= 641.1 min (1,452.1 - 811.0)

Volume	Invert	Avail.Storage	Storage Description
#1	125.00'	10,527 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

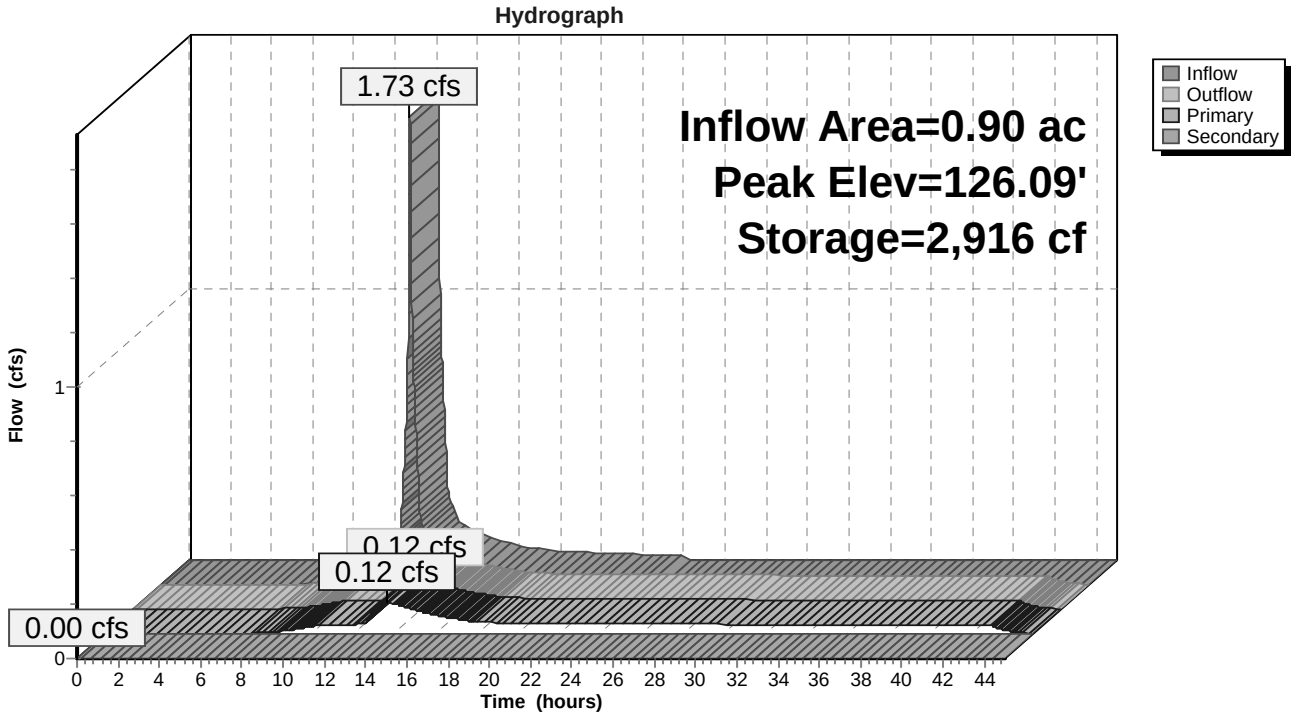
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
125.00	2,326	0	0
126.00	2,974	2,650	2,650
127.00	4,000	3,487	6,137
128.00	4,780	4,390	10,527

Device	Routing	Invert	Outlet Devices
#1	Primary	122.83'	**12.0" Round Culvert** L= 78.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 122.83' / 122.28' S= 0.0071 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	122.83'	**0.9" Vert. Orifice/Grate** C= 0.600
#3	Device 2	125.00'	**2.400 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'
#4	Device 1	126.00'	**4.0" Vert. Orifice/Grate X 4.00** C= 0.600
#5	Device 1	127.00'	**20.0" Vert. Orifice/Grate** C= 0.600
#6	Secondary	127.50'	**10.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=0.11 cfs @ 13.69 hrs HW=126.09' (Free Discharge)
└**1=Culvert** (Passes 0.11 cfs of 5.58 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.04 cfs @ 8.64 fps)
  │ └**3=Exfiltration** (Passes 0.04 cfs of 0.17 cfs potential flow)
  ├**4=Orifice/Grate** (Orifice Controls 0.07 cfs @ 1.01 fps)
  └**5=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=125.00' (Free Discharge)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 220P: UDF



Stage-Area-Storage for Pond 220P: UDF

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
125.00	2,326	0	125.53	2,669	1,324
125.01	2,332	23	125.54	2,676	1,351
125.02	2,339	47	125.55	2,682	1,377
125.03	2,345	70	125.56	2,689	1,404
125.04	2,352	94	125.57	2,695	1,431
125.05	2,358	117	125.58	2,702	1,458
125.06	2,365	141	125.59	2,708	1,485
125.07	2,371	164	125.60	2,715	1,512
125.08	2,378	188	125.61	2,721	1,539
125.09	2,384	212	125.62	2,728	1,567
125.10	2,391	236	125.63	2,734	1,594
125.11	2,397	260	125.64	2,741	1,621
125.12	2,404	284	125.65	2,747	1,649
125.13	2,410	308	125.66	2,754	1,676
125.14	2,417	332	125.67	2,760	1,704
125.15	2,423	356	125.68	2,767	1,731
125.16	2,430	380	125.69	2,773	1,759
125.17	2,436	405	125.70	2,780	1,787
125.18	2,443	429	125.71	2,786	1,815
125.19	2,449	454	125.72	2,793	1,843
125.20	2,456	478	125.73	2,799	1,871
125.21	2,462	503	125.74	2,806	1,899
125.22	2,469	527	125.75	2,812	1,927
125.23	2,475	552	125.76	2,818	1,955
125.24	2,482	577	125.77	2,825	1,983
125.25	2,488	602	125.78	2,831	2,011
125.26	2,494	627	125.79	2,838	2,040
125.27	2,501	652	125.80	2,844	2,068
125.28	2,507	677	125.81	2,851	2,097
125.29	2,514	702	125.82	2,857	2,125
125.30	2,520	727	125.83	2,864	2,154
125.31	2,527	752	125.84	2,870	2,182
125.32	2,533	777	125.85	2,877	2,211
125.33	2,540	803	125.86	2,883	2,240
125.34	2,546	828	125.87	2,890	2,269
125.35	2,553	854	125.88	2,896	2,298
125.36	2,559	879	125.89	2,903	2,327
125.37	2,566	905	125.90	2,909	2,356
125.38	2,572	931	125.91	2,916	2,385
125.39	2,579	956	125.92	2,922	2,414
125.40	2,585	982	125.93	2,929	2,443
125.41	2,592	1,008	125.94	2,935	2,473
125.42	2,598	1,034	125.95	2,942	2,502
125.43	2,605	1,060	125.96	2,948	2,532
125.44	2,611	1,086	125.97	2,955	2,561
125.45	2,618	1,112	125.98	2,961	2,591
125.46	2,624	1,139	125.99	2,968	2,620
125.47	2,631	1,165	126.00	2,974	2,650
125.48	2,637	1,191	126.01	2,984	2,680
125.49	2,644	1,218	126.02	2,995	2,710
125.50	2,650	1,244	126.03	3,005	2,740
125.51	2,656	1,271	126.04	3,015	2,770
125.52	2,663	1,297	126.05	3,025	2,800

Stage-Area-Storage for Pond 220P: UDF (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
126.06	3,036	2,830	126.59	3,579	4,583
126.07	3,046	2,861	126.60	3,590	4,619
126.08	3,056	2,891	126.61	3,600	4,655
126.09	3,066	2,922	126.62	3,610	4,691
126.10	3,077	2,953	126.63	3,620	4,727
126.11	3,087	2,983	126.64	3,631	4,763
126.12	3,097	3,014	126.65	3,641	4,800
126.13	3,107	3,045	126.66	3,651	4,836
126.14	3,118	3,076	126.67	3,661	4,873
126.15	3,128	3,108	126.68	3,672	4,910
126.16	3,138	3,139	126.69	3,682	4,946
126.17	3,148	3,170	126.70	3,692	4,983
126.18	3,159	3,202	126.71	3,702	5,020
126.19	3,169	3,234	126.72	3,713	5,057
126.20	3,179	3,265	126.73	3,723	5,094
126.21	3,189	3,297	126.74	3,733	5,132
126.22	3,200	3,329	126.75	3,744	5,169
126.23	3,210	3,361	126.76	3,754	5,207
126.24	3,220	3,393	126.77	3,764	5,244
126.25	3,231	3,426	126.78	3,774	5,282
126.26	3,241	3,458	126.79	3,785	5,320
126.27	3,251	3,490	126.80	3,795	5,358
126.28	3,261	3,523	126.81	3,805	5,396
126.29	3,272	3,556	126.82	3,815	5,434
126.30	3,282	3,588	126.83	3,826	5,472
126.31	3,292	3,621	126.84	3,836	5,510
126.32	3,302	3,654	126.85	3,846	5,549
126.33	3,313	3,687	126.86	3,856	5,587
126.34	3,323	3,720	126.87	3,867	5,626
126.35	3,333	3,754	126.88	3,877	5,664
126.36	3,343	3,787	126.89	3,887	5,703
126.37	3,354	3,821	126.90	3,897	5,742
126.38	3,364	3,854	126.91	3,908	5,781
126.39	3,374	3,888	126.92	3,918	5,820
126.40	3,384	3,922	126.93	3,928	5,860
126.41	3,395	3,956	126.94	3,938	5,899
126.42	3,405	3,990	126.95	3,949	5,938
126.43	3,415	4,024	126.96	3,959	5,978
126.44	3,425	4,058	126.97	3,969	6,017
126.45	3,436	4,092	126.98	3,979	6,057
126.46	3,446	4,127	126.99	3,990	6,097
126.47	3,456	4,161	127.00	4,000	6,137
126.48	3,466	4,196	127.01	4,008	6,177
126.49	3,477	4,230	127.02	4,016	6,217
126.50	3,487	4,265	127.03	4,023	6,257
126.51	3,497	4,300	127.04	4,031	6,298
126.52	3,508	4,335	127.05	4,039	6,338
126.53	3,518	4,370	127.06	4,047	6,378
126.54	3,528	4,406	127.07	4,055	6,419
126.55	3,538	4,441	127.08	4,062	6,459
126.56	3,549	4,476	127.09	4,070	6,500
126.57	3,559	4,512	127.10	4,078	6,541
126.58	3,569	4,547	127.11	4,086	6,582

Stage-Area-Storage for Pond 220P: UDF (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
127.12	4,094	6,623	127.65	4,507	8,902
127.13	4,101	6,664	127.66	4,515	8,947
127.14	4,109	6,705	127.67	4,523	8,992
127.15	4,117	6,746	127.68	4,530	9,037
127.16	4,125	6,787	127.69	4,538	9,083
127.17	4,133	6,828	127.70	4,546	9,128
127.18	4,140	6,870	127.71	4,554	9,174
127.19	4,148	6,911	127.72	4,562	9,219
127.20	4,156	6,953	127.73	4,569	9,265
127.21	4,164	6,994	127.74	4,577	9,311
127.22	4,172	7,036	127.75	4,585	9,356
127.23	4,179	7,078	127.76	4,593	9,402
127.24	4,187	7,119	127.77	4,601	9,448
127.25	4,195	7,161	127.78	4,608	9,494
127.26	4,203	7,203	127.79	4,616	9,540
127.27	4,211	7,245	127.80	4,624	9,587
127.28	4,218	7,288	127.81	4,632	9,633
127.29	4,226	7,330	127.82	4,640	9,679
127.30	4,234	7,372	127.83	4,647	9,726
127.31	4,242	7,414	127.84	4,655	9,772
127.32	4,250	7,457	127.85	4,663	9,819
127.33	4,257	7,499	127.86	4,671	9,865
127.34	4,265	7,542	127.87	4,679	9,912
127.35	4,273	7,585	127.88	4,686	9,959
127.36	4,281	7,628	127.89	4,694	10,006
127.37	4,289	7,670	127.90	4,702	10,053
127.38	4,296	7,713	127.91	4,710	10,100
127.39	4,304	7,756	127.92	4,718	10,147
127.40	4,312	7,799	127.93	4,725	10,194
127.41	4,320	7,843	127.94	4,733	10,242
127.42	4,328	7,886	127.95	4,741	10,289
127.43	4,335	7,929	127.96	4,749	10,336
127.44	4,343	7,973	127.97	4,757	10,384
127.45	4,351	8,016	127.98	4,764	10,432
127.46	4,359	8,060	127.99	4,772	10,479
127.47	4,367	8,103	128.00	**4,780**	**10,527**
127.48	4,374	8,147	128.01	4,780	10,527
127.49	4,382	8,191	128.02	4,780	10,527
127.50	4,390	8,235	128.03	4,780	10,527
127.51	4,398	8,278	128.04	4,780	10,527
127.52	4,406	8,322	128.05	4,780	10,527
127.53	4,413	8,367	128.06	4,780	10,527
127.54	4,421	8,411	128.07	4,780	10,527
127.55	4,429	8,455	128.08	4,780	10,527
127.56	4,437	8,499	128.09	4,780	10,527
127.57	4,445	8,544	128.10	4,780	10,527
127.58	4,452	8,588	128.11	4,780	10,527
127.59	4,460	8,633	128.12	4,780	10,527
127.60	4,468	8,677	128.13	4,780	10,527
127.61	4,476	8,722	128.14	4,780	10,527
127.62	4,484	8,767	128.15	4,780	10,527
127.63	4,491	8,812	128.16	4,780	10,527
127.64	4,499	8,857	128.17	4,780	10,527

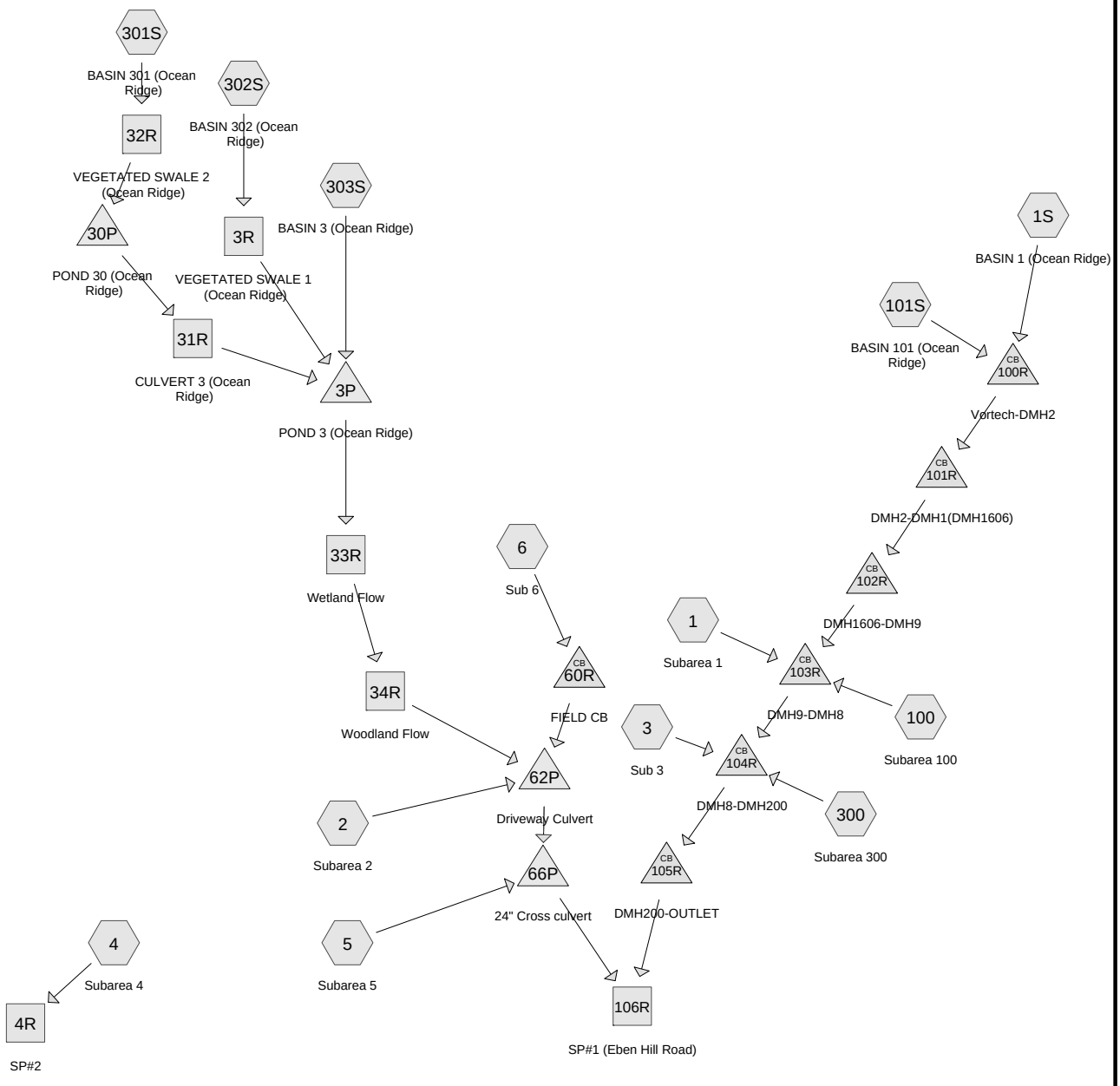
Stage-Area-Storage for Pond 220P: UDF (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
128.18	4,780	10,527
128.19	4,780	10,527
128.20	4,780	10,527
128.21	4,780	10,527
128.22	4,780	10,527
128.23	4,780	10,527
128.24	4,780	10,527
128.25	4,780	10,527
128.26	4,780	10,527
128.27	4,780	10,527
128.28	4,780	10,527
128.29	4,780	10,527
128.30	4,780	10,527
128.31	4,780	10,527
128.32	4,780	10,527
128.33	4,780	10,527
128.34	4,780	10,527
128.35	4,780	10,527
128.36	4,780	10,527
128.37	4,780	10,527
128.38	4,780	10,527
128.39	4,780	10,527
128.40	4,780	10,527
128.41	4,780	10,527
128.42	4,780	10,527
128.43	4,780	10,527
128.44	4,780	10,527
128.45	4,780	10,527
128.46	4,780	10,527
128.47	4,780	10,527
128.48	4,780	10,527
128.49	4,780	10,527
128.50	4,780	10,527
128.51	4,780	10,527
128.52	4,780	10,527
128.53	4,780	10,527
128.54	4,780	10,527
128.55	4,780	10,527
128.56	4,780	10,527
128.57	4,780	10,527
128.58	4,780	10,527
128.59	4,780	10,527
128.60	4,780	10,527
128.61	4,780	10,527
128.62	4,780	10,527
128.63	4,780	10,527
128.64	4,780	10,527
128.65	4,780	10,527
128.66	4,780	10,527
128.67	4,780	10,527

Attachment B

HydroCAD Output- Pre-Development/Post Development TR-2- Model

Predevelopment



Routing Diagram for 14432_Predevelopment_ASBUIILT
Prepared by Sebago Technics, Printed 9/9/2015
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.630	84	1 acre lots, 20% imp, HSG D (1, 3, 5, 6)
1.000	87	1/4 acre lots, 38% imp, HSG D (1, 2, 6)
0.090	80	>75% Grass cover, Good, HSG D (Ocean Ridge) (1)
0.140	80	>75% Grass cover, Good, HSG D, Ocean Ridge (2)
0.070	98	Building, Ocean Ridge (1, 2)
2.240	98	IMPERVIOUS (1S, 101S, 301S, 302S, 303S)
2.710	80	LAWN D (1S, 101S, 301S, 302S, 303S)
0.040	98	Paved roads Ocean Ave (3)
0.050	98	Road, Ocean Ridge (2)
0.610	98	Roadway (1, 2, 5, 100, 300)
0.510	77	WOODS D (1S, 302S, 303S)
15.100	77	Woods, Good, HSG D (1, 2, 4, 5)
0.030	77	Woods, Good, HSG D, Ocean Ridge (2)
24.220	**81**	**TOTAL AREA**

Time span=0.00-100.00 hrs, dt=0.01 hrs, 10001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Subarea 1 Runoff Area=3.160 ac 13.23% Impervious Runoff Depth=1.33"
Flow Length=660' Tc=9.5 min CN=80 Runoff=4.29 cfs 0.349 af

Subcatchment 1S: BASIN 1 (Ocean Ridge) Runoff Area=2.600 ac 34.62% Impervious Runoff Depth=1.75"
Flow Length=660' Tc=9.9 min CN=86 Runoff=4.67 cfs 0.379 af

Subcatchment 2: Subarea 2 Runoff Area=11.540 ac 3.32% Impervious Runoff Depth=1.20"
Flow Length=1,435' Tc=32.5 min CN=78 Runoff=8.62 cfs 1.155 af

Subcatchment 3: Sub 3 Runoff Area=0.300 ac 30.67% Impervious Runoff Depth=1.75"
Flow Length=300' Tc=9.4 min CN=86 Runoff=0.55 cfs 0.044 af

Subcatchment 4: Subarea 4 Runoff Area=1.210 ac 0.00% Impervious Runoff Depth=1.14"
Flow Length=250' Tc=9.8 min CN=77 Runoff=1.37 cfs 0.115 af

Subcatchment 5: Subarea 5 Runoff Area=1.820 ac 9.67% Impervious Runoff Depth=1.33"
Flow Length=660' Tc=11.0 min CN=80 Runoff=2.36 cfs 0.201 af

Subcatchment 6: Sub 6 Runoff Area=0.420 ac 23.00% Impervious Runoff Depth=1.60"
Flow Length=235' Tc=4.1 min CN=84 Runoff=0.84 cfs 0.056 af

Subcatchment 100: Subarea 100 Runoff Area=0.220 ac 100.00% Impervious Runoff Depth=2.87"
Flow Length=572' Tc=6.6 min CN=98 Runoff=0.65 cfs 0.053 af

Subcatchment 101S: BASIN 101 (Ocean Ridge) Runoff Area=0.190 ac 57.89% Impervious Runoff Depth=2.08"
Flow Length=155' Tc=6.4 min CN=90 Runoff=0.45 cfs 0.033 af

Subcatchment 300: Subarea 300 Runoff Area=0.090 ac 100.00% Impervious Runoff Depth=2.87"
Flow Length=162' Tc=5.0 min CN=98 Runoff=0.28 cfs 0.022 af

Subcatchment 301S: BASIN 301 (Ocean Ridge) Runoff Area=0.820 ac 45.12% Impervious Runoff Depth=1.91"
Flow Length=190' Tc=9.3 min CN=88 Runoff=1.63 cfs 0.130 af

Subcatchment 302S: BASIN 302 (Ocean Ridge) Runoff Area=1.270 ac 58.27% Impervious Runoff Depth=2.08"
Flow Length=130' Slope=0.0200 '/' Tc=9.1 min CN=90 Runoff=2.76 cfs 0.220 af

Subcatchment 303S: BASIN 3 (Ocean Ridge) Runoff Area=0.580 ac 20.69% Impervious Runoff Depth=1.53"
Flow Length=150' Tc=8.1 min CN=83 Runoff=0.96 cfs 0.074 af

Reach 3R: VEGETATED SWALE 1 (Ocean Ridge) Avg. Flow Depth=0.53' Max Vel=0.62 fps Inflow=2.76 cfs 0.220 af
n=0.150 L=170.0' S=0.0120 '/' Capacity=30.82 cfs Outflow=2.49 cfs 0.220 af

Reach 4R: SP#2 Inflow=1.37 cfs 0.115 af
Outflow=1.37 cfs 0.115 af

Reach 31R: CULVERT 3 (Ocean Ridge) Avg. Flow Depth=0.40' Max Vel=4.38 fps Inflow=1.22 cfs 0.130 af
11.0" Round Pipe n=0.012 L=50.0' S=0.0100 '/' Capacity=3.06 cfs Outflow=1.22 cfs 0.130 af

Reach 32R: VEGETATED SWALE 2 (Ocean Ridge) Avg. Flow Depth=0.39' Max Vel=0.54 fps Inflow=1.63 cfs 0.130 af
n=0.150 L=115.0' S=0.0130 '/' Capacity=32.02 cfs Outflow=1.53 cfs 0.130 af

Reach 33R: Wetland Flow Avg. Flow Depth=0.15' Max Vel=0.61 fps Inflow=1.24 cfs 0.424 af
n=0.035 L=150.0' S=0.0033 '/' Capacity=52.28 cfs Outflow=1.24 cfs 0.424 af

Reach 34R: Woodland Flow Avg. Flow Depth=0.10' Max Vel=2.01 fps Inflow=1.24 cfs 0.424 af
n=0.035 L=1,180.0' S=0.0581 '/' Capacity=108.87 cfs Outflow=1.23 cfs 0.424 af

Reach 106R: SP#1 (Eben Hill Road) Inflow=17.08 cfs 2.714 af
Outflow=17.08 cfs 2.714 af

Pond 3P: POND 3 (Ocean Ridge) Peak Elev=159.97' Storage=6,326 cf Inflow=4.17 cfs 0.424 af
Outflow=1.24 cfs 0.424 af

Pond 30P: POND 30 (Ocean Ridge) Peak Elev=160.52' Storage=815 cf Inflow=1.53 cfs 0.130 af
18.0" Round Culvert n=0.012 L=30.0' S=0.0100 '/' Outflow=1.22 cfs 0.130 af

Pond 60R: FIELD CB Peak Elev=90.47' Inflow=0.84 cfs 0.056 af
12.0" Round Culvert n=0.012 L=110.0' S=0.0091 '/' Outflow=0.84 cfs 0.056 af

Pond 62P: Driveway Culvert Peak Elev=89.59' Storage=986 cf Inflow=9.36 cfs 1.634 af
Primary=7.78 cfs 1.604 af Secondary=1.56 cfs 0.030 af Outflow=9.33 cfs 1.634 af

Pond 66P: 24" Cross culvert Peak Elev=86.27' Storage=82 cf Inflow=10.30 cfs 1.835 af
Primary=10.29 cfs 1.835 af Secondary=0.00 cfs 0.000 af Outflow=10.29 cfs 1.835 af

Pond 100R: Vortech-DMH2 Peak Elev=108.12' Inflow=5.07 cfs 0.412 af
18.0" Round Culvert n=0.012 L=318.0' S=0.0267 '/' Outflow=5.07 cfs 0.412 af

Pond 101R: DMH2-DMH1(DMH1606) Peak Elev=99.50' Inflow=5.07 cfs 0.412 af
18.0" Round Culvert n=0.012 L=177.0' S=0.0391 '/' Outflow=5.07 cfs 0.412 af

Pond 102R: DMH1606-DMH9 Peak Elev=92.42' Inflow=5.07 cfs 0.412 af
18.0" Round Culvert n=0.012 L=110.0' S=0.0185 '/' Outflow=5.07 cfs 0.412 af

Pond 103R: DMH9-DMH8 Peak Elev=91.19' Inflow=9.94 cfs 0.813 af
18.0" Round Culvert n=0.012 L=132.0' S=0.0099 '/' Outflow=9.94 cfs 0.813 af

Pond 104R: DMH8-DMH200 Peak Elev=91.38' Inflow=10.70 cfs 0.879 af
18.0" Round Culvert n=0.012 L=273.0' S=0.0039 '/' Outflow=10.70 cfs 0.879 af

Pond 105R: DMH200-OUTLET Peak Elev=88.86' Inflow=10.70 cfs 0.879 af
18.0" Round Culvert n=0.012 L=60.0' S=0.0400 '/' Outflow=10.70 cfs 0.879 af

Total Runoff Area = 24.220 ac Runoff Volume = 2.829 af Average Runoff Depth = 1.40"
84.66% Pervious = 20.504 ac 15.34% Impervious = 3.716 ac

Summary for Subcatchment 1: Subarea 1

Runoff = 4.29 cfs @ 12.14 hrs, Volume= 0.349 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
	0.290	84	1 acre lots, 20% imp, HSG D
	0.290	87	1/4 acre lots, 38% imp, HSG D
*	0.220	98	Roadway
	2.240	77	Woods, Good, HSG D
*	0.090	80	>75% Grass cover, Good, HSG D (Ocean Ridge)
*	0.030	98	Building, Ocean Ridge
	3.160	80	Weighted Average
	2.742		86.77% Pervious Area
	0.418		13.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	20	0.1500	0.12		**Sheet Flow, Overland Woods**
					Woods: Light underbrush n= 0.400 P2= 3.00"
1.4	160	0.1500	1.94		**Shallow Concentrated Flow, Overland Woods**
					Woodland Kv= 5.0 fps
4.9	400	0.0380	1.36		**Shallow Concentrated Flow, Shallow Rd Ditch**
					Short Grass Pasture Kv= 7.0 fps
0.5	80	0.0200	2.87		**Shallow Concentrated Flow, ROAD GUTTER**
					Paved Kv= 20.3 fps
9.5	660	Total			

Summary for Subcatchment 1S: BASIN 1 (Ocean Ridge)

Runoff = 4.67 cfs @ 12.14 hrs, Volume= 0.379 af, Depth= 1.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
*	0.900	98	IMPERVIOUS
*	0.380	77	WOODS D
*	1.320	80	LAWN D
	2.600	86	Weighted Average
	1.700		65.38% Pervious Area
	0.900		34.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0200	0.10		**Sheet Flow, OVERLAND FLOW** Grass: Dense n= 0.240 P2= 3.00"
0.4	140	0.0430	5.46	65.53	**Trap/Vee/Rect Channel Flow, Segment ID: riprap road ditch** Bot.W=2.00' D=2.00' Z= 2.0 '/' Top.W=10.00' n= 0.060
0.2	90	0.0550	6.18	74.11	**Trap/Vee/Rect Channel Flow, Segment ID: riprap road ditch** Bot.W=2.00' D=2.00' Z= 2.0 '/' Top.W=10.00' n= 0.060
0.8	380	0.0900	7.45	64.10	**Trap/Vee/Rect Channel Flow, Segment ID: riprap road ditch** Bot.W=2.00' D=2.00' Z= 2.0 & 0.3 '/' Top.W=6.60' n= 0.060
9.9	660	Total			

Summary for Subcatchment 2: Subarea 2

Runoff = 8.62 cfs @ 12.46 hrs, Volume= 1.155 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
	0.640	87	1/4 acre lots, 38% imp, HSG D
*	0.050	98	Roadway
	10.590	77	Woods, Good, HSG D
*	0.040	98	Building, Ocean Ridge
*	0.050	98	Road, Ocean Ridge
*	0.030	77	Woods, Good, HSG D, Ocean Ridge
*	0.140	80	>75% Grass cover, Good, HSG D, Ocean Ridge
	11.540	78	Weighted Average
	11.157		96.68% Pervious Area
	0.383		3.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	110	0.0800	0.13		**Sheet Flow, Overland Woods** Woods: Light underbrush n= 0.400 P2= 3.00"
18.8	1,325	0.0550	1.17		**Shallow Concentrated Flow, Overland Woods** Woodland Kv= 5.0 fps
32.5	1,435	Total			

Summary for Subcatchment 3: Sub 3

Runoff = 0.55 cfs @ 12.13 hrs, Volume= 0.044 af, Depth= 1.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
*	0.040	98	Paved roads Ocean Ave
	0.260	84	1 acre lots, 20% imp, HSG D
	0.300	86	Weighted Average
	0.208		69.33% Pervious Area
	0.092		30.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	60	0.1000	0.13		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
1.2	160	0.1000	2.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	80	0.0150	2.49		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
9.4	300	Total			

Summary for Subcatchment 4: Subarea 4

Runoff = 1.37 cfs @ 12.14 hrs, Volume= 0.115 af, Depth= 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

Area (ac)	CN	Description
1.210	77	Woods, Good, HSG D
1.210		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	60	0.1200	0.14		**Sheet Flow, Overland Woods** Woods: Light underbrush n= 0.400 P2= 3.00"
2.6	190	0.0600	1.22		**Shallow Concentrated Flow, Overland Woods** Woodland Kv= 5.0 fps
9.8	250	Total			

Summary for Subcatchment 5: Subarea 5

Runoff = 2.36 cfs @ 12.16 hrs, Volume= 0.201 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
	0.730	84	1 acre lots, 20% imp, HSG D
*	0.030	98	Roadway
	1.060	77	Woods, Good, HSG D
	1.820	80	Weighted Average
	1.644		90.33% Pervious Area
	0.176		9.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	30	0.1500	0.13		**Sheet Flow, Overland Woods**
					Woods: Light underbrush n= 0.400 P2= 3.00"
7.2	630	0.0850	1.46		**Shallow Concentrated Flow, Overland Woods**
					Woodland Kv= 5.0 fps
11.0	660	Total			

Summary for Subcatchment 6: Sub 6

Runoff = 0.84 cfs @ 12.06 hrs, Volume= 0.056 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

Area (ac)	CN	Description
0.350	84	1 acre lots, 20% imp, HSG D
0.070	87	1/4 acre lots, 38% imp, HSG D
0.420	84	Weighted Average
0.323		77.00% Pervious Area
0.097		23.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	25	0.1500	0.13		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.00"
0.4	60	0.2300	2.40		**Shallow Concentrated Flow, B-C**
					Woodland Kv= 5.0 fps
0.4	150	0.0400	5.86	41.05	**Trap/Vee/Rect Channel Flow, C-D**
					Bot.W=2.00' D=1.00' Z= 5.0 '/' Top.W=12.00'
					n= 0.035 Earth, dense weeds
4.1	235	Total			

Summary for Subcatchment 100: Subarea 100

Runoff = 0.65 cfs @ 12.09 hrs, Volume= 0.053 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
*	0.220	98	Roadway
	0.220		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.87		**Sheet Flow, Road Crown**
					Smooth surfaces n= 0.011 P2= 3.00"
5.9	480	0.0380	1.36		**Shallow Concentrated Flow, SHALLOW RD DITCH**
					Short Grass Pasture Kv= 7.0 fps
0.5	80	0.0200	2.87		**Shallow Concentrated Flow, ROAD GUTTER**
					Paved Kv= 20.3 fps
6.6	572	Total			

Summary for Subcatchment 101S: BASIN 101 (Ocean Ridge)

Runoff = 0.45 cfs @ 12.09 hrs, Volume= 0.033 af, Depth= 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
*	0.110	98	IMPERVIOUS
*	0.080	80	LAWN D
	0.190	90	Weighted Average
	0.080		42.11% Pervious Area
	0.110		57.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	30	0.0200	0.09		**Sheet Flow, Segment ID: AB, Lawn**
					Grass: Dense n= 0.240 P2= 3.00"
0.1	25	0.0200	2.87		**Shallow Concentrated Flow, Segment ID: BC,Driveway**
					Paved Kv= 20.3 fps
0.7	100	0.1200	2.42		**Shallow Concentrated Flow, Segment ID: grass slope**
					Short Grass Pasture Kv= 7.0 fps
6.4	155	Total			

Summary for Subcatchment 300: Subarea 300

Runoff = 0.28 cfs @ 12.07 hrs, Volume= 0.022 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
*	0.090	98	Roadway
	0.090		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.87		**Sheet Flow, Road Crown**
					Smooth surfaces n= 0.011 P2= 3.00"
1.1	150	0.0130	2.31		**Shallow Concentrated Flow, Gutter flow**
					Paved Kv= 20.3 fps
3.7					**Direct Entry,**
5.0	162	Total			

Summary for Subcatchment 301S: BASIN 301 (Ocean Ridge)

Runoff = 1.63 cfs @ 12.13 hrs, Volume= 0.130 af, Depth= 1.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
*	0.370	98	IMPERVIOUS
*	0.450	80	LAWN D
	0.820	88	Weighted Average
	0.450		54.88% Pervious Area
	0.370		45.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	60	0.0300	0.12		**Sheet Flow, Segment ID: AB**
					Grass: Dense n= 0.240 P2= 3.00"
0.4	50	0.0200	2.12		**Shallow Concentrated Flow, Segment ID: BC**
					Grassed Waterway Kv= 15.0 fps
0.6	80	0.0200	2.12		**Shallow Concentrated Flow, Segment ID: CD**
					Grassed Waterway Kv= 15.0 fps
9.3	190	Total			

Summary for Subcatchment 302S: BASIN 302 (Ocean Ridge)

Runoff = 2.76 cfs @ 12.13 hrs, Volume= 0.220 af, Depth= 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
*	0.740	98	IMPERVIOUS
*	0.050	77	WOODS D
*	0.480	80	LAWN D
	1.270	90	Weighted Average
	0.530		41.73% Pervious Area
	0.740		58.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0200	0.10		**Sheet Flow, Segment ID: AB**
					Grass: Dense n= 0.240 P2= 3.00"
0.2	30	0.0200	2.87		**Shallow Concentrated Flow, Segment ID: BC**
					Paved Kv= 20.3 fps
0.4	50	0.0200	2.12		**Shallow Concentrated Flow, Segment ID:**
					Grassed Waterway Kv= 15.0 fps
9.1	130	Total			

Summary for Subcatchment 303S: BASIN 3 (Ocean Ridge)

Runoff = 0.96 cfs @ 12.12 hrs, Volume= 0.074 af, Depth= 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
*	0.120	98	IMPERVIOUS
*	0.080	77	WOODS D
*	0.380	80	LAWN D
	0.580	83	Weighted Average
	0.460		79.31% Pervious Area
	0.120		20.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	30	0.0300	0.07		**Sheet Flow, Segment ID: AB**
					Woods: Light underbrush n= 0.400 P2= 3.00"
0.9	120	0.0200	2.12		**Shallow Concentrated Flow, Segment ID: BC**
					Grassed Waterway Kv= 15.0 fps
8.1	150	Total			

Summary for Reach 3R: VEGETATED SWALE 1 (Ocean Ridge)

Inflow Area = 1.270 ac, 58.27% Impervious, Inflow Depth = 2.08" for Cumberland_02 event
Inflow = 2.76 cfs @ 12.13 hrs, Volume= 0.220 af
Outflow = 2.49 cfs @ 12.25 hrs, Volume= 0.220 af, Atten= 10%, Lag= 7.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 0.62 fps, Min. Travel Time= 4.6 min
Avg. Velocity = 0.17 fps, Avg. Travel Time= 17.1 min

Peak Storage= 685 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.53'
Bank-Full Depth= 2.00' Flow Area= 24.0 sf, Capacity= 30.82 cfs

6.00' x 2.00' deep channel, n= 0.150
Side Slope Z-value= 3.0 '/' Top Width= 18.00'
Length= 170.0' Slope= 0.0120 '/'
Inlet Invert= 0.00', Outlet Invert= -2.04'

‡

Summary for Reach 4R: SP#2

Inflow Area = 1.210 ac, 0.00% Impervious, Inflow Depth = 1.14" for Cumberland_02 event
Inflow = 1.37 cfs @ 12.14 hrs, Volume= 0.115 af
Outflow = 1.37 cfs @ 12.14 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

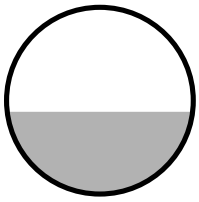
Summary for Reach 31R: CULVERT 3 (Ocean Ridge)

Inflow Area = 0.820 ac, 45.12% Impervious, Inflow Depth = 1.91" for Cumberland_02 event
Inflow = 1.22 cfs @ 12.32 hrs, Volume= 0.130 af
Outflow = 1.22 cfs @ 12.33 hrs, Volume= 0.130 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs / 2
Max. Velocity= 4.38 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.03 fps, Avg. Travel Time= 0.8 min

Peak Storage= 14 cf @ 12.32 hrs
Average Depth at Peak Storage= 0.40'
Bank-Full Depth= 0.92' Flow Area= 0.7 sf, Capacity= 3.06 cfs

11.0" Round Pipe
n= 0.012
Length= 50.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -0.50'



Summary for Reach 32R: VEGETATED SWALE 2 (Ocean Ridge)

Inflow Area = 0.820 ac, 45.12% Impervious, Inflow Depth = 1.91" for Cumberland_02 event
Inflow = 1.63 cfs @ 12.13 hrs, Volume= 0.130 af
Outflow = 1.53 cfs @ 12.23 hrs, Volume= 0.130 af, Atten= 6%, Lag= 5.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.54 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 0.15 fps, Avg. Travel Time= 12.7 min

Peak Storage= 325 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 2.00' Flow Area= 24.0 sf, Capacity= 32.02 cfs

6.00' x 2.00' deep channel, n= 0.150
Side Slope Z-value= 3.0 '/' Top Width= 18.00'
Length= 115.0' Slope= 0.0130 '/'
Inlet Invert= 0.00', Outlet Invert= -1.49'

‡

Summary for Reach 33R: Wetland Flow

Inflow Area = 2.670 ac, 46.07% Impervious, Inflow Depth = 1.91" for Cumberland_02 event
Inflow = 1.24 cfs @ 12.75 hrs, Volume= 0.424 af
Outflow = 1.24 cfs @ 12.87 hrs, Volume= 0.424 af, Atten= 0%, Lag= 7.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.61 fps, Min. Travel Time= 4.1 min
Avg. Velocity = 0.17 fps, Avg. Travel Time= 14.9 min

Peak Storage= 303 cf @ 12.81 hrs
Average Depth at Peak Storage= 0.15'
Bank-Full Depth= 1.00' Flow Area= 30.0 sf, Capacity= 52.28 cfs

10.00' x 1.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 20.0 '/' Top Width= 50.00'
Length= 150.0' Slope= 0.0033 '/'
Inlet Invert= 158.00', Outlet Invert= 157.50'

‡

Summary for Reach 34R: Woodland Flow

Inflow Area = 2.670 ac, 46.07% Impervious, Inflow Depth = 1.91" for Cumberland_02 event
Inflow = 1.24 cfs @ 12.87 hrs, Volume= 0.424 af
Outflow = 1.23 cfs @ 13.19 hrs, Volume= 0.424 af, Atten= 1%, Lag= 18.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.01 fps, Min. Travel Time= 9.8 min
Avg. Velocity = 0.64 fps, Avg. Travel Time= 30.6 min

Peak Storage= 722 cf @ 13.02 hrs
Average Depth at Peak Storage= 0.10'
Bank-Full Depth= 1.00' Flow Area= 15.0 sf, Capacity= 108.87 cfs

5.00' x 1.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 10.0 '/' Top Width= 25.00'
Length= 1,180.0' Slope= 0.0581 '/'
Inlet Invert= 157.50', Outlet Invert= 89.00'

‡

Summary for Reach 106R: SP#1 (Eben Hill Road)

Inflow Area = 23.010 ac, 16.15% Impervious, Inflow Depth = 1.42" for Cumberland_02 event
Inflow = 17.08 cfs @ 12.15 hrs, Volume= 2.714 af
Outflow = 17.08 cfs @ 12.15 hrs, Volume= 2.714 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Pond 3P: POND 3 (Ocean Ridge)

Inflow Area = 2.670 ac, 46.07% Impervious, Inflow Depth = 1.91" for Cumberland_02 event
Inflow = 4.17 cfs @ 12.26 hrs, Volume= 0.424 af
Outflow = 1.24 cfs @ 12.75 hrs, Volume= 0.424 af, Atten= 70%, Lag= 29.7 min
Primary = 1.24 cfs @ 12.75 hrs, Volume= 0.424 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 159.97' @ 12.75 hrs Surf.Area= 4,273 sf Storage= 6,326 cf

Plug-Flow detention time= 81.6 min calculated for 0.424 af (100% of inflow)
Center-of-Mass det. time= 81.6 min (921.2 - 839.7)

Volume	Invert	Avail.Storage	Storage Description
#1	158.00'	21,813 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
158.00	2,113	0	0
160.00	4,304	6,417	6,417
162.00	6,739	11,043	17,460
162.60	7,772	4,353	21,813

Device	Routing	Invert	Outlet Devices
#1	Primary	158.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	160.00'	**9.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	161.00'	**4.5" Vert. Orifice/Grate** C= 0.600
#4	Primary	161.50'	**20.0' long Broad-Crested Rectangular Weir X 1.81**
			Head (feet) 0.50 1.00 1.50
			Coef. (English) 1.60 1.80 1.90

Primary OutFlow Max=1.24 cfs @ 12.75 hrs HW=159.97' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 1.24 cfs @ 6.32 fps)
- **2=Orifice/Grate** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Controls 0.00 cfs)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 30P: POND 30 (Ocean Ridge)

Inflow Area = 0.820 ac, 45.12% Impervious, Inflow Depth = 1.91" for Cumberland_02 event
Inflow = 1.53 cfs @ 12.23 hrs, Volume= 0.130 af
Outflow = 1.22 cfs @ 12.32 hrs, Volume= 0.130 af, Atten= 20%, Lag= 5.7 min
Primary = 1.22 cfs @ 12.32 hrs, Volume= 0.130 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 160.52' @ 12.32 hrs Surf.Area= 1,371 sf Storage= 815 cf

Plug-Flow detention time= 33.6 min calculated for 0.130 af (100% of inflow)
Center-of-Mass det. time= 33.5 min (864.4 - 831.0)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	3,156 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	1,150	0	0
162.00	2,006	3,156	3,156

Device	Routing	Invert	Outlet Devices
#1	Primary	160.00'	**18.0" Round Culvert** L= 30.0' Ke= 0.500
			Inlet / Outlet Invert= 160.00' / 159.70' S= 0.0100 '/' Cc= 0.900
			n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=1.22 cfs @ 12.32 hrs HW=160.52' (Free Discharge)
- **1=Culvert** (Barrel Controls 1.22 cfs @ 3.38 fps)

Summary for Pond 60R: FIELD CB

Inflow Area = 0.420 ac, 23.00% Impervious, Inflow Depth = 1.60" for Cumberland_02 event
Inflow = 0.84 cfs @ 12.06 hrs, Volume= 0.056 af
Outflow = 0.84 cfs @ 12.06 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 12.06 hrs, Volume= 0.056 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 90.47' @ 12.06 hrs
Flood Elev= 91.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	**12.0" Round Culvert** L= 110.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 90.00' / 89.00' S= 0.0091 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.84 cfs @ 12.06 hrs HW=90.47' (Free Discharge)
1=Culvert (Inlet Controls 0.84 cfs @ 2.33 fps)

Summary for Pond 62P: Driveway Culvert

Inflow Area = 14.630 ac, 11.69% Impervious, Inflow Depth = 1.34" for Cumberland_02 event
Inflow = 9.36 cfs @ 12.49 hrs, Volume= 1.634 af
Outflow = 9.33 cfs @ 12.51 hrs, Volume= 1.634 af, Atten= 0%, Lag= 1.4 min
Primary = 7.78 cfs @ 12.51 hrs, Volume= 1.604 af
Secondary = 1.56 cfs @ 12.51 hrs, Volume= 0.030 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 89.59' @ 12.51 hrs Surf.Area= 2,134 sf Storage= 986 cf

Plug-Flow detention time= 0.6 min calculated for 1.634 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (895.3 - 894.8)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	2,197 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
88.00	47	50.0	0	0	47
89.00	540	284.0	249	249	6,269
90.00	3,860	500.0	1,948	2,197	19,750

Device	Routing	Invert	Outlet Devices
#1	Primary	87.50'	**18.0" Round Culvert** L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 87.50' / 87.00' S= 0.0143 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	89.50'	**22.0' long x 13.0' 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) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=7.78 cfs @ 12.51 hrs HW=89.59' (Free Discharge)
└**1=Culvert** (Inlet Controls 7.78 cfs @ 4.40 fps)

Secondary OutFlow Max=1.55 cfs @ 12.51 hrs HW=89.59' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 1.55 cfs @ 0.78 fps)

Summary for Pond 66P: 24" Cross culvert

Inflow Area = 16.450 ac, 11.46% Impervious, Inflow Depth = 1.34" for Cumberland_02 event
Inflow = 10.30 cfs @ 12.49 hrs, Volume= 1.835 af
Outflow = 10.29 cfs @ 12.49 hrs, Volume= 1.835 af, Atten= 0%, Lag= 0.3 min
Primary = 10.29 cfs @ 12.49 hrs, Volume= 1.835 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 86.27' @ 12.49 hrs Surf.Area= 129 sf Storage= 82 cf

Plug-Flow detention time= 0.3 min calculated for 1.835 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (890.4 - 890.3)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	1,817 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
84.00	5	5.0	0	0	5
85.00	25	25.0	14	14	55
86.00	63	40.0	43	56	139
87.00	425	195.0	217	273	3,040
88.00	1,210	305.0	784	1,058	7,424
88.50	1,850	330.0	759	1,817	8,697

Device	Routing	Invert	Outlet Devices
#1	Primary	84.45'	**24.0" Round Culvert** L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 84.45' / 84.13' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Secondary	88.50'	**12.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=10.29 cfs @ 12.49 hrs HW=86.27' (Free Discharge)
└**1=Culvert** (Barrel Controls 10.29 cfs @ 4.51 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=84.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 100R: Vortech-DMH2

Inflow Area = 2.790 ac, 36.20% Impervious, Inflow Depth = 1.77" for Cumberland_02 event
Inflow = 5.07 cfs @ 12.13 hrs, Volume= 0.412 af
Outflow = 5.07 cfs @ 12.13 hrs, Volume= 0.412 af, Atten= 0%, Lag= 0.0 min
Primary = 5.07 cfs @ 12.13 hrs, Volume= 0.412 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 108.12' @ 12.13 hrs
Flood Elev= 112.16'

Device	Routing	Invert	Outlet Devices
#1	Primary	107.00'	**18.0" Round Culvert** L= 318.0' Ke= 0.500 Inlet / Outlet Invert= 107.00' / 98.52' S= 0.0267 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.06 cfs @ 12.13 hrs HW=108.12' (Free Discharge)
↑**1=Culvert** (Inlet Controls 5.06 cfs @ 3.60 fps)

Summary for Pond 101R: DMH2-DMH1(DMH1606)

Inflow Area = 2.790 ac, 36.20% Impervious, Inflow Depth = 1.77" for Cumberland_02 event
Inflow = 5.07 cfs @ 12.13 hrs, Volume= 0.412 af
Outflow = 5.07 cfs @ 12.13 hrs, Volume= 0.412 af, Atten= 0%, Lag= 0.0 min
Primary = 5.07 cfs @ 12.13 hrs, Volume= 0.412 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 99.50' @ 12.13 hrs
Flood Elev= 103.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	98.38'	**18.0" Round Culvert** L= 177.0' Ke= 0.500 Inlet / Outlet Invert= 98.38' / 91.46' S= 0.0391 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.06 cfs @ 12.13 hrs HW=99.50' (Free Discharge)
↑**1=Culvert** (Inlet Controls 5.06 cfs @ 3.60 fps)

Summary for Pond 102R: DMH1606-DMH9

Inflow Area = 2.790 ac, 36.20% Impervious, Inflow Depth = 1.77" for Cumberland_02 event
Inflow = 5.07 cfs @ 12.13 hrs, Volume= 0.412 af
Outflow = 5.07 cfs @ 12.13 hrs, Volume= 0.412 af, Atten= 0%, Lag= 0.0 min
Primary = 5.07 cfs @ 12.13 hrs, Volume= 0.412 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 92.42' @ 12.13 hrs
Flood Elev= 96.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	91.30'	**18.0" Round Culvert** L= 110.0' RCP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 91.30' / 89.27' S= 0.0185 '/' Cc= 0.900
n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=5.06 cfs @ 12.13 hrs HW=92.42' (Free Discharge)
1=Culvert (Inlet Controls 5.06 cfs @ 3.60 fps)

Summary for Pond 103R: DMH9-DMH8

Inflow Area = 6.170 ac, 26.71% Impervious, Inflow Depth = 1.58" for Cumberland_02 event
Inflow = 9.94 cfs @ 12.13 hrs, Volume= 0.813 af
Outflow = 9.94 cfs @ 12.13 hrs, Volume= 0.813 af, Atten= 0%, Lag= 0.0 min
Primary = 9.94 cfs @ 12.13 hrs, Volume= 0.813 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 91.19' @ 12.13 hrs
Flood Elev= 94.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	89.07'	**18.0" Round Culvert** L= 132.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 89.07' / 87.76' S= 0.0099 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=9.93 cfs @ 12.13 hrs HW=91.18' (Free Discharge)
1=Culvert (Inlet Controls 9.93 cfs @ 5.62 fps)

Summary for Pond 104R: DMH8-DMH200

Inflow Area = 6.560 ac, 27.90% Impervious, Inflow Depth = 1.61" for Cumberland_02 event
Inflow = 10.70 cfs @ 12.13 hrs, Volume= 0.879 af
Outflow = 10.70 cfs @ 12.13 hrs, Volume= 0.879 af, Atten= 0%, Lag= 0.0 min
Primary = 10.70 cfs @ 12.13 hrs, Volume= 0.879 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 91.38' @ 12.13 hrs
Flood Elev= 92.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	87.66'	**18.0" Round Culvert** L= 273.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 87.66' / 86.60' S= 0.0039 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=10.70 cfs @ 12.13 hrs HW=91.37' (Free Discharge)
1=Culvert (Barrel Controls 10.70 cfs @ 6.05 fps)

Summary for Pond 105R: DMH200-OUTLET

Inflow Area = 6.560 ac, 27.90% Impervious, Inflow Depth = 1.61" for Cumberland_02 event
Inflow = 10.70 cfs @ 12.13 hrs, Volume= 0.879 af
Outflow = 10.70 cfs @ 12.13 hrs, Volume= 0.879 af, Atten= 0%, Lag= 0.0 min
Primary = 10.70 cfs @ 12.13 hrs, Volume= 0.879 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 88.86' @ 12.13 hrs
Flood Elev= 89.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	86.53'	**18.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 86.53' / 84.13' S= 0.0400 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=10.70 cfs @ 12.13 hrs HW=88.86' (Free Discharge)
1=Culvert (Inlet Controls 10.70 cfs @ 6.05 fps)

Time span=0.00-100.00 hrs, dt=0.01 hrs, 10001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Subarea 1 Runoff Area=3.160 ac 13.23% Impervious Runoff Depth=2.55"
Flow Length=660' Tc=9.5 min CN=80 Runoff=8.38 cfs 0.671 af

Subcatchment 1S: BASIN 1 (Ocean Ridge) Runoff Area=2.600 ac 34.62% Impervious Runoff Depth=3.10"
Flow Length=660' Tc=9.9 min CN=86 Runoff=8.20 cfs 0.671 af

Subcatchment 2: Subarea 2 Runoff Area=11.540 ac 3.32% Impervious Runoff Depth=2.38"
Flow Length=1,435' Tc=32.5 min CN=78 Runoff=17.52 cfs 2.285 af

Subcatchment 3: Sub 3 Runoff Area=0.300 ac 30.67% Impervious Runoff Depth=3.10"
Flow Length=300' Tc=9.4 min CN=86 Runoff=0.96 cfs 0.077 af

Subcatchment 4: Subarea 4 Runoff Area=1.210 ac 0.00% Impervious Runoff Depth=2.29"
Flow Length=250' Tc=9.8 min CN=77 Runoff=2.85 cfs 0.231 af

Subcatchment 5: Subarea 5 Runoff Area=1.820 ac 9.67% Impervious Runoff Depth=2.55"
Flow Length=660' Tc=11.0 min CN=80 Runoff=4.60 cfs 0.386 af

Subcatchment 6: Sub 6 Runoff Area=0.420 ac 23.00% Impervious Runoff Depth=2.91"
Flow Length=235' Tc=4.1 min CN=84 Runoff=1.53 cfs 0.102 af

Subcatchment 100: Subarea 100 Runoff Area=0.220 ac 100.00% Impervious Runoff Depth=4.36"
Flow Length=572' Tc=6.6 min CN=98 Runoff=0.97 cfs 0.080 af

Subcatchment 101S: BASIN 101 (Ocean Ridge) Runoff Area=0.190 ac 57.89% Impervious Runoff Depth=3.49"
Flow Length=155' Tc=6.4 min CN=90 Runoff=0.74 cfs 0.055 af

Subcatchment 300: Subarea 300 Runoff Area=0.090 ac 100.00% Impervious Runoff Depth=4.36"
Flow Length=162' Tc=5.0 min CN=98 Runoff=0.42 cfs 0.033 af

Subcatchment 301S: BASIN 301 (Ocean Ridge) Runoff Area=0.820 ac 45.12% Impervious Runoff Depth=3.29"
Flow Length=190' Tc=9.3 min CN=88 Runoff=2.78 cfs 0.225 af

Subcatchment 302S: BASIN 302 (Ocean Ridge) Runoff Area=1.270 ac 58.27% Impervious Runoff Depth=3.49"
Flow Length=130' Slope=0.0200 '/' Tc=9.1 min CN=90 Runoff=4.55 cfs 0.370 af

Subcatchment 303S: BASIN 3 (Ocean Ridge) Runoff Area=0.580 ac 20.69% Impervious Runoff Depth=2.81"
Flow Length=150' Tc=8.1 min CN=83 Runoff=1.78 cfs 0.136 af

Reach 3R: VEGETATED SWALE 1 (Ocean Ridge) Avg. Flow Depth=0.71' Max Vel=0.73 fps Inflow=4.55 cfs 0.370 af
n=0.150 L=170.0' S=0.0120 '/' Capacity=30.82 cfs Outflow=4.19 cfs 0.370 af

Reach 4R: SP#2 Inflow=2.85 cfs 0.231 af
Outflow=2.85 cfs 0.231 af

Reach 31R: CULVERT 3 (Ocean Ridge) Avg. Flow Depth=0.58' Max Vel=5.06 fps Inflow=2.22 cfs 0.225 af
11.0" Round Pipe n=0.012 L=50.0' S=0.0100 '/' Capacity=3.06 cfs Outflow=2.22 cfs 0.225 af

Reach 32R: VEGETATED SWALE 2 (Ocean Ridge) Avg. Flow Depth=0.54' Max Vel=0.65 fps Inflow=2.78 cfs 0.225 af
n=0.150 L=115.0' S=0.0130 '/' Capacity=32.02 cfs Outflow=2.64 cfs 0.225 af

Reach 33R: Wetland Flow Avg. Flow Depth=0.24' Max Vel=0.78 fps Inflow=2.79 cfs 0.730 af
n=0.035 L=150.0' S=0.0033 '/' Capacity=52.28 cfs Outflow=2.78 cfs 0.730 af

Reach 34R: Woodland Flow Avg. Flow Depth=0.16' Max Vel=2.60 fps Inflow=2.78 cfs 0.730 af
n=0.035 L=1,180.0' S=0.0581 '/' Capacity=108.87 cfs Outflow=2.72 cfs 0.730 af

Reach 106R: SP#1 (Eben Hill Road) Inflow=31.51 cfs 5.090 af
Outflow=31.51 cfs 5.090 af

Pond 3P: POND 3 (Ocean Ridge) Peak Elev=160.74' Storage=10,521 cf Inflow=7.37 cfs 0.730 af
Outflow=2.79 cfs 0.730 af

Pond 30P: POND 30 (Ocean Ridge) Peak Elev=160.73' Storage=1,151 cf Inflow=2.64 cfs 0.225 af
18.0" Round Culvert n=0.012 L=30.0' S=0.0100 '/' Outflow=2.22 cfs 0.225 af

Pond 60R: FIELD CB Peak Elev=90.66' Inflow=1.53 cfs 0.102 af
12.0" Round Culvert n=0.012 L=110.0' S=0.0091 '/' Outflow=1.53 cfs 0.102 af

Pond 62P: Driveway Culvert Peak Elev=89.82' Storage=1,576 cf Inflow=18.90 cfs 3.117 af
Primary=8.42 cfs 2.615 af Secondary=10.43 cfs 0.502 af Outflow=18.85 cfs 3.117 af

Pond 66P: 24" Cross culvert Peak Elev=88.29' Storage=1,462 cf Inflow=20.77 cfs 3.503 af
Primary=20.13 cfs 3.503 af Secondary=0.00 cfs 0.000 af Outflow=20.13 cfs 3.503 af

Pond 100R: Vortech-DMH2 Peak Elev=108.83' Inflow=8.86 cfs 0.726 af
18.0" Round Culvert n=0.012 L=318.0' S=0.0267 '/' Outflow=8.86 cfs 0.726 af

Pond 101R: DMH2-DMH1(DMH1606) Peak Elev=100.21' Inflow=8.86 cfs 0.726 af
18.0" Round Culvert n=0.012 L=177.0' S=0.0391 '/' Outflow=8.86 cfs 0.726 af

Pond 102R: DMH1606-DMH9 Peak Elev=93.13' Inflow=8.86 cfs 0.726 af
18.0" Round Culvert n=0.012 L=110.0' S=0.0185 '/' Outflow=8.86 cfs 0.726 af

Pond 103R: DMH9-DMH8 Peak Elev=95.06' Inflow=18.11 cfs 1.477 af
18.0" Round Culvert n=0.012 L=132.0' S=0.0099 '/' Outflow=18.11 cfs 1.477 af

Pond 104R: DMH8-DMH200 Peak Elev=98.87' Inflow=19.40 cfs 1.587 af
18.0" Round Culvert n=0.012 L=273.0' S=0.0039 '/' Outflow=19.40 cfs 1.587 af

Pond 105R: DMH200-OUTLET Peak Elev=92.48' Inflow=19.40 cfs 1.587 af
18.0" Round Culvert n=0.012 L=60.0' S=0.0400 '/' Outflow=19.40 cfs 1.587 af

Total Runoff Area = 24.220 ac Runoff Volume = 5.321 af Average Runoff Depth = 2.64"
84.66% Pervious = 20.504 ac 15.34% Impervious = 3.716 ac

Summary for Subcatchment 1: Subarea 1

Runoff = 8.38 cfs @ 12.13 hrs, Volume= 0.671 af, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
	0.290	84	1 acre lots, 20% imp, HSG D
	0.290	87	1/4 acre lots, 38% imp, HSG D
*	0.220	98	Roadway
	2.240	77	Woods, Good, HSG D
*	0.090	80	>75% Grass cover, Good, HSG D (Ocean Ridge)
*	0.030	98	Building, Ocean Ridge
	3.160	80	Weighted Average
	2.742		86.77% Pervious Area
	0.418		13.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	20	0.1500	0.12		**Sheet Flow, Overland Woods**
					Woods: Light underbrush n= 0.400 P2= 3.00"
1.4	160	0.1500	1.94		**Shallow Concentrated Flow, Overland Woods**
					Woodland Kv= 5.0 fps
4.9	400	0.0380	1.36		**Shallow Concentrated Flow, Shallow Rd Ditch**
					Short Grass Pasture Kv= 7.0 fps
0.5	80	0.0200	2.87		**Shallow Concentrated Flow, ROAD GUTTER**
					Paved Kv= 20.3 fps
9.5	660	Total			

Summary for Subcatchment 1S: BASIN 1 (Ocean Ridge)

Runoff = 8.20 cfs @ 12.14 hrs, Volume= 0.671 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
*	0.900	98	IMPERVIOUS
*	0.380	77	WOODS D
*	1.320	80	LAWN D
	2.600	86	Weighted Average
	1.700		65.38% Pervious Area
	0.900		34.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0200	0.10		**Sheet Flow, OVERLAND FLOW** Grass: Dense n= 0.240 P2= 3.00"
0.4	140	0.0430	5.46	65.53	**Trap/Vee/Rect Channel Flow, Segment ID: riprap road ditch** Bot.W=2.00' D=2.00' Z= 2.0 '/' Top.W=10.00' n= 0.060
0.2	90	0.0550	6.18	74.11	**Trap/Vee/Rect Channel Flow, Segment ID: riprap road ditch** Bot.W=2.00' D=2.00' Z= 2.0 '/' Top.W=10.00' n= 0.060
0.8	380	0.0900	7.45	64.10	**Trap/Vee/Rect Channel Flow, Segment ID: riprap road ditch** Bot.W=2.00' D=2.00' Z= 2.0 & 0.3 '/' Top.W=6.60' n= 0.060
9.9	660	Total			

Summary for Subcatchment 2: Subarea 2

Runoff = 17.52 cfs @ 12.46 hrs, Volume= 2.285 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
	0.640	87	1/4 acre lots, 38% imp, HSG D
*	0.050	98	Roadway
	10.590	77	Woods, Good, HSG D
*	0.040	98	Building, Ocean Ridge
*	0.050	98	Road, Ocean Ridge
*	0.030	77	Woods, Good, HSG D, Ocean Ridge
*	0.140	80	>75% Grass cover, Good, HSG D, Ocean Ridge
	11.540	78	Weighted Average
	11.157		96.68% Pervious Area
	0.383		3.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	110	0.0800	0.13		**Sheet Flow, Overland Woods** Woods: Light underbrush n= 0.400 P2= 3.00"
18.8	1,325	0.0550	1.17		**Shallow Concentrated Flow, Overland Woods** Woodland Kv= 5.0 fps
32.5	1,435	Total			

Summary for Subcatchment 3: Sub 3

Runoff = 0.96 cfs @ 12.13 hrs, Volume= 0.077 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
*	0.040	98	Paved roads Ocean Ave
	0.260	84	1 acre lots, 20% imp, HSG D
	0.300	86	Weighted Average
	0.208		69.33% Pervious Area
	0.092		30.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	60	0.1000	0.13		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
1.2	160	0.1000	2.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	80	0.0150	2.49		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
9.4	300	Total			

Summary for Subcatchment 4: Subarea 4

Runoff = 2.85 cfs @ 12.14 hrs, Volume= 0.231 af, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

Area (ac)	CN	Description
1.210	77	Woods, Good, HSG D
1.210		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	60	0.1200	0.14		**Sheet Flow, Overland Woods** Woods: Light underbrush n= 0.400 P2= 3.00"
2.6	190	0.0600	1.22		**Shallow Concentrated Flow, Overland Woods** Woodland Kv= 5.0 fps
9.8	250	Total			

Summary for Subcatchment 5: Subarea 5

Runoff = 4.60 cfs @ 12.15 hrs, Volume= 0.386 af, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
	0.730	84	1 acre lots, 20% imp, HSG D
*	0.030	98	Roadway
	1.060	77	Woods, Good, HSG D
	1.820	80	Weighted Average
	1.644		90.33% Pervious Area
	0.176		9.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	30	0.1500	0.13		**Sheet Flow, Overland Woods**
					Woods: Light underbrush n= 0.400 P2= 3.00"
7.2	630	0.0850	1.46		**Shallow Concentrated Flow, Overland Woods**
					Woodland Kv= 5.0 fps
11.0	660	Total			

Summary for Subcatchment 6: Sub 6

Runoff = 1.53 cfs @ 12.06 hrs, Volume= 0.102 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

Area (ac)	CN	Description
0.350	84	1 acre lots, 20% imp, HSG D
0.070	87	1/4 acre lots, 38% imp, HSG D
0.420	84	Weighted Average
0.323		77.00% Pervious Area
0.097		23.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	25	0.1500	0.13		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.00"
0.4	60	0.2300	2.40		**Shallow Concentrated Flow, B-C**
					Woodland Kv= 5.0 fps
0.4	150	0.0400	5.86	41.05	**Trap/Vee/Rect Channel Flow, C-D**
					Bot.W=2.00' D=1.00' Z= 5.0 '/' Top.W=12.00'
					n= 0.035 Earth, dense weeds
4.1	235	Total			

Summary for Subcatchment 100: Subarea 100

Runoff = 0.97 cfs @ 12.09 hrs, Volume= 0.080 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
*	0.220	98	Roadway
	0.220		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.87		**Sheet Flow, Road Crown**
					Smooth surfaces n= 0.011 P2= 3.00"
5.9	480	0.0380	1.36		**Shallow Concentrated Flow, SHALLOW RD DITCH**
					Short Grass Pasture Kv= 7.0 fps
0.5	80	0.0200	2.87		**Shallow Concentrated Flow, ROAD GUTTER**
					Paved Kv= 20.3 fps
6.6	572	Total			

Summary for Subcatchment 101S: BASIN 101 (Ocean Ridge)

Runoff = 0.74 cfs @ 12.09 hrs, Volume= 0.055 af, Depth= 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
*	0.110	98	IMPERVIOUS
*	0.080	80	LAWN D
	0.190	90	Weighted Average
	0.080		42.11% Pervious Area
	0.110		57.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	30	0.0200	0.09		**Sheet Flow, Segment ID: AB, Lawn**
					Grass: Dense n= 0.240 P2= 3.00"
0.1	25	0.0200	2.87		**Shallow Concentrated Flow, Segment ID: BC,Driveway**
					Paved Kv= 20.3 fps
0.7	100	0.1200	2.42		**Shallow Concentrated Flow, Segment ID: grass slope**
					Short Grass Pasture Kv= 7.0 fps
6.4	155	Total			

Summary for Subcatchment 300: Subarea 300

Runoff = 0.42 cfs @ 12.07 hrs, Volume= 0.033 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
*	0.090	98	Roadway
	0.090		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.87		**Sheet Flow, Road Crown**
					Smooth surfaces n= 0.011 P2= 3.00"
1.1	150	0.0130	2.31		**Shallow Concentrated Flow, Gutter flow**
					Paved Kv= 20.3 fps
3.7					**Direct Entry,**
5.0	162	Total			

Summary for Subcatchment 301S: BASIN 301 (Ocean Ridge)

Runoff = 2.78 cfs @ 12.13 hrs, Volume= 0.225 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
*	0.370	98	IMPERVIOUS
*	0.450	80	LAWN D
	0.820	88	Weighted Average
	0.450		54.88% Pervious Area
	0.370		45.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	60	0.0300	0.12		**Sheet Flow, Segment ID: AB**
					Grass: Dense n= 0.240 P2= 3.00"
0.4	50	0.0200	2.12		**Shallow Concentrated Flow, Segment ID: BC**
					Grassed Waterway Kv= 15.0 fps
0.6	80	0.0200	2.12		**Shallow Concentrated Flow, Segment ID: CD**
					Grassed Waterway Kv= 15.0 fps
9.3	190	Total			

Summary for Subcatchment 302S: BASIN 302 (Ocean Ridge)

Runoff = 4.55 cfs @ 12.12 hrs, Volume= 0.370 af, Depth= 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
*	0.740	98	IMPERVIOUS
*	0.050	77	WOODS D
*	0.480	80	LAWN D
	1.270	90	Weighted Average
	0.530		41.73% Pervious Area
	0.740		58.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0200	0.10		**Sheet Flow, Segment ID: AB**
					Grass: Dense n= 0.240 P2= 3.00"
0.2	30	0.0200	2.87		**Shallow Concentrated Flow, Segment ID: BC**
					Paved Kv= 20.3 fps
0.4	50	0.0200	2.12		**Shallow Concentrated Flow, Segment ID:**
					Grassed Waterway Kv= 15.0 fps
9.1	130	Total			

Summary for Subcatchment 303S: BASIN 3 (Ocean Ridge)

Runoff = 1.78 cfs @ 12.11 hrs, Volume= 0.136 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
*	0.120	98	IMPERVIOUS
*	0.080	77	WOODS D
*	0.380	80	LAWN D
	0.580	83	Weighted Average
	0.460		79.31% Pervious Area
	0.120		20.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	30	0.0300	0.07		**Sheet Flow, Segment ID: AB**
					Woods: Light underbrush n= 0.400 P2= 3.00"
0.9	120	0.0200	2.12		**Shallow Concentrated Flow, Segment ID: BC**
					Grassed Waterway Kv= 15.0 fps
8.1	150	Total			

Summary for Reach 3R: VEGETATED SWALE 1 (Ocean Ridge)

Inflow Area = 1.270 ac, 58.27% Impervious, Inflow Depth = 3.49" for Cumberland_10 event
Inflow = 4.55 cfs @ 12.12 hrs, Volume= 0.370 af
Outflow = 4.19 cfs @ 12.23 hrs, Volume= 0.370 af, Atten= 8%, Lag= 6.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 0.73 fps, Min. Travel Time= 3.9 min
Avg. Velocity = 0.19 fps, Avg. Travel Time= 14.8 min

Peak Storage= 979 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.71'
Bank-Full Depth= 2.00' Flow Area= 24.0 sf, Capacity= 30.82 cfs

6.00' x 2.00' deep channel, n= 0.150
Side Slope Z-value= 3.0 '/' Top Width= 18.00'
Length= 170.0' Slope= 0.0120 '/'
Inlet Invert= 0.00', Outlet Invert= -2.04'

‡

Summary for Reach 4R: SP#2

Inflow Area = 1.210 ac, 0.00% Impervious, Inflow Depth = 2.29" for Cumberland_10 event
Inflow = 2.85 cfs @ 12.14 hrs, Volume= 0.231 af
Outflow = 2.85 cfs @ 12.14 hrs, Volume= 0.231 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

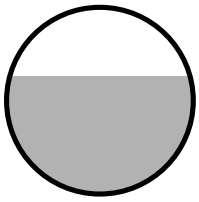
Summary for Reach 31R: CULVERT 3 (Ocean Ridge)

Inflow Area = 0.820 ac, 45.12% Impervious, Inflow Depth = 3.29" for Cumberland_10 event
Inflow = 2.22 cfs @ 12.28 hrs, Volume= 0.225 af
Outflow = 2.22 cfs @ 12.29 hrs, Volume= 0.225 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs / 2
Max. Velocity= 5.06 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.16 fps, Avg. Travel Time= 0.7 min

Peak Storage= 22 cf @ 12.29 hrs
Average Depth at Peak Storage= 0.58'
Bank-Full Depth= 0.92' Flow Area= 0.7 sf, Capacity= 3.06 cfs

11.0" Round Pipe
n= 0.012
Length= 50.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -0.50'



Summary for Reach 32R: VEGETATED SWALE 2 (Ocean Ridge)

Inflow Area = 0.820 ac, 45.12% Impervious, Inflow Depth = 3.29" for Cumberland_10 event
Inflow = 2.78 cfs @ 12.13 hrs, Volume= 0.225 af
Outflow = 2.64 cfs @ 12.21 hrs, Volume= 0.225 af, Atten= 5%, Lag= 5.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.65 fps, Min. Travel Time= 3.0 min
Avg. Velocity = 0.17 fps, Avg. Travel Time= 11.0 min

Peak Storage= 470 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.54'
Bank-Full Depth= 2.00' Flow Area= 24.0 sf, Capacity= 32.02 cfs

6.00' x 2.00' deep channel, n= 0.150
Side Slope Z-value= 3.0 '/' Top Width= 18.00'
Length= 115.0' Slope= 0.0130 '/'
Inlet Invert= 0.00', Outlet Invert= -1.49'

‡

Summary for Reach 33R: Wetland Flow

Inflow Area = 2.670 ac, 46.07% Impervious, Inflow Depth = 3.28" for Cumberland_10 event
Inflow = 2.79 cfs @ 12.62 hrs, Volume= 0.730 af
Outflow = 2.78 cfs @ 12.71 hrs, Volume= 0.730 af, Atten= 0%, Lag= 5.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.78 fps, Min. Travel Time= 3.2 min
Avg. Velocity = 0.19 fps, Avg. Travel Time= 13.5 min

Peak Storage= 532 cf @ 12.66 hrs
Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 1.00' Flow Area= 30.0 sf, Capacity= 52.28 cfs

10.00' x 1.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 20.0 '/' Top Width= 50.00'
Length= 150.0' Slope= 0.0033 '/'
Inlet Invert= 158.00', Outlet Invert= 157.50'

‡

Summary for Reach 34R: Woodland Flow

Inflow Area = 2.670 ac, 46.07% Impervious, Inflow Depth = 3.28" for Cumberland_10 event
Inflow = 2.78 cfs @ 12.71 hrs, Volume= 0.730 af
Outflow = 2.72 cfs @ 12.95 hrs, Volume= 0.730 af, Atten= 2%, Lag= 14.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.60 fps, Min. Travel Time= 7.6 min
Avg. Velocity = 0.71 fps, Avg. Travel Time= 27.8 min

Peak Storage= 1,236 cf @ 12.82 hrs
Average Depth at Peak Storage= 0.16'
Bank-Full Depth= 1.00' Flow Area= 15.0 sf, Capacity= 108.87 cfs

5.00' x 1.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 10.0 '/' Top Width= 25.00'
Length= 1,180.0' Slope= 0.0581 '/'
Inlet Invert= 157.50', Outlet Invert= 89.00'

‡

Summary for Reach 106R: SP#1 (Eben Hill Road)

Inflow Area = 23.010 ac, 16.15% Impervious, Inflow Depth = 2.65" for Cumberland_10 event
Inflow = 31.51 cfs @ 12.16 hrs, Volume= 5.090 af
Outflow = 31.51 cfs @ 12.16 hrs, Volume= 5.090 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Pond 3P: POND 3 (Ocean Ridge)

Inflow Area = 2.670 ac, 46.07% Impervious, Inflow Depth = 3.28" for Cumberland_10 event
Inflow = 7.37 cfs @ 12.24 hrs, Volume= 0.730 af
Outflow = 2.79 cfs @ 12.62 hrs, Volume= 0.730 af, Atten= 62%, Lag= 22.9 min
Primary = 2.79 cfs @ 12.62 hrs, Volume= 0.730 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 160.74' @ 12.62 hrs Surf.Area= 5,209 sf Storage= 10,521 cf

Plug-Flow detention time= 75.9 min calculated for 0.730 af (100% of inflow)
Center-of-Mass det. time= 76.0 min (896.4 - 820.4)

Volume	Invert	Avail.Storage	Storage Description
#1	158.00'	21,813 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
158.00	2,113	0	0
160.00	4,304	6,417	6,417
162.00	6,739	11,043	17,460
162.60	7,772	4,353	21,813

Device	Routing	Invert	Outlet Devices
#1	Primary	158.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	160.00'	**9.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	161.00'	**4.5" Vert. Orifice/Grate** C= 0.600
#4	Primary	161.50'	**20.0' long Broad-Crested Rectangular Weir X 1.81**
			Head (feet) 0.50 1.00 1.50
			Coef. (English) 1.60 1.80 1.90

Primary OutFlow Max=2.79 cfs @ 12.62 hrs HW=160.74' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 1.49 cfs @ 7.60 fps)
- **2=Orifice/Grate** (Orifice Controls 1.29 cfs @ 2.94 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 30P: POND 30 (Ocean Ridge)

Inflow Area = 0.820 ac, 45.12% Impervious, Inflow Depth = 3.29" for Cumberland_10 event
Inflow = 2.64 cfs @ 12.21 hrs, Volume= 0.225 af
Outflow = 2.22 cfs @ 12.28 hrs, Volume= 0.225 af, Atten= 16%, Lag= 4.5 min
Primary = 2.22 cfs @ 12.28 hrs, Volume= 0.225 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 160.73' @ 12.28 hrs Surf.Area= 1,462 sf Storage= 1,151 cf

Plug-Flow detention time= 25.9 min calculated for 0.225 af (100% of inflow)
Center-of-Mass det. time= 26.0 min (839.7 - 813.7)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	3,156 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	1,150	0	0
162.00	2,006	3,156	3,156

Device	Routing	Invert	Outlet Devices
#1	Primary	160.00'	**18.0" Round Culvert** L= 30.0' Ke= 0.500
			Inlet / Outlet Invert= 160.00' / 159.70' S= 0.0100 '/' Cc= 0.900
			n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=2.22 cfs @ 12.28 hrs HW=160.73' (Free Discharge)
- **1=Culvert** (Barrel Controls 2.22 cfs @ 3.82 fps)

Summary for Pond 60R: FIELD CB

Inflow Area = 0.420 ac, 23.00% Impervious, Inflow Depth = 2.91" for Cumberland_10 event
Inflow = 1.53 cfs @ 12.06 hrs, Volume= 0.102 af
Outflow = 1.53 cfs @ 12.06 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.0 min
Primary = 1.53 cfs @ 12.06 hrs, Volume= 0.102 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 90.66' @ 12.06 hrs
Flood Elev= 91.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	**12.0" Round Culvert** L= 110.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 90.00' / 89.00' S= 0.0091 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.52 cfs @ 12.06 hrs HW=90.66' (Free Discharge)
↑**1=Culvert** (Inlet Controls 1.52 cfs @ 2.77 fps)

Summary for Pond 62P: Driveway Culvert

Inflow Area = 14.630 ac, 11.69% Impervious, Inflow Depth = 2.56" for Cumberland_10 event
Inflow = 18.90 cfs @ 12.46 hrs, Volume= 3.117 af
Outflow = 18.85 cfs @ 12.48 hrs, Volume= 3.117 af, Atten= 0%, Lag= 1.0 min
Primary = 8.42 cfs @ 12.48 hrs, Volume= 2.615 af
Secondary = 10.43 cfs @ 12.48 hrs, Volume= 0.502 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 89.82' @ 12.48 hrs Surf.Area= 3,038 sf Storage= 1,576 cf

Plug-Flow detention time= 0.8 min calculated for 3.116 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (871.1 - 870.3)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	2,197 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
88.00	47	50.0	0	0	47
89.00	540	284.0	249	249	6,269
90.00	3,860	500.0	1,948	2,197	19,750

Device	Routing	Invert	Outlet Devices
#1	Primary	87.50'	**18.0" Round Culvert** L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 87.50' / 87.00' S= 0.0143 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	89.50'	**22.0' long x 13.0' 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) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=8.42 cfs @ 12.48 hrs HW=89.82' (Free Discharge)
└**1=Culvert** (Inlet Controls 8.42 cfs @ 4.76 fps)

Secondary OutFlow Max=10.43 cfs @ 12.48 hrs HW=89.82' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 10.43 cfs @ 1.48 fps)

Summary for Pond 66P: 24" Cross culvert

Inflow Area = 16.450 ac, 11.46% Impervious, Inflow Depth = 2.56" for Cumberland_10 event
Inflow = 20.77 cfs @ 12.46 hrs, Volume= 3.503 af
Outflow = 20.13 cfs @ 12.54 hrs, Volume= 3.503 af, Atten= 3%, Lag= 4.7 min
Primary = 20.13 cfs @ 12.54 hrs, Volume= 3.503 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 88.29' @ 12.54 hrs Surf.Area= 1,567 sf Storage= 1,462 cf

Plug-Flow detention time= 0.5 min calculated for 3.503 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (866.9 - 866.5)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	1,817 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
84.00	5	5.0	0	0	5
85.00	25	25.0	14	14	55
86.00	63	40.0	43	56	139
87.00	425	195.0	217	273	3,040
88.00	1,210	305.0	784	1,058	7,424
88.50	1,850	330.0	759	1,817	8,697

Device	Routing	Invert	Outlet Devices
#1	Primary	84.45'	**24.0" Round Culvert** L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 84.45' / 84.13' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Secondary	88.50'	**12.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=20.13 cfs @ 12.54 hrs HW=88.29' (Free Discharge)
└**1=Culvert** (Inlet Controls 20.13 cfs @ 6.41 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=84.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 100R: Vortech-DMH2

Inflow Area = 2.790 ac, 36.20% Impervious, Inflow Depth = 3.12" for Cumberland_10 event
Inflow = 8.86 cfs @ 12.13 hrs, Volume= 0.726 af
Outflow = 8.86 cfs @ 12.13 hrs, Volume= 0.726 af, Atten= 0%, Lag= 0.0 min
Primary = 8.86 cfs @ 12.13 hrs, Volume= 0.726 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 108.83' @ 12.13 hrs
Flood Elev= 112.16'

Device	Routing	Invert	Outlet Devices
#1	Primary	107.00'	**18.0" Round Culvert** L= 318.0' Ke= 0.500 Inlet / Outlet Invert= 107.00' / 98.52' S= 0.0267 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=8.85 cfs @ 12.13 hrs HW=108.83' (Free Discharge)
1=Culvert (Inlet Controls 8.85 cfs @ 5.01 fps)

Summary for Pond 101R: DMH2-DMH1(DMH1606)

Inflow Area = 2.790 ac, 36.20% Impervious, Inflow Depth = 3.12" for Cumberland_10 event
Inflow = 8.86 cfs @ 12.13 hrs, Volume= 0.726 af
Outflow = 8.86 cfs @ 12.13 hrs, Volume= 0.726 af, Atten= 0%, Lag= 0.0 min
Primary = 8.86 cfs @ 12.13 hrs, Volume= 0.726 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 100.21' @ 12.13 hrs
Flood Elev= 103.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	98.38'	**18.0" Round Culvert** L= 177.0' Ke= 0.500 Inlet / Outlet Invert= 98.38' / 91.46' S= 0.0391 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=8.85 cfs @ 12.13 hrs HW=100.21' (Free Discharge)
1=Culvert (Inlet Controls 8.85 cfs @ 5.01 fps)

Summary for Pond 102R: DMH1606-DMH9

Inflow Area = 2.790 ac, 36.20% Impervious, Inflow Depth = 3.12" for Cumberland_10 event
Inflow = 8.86 cfs @ 12.13 hrs, Volume= 0.726 af
Outflow = 8.86 cfs @ 12.13 hrs, Volume= 0.726 af, Atten= 0%, Lag= 0.0 min
Primary = 8.86 cfs @ 12.13 hrs, Volume= 0.726 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 93.13' @ 12.13 hrs
Flood Elev= 96.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	91.30'	**18.0" Round Culvert** L= 110.0' RCP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 91.30' / 89.27' S= 0.0185 '/' Cc= 0.900
n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=8.85 cfs @ 12.13 hrs HW=93.13' (Free Discharge)
└**1=Culvert** (Inlet Controls 8.85 cfs @ 5.01 fps)

Summary for Pond 103R: DMH9-DMH8

Inflow Area = 6.170 ac, 26.71% Impervious, Inflow Depth = 2.87" for Cumberland_10 event
Inflow = 18.11 cfs @ 12.13 hrs, Volume= 1.477 af
Outflow = 18.11 cfs @ 12.13 hrs, Volume= 1.477 af, Atten= 0%, Lag= 0.0 min
Primary = 18.11 cfs @ 12.13 hrs, Volume= 1.477 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 95.06' @ 12.13 hrs
Flood Elev= 94.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	89.07'	**18.0" Round Culvert** L= 132.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 89.07' / 87.76' S= 0.0099 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=18.11 cfs @ 12.13 hrs HW=95.06' (Free Discharge)
└**1=Culvert** (Barrel Controls 18.11 cfs @ 10.25 fps)

Summary for Pond 104R: DMH8-DMH200

Inflow Area = 6.560 ac, 27.90% Impervious, Inflow Depth = 2.90" for Cumberland_10 event
Inflow = 19.40 cfs @ 12.13 hrs, Volume= 1.587 af
Outflow = 19.40 cfs @ 12.13 hrs, Volume= 1.587 af, Atten= 0%, Lag= 0.0 min
Primary = 19.40 cfs @ 12.13 hrs, Volume= 1.587 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 98.87' @ 12.13 hrs
Flood Elev= 92.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	87.66'	**18.0" Round Culvert** L= 273.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 87.66' / 86.60' S= 0.0039 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=19.39 cfs @ 12.13 hrs HW=98.86' (Free Discharge)
└**1=Culvert** (Barrel Controls 19.39 cfs @ 10.97 fps)

Summary for Pond 105R: DMH200-OUTLET

Inflow Area = 6.560 ac, 27.90% Impervious, Inflow Depth = 2.90" for Cumberland_10 event
Inflow = 19.40 cfs @ 12.13 hrs, Volume= 1.587 af
Outflow = 19.40 cfs @ 12.13 hrs, Volume= 1.587 af, Atten= 0%, Lag= 0.0 min
Primary = 19.40 cfs @ 12.13 hrs, Volume= 1.587 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 92.48' @ 12.13 hrs
Flood Elev= 89.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	86.53'	**18.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 86.53' / 84.13' S= 0.0400 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=19.39 cfs @ 12.13 hrs HW=92.47' (Free Discharge)
1=Culvert (Inlet Controls 19.39 cfs @ 10.97 fps)

Time span=0.00-100.00 hrs, dt=0.01 hrs, 10001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Subarea 1 Runoff Area=3.160 ac 13.23% Impervious Runoff Depth=3.60"
Flow Length=660' Tc=9.5 min CN=80 Runoff=11.82 cfs 0.948 af

Subcatchment 1S: BASIN 1 (Ocean Ridge) Runoff Area=2.600 ac 34.62% Impervious Runoff Depth=4.22"
Flow Length=660' Tc=9.9 min CN=86 Runoff=11.06 cfs 0.914 af

Subcatchment 2: Subarea 2 Runoff Area=11.540 ac 3.32% Impervious Runoff Depth=3.40"
Flow Length=1,435' Tc=32.5 min CN=78 Runoff=25.13 cfs 3.272 af

Subcatchment 3: Sub 3 Runoff Area=0.300 ac 30.67% Impervious Runoff Depth=4.22"
Flow Length=300' Tc=9.4 min CN=86 Runoff=1.30 cfs 0.105 af

Subcatchment 4: Subarea 4 Runoff Area=1.210 ac 0.00% Impervious Runoff Depth=3.31"
Flow Length=250' Tc=9.8 min CN=77 Runoff=4.12 cfs 0.333 af

Subcatchment 5: Subarea 5 Runoff Area=1.820 ac 9.67% Impervious Runoff Depth=3.60"
Flow Length=660' Tc=11.0 min CN=80 Runoff=6.49 cfs 0.546 af

Subcatchment 6: Sub 6 Runoff Area=0.420 ac 23.00% Impervious Runoff Depth=4.01"
Flow Length=235' Tc=4.1 min CN=84 Runoff=2.09 cfs 0.140 af

Subcatchment 100: Subarea 100 Runoff Area=0.220 ac 100.00% Impervious Runoff Depth=5.56"
Flow Length=572' Tc=6.6 min CN=98 Runoff=1.23 cfs 0.102 af

Subcatchment 101S: BASIN 101 (Ocean Ridge) Runoff Area=0.190 ac 57.89% Impervious Runoff Depth=4.65"
Flow Length=155' Tc=6.4 min CN=90 Runoff=0.98 cfs 0.074 af

Subcatchment 300: Subarea 300 Runoff Area=0.090 ac 100.00% Impervious Runoff Depth=5.56"
Flow Length=162' Tc=5.0 min CN=98 Runoff=0.53 cfs 0.042 af

Subcatchment 301S: BASIN 301 (Ocean Ridge) Runoff Area=0.820 ac 45.12% Impervious Runoff Depth=4.43"
Flow Length=190' Tc=9.3 min CN=88 Runoff=3.69 cfs 0.303 af

Subcatchment 302S: BASIN 302 (Ocean Ridge) Runoff Area=1.270 ac 58.27% Impervious Runoff Depth=4.65"
Flow Length=130' Slope=0.0200 '/' Tc=9.1 min CN=90 Runoff=5.97 cfs 0.492 af

Subcatchment 303S: BASIN 3 (Ocean Ridge) Runoff Area=0.580 ac 20.69% Impervious Runoff Depth=3.91"
Flow Length=150' Tc=8.1 min CN=83 Runoff=2.45 cfs 0.189 af

Reach 3R: VEGETATED SWALE 1 (Ocean Ridge) Avg. Flow Depth=0.83' Max Vel=0.79 fps Inflow=5.97 cfs 0.492 af
n=0.150 L=170.0' S=0.0120 '/' Capacity=30.82 cfs Outflow=5.56 cfs 0.492 af

Reach 4R: SP#2 Inflow=4.12 cfs 0.333 af
Outflow=4.12 cfs 0.333 af

Reach 31R: CULVERT 3 (Ocean Ridge) Avg. Flow Depth=0.75' Max Vel=5.29 fps Inflow=3.04 cfs 0.303 af
11.0" Round Pipe n=0.012 L=50.0' S=0.0100 '/' Capacity=3.06 cfs Outflow=3.04 cfs 0.303 af

Reach 32R: VEGETATED SWALE 2 (Ocean Ridge) Avg. Flow Depth=0.63' Max Vel=0.71 fps Inflow=3.69 cfs 0.303 af
n=0.150 L=115.0' S=0.0130 '/' Capacity=32.02 cfs Outflow=3.54 cfs 0.303 af

Reach 33R: Wetland Flow Avg. Flow Depth=0.29' Max Vel=0.87 fps Inflow=3.95 cfs 0.984 af
n=0.035 L=150.0' S=0.0033 '/' Capacity=52.28 cfs Outflow=3.93 cfs 0.984 af

Reach 34R: Woodland Flow Avg. Flow Depth=0.19' Max Vel=2.90 fps Inflow=3.93 cfs 0.984 af
n=0.035 L=1,180.0' S=0.0581 '/' Capacity=108.87 cfs Outflow=3.87 cfs 0.984 af

Reach 106R: SP#1 (Eben Hill Road) Inflow=44.16 cfs 6.887 af
Outflow=44.16 cfs 6.887 af

Pond 3P: POND 3 (Ocean Ridge) Peak Elev=161.33' Storage=13,782 cf Inflow=9.99 cfs 0.984 af
Outflow=3.95 cfs 0.984 af

Pond 30P: POND 30 (Ocean Ridge) Peak Elev=160.88' Storage=1,387 cf Inflow=3.54 cfs 0.303 af
18.0" Round Culvert n=0.012 L=30.0' S=0.0100 '/' Outflow=3.04 cfs 0.303 af

Pond 60R: FIELD CB Peak Elev=90.81' Inflow=2.09 cfs 0.140 af
12.0" Round Culvert n=0.012 L=110.0' S=0.0091 '/' Outflow=2.09 cfs 0.140 af

Pond 62P: Driveway Culvert Peak Elev=89.96' Storage=2,063 cf Inflow=27.39 cfs 4.397 af
Primary=8.80 cfs 3.332 af Secondary=18.54 cfs 1.065 af Outflow=27.33 cfs 4.397 af

Pond 66P: 24" Cross culvert Peak Elev=88.82' Storage=1,817 cf Inflow=29.90 cfs 4.943 af
Primary=21.93 cfs 4.701 af Secondary=5.72 cfs 0.146 af Outflow=27.65 cfs 4.847 af

Pond 100R: Vortech-DMH2 Peak Elev=109.71' Inflow=11.92 cfs 0.988 af
18.0" Round Culvert n=0.012 L=318.0' S=0.0267 '/' Outflow=11.92 cfs 0.988 af

Pond 101R: DMH2-DMH1(DMH1606) Peak Elev=101.09' Inflow=11.92 cfs 0.988 af
18.0" Round Culvert n=0.012 L=177.0' S=0.0391 '/' Outflow=11.92 cfs 0.988 af

Pond 102R: DMH1606-DMH9 Peak Elev=94.01' Inflow=11.92 cfs 0.988 af
18.0" Round Culvert n=0.012 L=110.0' S=0.0185 '/' Outflow=11.92 cfs 0.988 af

Pond 103R: DMH9-DMH8 Peak Elev=100.19' Inflow=24.85 cfs 2.038 af
18.0" Round Culvert n=0.012 L=132.0' S=0.0099 '/' Outflow=24.85 cfs 2.038 af

Pond 104R: DMH8-DMH200 Peak Elev=108.29' Inflow=26.56 cfs 2.185 af
18.0" Round Culvert n=0.012 L=273.0' S=0.0039 '/' Outflow=26.56 cfs 2.185 af

Pond 105R: DMH200-OUTLET Peak Elev=97.03' Inflow=26.56 cfs 2.185 af
18.0" Round Culvert n=0.012 L=60.0' S=0.0400 '/' Outflow=26.56 cfs 2.185 af

Total Runoff Area = 24.220 ac Runoff Volume = 7.462 af Average Runoff Depth = 3.70"
84.66% Pervious = 20.504 ac 15.34% Impervious = 3.716 ac

Summary for Subcatchment 1: Subarea 1

Runoff = 11.82 cfs @ 12.13 hrs, Volume= 0.948 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
	0.290	84	1 acre lots, 20% imp, HSG D
	0.290	87	1/4 acre lots, 38% imp, HSG D
*	0.220	98	Roadway
	2.240	77	Woods, Good, HSG D
*	0.090	80	>75% Grass cover, Good, HSG D (Ocean Ridge)
*	0.030	98	Building, Ocean Ridge
	3.160	80	Weighted Average
	2.742		86.77% Pervious Area
	0.418		13.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	20	0.1500	0.12		**Sheet Flow, Overland Woods**
					Woods: Light underbrush n= 0.400 P2= 3.00"
1.4	160	0.1500	1.94		**Shallow Concentrated Flow, Overland Woods**
					Woodland Kv= 5.0 fps
4.9	400	0.0380	1.36		**Shallow Concentrated Flow, Shallow Rd Ditch**
					Short Grass Pasture Kv= 7.0 fps
0.5	80	0.0200	2.87		**Shallow Concentrated Flow, ROAD GUTTER**
					Paved Kv= 20.3 fps
9.5	660	Total			

Summary for Subcatchment 1S: BASIN 1 (Ocean Ridge)

Runoff = 11.06 cfs @ 12.13 hrs, Volume= 0.914 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
*	0.900	98	IMPERVIOUS
*	0.380	77	WOODS D
*	1.320	80	LAWN D
	2.600	86	Weighted Average
	1.700		65.38% Pervious Area
	0.900		34.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0200	0.10		**Sheet Flow, OVERLAND FLOW** Grass: Dense n= 0.240 P2= 3.00"
0.4	140	0.0430	5.46	65.53	**Trap/Vee/Rect Channel Flow, Segment ID: riprap road ditch** Bot.W=2.00' D=2.00' Z= 2.0 '/' Top.W=10.00' n= 0.060
0.2	90	0.0550	6.18	74.11	**Trap/Vee/Rect Channel Flow, Segment ID: riprap road ditch** Bot.W=2.00' D=2.00' Z= 2.0 '/' Top.W=10.00' n= 0.060
0.8	380	0.0900	7.45	64.10	**Trap/Vee/Rect Channel Flow, Segment ID: riprap road ditch** Bot.W=2.00' D=2.00' Z= 2.0 & 0.3 '/' Top.W=6.60' n= 0.060
9.9	660	Total			

Summary for Subcatchment 2: Subarea 2

Runoff = 25.13 cfs @ 12.46 hrs, Volume= 3.272 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
	0.640	87	1/4 acre lots, 38% imp, HSG D
*	0.050	98	Roadway
	10.590	77	Woods, Good, HSG D
*	0.040	98	Building, Ocean Ridge
*	0.050	98	Road, Ocean Ridge
*	0.030	77	Woods, Good, HSG D, Ocean Ridge
*	0.140	80	>75% Grass cover, Good, HSG D, Ocean Ridge
	11.540	78	Weighted Average
	11.157		96.68% Pervious Area
	0.383		3.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	110	0.0800	0.13		**Sheet Flow, Overland Woods** Woods: Light underbrush n= 0.400 P2= 3.00"
18.8	1,325	0.0550	1.17		**Shallow Concentrated Flow, Overland Woods** Woodland Kv= 5.0 fps
32.5	1,435	Total			

Summary for Subcatchment 3: Sub 3

Runoff = 1.30 cfs @ 12.13 hrs, Volume= 0.105 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
*	0.040	98	Paved roads Ocean Ave
	0.260	84	1 acre lots, 20% imp, HSG D
	0.300	86	Weighted Average
	0.208		69.33% Pervious Area
	0.092		30.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	60	0.1000	0.13		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
1.2	160	0.1000	2.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	80	0.0150	2.49		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
9.4	300	Total			

Summary for Subcatchment 4: Subarea 4

Runoff = 4.12 cfs @ 12.14 hrs, Volume= 0.333 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

Area (ac)	CN	Description
1.210	77	Woods, Good, HSG D
1.210		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	60	0.1200	0.14		**Sheet Flow, Overland Woods** Woods: Light underbrush n= 0.400 P2= 3.00"
2.6	190	0.0600	1.22		**Shallow Concentrated Flow, Overland Woods** Woodland Kv= 5.0 fps
9.8	250	Total			

Summary for Subcatchment 5: Subarea 5

Runoff = 6.49 cfs @ 12.15 hrs, Volume= 0.546 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
	0.730	84	1 acre lots, 20% imp, HSG D
*	0.030	98	Roadway
	1.060	77	Woods, Good, HSG D
	1.820	80	Weighted Average
	1.644		90.33% Pervious Area
	0.176		9.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	30	0.1500	0.13		**Sheet Flow, Overland Woods**
					Woods: Light underbrush n= 0.400 P2= 3.00"
7.2	630	0.0850	1.46		**Shallow Concentrated Flow, Overland Woods**
					Woodland Kv= 5.0 fps
11.0	660	Total			

Summary for Subcatchment 6: Sub 6

Runoff = 2.09 cfs @ 12.06 hrs, Volume= 0.140 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

Area (ac)	CN	Description
0.350	84	1 acre lots, 20% imp, HSG D
0.070	87	1/4 acre lots, 38% imp, HSG D
0.420	84	Weighted Average
0.323		77.00% Pervious Area
0.097		23.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	25	0.1500	0.13		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.00"
0.4	60	0.2300	2.40		**Shallow Concentrated Flow, B-C**
					Woodland Kv= 5.0 fps
0.4	150	0.0400	5.86	41.05	**Trap/Vee/Rect Channel Flow, C-D**
					Bot.W=2.00' D=1.00' Z= 5.0 '/' Top.W=12.00'
					n= 0.035 Earth, dense weeds
4.1	235	Total			

Summary for Subcatchment 100: Subarea 100

Runoff = 1.23 cfs @ 12.09 hrs, Volume= 0.102 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
*	0.220	98	Roadway
	0.220		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.87		**Sheet Flow, Road Crown**
					Smooth surfaces n= 0.011 P2= 3.00"
5.9	480	0.0380	1.36		**Shallow Concentrated Flow, SHALLOW RD DITCH**
					Short Grass Pasture Kv= 7.0 fps
0.5	80	0.0200	2.87		**Shallow Concentrated Flow, ROAD GUTTER**
					Paved Kv= 20.3 fps
6.6	572	Total			

Summary for Subcatchment 101S: BASIN 101 (Ocean Ridge)

Runoff = 0.98 cfs @ 12.09 hrs, Volume= 0.074 af, Depth= 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
*	0.110	98	IMPERVIOUS
*	0.080	80	LAWN D
	0.190	90	Weighted Average
	0.080		42.11% Pervious Area
	0.110		57.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	30	0.0200	0.09		**Sheet Flow, Segment ID: AB, Lawn**
					Grass: Dense n= 0.240 P2= 3.00"
0.1	25	0.0200	2.87		**Shallow Concentrated Flow, Segment ID: BC,Driveway**
					Paved Kv= 20.3 fps
0.7	100	0.1200	2.42		**Shallow Concentrated Flow, Segment ID: grass slope**
					Short Grass Pasture Kv= 7.0 fps
6.4	155	Total			

Summary for Subcatchment 300: Subarea 300

Runoff = 0.53 cfs @ 12.07 hrs, Volume= 0.042 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
*	0.090	98	Roadway
	0.090		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.87		**Sheet Flow, Road Crown**
					Smooth surfaces n= 0.011 P2= 3.00"
1.1	150	0.0130	2.31		**Shallow Concentrated Flow, Gutter flow**
					Paved Kv= 20.3 fps
3.7					**Direct Entry,**
5.0	162	Total			

Summary for Subcatchment 301S: BASIN 301 (Ocean Ridge)

Runoff = 3.69 cfs @ 12.13 hrs, Volume= 0.303 af, Depth= 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
*	0.370	98	IMPERVIOUS
*	0.450	80	LAWN D
	0.820	88	Weighted Average
	0.450		54.88% Pervious Area
	0.370		45.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	60	0.0300	0.12		**Sheet Flow, Segment ID: AB**
					Grass: Dense n= 0.240 P2= 3.00"
0.4	50	0.0200	2.12		**Shallow Concentrated Flow, Segment ID: BC**
					Grassed Waterway Kv= 15.0 fps
0.6	80	0.0200	2.12		**Shallow Concentrated Flow, Segment ID: CD**
					Grassed Waterway Kv= 15.0 fps
9.3	190	Total			

Summary for Subcatchment 302S: BASIN 302 (Ocean Ridge)

Runoff = 5.97 cfs @ 12.12 hrs, Volume= 0.492 af, Depth= 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
*	0.740	98	IMPERVIOUS
*	0.050	77	WOODS D
*	0.480	80	LAWN D
	1.270	90	Weighted Average
	0.530		41.73% Pervious Area
	0.740		58.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0200	0.10		**Sheet Flow, Segment ID: AB**
					Grass: Dense n= 0.240 P2= 3.00"
0.2	30	0.0200	2.87		**Shallow Concentrated Flow, Segment ID: BC**
					Paved Kv= 20.3 fps
0.4	50	0.0200	2.12		**Shallow Concentrated Flow, Segment ID:**
					Grassed Waterway Kv= 15.0 fps
9.1	130	Total			

Summary for Subcatchment 303S: BASIN 3 (Ocean Ridge)

Runoff = 2.45 cfs @ 12.11 hrs, Volume= 0.189 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
*	0.120	98	IMPERVIOUS
*	0.080	77	WOODS D
*	0.380	80	LAWN D
	0.580	83	Weighted Average
	0.460		79.31% Pervious Area
	0.120		20.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	30	0.0300	0.07		**Sheet Flow, Segment ID: AB**
					Woods: Light underbrush n= 0.400 P2= 3.00"
0.9	120	0.0200	2.12		**Shallow Concentrated Flow, Segment ID: BC**
					Grassed Waterway Kv= 15.0 fps
8.1	150	Total			

Summary for Reach 3R: VEGETATED SWALE 1 (Ocean Ridge)

Inflow Area = 1.270 ac, 58.27% Impervious, Inflow Depth = 4.65" for Cumberland_25 event
Inflow = 5.97 cfs @ 12.12 hrs, Volume= 0.492 af
Outflow = 5.56 cfs @ 12.22 hrs, Volume= 0.492 af, Atten= 7%, Lag= 5.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 0.79 fps, Min. Travel Time= 3.6 min
Avg. Velocity = 0.21 fps, Avg. Travel Time= 13.6 min

Peak Storage= 1,192 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.83'
Bank-Full Depth= 2.00' Flow Area= 24.0 sf, Capacity= 30.82 cfs

6.00' x 2.00' deep channel, n= 0.150
Side Slope Z-value= 3.0 '/' Top Width= 18.00'
Length= 170.0' Slope= 0.0120 '/'
Inlet Invert= 0.00', Outlet Invert= -2.04'

‡

Summary for Reach 4R: SP#2

Inflow Area = 1.210 ac, 0.00% Impervious, Inflow Depth = 3.31" for Cumberland_25 event
Inflow = 4.12 cfs @ 12.14 hrs, Volume= 0.333 af
Outflow = 4.12 cfs @ 12.14 hrs, Volume= 0.333 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

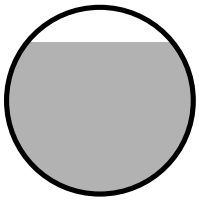
Summary for Reach 31R: CULVERT 3 (Ocean Ridge)

Inflow Area = 0.820 ac, 45.12% Impervious, Inflow Depth = 4.43" for Cumberland_25 event
Inflow = 3.04 cfs @ 12.27 hrs, Volume= 0.303 af
Outflow = 3.04 cfs @ 12.28 hrs, Volume= 0.303 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs / 2
Max. Velocity= 5.29 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.24 fps, Avg. Travel Time= 0.7 min

Peak Storage= 29 cf @ 12.27 hrs
Average Depth at Peak Storage= 0.75'
Bank-Full Depth= 0.92' Flow Area= 0.7 sf, Capacity= 3.06 cfs

11.0" Round Pipe
n= 0.012
Length= 50.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -0.50'



Summary for Reach 32R: VEGETATED SWALE 2 (Ocean Ridge)

Inflow Area = 0.820 ac, 45.12% Impervious, Inflow Depth = 4.43" for Cumberland_25 event
Inflow = 3.69 cfs @ 12.13 hrs, Volume= 0.303 af
Outflow = 3.54 cfs @ 12.20 hrs, Volume= 0.303 af, Atten= 4%, Lag= 4.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.71 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 0.19 fps, Avg. Travel Time= 10.1 min

Peak Storage= 574 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.63'
Bank-Full Depth= 2.00' Flow Area= 24.0 sf, Capacity= 32.02 cfs

6.00' x 2.00' deep channel, n= 0.150
Side Slope Z-value= 3.0 '/' Top Width= 18.00'
Length= 115.0' Slope= 0.0130 '/'
Inlet Invert= 0.00', Outlet Invert= -1.49'

‡

Summary for Reach 33R: Wetland Flow

Inflow Area = 2.670 ac, 46.07% Impervious, Inflow Depth = 4.42" for Cumberland_25 event
Inflow = 3.95 cfs @ 12.58 hrs, Volume= 0.984 af
Outflow = 3.93 cfs @ 12.67 hrs, Volume= 0.984 af, Atten= 0%, Lag= 5.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.87 fps, Min. Travel Time= 2.9 min
Avg. Velocity = 0.20 fps, Avg. Travel Time= 12.7 min

Peak Storage= 680 cf @ 12.62 hrs
Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00' Flow Area= 30.0 sf, Capacity= 52.28 cfs

10.00' x 1.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 20.0 '/' Top Width= 50.00'
Length= 150.0' Slope= 0.0033 '/'
Inlet Invert= 158.00', Outlet Invert= 157.50'

‡

Summary for Reach 34R: Woodland Flow

Inflow Area = 2.670 ac, 46.07% Impervious, Inflow Depth = 4.42" for Cumberland_25 event
Inflow = 3.93 cfs @ 12.67 hrs, Volume= 0.984 af
Outflow = 3.87 cfs @ 12.87 hrs, Volume= 0.984 af, Atten= 2%, Lag= 12.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.90 fps, Min. Travel Time= 6.8 min
Avg. Velocity = 0.75 fps, Avg. Travel Time= 26.3 min

Peak Storage= 1,576 cf @ 12.76 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 1.00' Flow Area= 15.0 sf, Capacity= 108.87 cfs

5.00' x 1.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 10.0 '/' Top Width= 25.00'
Length= 1,180.0' Slope= 0.0581 '/'
Inlet Invert= 157.50', Outlet Invert= 89.00'

‡

Summary for Reach 106R: SP#1 (Eben Hill Road)

Inflow Area = 23.010 ac, 16.15% Impervious, Inflow Depth = 3.59" for Cumberland_25 event
Inflow = 44.16 cfs @ 12.14 hrs, Volume= 6.887 af
Outflow = 44.16 cfs @ 12.14 hrs, Volume= 6.887 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Pond 3P: POND 3 (Ocean Ridge)

Inflow Area = 2.670 ac, 46.07% Impervious, Inflow Depth = 4.42" for Cumberland_25 event
Inflow = 9.99 cfs @ 12.22 hrs, Volume= 0.984 af
Outflow = 3.95 cfs @ 12.58 hrs, Volume= 0.984 af, Atten= 60%, Lag= 21.4 min
Primary = 3.95 cfs @ 12.58 hrs, Volume= 0.984 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 161.33' @ 12.58 hrs Surf.Area= 5,928 sf Storage= 13,782 cf

Plug-Flow detention time= 71.5 min calculated for 0.984 af (100% of inflow)
Center-of-Mass det. time= 71.5 min (881.9 - 810.4)

Volume	Invert	Avail.Storage	Storage Description
#1	158.00'	21,813 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
158.00	2,113	0	0
160.00	4,304	6,417	6,417
162.00	6,739	11,043	17,460
162.60	7,772	4,353	21,813

Device	Routing	Invert	Outlet Devices
#1	Primary	158.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	160.00'	**9.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	161.00'	**4.5" Vert. Orifice/Grate** C= 0.600
#4	Primary	161.50'	**20.0' long Broad-Crested Rectangular Weir X 1.81**
			Head (feet) 0.50 1.00 1.50
			Coef. (English) 1.60 1.80 1.90

Primary OutFlow Max=3.95 cfs @ 12.58 hrs HW=161.33' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 1.66 cfs @ 8.46 fps)
- **2=Orifice/Grate** (Orifice Controls 2.08 cfs @ 4.71 fps)
- **3=Orifice/Grate** (Orifice Controls 0.20 cfs @ 1.97 fps)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 30P: POND 30 (Ocean Ridge)

Inflow Area = 0.820 ac, 45.12% Impervious, Inflow Depth = 4.43" for Cumberland_25 event
Inflow = 3.54 cfs @ 12.20 hrs, Volume= 0.303 af
Outflow = 3.04 cfs @ 12.27 hrs, Volume= 0.303 af, Atten= 14%, Lag= 4.1 min
Primary = 3.04 cfs @ 12.27 hrs, Volume= 0.303 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 160.88' @ 12.27 hrs Surf.Area= 1,526 sf Storage= 1,387 cf

Plug-Flow detention time= 22.7 min calculated for 0.303 af (100% of inflow)
Center-of-Mass det. time= 22.8 min (827.3 - 804.5)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	3,156 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	1,150	0	0
162.00	2,006	3,156	3,156

Device	Routing	Invert	Outlet Devices
#1	Primary	160.00'	**18.0" Round Culvert** L= 30.0' Ke= 0.500
			Inlet / Outlet Invert= 160.00' / 159.70' S= 0.0100 '/' Cc= 0.900
			n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.04 cfs @ 12.27 hrs HW=160.88' (Free Discharge)
- **1=Culvert** (Barrel Controls 3.04 cfs @ 4.07 fps)

Summary for Pond 60R: FIELD CB

Inflow Area = 0.420 ac, 23.00% Impervious, Inflow Depth = 4.01" for Cumberland_25 event
Inflow = 2.09 cfs @ 12.06 hrs, Volume= 0.140 af
Outflow = 2.09 cfs @ 12.06 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min
Primary = 2.09 cfs @ 12.06 hrs, Volume= 0.140 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 90.81' @ 12.06 hrs
Flood Elev= 91.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	**12.0" Round Culvert** L= 110.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 90.00' / 89.00' S= 0.0091 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.09 cfs @ 12.06 hrs HW=90.81' (Free Discharge)
1=Culvert (Inlet Controls 2.09 cfs @ 3.06 fps)

Summary for Pond 62P: Driveway Culvert

Inflow Area = 14.630 ac, 11.69% Impervious, Inflow Depth = 3.61" for Cumberland_25 event
Inflow = 27.39 cfs @ 12.46 hrs, Volume= 4.397 af
Outflow = 27.33 cfs @ 12.49 hrs, Volume= 4.397 af, Atten= 0%, Lag= 1.5 min
Primary = 8.80 cfs @ 12.49 hrs, Volume= 3.332 af
Secondary = 18.54 cfs @ 12.49 hrs, Volume= 1.065 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 89.96' @ 12.49 hrs Surf.Area= 3,691 sf Storage= 2,063 cf

Plug-Flow detention time= 0.9 min calculated for 4.397 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (858.6 - 857.8)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	2,197 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
88.00	47	50.0	0	0	47
89.00	540	284.0	249	249	6,269
90.00	3,860	500.0	1,948	2,197	19,750

Device	Routing	Invert	Outlet Devices
#1	Primary	87.50'	**18.0" Round Culvert** L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 87.50' / 87.00' S= 0.0143 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	89.50'	**22.0' long x 13.0' 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) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=8.80 cfs @ 12.49 hrs HW=89.96' (Free Discharge)
└**1=Culvert** (Inlet Controls 8.80 cfs @ 4.98 fps)

Secondary OutFlow Max=18.53 cfs @ 12.49 hrs HW=89.96' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 18.53 cfs @ 1.81 fps)

Summary for Pond 66P: 24" Cross culvert

Inflow Area = 16.450 ac, 11.46% Impervious, Inflow Depth = 3.61" for Cumberland_25 event
Inflow = 29.90 cfs @ 12.46 hrs, Volume= 4.943 af
Outflow = 27.65 cfs @ 12.46 hrs, Volume= 4.847 af, Atten= 8%, Lag= 0.0 min
Primary = 21.93 cfs @ 12.46 hrs, Volume= 4.701 af
Secondary = 5.72 cfs @ 12.46 hrs, Volume= 0.146 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 88.82' @ 12.46 hrs Surf.Area= 1,850 sf Storage= 1,817 cf

Plug-Flow detention time= 15.5 min calculated for 4.847 af (98% of inflow)
Center-of-Mass det. time= 2.5 min (856.9 - 854.4)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	1,817 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
84.00	5	5.0	0	0	5
85.00	25	25.0	14	14	55
86.00	63	40.0	43	56	139
87.00	425	195.0	217	273	3,040
88.00	1,210	305.0	784	1,058	7,424
88.50	1,850	330.0	759	1,817	8,697

Device	Routing	Invert	Outlet Devices
#1	Primary	84.45'	**24.0" Round Culvert** L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 84.45' / 84.13' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Secondary	88.50'	**12.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=21.93 cfs @ 12.46 hrs HW=88.82' (Free Discharge)
└**1=Culvert** (Inlet Controls 21.93 cfs @ 6.98 fps)

Secondary OutFlow Max=5.71 cfs @ 12.46 hrs HW=88.82' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 5.71 cfs @ 1.48 fps)

Summary for Pond 100R: Vortech-DMH2

Inflow Area = 2.790 ac, 36.20% Impervious, Inflow Depth = 4.25" for Cumberland_25 event
Inflow = 11.92 cfs @ 12.13 hrs, Volume= 0.988 af
Outflow = 11.92 cfs @ 12.13 hrs, Volume= 0.988 af, Atten= 0%, Lag= 0.0 min
Primary = 11.92 cfs @ 12.13 hrs, Volume= 0.988 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 109.71' @ 12.13 hrs
Flood Elev= 112.16'

Device	Routing	Invert	Outlet Devices
#1	Primary	107.00'	**18.0" Round Culvert** L= 318.0' Ke= 0.500 Inlet / Outlet Invert= 107.00' / 98.52' S= 0.0267 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=11.92 cfs @ 12.13 hrs HW=109.71' (Free Discharge)
1=Culvert (Inlet Controls 11.92 cfs @ 6.74 fps)

Summary for Pond 101R: DMH2-DMH1(DMH1606)

Inflow Area = 2.790 ac, 36.20% Impervious, Inflow Depth = 4.25" for Cumberland_25 event
Inflow = 11.92 cfs @ 12.13 hrs, Volume= 0.988 af
Outflow = 11.92 cfs @ 12.13 hrs, Volume= 0.988 af, Atten= 0%, Lag= 0.0 min
Primary = 11.92 cfs @ 12.13 hrs, Volume= 0.988 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 101.09' @ 12.13 hrs
Flood Elev= 103.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	98.38'	**18.0" Round Culvert** L= 177.0' Ke= 0.500 Inlet / Outlet Invert= 98.38' / 91.46' S= 0.0391 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=11.92 cfs @ 12.13 hrs HW=101.09' (Free Discharge)
1=Culvert (Inlet Controls 11.92 cfs @ 6.74 fps)

Summary for Pond 102R: DMH1606-DMH9

Inflow Area = 2.790 ac, 36.20% Impervious, Inflow Depth = 4.25" for Cumberland_25 event
Inflow = 11.92 cfs @ 12.13 hrs, Volume= 0.988 af
Outflow = 11.92 cfs @ 12.13 hrs, Volume= 0.988 af, Atten= 0%, Lag= 0.0 min
Primary = 11.92 cfs @ 12.13 hrs, Volume= 0.988 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 94.01' @ 12.13 hrs
Flood Elev= 96.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	91.30'	**18.0" Round Culvert** L= 110.0' RCP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 91.30' / 89.27' S= 0.0185 '/' Cc= 0.900
n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=11.92 cfs @ 12.13 hrs HW=94.01' (Free Discharge)
↑**1=Culvert** (Inlet Controls 11.92 cfs @ 6.74 fps)

Summary for Pond 103R: DMH9-DMH8

Inflow Area = 6.170 ac, 26.71% Impervious, Inflow Depth = 3.96" for Cumberland_25 event
Inflow = 24.85 cfs @ 12.13 hrs, Volume= 2.038 af
Outflow = 24.85 cfs @ 12.13 hrs, Volume= 2.038 af, Atten= 0%, Lag= 0.0 min
Primary = 24.85 cfs @ 12.13 hrs, Volume= 2.038 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 100.19' @ 12.13 hrs
Flood Elev= 94.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	89.07'	**18.0" Round Culvert** L= 132.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 89.07' / 87.76' S= 0.0099 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=24.85 cfs @ 12.13 hrs HW=100.18' (Free Discharge)
↑**1=Culvert** (Barrel Controls 24.85 cfs @ 14.06 fps)

Summary for Pond 104R: DMH8-DMH200

Inflow Area = 6.560 ac, 27.90% Impervious, Inflow Depth = 4.00" for Cumberland_25 event
Inflow = 26.56 cfs @ 12.13 hrs, Volume= 2.185 af
Outflow = 26.56 cfs @ 12.13 hrs, Volume= 2.185 af, Atten= 0%, Lag= 0.0 min
Primary = 26.56 cfs @ 12.13 hrs, Volume= 2.185 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 108.29' @ 12.13 hrs
Flood Elev= 92.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	87.66'	**18.0" Round Culvert** L= 273.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 87.66' / 86.60' S= 0.0039 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=26.54 cfs @ 12.13 hrs HW=108.26' (Free Discharge)
↑**1=Culvert** (Barrel Controls 26.54 cfs @ 15.02 fps)

Summary for Pond 105R: DMH200-OUTLET

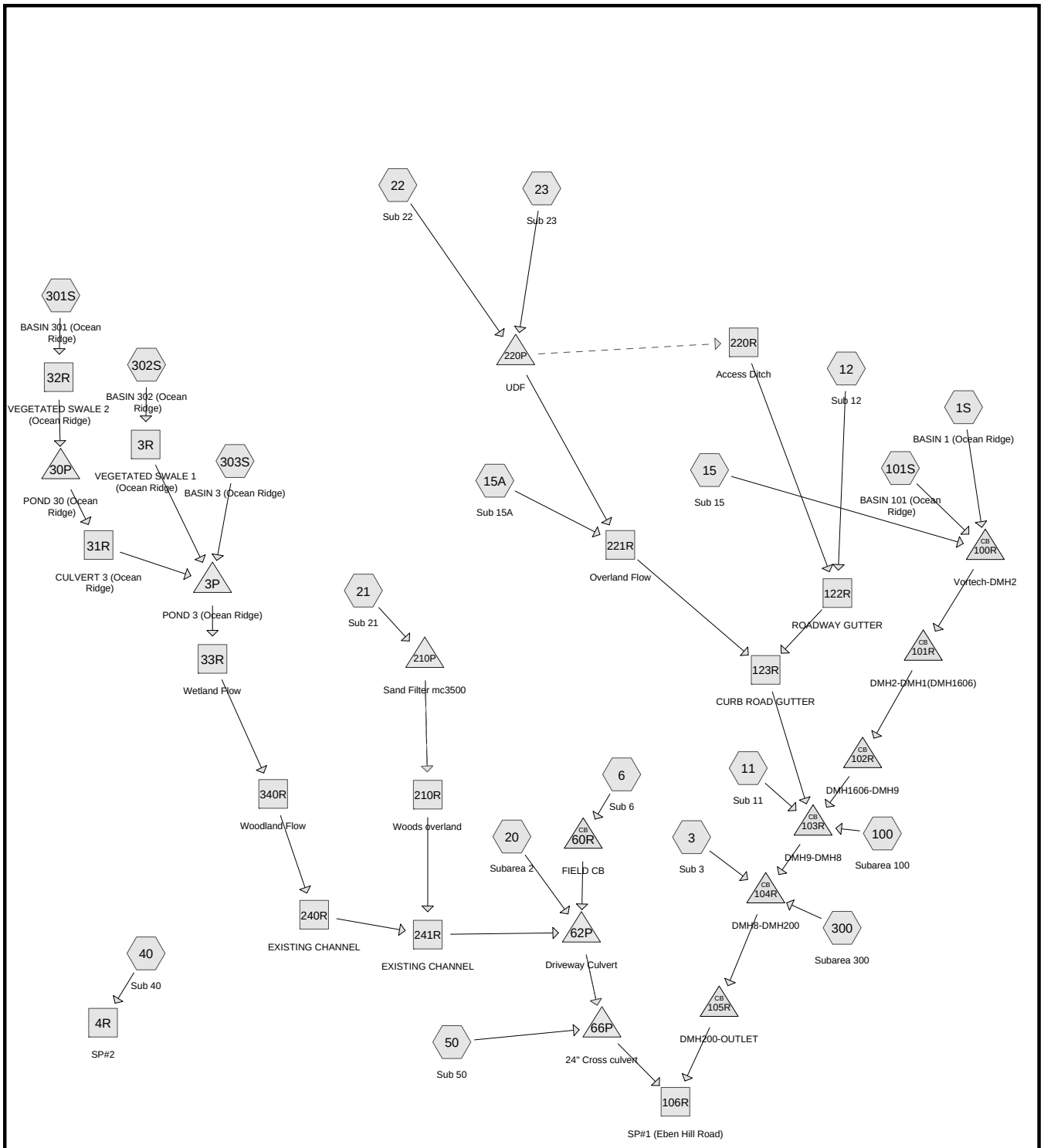
Inflow Area = 6.560 ac, 27.90% Impervious, Inflow Depth = 4.00" for Cumberland_25 event
Inflow = 26.56 cfs @ 12.13 hrs, Volume= 2.185 af
Outflow = 26.56 cfs @ 12.13 hrs, Volume= 2.185 af, Atten= 0%, Lag= 0.0 min
Primary = 26.56 cfs @ 12.13 hrs, Volume= 2.185 af

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 97.03' @ 12.13 hrs
Flood Elev= 89.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	86.53'	**18.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 86.53' / 84.13' S= 0.0400 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=26.54 cfs @ 12.13 hrs HW=97.01' (Free Discharge)
1=Culvert (Inlet Controls 26.54 cfs @ 15.02 fps)

Postdevelopment



Routing Diagram for 14432_Postdevelopment_AS BUILT_rev09-15
Prepared by Sebago Technics, Printed 9/9/2015
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.63	84	1 acre lots, 20% imp, HSG D (3, 6, 11, 50)
1.00	87	1/4 acre lots, 38% imp, HSG D (6, 11, 20)
2.18	80	>75% Grass cover, Good, HSG D (11, 12, 15, 15A, 20, 21, 22, 23, 50)
0.23	80	>75% Grass cover, Good, HSG D Ocean Ridge (12)
2.24	98	IMPERVIOUS (1S, 101S, 301S, 302S, 303S)
2.71	80	LAWN D (1S, 101S, 301S, 302S, 303S)
0.04	98	Paved roads OCEAN AVE (12)
0.26	98	Paved roads Ocean Ave (3, 11, 50)
0.05	98	Paved roads Ocean Ridge (12)
0.24	98	Paved roads Site Drive (15, 15A)
0.05	98	Paved roads, Site Drive (11)
0.31	98	Roadway (100, 300)
0.05	98	Roadway, Ocean Ave (20)
0.07	98	Roofs, OCEAN RIDGE (12)
2.56	98	Site Development (21, 22)
0.51	77	WOODS D (1S, 302S, 303S)
10.06	77	Woods, Good, HSG D (11, 12, 20, 40, 50)
0.03	77	Woods, Good, HSG D Ocean Ridge (12)
24.22	**84**	**TOTAL AREA**

Time span=0.00-45.00 hrs, dt=0.01 hrs, 4501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: BASIN 1 (Ocean Ridge) Runoff Area=2.60 ac 34.62% Impervious Runoff Depth=1.75"
Flow Length=660' Tc=9.9 min CN=86 Runoff=4.67 cfs 0.379 af

Subcatchment 3: Sub 3 Runoff Area=0.30 ac 30.67% Impervious Runoff Depth=1.75"
Flow Length=300' Tc=9.4 min CN=86 Runoff=0.55 cfs 0.044 af

Subcatchment 6: Sub 6 Runoff Area=0.42 ac 23.00% Impervious Runoff Depth=1.60"
Flow Length=235' Tc=5.0 min CN=84 Runoff=0.82 cfs 0.056 af

Subcatchment 11: Sub 11 Runoff Area=1.88 ac 21.71% Impervious Runoff Depth=1.46"
Flow Length=375' Tc=7.3 min CN=82 Runoff=3.06 cfs 0.228 af

Subcatchment 12: Sub 12 Runoff Area=2.61 ac 6.13% Impervious Runoff Depth=1.26"
Flow Length=710' Tc=21.5 min CN=79 Runoff=2.47 cfs 0.275 af

Subcatchment 15: Sub 15 Runoff Area=0.27 ac 66.67% Impervious Runoff Depth=2.26"
Flow Length=342' Tc=5.0 min CN=92 Runoff=0.72 cfs 0.051 af

Subcatchment 15A: Sub 15A Runoff Area=0.09 ac 66.67% Impervious Runoff Depth=2.26"
Flow Length=87' Tc=5.0 min CN=92 Runoff=0.24 cfs 0.017 af

Subcatchment 20: Subarea 2 Runoff Area=6.36 ac 4.61% Impervious Runoff Depth=1.20"
Flow Length=1,435' Tc=32.5 min CN=78 Runoff=4.75 cfs 0.636 af

Subcatchment 21: Sub 21 Runoff Area=3.31 ac 63.75% Impervious Runoff Depth=2.16"
Tc=5.0 min CN=91 Runoff=8.58 cfs 0.597 af

Subcatchment 22: Sub 22 Runoff Area=0.70 ac 64.29% Impervious Runoff Depth=2.26"
Tc=5.0 min CN=92 Runoff=1.88 cfs 0.132 af

Subcatchment 23: Sub 23 Runoff Area=0.20 ac 0.00% Impervious Runoff Depth=1.33"
Tc=5.0 min CN=80 Runoff=0.32 cfs 0.022 af

Subcatchment 40: Sub 40 Runoff Area=1.12 ac 0.00% Impervious Runoff Depth=1.14"
Flow Length=250' Tc=9.1 min CN=77 Runoff=1.30 cfs 0.106 af

Subcatchment 50: Sub 50 Runoff Area=1.19 ac 14.79% Impervious Runoff Depth=1.46"
Flow Length=360' Tc=9.9 min CN=82 Runoff=1.77 cfs 0.145 af

Subcatchment 100: Subarea 100 Runoff Area=0.22 ac 100.00% Impervious Runoff Depth=2.87"
Flow Length=572' Tc=6.6 min CN=98 Runoff=0.65 cfs 0.053 af

Subcatchment 101S: BASIN 101 (Ocean Ridge) Runoff Area=0.19 ac 57.89% Impervious Runoff Depth=2.08"
Flow Length=155' Tc=6.4 min CN=90 Runoff=0.45 cfs 0.033 af

Subcatchment 300: Subarea 300 Runoff Area=0.09 ac 100.00% Impervious Runoff Depth=2.87"
Flow Length=162' Tc=5.0 min CN=98 Runoff=0.28 cfs 0.022 af

Subcatchment 301S: BASIN 301 (Ocean Ridge) Runoff Area=0.82 ac 45.12% Impervious Runoff Depth=1.91"
Flow Length=190' Tc=9.3 min CN=88 Runoff=1.63 cfs 0.130 af

Subcatchment 302S: BASIN 302 (Ocean Ridge) Runoff Area=1.27 ac 58.27% Impervious Runoff Depth=2.08"
Flow Length=130' Slope=0.0200 '/' Tc=9.1 min CN=90 Runoff=2.76 cfs 0.220 af

Subcatchment 303S: BASIN 3 (Ocean Ridge) Runoff Area=0.58 ac 20.69% Impervious Runoff Depth=1.53"
Flow Length=150' Tc=8.1 min CN=83 Runoff=0.96 cfs 0.074 af

Reach 3R: VEGETATED SWALE 1 (Ocean Ridge) Avg. Flow Depth=0.53' Max Vel=0.62 fps Inflow=2.76 cfs 0.220 af
n=0.150 L=170.0' S=0.0120 '/' Capacity=30.82 cfs Outflow=2.49 cfs 0.220 af

Reach 4R: SP#2 Inflow=1.30 cfs 0.106 af
Outflow=1.30 cfs 0.106 af

Reach 31R: CULVERT 3 (Ocean Ridge) Avg. Flow Depth=0.40' Max Vel=4.38 fps Inflow=1.22 cfs 0.130 af
11.0" Round Pipe n=0.012 L=50.0' S=0.0100 '/' Capacity=3.06 cfs Outflow=1.22 cfs 0.130 af

Reach 32R: VEGETATED SWALE 2 (Ocean Ridge) Avg. Flow Depth=0.39' Max Vel=0.54 fps Inflow=1.63 cfs 0.130 af
n=0.150 L=115.0' S=0.0130 '/' Capacity=32.02 cfs Outflow=1.53 cfs 0.130 af

Reach 33R: Wetland Flow Avg. Flow Depth=0.15' Max Vel=0.61 fps Inflow=1.24 cfs 0.423 af
n=0.035 L=150.0' S=0.0033 '/' Capacity=52.28 cfs Outflow=1.24 cfs 0.423 af

Reach 106R: SP#1 (Eben Hill Road) Inflow=15.83 cfs 3.091 af
Outflow=15.83 cfs 3.091 af

Reach 122R: ROADWAY GUTTER Avg. Flow Depth=0.23' Max Vel=3.61 fps Inflow=2.47 cfs 0.275 af
n=0.025 L=290.0' S=0.0379 '/' Capacity=10.97 cfs Outflow=2.46 cfs 0.275 af

Reach 123R: CURB ROAD GUTTER Avg. Flow Depth=0.15' Max Vel=3.20 fps Inflow=2.69 cfs 0.445 af
n=0.013 L=80.0' S=0.0200 '/' Capacity=48.18 cfs Outflow=2.68 cfs 0.445 af

Reach 210R: Woods overland Avg. Flow Depth=0.08' Max Vel=1.49 fps Inflow=1.47 cfs 0.579 af
n=0.035 L=50.0' S=0.0400 '/' Capacity=40.80 cfs Outflow=1.47 cfs 0.578 af

Reach 220R: Access Ditch Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.025 L=310.0' S=0.0500 '/' Capacity=47.31 cfs Outflow=0.00 cfs 0.000 af

Reach 221R: Overland Flow Avg. Flow Depth=0.03' Max Vel=1.19 fps Inflow=0.40 cfs 0.170 af
n=0.040 L=180.0' S=0.1111 '/' Capacity=59.50 cfs Outflow=0.40 cfs 0.170 af

Reach 240R: EXISTING CHANNEL Avg. Flow Depth=0.15' Max Vel=3.28 fps Inflow=1.23 cfs 0.423 af
n=0.025 L=340.0' S=0.0529 '/' Capacity=57.44 cfs Outflow=1.23 cfs 0.423 af

Reach 241R: EXISTING CHANNEL Avg. Flow Depth=0.19' Max Vel=4.57 fps Inflow=2.44 cfs 1.002 af
n=0.025 L=300.0' S=0.0750 '/' Capacity=68.36 cfs Outflow=2.44 cfs 1.001 af

Reach 340R: Woodland Flow Avg. Flow Depth=0.11' Max Vel=1.81 fps Inflow=1.24 cfs 0.423 af
n=0.035 L=700.0' S=0.0421 '/' Capacity=92.76 cfs Outflow=1.23 cfs 0.423 af

Pond 3P: POND 3 (Ocean Ridge) Peak Elev=159.97' Storage=6,326 cf Inflow=4.17 cfs 0.424 af
Outflow=1.24 cfs 0.423 af

Pond 30P: POND 30 (Ocean Ridge) Peak Elev=160.52' Storage=815 cf Inflow=1.53 cfs 0.130 af
18.0" Round Culvert n=0.012 L=30.0' S=0.0100 '/' Outflow=1.22 cfs 0.130 af

Pond 60R: FIELD CB Peak Elev=90.46' Inflow=0.82 cfs 0.056 af
12.0" Round Culvert n=0.012 L=110.0' S=0.0091 '/' Outflow=0.82 cfs 0.056 af

Pond 62P: Driveway Culvert Peak Elev=89.27' Storage=476 cf Inflow=6.96 cfs 1.693 af
Primary=6.80 cfs 1.693 af Secondary=0.00 cfs 0.000 af Outflow=6.80 cfs 1.693 af

Pond 66P: 24" Cross culvert Peak Elev=85.91' Storage=51 cf Inflow=7.30 cfs 1.838 af
Primary=7.30 cfs 1.838 af Secondary=0.00 cfs 0.000 af Outflow=7.30 cfs 1.838 af

Pond 100R: Vortech-DMH2 Peak Elev=108.20' Inflow=5.64 cfs 0.462 af
18.0" Round Culvert n=0.012 L=318.0' S=0.0267 '/' Outflow=5.64 cfs 0.462 af

Pond 101R: DMH2-DMH1(DMH1606) Peak Elev=99.58' Inflow=5.64 cfs 0.462 af
18.0" Round Culvert n=0.012 L=177.0' S=0.0391 '/' Outflow=5.64 cfs 0.462 af

Pond 102R: DMH1606-DMH9 Peak Elev=92.50' Inflow=5.64 cfs 0.462 af
18.0" Round Culvert n=0.012 L=110.0' S=0.0185 '/' Outflow=5.64 cfs 0.462 af

Pond 103R: DMH9-DMH8 Peak Elev=91.36' Inflow=10.55 cfs 1.188 af
18.0" Round Culvert n=0.012 L=132.0' S=0.0099 '/' Outflow=10.55 cfs 1.188 af

Pond 104R: DMH8-DMH200 Peak Elev=91.77' Inflow=11.32 cfs 1.253 af
18.0" Round Culvert n=0.012 L=273.0' S=0.0039 '/' Outflow=11.32 cfs 1.253 af

Pond 105R: DMH200-OUTLET Peak Elev=89.05' Inflow=11.32 cfs 1.253 af
18.0" Round Culvert n=0.012 L=60.0' S=0.0400 '/' Outflow=11.32 cfs 1.253 af

Pond 210P: Sand Filter mc3500 Peak Elev=127.36' Storage=12,652 cf Inflow=8.58 cfs 0.597 af
Outflow=1.47 cfs 0.579 af

Pond 220P: UDF Peak Elev=126.19' Storage=3,249 cf Inflow=2.19 cfs 0.154 af
Primary=0.36 cfs 0.153 af Secondary=0.00 cfs 0.000 af Outflow=0.36 cfs 0.153 af

Total Runoff Area = 24.22 ac Runoff Volume = 3.218 af Average Runoff Depth = 1.59"
72.85% Pervious = 17.64 ac 27.15% Impervious = 6.58 ac

Summary for Subcatchment 1S: BASIN 1 (Ocean Ridge)

Runoff = 4.67 cfs @ 12.14 hrs, Volume= 0.379 af, Depth= 1.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
*	0.90	98	IMPERVIOUS
*	0.38	77	WOODS D
*	1.32	80	LAWN D
	2.60	86	Weighted Average
	1.70		65.38% Pervious Area
	0.90		34.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0200	0.10		**Sheet Flow, OVERLAND FLOW** Grass: Dense n= 0.240 P2= 3.00"
0.4	140	0.0430	5.46	65.53	**Trap/Vee/Rect Channel Flow, Segment ID: riprap road ditch** Bot.W=2.00' D=2.00' Z= 2.0 '/' Top.W=10.00' n= 0.060
0.2	90	0.0550	6.18	74.11	**Trap/Vee/Rect Channel Flow, Segment ID: riprap road ditch** Bot.W=2.00' D=2.00' Z= 2.0 '/' Top.W=10.00' n= 0.060
0.8	380	0.0900	7.45	64.10	**Trap/Vee/Rect Channel Flow, Segment ID: riprap road ditch** Bot.W=2.00' D=2.00' Z= 2.0 & 0.3 '/' Top.W=6.60' n= 0.060
9.9	660	Total			

Summary for Subcatchment 3: Sub 3

Runoff = 0.55 cfs @ 12.13 hrs, Volume= 0.044 af, Depth= 1.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
*	0.04	98	Paved roads Ocean Ave
	0.26	84	1 acre lots, 20% imp, HSG D
	0.30	86	Weighted Average
	0.21		69.33% Pervious Area
	0.09		30.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	60	0.1000	0.13		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.00"
1.2	160	0.1000	2.21		**Shallow Concentrated Flow, B-C**
					Short Grass Pasture Kv= 7.0 fps
0.5	80	0.0150	2.49		**Shallow Concentrated Flow, C-D**
					Paved Kv= 20.3 fps
9.4	300	Total			

Summary for Subcatchment 6: Sub 6

Runoff = 0.82 cfs @ 12.08 hrs, Volume= 0.056 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

Area (ac)	CN	Description
0.35	84	1 acre lots, 20% imp, HSG D
0.07	87	1/4 acre lots, 38% imp, HSG D
0.42	84	Weighted Average
0.32		77.00% Pervious Area
0.10		23.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	25	0.1500	0.13		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.00"
0.4	60	0.2300	2.40		**Shallow Concentrated Flow, B-C**
					Woodland Kv= 5.0 fps
0.4	150	0.0400	5.86	41.05	**Trap/Vee/Rect Channel Flow, C-D**
					Bot.W=2.00' D=1.00' Z= 5.0 '/' Top.W=12.00'
					n= 0.035
4.1	235	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 11: Sub 11

Runoff = 3.06 cfs @ 12.11 hrs, Volume= 0.228 af, Depth= 1.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
	1.04	77	Woods, Good, HSG D
*	0.19	98	Paved roads Ocean Ave
*	0.05	98	Paved roads, Site Drive
	0.02	80	>75% Grass cover, Good, HSG D
	0.29	84	1 acre lots, 20% imp, HSG D
	0.29	87	1/4 acre lots, 38% imp, HSG D
	1.88	82	Weighted Average
	1.47		78.29% Pervious Area
	0.41		21.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	40	0.1000	0.12		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
0.7	95	0.2000	2.24		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.0	240	0.0400	4.06		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
7.3	375	Total			

Summary for Subcatchment 12: Sub 12

Runoff = 2.47 cfs @ 12.31 hrs, Volume= 0.275 af, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
	2.01	77	Woods, Good, HSG D
	0.18	80	>75% Grass cover, Good, HSG D
*	0.04	98	Paved roads OCEAN AVE
*	0.07	98	Roofs, OCEAN RIDGE
*	0.05	98	Paved roads Ocean Ridge
*	0.03	77	Woods, Good, HSG D Ocean Ridge
*	0.23	80	>75% Grass cover, Good, HSG D Ocean Ridge
	2.61	79	Weighted Average
	2.45		93.87% Pervious Area
	0.16		6.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	110	0.0400	0.10		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
2.8	270	0.1000	1.58		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.6	330	0.0500	9.46	47.31	**Trap/Vee/Rect Channel Flow, C-D** Bot.W=2.00' D=1.00' Z= 3.0 '/' Top.W=8.00' n= 0.025 Earth, clean & winding
21.5	710	Total			

Summary for Subcatchment 15: Sub 15

Runoff = 0.72 cfs @ 12.07 hrs, Volume= 0.051 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
*	0.18	98	Paved roads Site Drive
	0.09	80	>75% Grass cover, Good, HSG D
	0.27	92	Weighted Average
	0.09		33.33% Pervious Area
	0.18		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.87		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
1.2	330	0.0500	4.54		**Shallow Concentrated Flow, B-C**
					Paved Kv= 20.3 fps
3.6					**Direct Entry, C-D**
5.0	342	Total			

Summary for Subcatchment 15A: Sub 15A

Runoff = 0.24 cfs @ 12.07 hrs, Volume= 0.017 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
*	0.06	98	Paved roads Site Drive
	0.03	80	>75% Grass cover, Good, HSG D
	0.09	92	Weighted Average
	0.03		33.33% Pervious Area
	0.06		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.87		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
0.3	75	0.0500	4.54		**Shallow Concentrated Flow, B-C**
					Paved Kv= 20.3 fps
4.5					**Direct Entry, C-D**
5.0	87	Total			

Summary for Subcatchment 20: Subarea 2

Runoff = 4.75 cfs @ 12.46 hrs, Volume= 0.636 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
	0.64	87	1/4 acre lots, 38% imp, HSG D
	0.12	80	>75% Grass cover, Good, HSG D
*	0.05	98	Roadway, Ocean Ave
	5.55	77	Woods, Good, HSG D
	6.36	78	Weighted Average
	6.07		95.39% Pervious Area
	0.29		4.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	110	0.0800	0.13		**Sheet Flow, Overland Woods** Woods: Light underbrush n= 0.400 P2= 3.00"
18.8	1,325	0.0550	1.17		**Shallow Concentrated Flow, Overland Woods** Woodland Kv= 5.0 fps
32.5	1,435	Total			

Summary for Subcatchment 21: Sub 21

Runoff = 8.58 cfs @ 12.07 hrs, Volume= 0.597 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
	1.20	80	>75% Grass cover, Good, HSG D
*	2.11	98	Site Development
	3.31	91	Weighted Average
	1.20		36.25% Pervious Area
	2.11		63.75% Impervious Area

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

Summary for Subcatchment 22: Sub 22

Runoff = 1.88 cfs @ 12.07 hrs, Volume= 0.132 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
*	0.45	98	Site Development
	0.25	80	>75% Grass cover, Good, HSG D
	0.70	92	Weighted Average
	0.25		35.71% Pervious Area
	0.45		64.29% Impervious Area

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

Summary for Subcatchment 23: Sub 23

Runoff = 0.32 cfs @ 12.08 hrs, Volume= 0.022 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

Area (ac)	CN	Description
0.20	80	>75% Grass cover, Good, HSG D
0.20		100.00% Pervious Area

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

Summary for Subcatchment 40: Sub 40

Runoff = 1.30 cfs @ 12.14 hrs, Volume= 0.106 af, Depth= 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

Area (ac)	CN	Description
1.12	77	Woods, Good, HSG D
1.12		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.1000	0.12		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.00"
2.4	200	0.0750	1.37		**Shallow Concentrated Flow, B-C**
					Woodland Kv= 5.0 fps
9.1	250	Total			

Summary for Subcatchment 50: Sub 50

Runoff = 1.77 cfs @ 12.14 hrs, Volume= 0.145 af, Depth= 1.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
	0.34	77	Woods, Good, HSG D
	0.09	80	>75% Grass cover, Good, HSG D
*	0.03	98	Paved roads Ocean Ave
	0.73	84	1 acre lots, 20% imp, HSG D
	1.19	82	Weighted Average
	1.01		85.21% Pervious Area
	0.18		14.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.1200	0.13		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
3.7	310	0.0800	1.41		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
9.9	360	Total			

Summary for Subcatchment 100: Subarea 100

Runoff = 0.65 cfs @ 12.09 hrs, Volume= 0.053 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
*	0.22	98	Roadway
	0.22		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.87		**Sheet Flow, Road Crown** Smooth surfaces n= 0.011 P2= 3.00"
5.9	480	0.0380	1.36		**Shallow Concentrated Flow, SHALLOW RD DITCH** Short Grass Pasture Kv= 7.0 fps
0.5	80	0.0200	2.87		**Shallow Concentrated Flow, ROAD GUTTER** Paved Kv= 20.3 fps
6.6	572	Total			

Summary for Subcatchment 101S: BASIN 101 (Ocean Ridge)

Runoff = 0.45 cfs @ 12.09 hrs, Volume= 0.033 af, Depth= 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

Area (ac)	CN	Description
* 0.11	98	IMPERVIOUS
* 0.08	80	LAWN D
0.19	90	Weighted Average
0.08		42.11% Pervious Area
0.11		57.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	30	0.0200	0.09		**Sheet Flow, Segment ID: AB, Lawn** Grass: Dense n= 0.240 P2= 3.00"
0.1	25	0.0200	2.87		**Shallow Concentrated Flow, Segment ID: BC,Driveway** Paved Kv= 20.3 fps
0.7	100	0.1200	2.42		**Shallow Concentrated Flow, Segment ID: grass slope** Short Grass Pasture Kv= 7.0 fps
6.4	155	Total			

Summary for Subcatchment 300: Subarea 300

Runoff = 0.28 cfs @ 12.07 hrs, Volume= 0.022 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

Area (ac)	CN	Description
* 0.09	98	Roadway
0.09		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.87		**Sheet Flow, Road Crown** Smooth surfaces n= 0.011 P2= 3.00"
1.1	150	0.0130	2.31		**Shallow Concentrated Flow, Gutter flow** Paved Kv= 20.3 fps
3.7					**Direct Entry,**
5.0	162	Total			

Summary for Subcatchment 301S: BASIN 301 (Ocean Ridge)

Runoff = 1.63 cfs @ 12.13 hrs, Volume= 0.130 af, Depth= 1.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
*	0.37	98	IMPERVIOUS
*	0.45	80	LAWN D
	0.82	88	Weighted Average
	0.45		54.88% Pervious Area
	0.37		45.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	60	0.0300	0.12		**Sheet Flow, Segment ID: AB** Grass: Dense n= 0.240 P2= 3.00"
0.4	50	0.0200	2.12		**Shallow Concentrated Flow, Segment ID: BC** Grassed Waterway Kv= 15.0 fps
0.6	80	0.0200	2.12		**Shallow Concentrated Flow, Segment ID: CD** Grassed Waterway Kv= 15.0 fps
9.3	190	Total			

Summary for Subcatchment 302S: BASIN 302 (Ocean Ridge)

Runoff = 2.76 cfs @ 12.13 hrs, Volume= 0.220 af, Depth= 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
*	0.74	98	IMPERVIOUS
*	0.05	77	WOODS D
*	0.48	80	LAWN D
	1.27	90	Weighted Average
	0.53		41.73% Pervious Area
	0.74		58.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0200	0.10		**Sheet Flow, Segment ID: AB** Grass: Dense n= 0.240 P2= 3.00"
0.2	30	0.0200	2.87		**Shallow Concentrated Flow, Segment ID: BC** Paved Kv= 20.3 fps
0.4	50	0.0200	2.12		**Shallow Concentrated Flow, Segment ID:** Grassed Waterway Kv= 15.0 fps
9.1	130	Total			

Summary for Subcatchment 303S: BASIN 3 (Ocean Ridge)

Runoff = 0.96 cfs @ 12.12 hrs, Volume= 0.074 af, Depth= 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_02 Rainfall=3.10"

	Area (ac)	CN	Description
*	0.12	98	IMPERVIOUS
*	0.08	77	WOODS D
*	0.38	80	LAWN D
	0.58	83	Weighted Average
	0.46		79.31% Pervious Area
	0.12		20.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	30	0.0300	0.07		**Sheet Flow, Segment ID: AB** Woods: Light underbrush n= 0.400 P2= 3.00"
0.9	120	0.0200	2.12		**Shallow Concentrated Flow, Segment ID: BC** Grassed Waterway Kv= 15.0 fps
8.1	150	Total			

Summary for Reach 3R: VEGETATED SWALE 1 (Ocean Ridge)

Inflow Area = 1.27 ac, 58.27% Impervious, Inflow Depth = 2.08" for Cumberland_02 event
Inflow = 2.76 cfs @ 12.13 hrs, Volume= 0.220 af
Outflow = 2.49 cfs @ 12.25 hrs, Volume= 0.220 af, Atten= 10%, Lag= 7.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.62 fps, Min. Travel Time= 4.6 min
Avg. Velocity = 0.17 fps, Avg. Travel Time= 17.1 min

Peak Storage= 685 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.53'
Bank-Full Depth= 2.00' Flow Area= 24.0 sf, Capacity= 30.82 cfs

6.00' x 2.00' deep channel, n= 0.150
Side Slope Z-value= 3.0 '/' Top Width= 18.00'
Length= 170.0' Slope= 0.0120 '/'
Inlet Invert= 0.00', Outlet Invert= -2.04'

‡

Summary for Reach 4R: SP#2

Inflow Area = 1.12 ac, 0.00% Impervious, Inflow Depth = 1.14" for Cumberland_02 event
Inflow = 1.30 cfs @ 12.14 hrs, Volume= 0.106 af
Outflow = 1.30 cfs @ 12.14 hrs, Volume= 0.106 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs

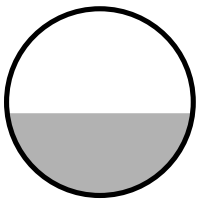
Summary for Reach 31R: CULVERT 3 (Ocean Ridge)

Inflow Area = 0.82 ac, 45.12% Impervious, Inflow Depth = 1.91" for Cumberland_02 event
Inflow = 1.22 cfs @ 12.32 hrs, Volume= 0.130 af
Outflow = 1.22 cfs @ 12.33 hrs, Volume= 0.130 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs / 2
Max. Velocity= 4.38 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.06 fps, Avg. Travel Time= 0.8 min

Peak Storage= 14 cf @ 12.32 hrs
Average Depth at Peak Storage= 0.40'
Bank-Full Depth= 0.92' Flow Area= 0.7 sf, Capacity= 3.06 cfs

11.0" Round Pipe
n= 0.012
Length= 50.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -0.50'



Summary for Reach 32R: VEGETATED SWALE 2 (Ocean Ridge)

Inflow Area = 0.82 ac, 45.12% Impervious, Inflow Depth = 1.91" for Cumberland_02 event
Inflow = 1.63 cfs @ 12.13 hrs, Volume= 0.130 af
Outflow = 1.53 cfs @ 12.23 hrs, Volume= 0.130 af, Atten= 6%, Lag= 5.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.54 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 0.15 fps, Avg. Travel Time= 12.7 min

Peak Storage= 325 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 2.00' Flow Area= 24.0 sf, Capacity= 32.02 cfs

6.00' x 2.00' deep channel, n= 0.150
Side Slope Z-value= 3.0 '/' Top Width= 18.00'
Length= 115.0' Slope= 0.0130 '/'
Inlet Invert= 0.00', Outlet Invert= -1.49'

‡

Summary for Reach 33R: Wetland Flow

Inflow Area = 2.67 ac, 46.07% Impervious, Inflow Depth > 1.90" for Cumberland_02 event
Inflow = 1.24 cfs @ 12.75 hrs, Volume= 0.423 af
Outflow = 1.24 cfs @ 12.87 hrs, Volume= 0.423 af, Atten= 0%, Lag= 7.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.61 fps, Min. Travel Time= 4.1 min
Avg. Velocity = 0.21 fps, Avg. Travel Time= 12.0 min

Peak Storage= 303 cf @ 12.81 hrs
Average Depth at Peak Storage= 0.15'
Bank-Full Depth= 1.00' Flow Area= 30.0 sf, Capacity= 52.28 cfs

10.00' x 1.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 20.0 '/' Top Width= 50.00'
Length= 150.0' Slope= 0.0033 '/'
Inlet Invert= 158.00', Outlet Invert= 157.50'

‡

Summary for Reach 106R: SP#1 (Eben Hill Road)

Inflow Area = 23.10 ac, 28.47% Impervious, Inflow Depth > 1.61" for Cumberland_02 event
Inflow = 15.83 cfs @ 12.13 hrs, Volume= 3.091 af
Outflow = 15.83 cfs @ 12.13 hrs, Volume= 3.091 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs

Summary for Reach 122R: ROADWAY GUTTER

Inflow Area = 2.61 ac, 6.13% Impervious, Inflow Depth = 1.26" for Cumberland_02 event
Inflow = 2.47 cfs @ 12.31 hrs, Volume= 0.275 af
Outflow = 2.46 cfs @ 12.35 hrs, Volume= 0.275 af, Atten= 0%, Lag= 2.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.61 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 1.30 fps, Avg. Travel Time= 3.7 min

Peak Storage= 198 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 0.50' Flow Area= 2.0 sf, Capacity= 10.97 cfs

2.00' x 0.50' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 3.0 5.0 '/' Top Width= 6.00'
Length= 290.0' Slope= 0.0379 '/'
Inlet Invert= 106.50', Outlet Invert= 95.50'

‡

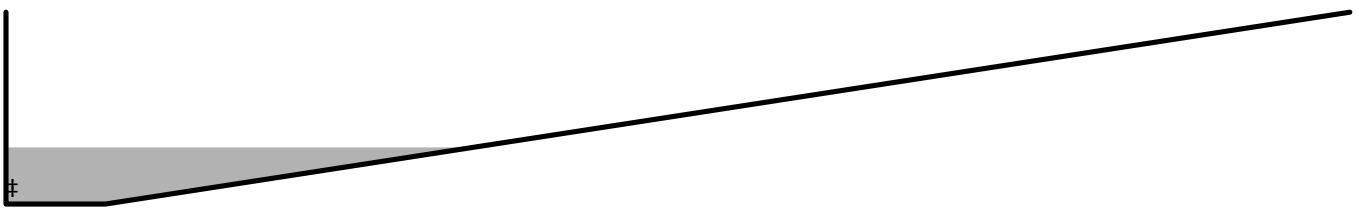
Summary for Reach 123R: CURB ROAD GUTTER

Inflow Area = 3.60 ac, 18.61% Impervious, Inflow Depth > 1.48" for Cumberland_02 event
Inflow = 2.69 cfs @ 12.37 hrs, Volume= 0.445 af
Outflow = 2.68 cfs @ 12.39 hrs, Volume= 0.445 af, Atten= 0%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.20 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.13 fps, Avg. Travel Time= 1.2 min

Peak Storage= 67 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.15'
Bank-Full Depth= 0.50' Flow Area= 7.3 sf, Capacity= 48.18 cfs

2.00' x 0.50' deep channel, n= 0.013 Asphalt, smooth
Side Slope Z-value= 0.0 50.0 '/' Top Width= 27.00'
Length= 80.0' Slope= 0.0200 '/'
Inlet Invert= 95.50', Outlet Invert= 93.90'



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Summary for Reach 210R: Woods overland

Inflow Area = 3.31 ac, 63.75% Impervious, Inflow Depth > 2.10" for Cumberland_02 event
Inflow = 1.47 cfs @ 12.53 hrs, Volume= 0.579 af
Outflow = 1.47 cfs @ 12.55 hrs, Volume= 0.578 af, Atten= 0%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.49 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 0.64 fps, Avg. Travel Time= 1.3 min

Peak Storage= 49 cf @ 12.54 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 40.80 cfs

10.00' x 0.50' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 20.0 '/' Top Width= 30.00'
Length= 50.0' Slope= 0.0400 '/'
Inlet Invert= 112.00', Outlet Invert= 110.00'

‡

Summary for Reach 220R: Access Ditch

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

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 5.0 sf, Capacity= 47.31 cfs

2.00' x 1.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 3.0 '/' Top Width= 8.00'
Length= 310.0' Slope= 0.0500 '/'
Inlet Invert= 126.00', Outlet Invert= 110.50'

‡

Summary for Reach 221R: Overland Flow

Inflow Area = 0.99 ac, 51.52% Impervious, Inflow Depth > 2.06" for Cumberland_02 event
Inflow = 0.40 cfs @ 12.51 hrs, Volume= 0.170 af
Outflow = 0.40 cfs @ 12.58 hrs, Volume= 0.170 af, Atten= 1%, Lag= 4.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.19 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 0.52 fps, Avg. Travel Time= 5.7 min

Peak Storage= 60 cf @ 12.54 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 59.50 cfs

10.00' x 0.50' deep channel, n= 0.040 Woods Overland flow
Side Slope Z-value= 20.0 '/' Top Width= 30.00'
Length= 180.0' Slope= 0.1111 '/'
Inlet Invert= 120.00', Outlet Invert= 100.00'

‡

Summary for Reach 240R: EXISTING CHANNEL

Inflow Area = 2.67 ac, 46.07% Impervious, Inflow Depth > 1.90" for Cumberland_02 event
Inflow = 1.23 cfs @ 13.07 hrs, Volume= 0.423 af
Outflow = 1.23 cfs @ 13.12 hrs, Volume= 0.423 af, Atten= 0%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.28 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 1.14 fps, Avg. Travel Time= 5.0 min

Peak Storage= 128 cf @ 13.09 hrs
Average Depth at Peak Storage= 0.15'
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 57.44 cfs

2.00' x 1.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 4.0 '/' Top Width= 10.00'
Length= 340.0' Slope= 0.0529 '/'
Inlet Invert= 128.00', Outlet Invert= 110.00'

‡

Summary for Reach 241R: EXISTING CHANNEL

Inflow Area = 5.98 ac, 55.85% Impervious, Inflow Depth > 2.01" for Cumberland_02 event
Inflow = 2.44 cfs @ 12.81 hrs, Volume= 1.002 af
Outflow = 2.44 cfs @ 12.84 hrs, Volume= 1.001 af, Atten= 0%, Lag= 1.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.57 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.99 fps, Avg. Travel Time= 2.5 min

Peak Storage= 160 cf @ 12.82 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 68.36 cfs

2.00' x 1.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 4.0 '/' Top Width= 10.00'
Length= 300.0' Slope= 0.0750 '/'
Inlet Invert= 110.00', Outlet Invert= 87.50'

‡

Summary for Reach 340R: Woodland Flow

Inflow Area = 2.67 ac, 46.07% Impervious, Inflow Depth > 1.90" for Cumberland_02 event
Inflow = 1.24 cfs @ 12.87 hrs, Volume= 0.423 af
Outflow = 1.23 cfs @ 13.07 hrs, Volume= 0.423 af, Atten= 0%, Lag= 11.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.81 fps, Min. Travel Time= 6.5 min
Avg. Velocity = 0.65 fps, Avg. Travel Time= 18.0 min

Peak Storage= 478 cf @ 12.96 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 1.00' Flow Area= 15.0 sf, Capacity= 92.76 cfs

5.00' x 1.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 10.0 '/' Top Width= 25.00'
Length= 700.0' Slope= 0.0421 '/'
Inlet Invert= 157.50', Outlet Invert= 128.00'

‡

Summary for Pond 3P: POND 3 (Ocean Ridge)

Inflow Area = 2.67 ac, 46.07% Impervious, Inflow Depth = 1.91" for Cumberland_02 event
Inflow = 4.17 cfs @ 12.26 hrs, Volume= 0.424 af
Outflow = 1.24 cfs @ 12.75 hrs, Volume= 0.423 af, Atten= 70%, Lag= 29.7 min
Primary = 1.24 cfs @ 12.75 hrs, Volume= 0.423 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 159.97' @ 12.75 hrs Surf.Area= 4,273 sf Storage= 6,326 cf

Plug-Flow detention time= 80.6 min calculated for 0.423 af (100% of inflow)
Center-of-Mass det. time= 79.6 min (919.1 - 839.5)

Volume	Invert	Avail.Storage	Storage Description
#1	158.00'	21,813 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
158.00	2,113	0	0
160.00	4,304	6,417	6,417
162.00	6,739	11,043	17,460
162.60	7,772	4,353	21,813

Device	Routing	Invert	Outlet Devices
#1	Primary	158.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	160.00'	**9.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	161.00'	**4.5" Vert. Orifice/Grate** C= 0.600
#4	Primary	161.50'	**20.0' long Broad-Crested Rectangular Weir X 1.81**
			Head (feet) 0.50 1.00 1.50
			Coef. (English) 1.60 1.80 1.90

Primary OutFlow Max=1.24 cfs @ 12.75 hrs HW=159.97' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 1.24 cfs @ 6.32 fps)
- **2=Orifice/Grate** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Controls 0.00 cfs)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 30P: POND 30 (Ocean Ridge)

Inflow Area = 0.82 ac, 45.12% Impervious, Inflow Depth = 1.91" for Cumberland_02 event
Inflow = 1.53 cfs @ 12.23 hrs, Volume= 0.130 af
Outflow = 1.22 cfs @ 12.32 hrs, Volume= 0.130 af, Atten= 20%, Lag= 5.7 min
Primary = 1.22 cfs @ 12.32 hrs, Volume= 0.130 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 160.52' @ 12.32 hrs Surf.Area= 1,371 sf Storage= 815 cf

Plug-Flow detention time= 33.0 min calculated for 0.130 af (100% of inflow)
Center-of-Mass det. time= 33.1 min (864.0 - 831.0)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	3,156 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	1,150	0	0
162.00	2,006	3,156	3,156

Device	Routing	Invert	Outlet Devices
#1	Primary	160.00'	**18.0" Round Culvert** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 160.00' / 159.70' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=1.22 cfs @ 12.32 hrs HW=160.52' (Free Discharge)
↑**1=Culvert** (Barrel Controls 1.22 cfs @ 3.38 fps)

Summary for Pond 60R: FIELD CB

Inflow Area = 0.42 ac, 23.00% Impervious, Inflow Depth = 1.60" for Cumberland_02 event
Inflow = 0.82 cfs @ 12.08 hrs, Volume= 0.056 af
Outflow = 0.82 cfs @ 12.08 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min
Primary = 0.82 cfs @ 12.08 hrs, Volume= 0.056 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 90.46' @ 12.08 hrs
Flood Elev= 91.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	**12.0" Round Culvert** L= 110.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 90.00' / 89.00' S= 0.0091 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.81 cfs @ 12.08 hrs HW=90.46' (Free Discharge)
↑**1=Culvert** (Inlet Controls 0.81 cfs @ 2.31 fps)

Summary for Pond 62P: Driveway Culvert

Inflow Area = 12.76 ac, 29.23% Impervious, Inflow Depth > 1.59" for Cumberland_02 event
Inflow = 6.96 cfs @ 12.53 hrs, Volume= 1.693 af
Outflow = 6.80 cfs @ 12.59 hrs, Volume= 1.693 af, Atten= 2%, Lag= 4.0 min
Primary = 6.80 cfs @ 12.59 hrs, Volume= 1.693 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 89.27' @ 12.59 hrs Surf.Area= 1,151 sf Storage= 476 cf

Plug-Flow detention time= 0.3 min calculated for 1.693 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (1,040.4 - 1,040.1)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	2,197 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
88.00	47	50.0	0	0	47
89.00	540	284.0	249	249	6,269
90.00	3,860	500.0	1,948	2,197	19,750

Device	Routing	Invert	Outlet Devices
#1	Primary	87.50'	**18.0" Round Culvert** L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 87.50' / 87.00' S= 0.0143 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	89.50'	**22.0' long x 13.0' 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) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=6.80 cfs @ 12.59 hrs HW=89.27' (Free Discharge)
1=Culvert (Inlet Controls 6.80 cfs @ 3.85 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=88.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 66P: 24" Cross culvert

Inflow Area = 13.95 ac, 28.00% Impervious, Inflow Depth > 1.58" for Cumberland_02 event
Inflow = 7.30 cfs @ 12.54 hrs, Volume= 1.838 af
Outflow = 7.30 cfs @ 12.54 hrs, Volume= 1.838 af, Atten= 0%, Lag= 0.1 min
Primary = 7.30 cfs @ 12.54 hrs, Volume= 1.838 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs / 6
Peak Elev= 85.91' @ 12.54 hrs Surf.Area= 59 sf Storage= 51 cf

Plug-Flow detention time= 0.3 min calculated for 1.837 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (1,024.9 - 1,024.7)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	1,817 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
84.00	5	5.0	0	0	5
85.00	25	25.0	14	14	55
86.00	63	40.0	43	56	139
87.00	425	195.0	217	273	3,040
88.00	1,210	305.0	784	1,058	7,424
88.50	1,850	330.0	759	1,817	8,697

Device	Routing	Invert	Outlet Devices
#1	Primary	84.45'	**24.0" Round Culvert** L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 84.45' / 84.13' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Secondary	88.50'	**12.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=7.30 cfs @ 12.54 hrs HW=85.91' (Free Discharge)
└**1=Culvert** (Barrel Controls 7.30 cfs @ 4.16 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=84.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 100R: Vortech-DMH2

Inflow Area = 3.06 ac, 38.89% Impervious, Inflow Depth = 1.81" for Cumberland_02 event
Inflow = 5.64 cfs @ 12.13 hrs, Volume= 0.462 af
Outflow = 5.64 cfs @ 12.13 hrs, Volume= 0.462 af, Atten= 0%, Lag= 0.0 min
Primary = 5.64 cfs @ 12.13 hrs, Volume= 0.462 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 108.20' @ 12.13 hrs
Flood Elev= 112.16'

Device	Routing	Invert	Outlet Devices
#1	Primary	107.00'	**18.0" Round Culvert** L= 318.0' Ke= 0.500 Inlet / Outlet Invert= 107.00' / 98.52' S= 0.0267 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.64 cfs @ 12.13 hrs HW=108.20' (Free Discharge)
└**1=Culvert** (Inlet Controls 5.64 cfs @ 3.73 fps)

Summary for Pond 101R: DMH2-DMH1(DMH1606)

Inflow Area = 3.06 ac, 38.89% Impervious, Inflow Depth = 1.81" for Cumberland_02 event
Inflow = 5.64 cfs @ 12.13 hrs, Volume= 0.462 af
Outflow = 5.64 cfs @ 12.13 hrs, Volume= 0.462 af, Atten= 0%, Lag= 0.0 min
Primary = 5.64 cfs @ 12.13 hrs, Volume= 0.462 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 99.58' @ 12.13 hrs
Flood Elev= 103.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	98.38'	**18.0" Round Culvert** L= 177.0' Ke= 0.500 Inlet / Outlet Invert= 98.38' / 91.46' S= 0.0391 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.64 cfs @ 12.13 hrs HW=99.58' (Free Discharge)
└**1=Culvert** (Inlet Controls 5.64 cfs @ 3.73 fps)

Summary for Pond 102R: DMH1606-DMH9

Inflow Area = 3.06 ac, 38.89% Impervious, Inflow Depth = 1.81" for Cumberland_02 event
Inflow = 5.64 cfs @ 12.13 hrs, Volume= 0.462 af
Outflow = 5.64 cfs @ 12.13 hrs, Volume= 0.462 af, Atten= 0%, Lag= 0.0 min
Primary = 5.64 cfs @ 12.13 hrs, Volume= 0.462 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 92.50' @ 12.13 hrs
Flood Elev= 96.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	91.30'	**18.0" Round Culvert** L= 110.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 91.30' / 89.27' S= 0.0185 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=5.64 cfs @ 12.13 hrs HW=92.50' (Free Discharge)
↑**1=Culvert** (Inlet Controls 5.64 cfs @ 3.73 fps)

Summary for Pond 103R: DMH9-DMH8

Inflow Area = 8.76 ac, 28.40% Impervious, Inflow Depth > 1.63" for Cumberland_02 event
Inflow = 10.55 cfs @ 12.12 hrs, Volume= 1.188 af
Outflow = 10.55 cfs @ 12.12 hrs, Volume= 1.188 af, Atten= 0%, Lag= 0.0 min
Primary = 10.55 cfs @ 12.12 hrs, Volume= 1.188 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 91.36' @ 12.12 hrs
Flood Elev= 94.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	89.07'	**18.0" Round Culvert** L= 132.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 89.07' / 87.76' S= 0.0099 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=10.54 cfs @ 12.12 hrs HW=91.35' (Free Discharge)
↑**1=Culvert** (Inlet Controls 10.54 cfs @ 5.96 fps)

Summary for Pond 104R: DMH8-DMH200

Inflow Area = 9.15 ac, 29.18% Impervious, Inflow Depth > 1.64" for Cumberland_02 event
Inflow = 11.32 cfs @ 12.12 hrs, Volume= 1.253 af
Outflow = 11.32 cfs @ 12.12 hrs, Volume= 1.253 af, Atten= 0%, Lag= 0.0 min
Primary = 11.32 cfs @ 12.12 hrs, Volume= 1.253 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 91.77' @ 12.12 hrs
Flood Elev= 92.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	87.66'	**18.0" Round Culvert** L= 273.0' RCP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 87.66' / 86.60' S= 0.0039 '/' Cc= 0.900
n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=11.31 cfs @ 12.12 hrs HW=91.76' (Free Discharge)
└**1=Culvert** (Barrel Controls 11.31 cfs @ 6.40 fps)

Summary for Pond 105R: DMH200-OUTLET

Inflow Area = 9.15 ac, 29.18% Impervious, Inflow Depth > 1.64" for Cumberland_02 event
Inflow = 11.32 cfs @ 12.12 hrs, Volume= 1.253 af
Outflow = 11.32 cfs @ 12.12 hrs, Volume= 1.253 af, Atten= 0%, Lag= 0.0 min
Primary = 11.32 cfs @ 12.12 hrs, Volume= 1.253 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 89.05' @ 12.12 hrs
Flood Elev= 89.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	86.53'	**18.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 86.53' / 84.13' S= 0.0400 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=11.31 cfs @ 12.12 hrs HW=89.05' (Free Discharge)
└**1=Culvert** (Inlet Controls 11.31 cfs @ 6.40 fps)

Summary for Pond 210P: Sand Filter mc3500

Inflow Area = 3.31 ac, 63.75% Impervious, Inflow Depth = 2.16" for Cumberland_02 event
Inflow = 8.58 cfs @ 12.07 hrs, Volume= 0.597 af
Outflow = 1.47 cfs @ 12.53 hrs, Volume= 0.579 af, Atten= 83%, Lag= 27.5 min
Primary = 1.47 cfs @ 12.53 hrs, Volume= 0.579 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 127.36' @ 12.53 hrs Surf.Area= 6,773 sf Storage= 12,652 cf

Plug-Flow detention time= 519.2 min calculated for 0.579 af (97% of inflow)
Center-of-Mass det. time= 501.0 min (1,303.7 - 802.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	124.70'	9,447 cf	**80.08'W x 84.57'L x 5.50'H Field A** 37,250 cf Overall - 13,632 cf Embedded = 23,618 cf x 40.0% Voids
#2A	125.45'	13,632 cf	**ADS_StormTech MC-3500 d +Cap** x 121 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 11 Rows of 11 Chambers Cap Storage= +14.9 cf x 2 x 11 rows = 327.8 cf
		23,079 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	121.00'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 121.00' / 117.00' S= 0.0800 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	121.00'	**1.0" Vert. Orifice/Grate X 2.00** C= 0.600
#3	Device 1	126.80'	**7.0" Vert. Orifice/Grate X 2.00** C= 0.600
#4	Device 1	129.87'	**6.0' long x 1.50' rise Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)

Primary OutFlow Max=1.47 cfs @ 12.53 hrs HW=127.36' (Free Discharge)
└**1=Culvert** (Passes 1.47 cfs of 14.15 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.13 cfs @ 12.10 fps)
  ├**3=Orifice/Grate** (Orifice Controls 1.34 cfs @ 2.54 fps)
  └**4=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Summary for Pond 220P: UDF

Inflow Area = 0.90 ac, 50.00% Impervious, Inflow Depth = 2.05" for Cumberland_02 event
Inflow = 2.19 cfs @ 12.07 hrs, Volume= 0.154 af
Outflow = 0.36 cfs @ 12.54 hrs, Volume= 0.153 af, Atten= 84%, Lag= 28.2 min
Primary = 0.36 cfs @ 12.54 hrs, Volume= 0.153 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 126.19' @ 12.54 hrs Surf.Area= 3,174 sf Storage= 3,249 cf

Plug-Flow detention time= 533.0 min calculated for 0.153 af (100% of inflow)
Center-of-Mass det. time= 531.5 min (1,336.0 - 804.5)

Volume	Invert	Avail.Storage	Storage Description
#1	125.00'	10,527 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
125.00	2,326	0	0
126.00	2,974	2,650	2,650
127.00	4,000	3,487	6,137
128.00	4,780	4,390	10,527

Device	Routing	Invert	Outlet Devices
#1	Primary	122.83'	**12.0" Round Culvert** L= 78.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 122.83' / 122.28' S= 0.0071 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	122.83'	**0.9" Vert. Orifice/Grate** C= 0.600
#3	Device 2	125.00'	**2.400 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'
#4	Device 1	126.00'	**4.0" Vert. Orifice/Grate X 4.00** C= 0.600
#5	Device 1	127.00'	**20.0" Vert. Orifice/Grate** C= 0.600
#6	Secondary	127.50'	**10.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=0.36 cfs @ 12.54 hrs HW=126.19' (Free Discharge)
└**1=Culvert** (Passes 0.36 cfs of 5.68 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.04 cfs @ 8.78 fps)
  │ └**3=Exfiltration** (Passes 0.04 cfs of 0.18 cfs potential flow)
  ├**4=Orifice/Grate** (Orifice Controls 0.32 cfs @ 1.50 fps)
  └**5=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=125.00' (Free Discharge)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-45.00 hrs, dt=0.01 hrs, 4501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: BASIN 1 (Ocean Ridge) Runoff Area=2.60 ac 34.62% Impervious Runoff Depth=3.10"
Flow Length=660' Tc=9.9 min CN=86 Runoff=8.20 cfs 0.671 af

Subcatchment 3: Sub 3 Runoff Area=0.30 ac 30.67% Impervious Runoff Depth=3.10"
Flow Length=300' Tc=9.4 min CN=86 Runoff=0.96 cfs 0.077 af

Subcatchment 6: Sub 6 Runoff Area=0.42 ac 23.00% Impervious Runoff Depth=2.91"
Flow Length=235' Tc=5.0 min CN=84 Runoff=1.48 cfs 0.102 af

Subcatchment 11: Sub 11 Runoff Area=1.88 ac 21.71% Impervious Runoff Depth=2.72"
Flow Length=375' Tc=7.3 min CN=82 Runoff=5.73 cfs 0.427 af

Subcatchment 12: Sub 12 Runoff Area=2.61 ac 6.13% Impervious Runoff Depth=2.46"
Flow Length=710' Tc=21.5 min CN=79 Runoff=4.93 cfs 0.535 af

Subcatchment 15: Sub 15 Runoff Area=0.27 ac 66.67% Impervious Runoff Depth=3.70"
Flow Length=342' Tc=5.0 min CN=92 Runoff=1.16 cfs 0.083 af

Subcatchment 15A: Sub 15A Runoff Area=0.09 ac 66.67% Impervious Runoff Depth=3.70"
Flow Length=87' Tc=5.0 min CN=92 Runoff=0.39 cfs 0.028 af

Subcatchment 20: Subarea 2 Runoff Area=6.36 ac 4.61% Impervious Runoff Depth=2.38"
Flow Length=1,435' Tc=32.5 min CN=78 Runoff=9.65 cfs 1.259 af

Subcatchment 21: Sub 21 Runoff Area=3.31 ac 63.75% Impervious Runoff Depth=3.59"
Tc=5.0 min CN=91 Runoff=13.91 cfs 0.992 af

Subcatchment 22: Sub 22 Runoff Area=0.70 ac 64.29% Impervious Runoff Depth=3.70"
Tc=5.0 min CN=92 Runoff=3.00 cfs 0.216 af

Subcatchment 23: Sub 23 Runoff Area=0.20 ac 0.00% Impervious Runoff Depth=2.55"
Tc=5.0 min CN=80 Runoff=0.62 cfs 0.042 af

Subcatchment 40: Sub 40 Runoff Area=1.12 ac 0.00% Impervious Runoff Depth=2.29"
Flow Length=250' Tc=9.1 min CN=77 Runoff=2.70 cfs 0.214 af

Subcatchment 50: Sub 50 Runoff Area=1.19 ac 14.79% Impervious Runoff Depth=2.72"
Flow Length=360' Tc=9.9 min CN=82 Runoff=3.33 cfs 0.270 af

Subcatchment 100: Subarea 100 Runoff Area=0.22 ac 100.00% Impervious Runoff Depth=4.36"
Flow Length=572' Tc=6.6 min CN=98 Runoff=0.97 cfs 0.080 af

Subcatchment 101S: BASIN 101 (Ocean Ridge) Runoff Area=0.19 ac 57.89% Impervious Runoff Depth=3.49"
Flow Length=155' Tc=6.4 min CN=90 Runoff=0.74 cfs 0.055 af

Subcatchment 300: Subarea 300 Runoff Area=0.09 ac 100.00% Impervious Runoff Depth=4.36"
Flow Length=162' Tc=5.0 min CN=98 Runoff=0.42 cfs 0.033 af

Subcatchment 301S: BASIN 301 (Ocean Ridge) Runoff Area=0.82 ac 45.12% Impervious Runoff Depth=3.29"
Flow Length=190' Tc=9.3 min CN=88 Runoff=2.78 cfs 0.225 af

Subcatchment 302S: BASIN 302 (Ocean Ridge) Runoff Area=1.27 ac 58.27% Impervious Runoff Depth=3.49"
Flow Length=130' Slope=0.0200 '/' Tc=9.1 min CN=90 Runoff=4.55 cfs 0.370 af

Subcatchment 303S: BASIN 3 (Ocean Ridge) Runoff Area=0.58 ac 20.69% Impervious Runoff Depth=2.81"
Flow Length=150' Tc=8.1 min CN=83 Runoff=1.78 cfs 0.136 af

Reach 3R: VEGETATED SWALE 1 (Ocean Ridge) Avg. Flow Depth=0.71' Max Vel=0.73 fps Inflow=4.55 cfs 0.370 af
n=0.150 L=170.0' S=0.0120 '/' Capacity=30.82 cfs Outflow=4.19 cfs 0.370 af

Reach 4R: SP#2 Inflow=2.70 cfs 0.214 af
Outflow=2.70 cfs 0.214 af

Reach 31R: CULVERT 3 (Ocean Ridge) Avg. Flow Depth=0.58' Max Vel=5.06 fps Inflow=2.22 cfs 0.225 af
11.0" Round Pipe n=0.012 L=50.0' S=0.0100 '/' Capacity=3.06 cfs Outflow=2.22 cfs 0.225 af

Reach 32R: VEGETATED SWALE 2 (Ocean Ridge) Avg. Flow Depth=0.54' Max Vel=0.65 fps Inflow=2.78 cfs 0.225 af
n=0.150 L=115.0' S=0.0130 '/' Capacity=32.02 cfs Outflow=2.64 cfs 0.225 af

Reach 33R: Wetland Flow Avg. Flow Depth=0.24' Max Vel=0.78 fps Inflow=2.79 cfs 0.730 af
n=0.035 L=150.0' S=0.0033 '/' Capacity=52.28 cfs Outflow=2.78 cfs 0.730 af

Reach 106R: SP#1 (Eben Hill Road) Inflow=31.13 cfs 5.570 af
Outflow=31.13 cfs 5.570 af

Reach 122R: ROADWAY GUTTER Avg. Flow Depth=0.33' Max Vel=4.40 fps Inflow=4.93 cfs 0.535 af
n=0.025 L=290.0' S=0.0379 '/' Capacity=10.97 cfs Outflow=4.91 cfs 0.535 af

Reach 123R: CURB ROAD GUTTER Avg. Flow Depth=0.21' Max Vel=3.96 fps Inflow=6.20 cfs 0.819 af
n=0.013 L=80.0' S=0.0200 '/' Capacity=48.18 cfs Outflow=6.19 cfs 0.819 af

Reach 210R: Woods overland Avg. Flow Depth=0.14' Max Vel=1.99 fps Inflow=3.53 cfs 0.965 af
n=0.035 L=50.0' S=0.0400 '/' Capacity=40.80 cfs Outflow=3.53 cfs 0.965 af

Reach 220R: Access Ditch Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.025 L=310.0' S=0.0500 '/' Capacity=47.31 cfs Outflow=0.00 cfs 0.000 af

Reach 221R: Overland Flow Avg. Flow Depth=0.06' Max Vel=1.82 fps Inflow=1.28 cfs 0.284 af
n=0.040 L=180.0' S=0.1111 '/' Capacity=59.50 cfs Outflow=1.28 cfs 0.284 af

Reach 240R: EXISTING CHANNEL Avg. Flow Depth=0.23' Max Vel=4.20 fps Inflow=2.75 cfs 0.730 af
n=0.025 L=340.0' S=0.0529 '/' Capacity=57.44 cfs Outflow=2.75 cfs 0.730 af

Reach 241R: EXISTING CHANNEL Avg. Flow Depth=0.30' Max Vel=5.88 fps Inflow=5.75 cfs 1.695 af
n=0.025 L=300.0' S=0.0750 '/' Capacity=68.36 cfs Outflow=5.75 cfs 1.694 af

Reach 340R: Woodland Flow Avg. Flow Depth=0.17' Max Vel=2.33 fps Inflow=2.78 cfs 0.730 af
n=0.035 L=700.0' S=0.0421 '/' Capacity=92.76 cfs Outflow=2.75 cfs 0.730 af

Pond 3P: POND 3 (Ocean Ridge) Peak Elev=160.74' Storage=10,521 cf Inflow=7.37 cfs 0.730 af
Outflow=2.79 cfs 0.730 af

Pond 30P: POND 30 (Ocean Ridge) Peak Elev=160.73' Storage=1,151 cf Inflow=2.64 cfs 0.225 af
18.0" Round Culvert n=0.012 L=30.0' S=0.0100 '/' Outflow=2.22 cfs 0.225 af

Pond 60R: FIELD CB Peak Elev=90.65' Inflow=1.48 cfs 0.102 af
12.0" Round Culvert n=0.012 L=110.0' S=0.0091 '/' Outflow=1.48 cfs 0.102 af

Pond 62P: Driveway Culvert Peak Elev=89.73' Storage=1,325 cf Inflow=14.61 cfs 3.055 af
Primary=8.18 cfs 2.731 af Secondary=6.40 cfs 0.324 af Outflow=14.58 cfs 3.055 af

Pond 66P: 24" Cross culvert Peak Elev=87.19' Storage=365 cf Inflow=15.81 cfs 3.325 af
Primary=15.75 cfs 3.325 af Secondary=0.00 cfs 0.000 af Outflow=15.75 cfs 3.325 af

Pond 100R: Vortech-DMH2 Peak Elev=109.07' Inflow=9.78 cfs 0.809 af
18.0" Round Culvert n=0.012 L=318.0' S=0.0267 '/' Outflow=9.78 cfs 0.809 af

Pond 101R: DMH2-DMH1(DMH1606) Peak Elev=100.45' Inflow=9.78 cfs 0.809 af
18.0" Round Culvert n=0.012 L=177.0' S=0.0391 '/' Outflow=9.78 cfs 0.809 af

Pond 102R: DMH1606-DMH9 Peak Elev=93.37' Inflow=9.78 cfs 0.809 af
18.0" Round Culvert n=0.012 L=110.0' S=0.0185 '/' Outflow=9.78 cfs 0.809 af

Pond 103R: DMH9-DMH8 Peak Elev=96.14' Inflow=19.72 cfs 2.135 af
18.0" Round Culvert n=0.012 L=132.0' S=0.0099 '/' Outflow=19.72 cfs 2.135 af

Pond 104R: DMH8-DMH200 Peak Elev=100.74' Inflow=21.02 cfs 2.245 af
18.0" Round Culvert n=0.012 L=273.0' S=0.0039 '/' Outflow=21.02 cfs 2.245 af

Pond 105R: DMH200-OUTLET Peak Elev=93.38' Inflow=21.02 cfs 2.245 af
18.0" Round Culvert n=0.012 L=60.0' S=0.0400 '/' Outflow=21.02 cfs 2.245 af

Pond 210P: Sand Filter mc3500 Peak Elev=128.82' Storage=19,250 cf Inflow=13.91 cfs 0.992 af
Outflow=3.53 cfs 0.965 af

Pond 220P: UDF Peak Elev=126.60' Storage=4,625 cf Inflow=3.62 cfs 0.258 af
Primary=1.15 cfs 0.256 af Secondary=0.00 cfs 0.000 af Outflow=1.15 cfs 0.256 af

Total Runoff Area = 24.22 ac Runoff Volume = 5.814 af Average Runoff Depth = 2.88"
72.85% Pervious = 17.64 ac 27.15% Impervious = 6.58 ac

Summary for Subcatchment 1S: BASIN 1 (Ocean Ridge)

Runoff = 8.20 cfs @ 12.14 hrs, Volume= 0.671 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
*	0.90	98	IMPERVIOUS
*	0.38	77	WOODS D
*	1.32	80	LAWN D
	2.60	86	Weighted Average
	1.70		65.38% Pervious Area
	0.90		34.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0200	0.10		**Sheet Flow, OVERLAND FLOW** Grass: Dense n= 0.240 P2= 3.00"
0.4	140	0.0430	5.46	65.53	**Trap/Vee/Rect Channel Flow, Segment ID: riprap road ditch** Bot.W=2.00' D=2.00' Z= 2.0 '/' Top.W=10.00' n= 0.060
0.2	90	0.0550	6.18	74.11	**Trap/Vee/Rect Channel Flow, Segment ID: riprap road ditch** Bot.W=2.00' D=2.00' Z= 2.0 '/' Top.W=10.00' n= 0.060
0.8	380	0.0900	7.45	64.10	**Trap/Vee/Rect Channel Flow, Segment ID: riprap road ditch** Bot.W=2.00' D=2.00' Z= 2.0 & 0.3 '/' Top.W=6.60' n= 0.060
9.9	660	Total			

Summary for Subcatchment 3: Sub 3

Runoff = 0.96 cfs @ 12.13 hrs, Volume= 0.077 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
*	0.04	98	Paved roads Ocean Ave
	0.26	84	1 acre lots, 20% imp, HSG D
	0.30	86	Weighted Average
	0.21		69.33% Pervious Area
	0.09		30.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	60	0.1000	0.13		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.00"
1.2	160	0.1000	2.21		**Shallow Concentrated Flow, B-C**
					Short Grass Pasture Kv= 7.0 fps
0.5	80	0.0150	2.49		**Shallow Concentrated Flow, C-D**
					Paved Kv= 20.3 fps
9.4	300	Total			

Summary for Subcatchment 6: Sub 6

Runoff = 1.48 cfs @ 12.07 hrs, Volume= 0.102 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

Area (ac)	CN	Description
0.35	84	1 acre lots, 20% imp, HSG D
0.07	87	1/4 acre lots, 38% imp, HSG D
0.42	84	Weighted Average
0.32		77.00% Pervious Area
0.10		23.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	25	0.1500	0.13		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.00"
0.4	60	0.2300	2.40		**Shallow Concentrated Flow, B-C**
					Woodland Kv= 5.0 fps
0.4	150	0.0400	5.86	41.05	**Trap/Vee/Rect Channel Flow, C-D**
					Bot.W=2.00' D=1.00' Z= 5.0 '/' Top.W=12.00'
					n= 0.035
4.1	235	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 11: Sub 11

Runoff = 5.73 cfs @ 12.11 hrs, Volume= 0.427 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
	1.04	77	Woods, Good, HSG D
*	0.19	98	Paved roads Ocean Ave
*	0.05	98	Paved roads, Site Drive
	0.02	80	>75% Grass cover, Good, HSG D
	0.29	84	1 acre lots, 20% imp, HSG D
	0.29	87	1/4 acre lots, 38% imp, HSG D
	1.88	82	Weighted Average
	1.47		78.29% Pervious Area
	0.41		21.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	40	0.1000	0.12		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
0.7	95	0.2000	2.24		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.0	240	0.0400	4.06		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
7.3	375	Total			

Summary for Subcatchment 12: Sub 12

Runoff = 4.93 cfs @ 12.30 hrs, Volume= 0.535 af, Depth= 2.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
	2.01	77	Woods, Good, HSG D
	0.18	80	>75% Grass cover, Good, HSG D
*	0.04	98	Paved roads OCEAN AVE
*	0.07	98	Roofs, OCEAN RIDGE
*	0.05	98	Paved roads Ocean Ridge
*	0.03	77	Woods, Good, HSG D Ocean Ridge
*	0.23	80	>75% Grass cover, Good, HSG D Ocean Ridge
	2.61	79	Weighted Average
	2.45		93.87% Pervious Area
	0.16		6.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	110	0.0400	0.10		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
2.8	270	0.1000	1.58		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.6	330	0.0500	9.46	47.31	**Trap/Vee/Rect Channel Flow, C-D** Bot.W=2.00' D=1.00' Z= 3.0 '/' Top.W=8.00' n= 0.025 Earth, clean & winding
21.5	710	Total			

Summary for Subcatchment 15: Sub 15

Runoff = 1.16 cfs @ 12.07 hrs, Volume= 0.083 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

Area (ac)	CN	Description
* 0.18	98	Paved roads Site Drive
0.09	80	>75% Grass cover, Good, HSG D
0.27	92	Weighted Average
0.09		33.33% Pervious Area
0.18		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.87		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
1.2	330	0.0500	4.54		**Shallow Concentrated Flow, B-C**
					Paved Kv= 20.3 fps
3.6					**Direct Entry, C-D**
5.0	342	Total			

Summary for Subcatchment 15A: Sub 15A

Runoff = 0.39 cfs @ 12.07 hrs, Volume= 0.028 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

Area (ac)	CN	Description
* 0.06	98	Paved roads Site Drive
0.03	80	>75% Grass cover, Good, HSG D
0.09	92	Weighted Average
0.03		33.33% Pervious Area
0.06		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.87		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
0.3	75	0.0500	4.54		**Shallow Concentrated Flow, B-C**
					Paved Kv= 20.3 fps
4.5					**Direct Entry, C-D**
5.0	87	Total			

Summary for Subcatchment 20: Subarea 2

Runoff = 9.65 cfs @ 12.46 hrs, Volume= 1.259 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
	0.64	87	1/4 acre lots, 38% imp, HSG D
	0.12	80	>75% Grass cover, Good, HSG D
*	0.05	98	Roadway, Ocean Ave
	5.55	77	Woods, Good, HSG D
	6.36	78	Weighted Average
	6.07		95.39% Pervious Area
	0.29		4.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	110	0.0800	0.13		**Sheet Flow, Overland Woods** Woods: Light underbrush n= 0.400 P2= 3.00"
18.8	1,325	0.0550	1.17		**Shallow Concentrated Flow, Overland Woods** Woodland Kv= 5.0 fps
32.5	1,435	Total			

Summary for Subcatchment 21: Sub 21

Runoff = 13.91 cfs @ 12.07 hrs, Volume= 0.992 af, Depth= 3.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
	1.20	80	>75% Grass cover, Good, HSG D
*	2.11	98	Site Development
	3.31	91	Weighted Average
	1.20		36.25% Pervious Area
	2.11		63.75% Impervious Area

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

Summary for Subcatchment 22: Sub 22

Runoff = 3.00 cfs @ 12.07 hrs, Volume= 0.216 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
*	0.45	98	Site Development
	0.25	80	>75% Grass cover, Good, HSG D
	0.70	92	Weighted Average
	0.25		35.71% Pervious Area
	0.45		64.29% Impervious Area

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

Summary for Subcatchment 23: Sub 23

Runoff = 0.62 cfs @ 12.07 hrs, Volume= 0.042 af, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

Area (ac)	CN	Description
0.20	80	>75% Grass cover, Good, HSG D
0.20		100.00% Pervious Area

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

Summary for Subcatchment 40: Sub 40

Runoff = 2.70 cfs @ 12.13 hrs, Volume= 0.214 af, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

Area (ac)	CN	Description
1.12	77	Woods, Good, HSG D
1.12		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.1000	0.12		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.00"
2.4	200	0.0750	1.37		**Shallow Concentrated Flow, B-C**
					Woodland Kv= 5.0 fps
9.1	250	Total			

Summary for Subcatchment 50: Sub 50

Runoff = 3.33 cfs @ 12.14 hrs, Volume= 0.270 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
	0.34	77	Woods, Good, HSG D
	0.09	80	>75% Grass cover, Good, HSG D
*	0.03	98	Paved roads Ocean Ave
	0.73	84	1 acre lots, 20% imp, HSG D
	1.19	82	Weighted Average
	1.01		85.21% Pervious Area
	0.18		14.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.1200	0.13		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
3.7	310	0.0800	1.41		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
9.9	360	Total			

Summary for Subcatchment 100: Subarea 100

Runoff = 0.97 cfs @ 12.09 hrs, Volume= 0.080 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
*	0.22	98	Roadway
	0.22		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.87		**Sheet Flow, Road Crown** Smooth surfaces n= 0.011 P2= 3.00"
5.9	480	0.0380	1.36		**Shallow Concentrated Flow, SHALLOW RD DITCH** Short Grass Pasture Kv= 7.0 fps
0.5	80	0.0200	2.87		**Shallow Concentrated Flow, ROAD GUTTER** Paved Kv= 20.3 fps
6.6	572	Total			

Summary for Subcatchment 101S: BASIN 101 (Ocean Ridge)

Runoff = 0.74 cfs @ 12.09 hrs, Volume= 0.055 af, Depth= 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

Area (ac)	CN	Description
* 0.11	98	IMPERVIOUS
* 0.08	80	LAWN D
0.19	90	Weighted Average
0.08		42.11% Pervious Area
0.11		57.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	30	0.0200	0.09		**Sheet Flow, Segment ID: AB, Lawn** Grass: Dense n= 0.240 P2= 3.00"
0.1	25	0.0200	2.87		**Shallow Concentrated Flow, Segment ID: BC,Driveway** Paved Kv= 20.3 fps
0.7	100	0.1200	2.42		**Shallow Concentrated Flow, Segment ID: grass slope** Short Grass Pasture Kv= 7.0 fps
6.4	155	Total			

Summary for Subcatchment 300: Subarea 300

Runoff = 0.42 cfs @ 12.07 hrs, Volume= 0.033 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

Area (ac)	CN	Description
* 0.09	98	Roadway
0.09		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.87		**Sheet Flow, Road Crown** Smooth surfaces n= 0.011 P2= 3.00"
1.1	150	0.0130	2.31		**Shallow Concentrated Flow, Gutter flow** Paved Kv= 20.3 fps
3.7					**Direct Entry,**
5.0	162	Total			

Summary for Subcatchment 301S: BASIN 301 (Ocean Ridge)

Runoff = 2.78 cfs @ 12.13 hrs, Volume= 0.225 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
*	0.37	98	IMPERVIOUS
*	0.45	80	LAWN D
	0.82	88	Weighted Average
	0.45		54.88% Pervious Area
	0.37		45.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	60	0.0300	0.12		**Sheet Flow, Segment ID: AB** Grass: Dense n= 0.240 P2= 3.00"
0.4	50	0.0200	2.12		**Shallow Concentrated Flow, Segment ID: BC** Grassed Waterway Kv= 15.0 fps
0.6	80	0.0200	2.12		**Shallow Concentrated Flow, Segment ID: CD** Grassed Waterway Kv= 15.0 fps
9.3	190	Total			

Summary for Subcatchment 302S: BASIN 302 (Ocean Ridge)

Runoff = 4.55 cfs @ 12.12 hrs, Volume= 0.370 af, Depth= 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
*	0.74	98	IMPERVIOUS
*	0.05	77	WOODS D
*	0.48	80	LAWN D
	1.27	90	Weighted Average
	0.53		41.73% Pervious Area
	0.74		58.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0200	0.10		**Sheet Flow, Segment ID: AB** Grass: Dense n= 0.240 P2= 3.00"
0.2	30	0.0200	2.87		**Shallow Concentrated Flow, Segment ID: BC** Paved Kv= 20.3 fps
0.4	50	0.0200	2.12		**Shallow Concentrated Flow, Segment ID:** Grassed Waterway Kv= 15.0 fps
9.1	130	Total			

Summary for Subcatchment 303S: BASIN 3 (Ocean Ridge)

Runoff = 1.78 cfs @ 12.11 hrs, Volume= 0.136 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_10 Rainfall=4.60"

	Area (ac)	CN	Description
*	0.12	98	IMPERVIOUS
*	0.08	77	WOODS D
*	0.38	80	LAWN D
	0.58	83	Weighted Average
	0.46		79.31% Pervious Area
	0.12		20.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	30	0.0300	0.07		**Sheet Flow, Segment ID: AB** Woods: Light underbrush n= 0.400 P2= 3.00"
0.9	120	0.0200	2.12		**Shallow Concentrated Flow, Segment ID: BC** Grassed Waterway Kv= 15.0 fps
8.1	150	Total			

Summary for Reach 3R: VEGETATED SWALE 1 (Ocean Ridge)

Inflow Area = 1.27 ac, 58.27% Impervious, Inflow Depth = 3.49" for Cumberland_10 event
Inflow = 4.55 cfs @ 12.12 hrs, Volume= 0.370 af
Outflow = 4.19 cfs @ 12.23 hrs, Volume= 0.370 af, Atten= 8%, Lag= 6.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.73 fps, Min. Travel Time= 3.9 min
Avg. Velocity = 0.19 fps, Avg. Travel Time= 14.8 min

Peak Storage= 980 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.71'
Bank-Full Depth= 2.00' Flow Area= 24.0 sf, Capacity= 30.82 cfs

6.00' x 2.00' deep channel, n= 0.150
Side Slope Z-value= 3.0 '/' Top Width= 18.00'
Length= 170.0' Slope= 0.0120 '/'
Inlet Invert= 0.00', Outlet Invert= -2.04'

‡

Summary for Reach 4R: SP#2

Inflow Area = 1.12 ac, 0.00% Impervious, Inflow Depth = 2.29" for Cumberland_10 event
Inflow = 2.70 cfs @ 12.13 hrs, Volume= 0.214 af
Outflow = 2.70 cfs @ 12.13 hrs, Volume= 0.214 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs

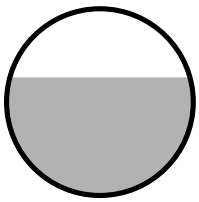
Summary for Reach 31R: CULVERT 3 (Ocean Ridge)

Inflow Area = 0.82 ac, 45.12% Impervious, Inflow Depth = 3.29" for Cumberland_10 event
Inflow = 2.22 cfs @ 12.28 hrs, Volume= 0.225 af
Outflow = 2.22 cfs @ 12.29 hrs, Volume= 0.225 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs / 2
Max. Velocity= 5.06 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.20 fps, Avg. Travel Time= 0.7 min

Peak Storage= 22 cf @ 12.29 hrs
Average Depth at Peak Storage= 0.58'
Bank-Full Depth= 0.92' Flow Area= 0.7 sf, Capacity= 3.06 cfs

11.0" Round Pipe
n= 0.012
Length= 50.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -0.50'



Summary for Reach 32R: VEGETATED SWALE 2 (Ocean Ridge)

Inflow Area = 0.82 ac, 45.12% Impervious, Inflow Depth = 3.29" for Cumberland_10 event
Inflow = 2.78 cfs @ 12.13 hrs, Volume= 0.225 af
Outflow = 2.64 cfs @ 12.21 hrs, Volume= 0.225 af, Atten= 5%, Lag= 5.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.65 fps, Min. Travel Time= 3.0 min
Avg. Velocity = 0.17 fps, Avg. Travel Time= 11.0 min

Peak Storage= 470 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.54'
Bank-Full Depth= 2.00' Flow Area= 24.0 sf, Capacity= 32.02 cfs

6.00' x 2.00' deep channel, n= 0.150
Side Slope Z-value= 3.0 '/' Top Width= 18.00'
Length= 115.0' Slope= 0.0130 '/'
Inlet Invert= 0.00', Outlet Invert= -1.49'

‡

Summary for Reach 33R: Wetland Flow

Inflow Area = 2.67 ac, 46.07% Impervious, Inflow Depth > 3.28" for Cumberland_10 event
Inflow = 2.79 cfs @ 12.62 hrs, Volume= 0.730 af
Outflow = 2.78 cfs @ 12.71 hrs, Volume= 0.730 af, Atten= 0%, Lag= 5.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.78 fps, Min. Travel Time= 3.2 min
Avg. Velocity = 0.24 fps, Avg. Travel Time= 10.5 min

Peak Storage= 532 cf @ 12.66 hrs
Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 1.00' Flow Area= 30.0 sf, Capacity= 52.28 cfs

10.00' x 1.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 20.0 '/' Top Width= 50.00'
Length= 150.0' Slope= 0.0033 '/'
Inlet Invert= 158.00', Outlet Invert= 157.50'

‡

Summary for Reach 106R: SP#1 (Eben Hill Road)

Inflow Area = 23.10 ac, 28.47% Impervious, Inflow Depth > 2.89" for Cumberland_10 event
Inflow = 31.13 cfs @ 12.14 hrs, Volume= 5.570 af
Outflow = 31.13 cfs @ 12.14 hrs, Volume= 5.570 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs

Summary for Reach 122R: ROADWAY GUTTER

Inflow Area = 2.61 ac, 6.13% Impervious, Inflow Depth = 2.46" for Cumberland_10 event
Inflow = 4.93 cfs @ 12.30 hrs, Volume= 0.535 af
Outflow = 4.91 cfs @ 12.33 hrs, Volume= 0.535 af, Atten= 0%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.40 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.55 fps, Avg. Travel Time= 3.1 min

Peak Storage= 324 cf @ 12.31 hrs
Average Depth at Peak Storage= 0.33'
Bank-Full Depth= 0.50' Flow Area= 2.0 sf, Capacity= 10.97 cfs

2.00' x 0.50' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 3.0 5.0 '/' Top Width= 6.00'
Length= 290.0' Slope= 0.0379 '/'
Inlet Invert= 106.50', Outlet Invert= 95.50'

‡

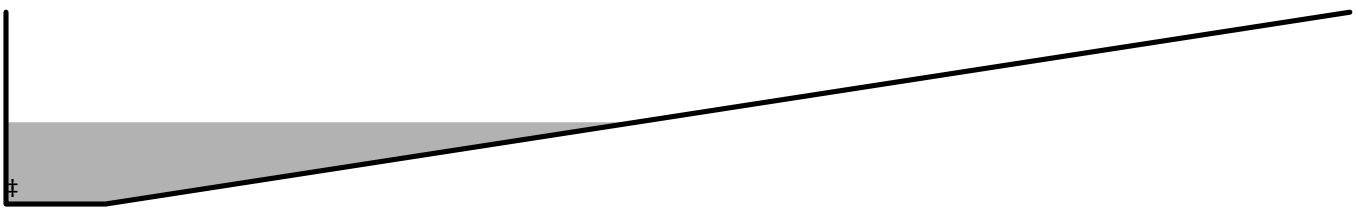
Summary for Reach 123R: CURB ROAD GUTTER

Inflow Area = 3.60 ac, 18.61% Impervious, Inflow Depth > 2.73" for Cumberland_10 event
Inflow = 6.20 cfs @ 12.33 hrs, Volume= 0.819 af
Outflow = 6.19 cfs @ 12.34 hrs, Volume= 0.819 af, Atten= 0%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.96 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.25 fps, Avg. Travel Time= 1.1 min

Peak Storage= 125 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 0.50' Flow Area= 7.3 sf, Capacity= 48.18 cfs

2.00' x 0.50' deep channel, n= 0.013 Asphalt, smooth
Side Slope Z-value= 0.0 50.0 '/' Top Width= 27.00'
Length= 80.0' Slope= 0.0200 '/'
Inlet Invert= 95.50', Outlet Invert= 93.90'



‡

Summary for Reach 210R: Woods overland

Inflow Area = 3.31 ac, 63.75% Impervious, Inflow Depth > 3.50" for Cumberland_10 event
Inflow = 3.53 cfs @ 12.43 hrs, Volume= 0.965 af
Outflow = 3.53 cfs @ 12.44 hrs, Volume= 0.965 af, Atten= 0%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.99 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.70 fps, Avg. Travel Time= 1.2 min

Peak Storage= 89 cf @ 12.44 hrs
Average Depth at Peak Storage= 0.14'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 40.80 cfs

10.00' x 0.50' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 20.0 '/' Top Width= 30.00'
Length= 50.0' Slope= 0.0400 '/'
Inlet Invert= 112.00', Outlet Invert= 110.00'

‡

Summary for Reach 220R: Access Ditch

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

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 5.0 sf, Capacity= 47.31 cfs

2.00' x 1.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 3.0 '/' Top Width= 8.00'
Length= 310.0' Slope= 0.0500 '/'
Inlet Invert= 126.00', Outlet Invert= 110.50'

‡

Summary for Reach 221R: Overland Flow

Inflow Area = 0.99 ac, 51.52% Impervious, Inflow Depth > 3.44" for Cumberland_10 event
Inflow = 1.28 cfs @ 12.28 hrs, Volume= 0.284 af
Outflow = 1.28 cfs @ 12.33 hrs, Volume= 0.284 af, Atten= 0%, Lag= 2.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.82 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 0.57 fps, Avg. Travel Time= 5.2 min

Peak Storage= 127 cf @ 12.30 hrs
Average Depth at Peak Storage= 0.06'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 59.50 cfs

10.00' x 0.50' deep channel, n= 0.040 Woods Overland flow
Side Slope Z-value= 20.0 '/' Top Width= 30.00'
Length= 180.0' Slope= 0.1111 '/'
Inlet Invert= 120.00', Outlet Invert= 100.00'

‡

Summary for Reach 240R: EXISTING CHANNEL

Inflow Area = 2.67 ac, 46.07% Impervious, Inflow Depth > 3.28" for Cumberland_10 event
Inflow = 2.75 cfs @ 12.87 hrs, Volume= 0.730 af
Outflow = 2.75 cfs @ 12.91 hrs, Volume= 0.730 af, Atten= 0%, Lag= 2.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.20 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 1.30 fps, Avg. Travel Time= 4.4 min

Peak Storage= 223 cf @ 12.88 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 57.44 cfs

2.00' x 1.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 4.0 '/' Top Width= 10.00'
Length= 340.0' Slope= 0.0529 '/'
Inlet Invert= 128.00', Outlet Invert= 110.00'

‡

Summary for Reach 241R: EXISTING CHANNEL

Inflow Area = 5.98 ac, 55.85% Impervious, Inflow Depth > 3.40" for Cumberland_10 event
Inflow = 5.75 cfs @ 12.80 hrs, Volume= 1.695 af
Outflow = 5.75 cfs @ 12.83 hrs, Volume= 1.694 af, Atten= 0%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.88 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 2.19 fps, Avg. Travel Time= 2.3 min

Peak Storage= 293 cf @ 12.81 hrs
Average Depth at Peak Storage= 0.30'
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 68.36 cfs

2.00' x 1.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 4.0 '/' Top Width= 10.00'
Length= 300.0' Slope= 0.0750 '/'
Inlet Invert= 110.00', Outlet Invert= 87.50'

‡

Summary for Reach 340R: Woodland Flow

Inflow Area = 2.67 ac, 46.07% Impervious, Inflow Depth > 3.28" for Cumberland_10 event
Inflow = 2.78 cfs @ 12.71 hrs, Volume= 0.730 af
Outflow = 2.75 cfs @ 12.87 hrs, Volume= 0.730 af, Atten= 1%, Lag= 9.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.33 fps, Min. Travel Time= 5.0 min
Avg. Velocity = 0.73 fps, Avg. Travel Time= 15.9 min

Peak Storage= 826 cf @ 12.78 hrs
Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 1.00' Flow Area= 15.0 sf, Capacity= 92.76 cfs

5.00' x 1.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 10.0 '/' Top Width= 25.00'
Length= 700.0' Slope= 0.0421 '/'
Inlet Invert= 157.50', Outlet Invert= 128.00'

‡

Summary for Pond 3P: POND 3 (Ocean Ridge)

Inflow Area = 2.67 ac, 46.07% Impervious, Inflow Depth = 3.28" for Cumberland_10 event
Inflow = 7.37 cfs @ 12.24 hrs, Volume= 0.730 af
Outflow = 2.79 cfs @ 12.62 hrs, Volume= 0.730 af, Atten= 62%, Lag= 22.9 min
Primary = 2.79 cfs @ 12.62 hrs, Volume= 0.730 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 160.74' @ 12.62 hrs Surf.Area= 5,209 sf Storage= 10,521 cf

Plug-Flow detention time= 75.3 min calculated for 0.730 af (100% of inflow)
Center-of-Mass det. time= 74.8 min (895.1 - 820.3)

Volume	Invert	Avail.Storage	Storage Description
#1	158.00'	21,813 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
158.00	2,113	0	0
160.00	4,304	6,417	6,417
162.00	6,739	11,043	17,460
162.60	7,772	4,353	21,813

Device	Routing	Invert	Outlet Devices
#1	Primary	158.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	160.00'	**9.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	161.00'	**4.5" Vert. Orifice/Grate** C= 0.600
#4	Primary	161.50'	**20.0' long Broad-Crested Rectangular Weir X 1.81**
			Head (feet) 0.50 1.00 1.50
			Coef. (English) 1.60 1.80 1.90

Primary OutFlow Max=2.79 cfs @ 12.62 hrs HW=160.74' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 1.49 cfs @ 7.60 fps)
- **2=Orifice/Grate** (Orifice Controls 1.29 cfs @ 2.94 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 30P: POND 30 (Ocean Ridge)

Inflow Area = 0.82 ac, 45.12% Impervious, Inflow Depth = 3.29" for Cumberland_10 event
Inflow = 2.64 cfs @ 12.21 hrs, Volume= 0.225 af
Outflow = 2.22 cfs @ 12.28 hrs, Volume= 0.225 af, Atten= 16%, Lag= 4.5 min
Primary = 2.22 cfs @ 12.28 hrs, Volume= 0.225 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 160.73' @ 12.28 hrs Surf.Area= 1,462 sf Storage= 1,151 cf

Plug-Flow detention time= 25.7 min calculated for 0.225 af (100% of inflow)
Center-of-Mass det. time= 25.8 min (839.5 - 813.7)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	3,156 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	1,150	0	0
162.00	2,006	3,156	3,156

Device	Routing	Invert	Outlet Devices
#1	Primary	160.00'	**18.0" Round Culvert** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 160.00' / 159.70' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=2.22 cfs @ 12.28 hrs HW=160.73' (Free Discharge)
↑**1=Culvert** (Barrel Controls 2.22 cfs @ 3.82 fps)

Summary for Pond 60R: FIELD CB

Inflow Area = 0.42 ac, 23.00% Impervious, Inflow Depth = 2.91" for Cumberland_10 event
Inflow = 1.48 cfs @ 12.07 hrs, Volume= 0.102 af
Outflow = 1.48 cfs @ 12.07 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.0 min
Primary = 1.48 cfs @ 12.07 hrs, Volume= 0.102 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 90.65' @ 12.07 hrs
Flood Elev= 91.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	**12.0" Round Culvert** L= 110.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 90.00' / 89.00' S= 0.0091 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.47 cfs @ 12.07 hrs HW=90.65' (Free Discharge)
↑**1=Culvert** (Inlet Controls 1.47 cfs @ 2.74 fps)

Summary for Pond 62P: Driveway Culvert

Inflow Area = 12.76 ac, 29.23% Impervious, Inflow Depth > 2.87" for Cumberland_10 event
Inflow = 14.61 cfs @ 12.46 hrs, Volume= 3.055 af
Outflow = 14.58 cfs @ 12.48 hrs, Volume= 3.055 af, Atten= 0%, Lag= 1.3 min
Primary = 8.18 cfs @ 12.48 hrs, Volume= 2.731 af
Secondary = 6.40 cfs @ 12.48 hrs, Volume= 0.324 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 89.73' @ 12.48 hrs Surf.Area= 2,672 sf Storage= 1,325 cf

Plug-Flow detention time= 0.8 min calculated for 3.055 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (952.3 - 951.5)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	2,197 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
88.00	47	50.0	0	0	47
89.00	540	284.0	249	249	6,269
90.00	3,860	500.0	1,948	2,197	19,750

Device	Routing	Invert	Outlet Devices
#1	Primary	87.50'	**18.0" Round Culvert** L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 87.50' / 87.00' S= 0.0143 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	89.50'	**22.0' long x 13.0' 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) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=8.18 cfs @ 12.48 hrs HW=89.73' (Free Discharge)
└**1=Culvert** (Inlet Controls 8.18 cfs @ 4.63 fps)

Secondary OutFlow Max=6.40 cfs @ 12.48 hrs HW=89.73' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 6.40 cfs @ 1.25 fps)

Summary for Pond 66P: 24" Cross culvert

Inflow Area = 13.95 ac, 28.00% Impervious, Inflow Depth > 2.86" for Cumberland_10 event
Inflow = 15.81 cfs @ 12.46 hrs, Volume= 3.325 af
Outflow = 15.75 cfs @ 12.49 hrs, Volume= 3.325 af, Atten= 0%, Lag= 1.6 min
Primary = 15.75 cfs @ 12.49 hrs, Volume= 3.325 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs / 6
Peak Elev= 87.19' @ 12.49 hrs Surf.Area= 544 sf Storage= 365 cf

Plug-Flow detention time= 0.2 min calculated for 3.324 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (942.0 - 941.8)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	1,817 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
84.00	5	5.0	0	0	5
85.00	25	25.0	14	14	55
86.00	63	40.0	43	56	139
87.00	425	195.0	217	273	3,040
88.00	1,210	305.0	784	1,058	7,424
88.50	1,850	330.0	759	1,817	8,697

Device	Routing	Invert	Outlet Devices
#1	Primary	84.45'	**24.0" Round Culvert** L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 84.45' / 84.13' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Secondary	88.50'	**12.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=15.75 cfs @ 12.49 hrs HW=87.19' (Free Discharge)
1=Culvert (Inlet Controls 15.75 cfs @ 5.01 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=84.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 100R: Vortech-DMH2

Inflow Area = 3.06 ac, 38.89% Impervious, Inflow Depth = 3.17" for Cumberland_10 event
Inflow = 9.78 cfs @ 12.13 hrs, Volume= 0.809 af
Outflow = 9.78 cfs @ 12.13 hrs, Volume= 0.809 af, Atten= 0%, Lag= 0.0 min
Primary = 9.78 cfs @ 12.13 hrs, Volume= 0.809 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 109.07' @ 12.13 hrs
Flood Elev= 112.16'

Device	Routing	Invert	Outlet Devices
#1	Primary	107.00'	**18.0" Round Culvert** L= 318.0' Ke= 0.500 Inlet / Outlet Invert= 107.00' / 98.52' S= 0.0267 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=9.76 cfs @ 12.13 hrs HW=109.07' (Free Discharge)
1=Culvert (Inlet Controls 9.76 cfs @ 5.52 fps)

Summary for Pond 101R: DMH2-DMH1(DMH1606)

Inflow Area = 3.06 ac, 38.89% Impervious, Inflow Depth = 3.17" for Cumberland_10 event
Inflow = 9.78 cfs @ 12.13 hrs, Volume= 0.809 af
Outflow = 9.78 cfs @ 12.13 hrs, Volume= 0.809 af, Atten= 0%, Lag= 0.0 min
Primary = 9.78 cfs @ 12.13 hrs, Volume= 0.809 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 100.45' @ 12.13 hrs
Flood Elev= 103.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	98.38'	**18.0" Round Culvert** L= 177.0' Ke= 0.500 Inlet / Outlet Invert= 98.38' / 91.46' S= 0.0391 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=9.76 cfs @ 12.13 hrs HW=100.45' (Free Discharge)
1=Culvert (Inlet Controls 9.76 cfs @ 5.53 fps)

Summary for Pond 102R: DMH1606-DMH9

Inflow Area = 3.06 ac, 38.89% Impervious, Inflow Depth = 3.17" for Cumberland_10 event
Inflow = 9.78 cfs @ 12.13 hrs, Volume= 0.809 af
Outflow = 9.78 cfs @ 12.13 hrs, Volume= 0.809 af, Atten= 0%, Lag= 0.0 min
Primary = 9.78 cfs @ 12.13 hrs, Volume= 0.809 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 93.37' @ 12.13 hrs
Flood Elev= 96.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	91.30'	**18.0" Round Culvert** L= 110.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 91.30' / 89.27' S= 0.0185 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=9.76 cfs @ 12.13 hrs HW=93.37' (Free Discharge)
1=Culvert (Inlet Controls 9.76 cfs @ 5.53 fps)

Summary for Pond 103R: DMH9-DMH8

Inflow Area = 8.76 ac, 28.40% Impervious, Inflow Depth > 2.92" for Cumberland_10 event
Inflow = 19.72 cfs @ 12.13 hrs, Volume= 2.135 af
Outflow = 19.72 cfs @ 12.13 hrs, Volume= 2.135 af, Atten= 0%, Lag= 0.0 min
Primary = 19.72 cfs @ 12.13 hrs, Volume= 2.135 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 96.14' @ 12.13 hrs
Flood Elev= 94.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	89.07'	**18.0" Round Culvert** L= 132.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 89.07' / 87.76' S= 0.0099 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=19.71 cfs @ 12.13 hrs HW=96.13' (Free Discharge)
1=Culvert (Barrel Controls 19.71 cfs @ 11.15 fps)

Summary for Pond 104R: DMH8-DMH200

Inflow Area = 9.15 ac, 29.18% Impervious, Inflow Depth > 2.94" for Cumberland_10 event
Inflow = 21.02 cfs @ 12.13 hrs, Volume= 2.245 af
Outflow = 21.02 cfs @ 12.13 hrs, Volume= 2.245 af, Atten= 0%, Lag= 0.0 min
Primary = 21.02 cfs @ 12.13 hrs, Volume= 2.245 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 100.74' @ 12.13 hrs
Flood Elev= 92.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	87.66'	**18.0" Round Culvert** L= 273.0' RCP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 87.66' / 86.60' S= 0.0039 '/' Cc= 0.900
n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=21.00 cfs @ 12.13 hrs HW=100.71' (Free Discharge)
↑**1=Culvert** (Barrel Controls 21.00 cfs @ 11.88 fps)

Summary for Pond 105R: DMH200-OUTLET

Inflow Area = 9.15 ac, 29.18% Impervious, Inflow Depth > 2.94" for Cumberland_10 event
Inflow = 21.02 cfs @ 12.13 hrs, Volume= 2.245 af
Outflow = 21.02 cfs @ 12.13 hrs, Volume= 2.245 af, Atten= 0%, Lag= 0.0 min
Primary = 21.02 cfs @ 12.13 hrs, Volume= 2.245 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 93.38' @ 12.13 hrs
Flood Elev= 89.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	86.53'	**18.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 86.53' / 84.13' S= 0.0400 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=21.00 cfs @ 12.13 hrs HW=93.37' (Free Discharge)
↑**1=Culvert** (Inlet Controls 21.00 cfs @ 11.88 fps)

Summary for Pond 210P: Sand Filter mc3500

Inflow Area = 3.31 ac, 63.75% Impervious, Inflow Depth = 3.59" for Cumberland_10 event
Inflow = 13.91 cfs @ 12.07 hrs, Volume= 0.992 af
Outflow = 3.53 cfs @ 12.43 hrs, Volume= 0.965 af, Atten= 75%, Lag= 21.7 min
Primary = 3.53 cfs @ 12.43 hrs, Volume= 0.965 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 128.82' @ 12.43 hrs Surf.Area= 6,773 sf Storage= 19,250 cf

Plug-Flow detention time= 339.0 min calculated for 0.965 af (97% of inflow)
Center-of-Mass det. time= 322.9 min (1,111.6 - 788.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	124.70'	9,447 cf	**80.08'W x 84.57'L x 5.50'H Field A** 37,250 cf Overall - 13,632 cf Embedded = 23,618 cf x 40.0% Voids
#2A	125.45'	13,632 cf	**ADS_StormTech MC-3500 d +Cap** x 121 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 11 Rows of 11 Chambers Cap Storage= +14.9 cf x 2 x 11 rows = 327.8 cf
		23,079 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	121.00'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 121.00' / 117.00' S= 0.0800 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	121.00'	**1.0" Vert. Orifice/Grate X 2.00** C= 0.600
#3	Device 1	126.80'	**7.0" Vert. Orifice/Grate X 2.00** C= 0.600
#4	Device 1	129.87'	**6.0' long x 1.50' rise Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)

Primary OutFlow Max=3.53 cfs @ 12.43 hrs HW=128.82' (Free Discharge)
└**1=Culvert** (Passes 3.53 cfs of 15.85 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.15 cfs @ 13.43 fps)
  ├**3=Orifice/Grate** (Orifice Controls 3.39 cfs @ 6.33 fps)
  └**4=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Summary for Pond 220P: UDF

Inflow Area = 0.90 ac, 50.00% Impervious, Inflow Depth = 3.44" for Cumberland_10 event
Inflow = 3.62 cfs @ 12.07 hrs, Volume= 0.258 af
Outflow = 1.15 cfs @ 12.37 hrs, Volume= 0.256 af, Atten= 68%, Lag= 17.6 min
Primary = 1.15 cfs @ 12.37 hrs, Volume= 0.256 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 126.60' @ 12.37 hrs Surf.Area= 3,591 sf Storage= 4,625 cf

Plug-Flow detention time= 348.8 min calculated for 0.256 af (99% of inflow)
Center-of-Mass det. time= 344.4 min (1,135.5 - 791.0)

Volume	Invert	Avail.Storage	Storage Description
#1	125.00'	10,527 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
125.00	2,326	0	0
126.00	2,974	2,650	2,650
127.00	4,000	3,487	6,137
128.00	4,780	4,390	10,527

Device	Routing	Invert	Outlet Devices
#1	Primary	122.83'	**12.0" Round Culvert** L= 78.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 122.83' / 122.28' S= 0.0071 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	122.83'	**0.9" Vert. Orifice/Grate** C= 0.600
#3	Device 2	125.00'	**2.400 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'
#4	Device 1	126.00'	**4.0" Vert. Orifice/Grate X 4.00** C= 0.600
#5	Device 1	127.00'	**20.0" Vert. Orifice/Grate** C= 0.600
#6	Secondary	127.50'	**10.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=1.15 cfs @ 12.37 hrs HW=126.60' (Free Discharge)
└**1=Culvert** (Passes 1.15 cfs of 6.07 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.04 cfs @ 9.30 fps)
  │ └**3=Exfiltration** (Passes 0.04 cfs of 0.20 cfs potential flow)
  ├**4=Orifice/Grate** (Orifice Controls 1.11 cfs @ 3.18 fps)
  └**5=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=125.00' (Free Discharge)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-45.00 hrs, dt=0.01 hrs, 4501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: BASIN 1 (Ocean Ridge) Runoff Area=2.60 ac 34.62% Impervious Runoff Depth=4.22"
Flow Length=660' Tc=9.9 min CN=86 Runoff=11.06 cfs 0.914 af

Subcatchment 3: Sub 3 Runoff Area=0.30 ac 30.67% Impervious Runoff Depth=4.22"
Flow Length=300' Tc=9.4 min CN=86 Runoff=1.30 cfs 0.105 af

Subcatchment 6: Sub 6 Runoff Area=0.42 ac 23.00% Impervious Runoff Depth=4.01"
Flow Length=235' Tc=5.0 min CN=84 Runoff=2.02 cfs 0.140 af

Subcatchment 11: Sub 11 Runoff Area=1.88 ac 21.71% Impervious Runoff Depth=3.80"
Flow Length=375' Tc=7.3 min CN=82 Runoff=7.96 cfs 0.596 af

Subcatchment 12: Sub 12 Runoff Area=2.61 ac 6.13% Impervious Runoff Depth=3.50"
Flow Length=710' Tc=21.5 min CN=79 Runoff=7.01 cfs 0.762 af

Subcatchment 15: Sub 15 Runoff Area=0.27 ac 66.67% Impervious Runoff Depth=4.87"
Flow Length=342' Tc=5.0 min CN=92 Runoff=1.50 cfs 0.110 af

Subcatchment 15A: Sub 15A Runoff Area=0.09 ac 66.67% Impervious Runoff Depth=4.87"
Flow Length=87' Tc=5.0 min CN=92 Runoff=0.50 cfs 0.037 af

Subcatchment 20: Subarea 2 Runoff Area=6.36 ac 4.61% Impervious Runoff Depth=3.40"
Flow Length=1,435' Tc=32.5 min CN=78 Runoff=13.85 cfs 1.804 af

Subcatchment 21: Sub 21 Runoff Area=3.31 ac 63.75% Impervious Runoff Depth=4.76"
Tc=5.0 min CN=91 Runoff=18.15 cfs 1.313 af

Subcatchment 22: Sub 22 Runoff Area=0.70 ac 64.29% Impervious Runoff Depth=4.87"
Tc=5.0 min CN=92 Runoff=3.89 cfs 0.284 af

Subcatchment 23: Sub 23 Runoff Area=0.20 ac 0.00% Impervious Runoff Depth=3.60"
Tc=5.0 min CN=80 Runoff=0.87 cfs 0.060 af

Subcatchment 40: Sub 40 Runoff Area=1.12 ac 0.00% Impervious Runoff Depth=3.31"
Flow Length=250' Tc=9.1 min CN=77 Runoff=3.90 cfs 0.308 af

Subcatchment 50: Sub 50 Runoff Area=1.19 ac 14.79% Impervious Runoff Depth=3.80"
Flow Length=360' Tc=9.9 min CN=82 Runoff=4.62 cfs 0.377 af

Subcatchment 100: Subarea 100 Runoff Area=0.22 ac 100.00% Impervious Runoff Depth=5.56"
Flow Length=572' Tc=6.6 min CN=98 Runoff=1.23 cfs 0.102 af

Subcatchment 101S: BASIN 101 (Ocean Ridge) Runoff Area=0.19 ac 57.89% Impervious Runoff Depth=4.65"
Flow Length=155' Tc=6.4 min CN=90 Runoff=0.98 cfs 0.074 af

Subcatchment 300: Subarea 300 Runoff Area=0.09 ac 100.00% Impervious Runoff Depth=5.56"
Flow Length=162' Tc=5.0 min CN=98 Runoff=0.53 cfs 0.042 af

Subcatchment 301S: BASIN 301 (Ocean Ridge) Runoff Area=0.82 ac 45.12% Impervious Runoff Depth=4.43"
Flow Length=190' Tc=9.3 min CN=88 Runoff=3.69 cfs 0.303 af

Subcatchment 302S: BASIN 302 (Ocean Ridge) Runoff Area=1.27 ac 58.27% Impervious Runoff Depth=4.65"
Flow Length=130' Slope=0.0200 '/' Tc=9.1 min CN=90 Runoff=5.97 cfs 0.492 af

Subcatchment 303S: BASIN 3 (Ocean Ridge) Runoff Area=0.58 ac 20.69% Impervious Runoff Depth=3.91"
Flow Length=150' Tc=8.1 min CN=83 Runoff=2.45 cfs 0.189 af

Reach 3R: VEGETATED SWALE 1 (Ocean Ridge) Avg. Flow Depth=0.83' Max Vel=0.79 fps Inflow=5.97 cfs 0.492 af
n=0.150 L=170.0' S=0.0120 '/' Capacity=30.82 cfs Outflow=5.56 cfs 0.492 af

Reach 4R: SP#2 Inflow=3.90 cfs 0.308 af
Outflow=3.90 cfs 0.308 af

Reach 31R: CULVERT 3 (Ocean Ridge) Avg. Flow Depth=0.75' Max Vel=5.29 fps Inflow=3.04 cfs 0.303 af
11.0" Round Pipe n=0.012 L=50.0' S=0.0100 '/' Capacity=3.06 cfs Outflow=3.04 cfs 0.303 af

Reach 32R: VEGETATED SWALE 2 (Ocean Ridge) Avg. Flow Depth=0.63' Max Vel=0.71 fps Inflow=3.69 cfs 0.303 af
n=0.150 L=115.0' S=0.0130 '/' Capacity=32.02 cfs Outflow=3.54 cfs 0.303 af

Reach 33R: Wetland Flow Avg. Flow Depth=0.29' Max Vel=0.87 fps Inflow=3.95 cfs 0.984 af
n=0.035 L=150.0' S=0.0033 '/' Capacity=52.28 cfs Outflow=3.93 cfs 0.984 af

Reach 106R: SP#1 (Eben Hill Road) Inflow=44.57 cfs 7.626 af
Outflow=44.57 cfs 7.626 af

Reach 122R: ROADWAY GUTTER Avg. Flow Depth=0.40' Max Vel=4.86 fps Inflow=7.01 cfs 0.762 af
n=0.025 L=290.0' S=0.0379 '/' Capacity=10.97 cfs Outflow=6.99 cfs 0.762 af

Reach 123R: CURB ROAD GUTTER Avg. Flow Depth=0.25' Max Vel=4.32 fps Inflow=8.71 cfs 1.139 af
n=0.013 L=80.0' S=0.0200 '/' Capacity=48.18 cfs Outflow=8.71 cfs 1.139 af

Reach 210R: Woods overland Avg. Flow Depth=0.22' Max Vel=2.57 fps Inflow=8.03 cfs 1.284 af
n=0.035 L=50.0' S=0.0400 '/' Capacity=40.80 cfs Outflow=8.02 cfs 1.284 af

Reach 220R: Access Ditch Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.025 L=310.0' S=0.0500 '/' Capacity=47.31 cfs Outflow=0.00 cfs 0.000 af

Reach 221R: Overland Flow Avg. Flow Depth=0.08' Max Vel=2.04 fps Inflow=1.77 cfs 0.378 af
n=0.040 L=180.0' S=0.1111 '/' Capacity=59.50 cfs Outflow=1.77 cfs 0.378 af

Reach 240R: EXISTING CHANNEL Avg. Flow Depth=0.27' Max Vel=4.65 fps Inflow=3.91 cfs 0.983 af
n=0.025 L=340.0' S=0.0529 '/' Capacity=57.44 cfs Outflow=3.90 cfs 0.983 af

Reach 241R: EXISTING CHANNEL Avg. Flow Depth=0.38' Max Vel=6.65 fps Inflow=8.98 cfs 2.268 af
n=0.025 L=300.0' S=0.0750 '/' Capacity=68.36 cfs Outflow=8.95 cfs 2.267 af

Reach 340R: Woodland Flow Avg. Flow Depth=0.21' Max Vel=2.60 fps Inflow=3.93 cfs 0.984 af
n=0.035 L=700.0' S=0.0421 '/' Capacity=92.76 cfs Outflow=3.91 cfs 0.983 af

Pond 3P: POND 3 (Ocean Ridge) Peak Elev=161.33' Storage=13,782 cf Inflow=9.99 cfs 0.984 af
Outflow=3.95 cfs 0.984 af

Pond 30P: POND 30 (Ocean Ridge) Peak Elev=160.88' Storage=1,387 cf Inflow=3.54 cfs 0.303 af
18.0" Round Culvert n=0.012 L=30.0' S=0.0100 '/' Outflow=3.04 cfs 0.303 af

Pond 60R: FIELD CB Peak Elev=90.79' Inflow=2.02 cfs 0.140 af
12.0" Round Culvert n=0.012 L=110.0' S=0.0091 '/' Outflow=2.02 cfs 0.140 af

Pond 62P: Driveway Culvert Peak Elev=89.88' Storage=1,753 cf Inflow=21.95 cfs 4.211 af
Primary=8.56 cfs 3.382 af Secondary=13.35 cfs 0.829 af Outflow=21.92 cfs 4.211 af

Pond 66P: 24" Cross culvert Peak Elev=88.68' Storage=1,817 cf Inflow=24.07 cfs 4.588 af
Primary=21.46 cfs 4.544 af Secondary=2.33 cfs 0.037 af Outflow=23.78 cfs 4.581 af

Pond 100R: Vortech-DMH2 Peak Elev=110.12' Inflow=13.11 cfs 1.098 af
18.0" Round Culvert n=0.012 L=318.0' S=0.0267 '/' Outflow=13.11 cfs 1.098 af

Pond 101R: DMH2-DMH1(DMH1606) Peak Elev=101.50' Inflow=13.11 cfs 1.098 af
18.0" Round Culvert n=0.012 L=177.0' S=0.0391 '/' Outflow=13.11 cfs 1.098 af

Pond 102R: DMH1606-DMH9 Peak Elev=94.42' Inflow=13.11 cfs 1.098 af
18.0" Round Culvert n=0.012 L=110.0' S=0.0185 '/' Outflow=13.11 cfs 1.098 af

Pond 103R: DMH9-DMH8 Peak Elev=102.54' Inflow=27.40 cfs 2.935 af
18.0" Round Culvert n=0.012 L=132.0' S=0.0099 '/' Outflow=27.40 cfs 2.935 af

Pond 104R: DMH8-DMH200 Peak Elev=112.37' Inflow=29.13 cfs 3.082 af
18.0" Round Culvert n=0.012 L=273.0' S=0.0039 '/' Outflow=29.13 cfs 3.082 af

Pond 105R: DMH200-OUTLET Peak Elev=99.00' Inflow=29.13 cfs 3.082 af
18.0" Round Culvert n=0.012 L=60.0' S=0.0400 '/' Outflow=29.13 cfs 3.082 af

Pond 210P: Sand Filter mc3500 Peak Elev=130.18' Storage=23,017 cf Inflow=18.15 cfs 1.313 af
Outflow=8.03 cfs 1.284 af

Pond 220P: UDF Peak Elev=126.96' Storage=5,960 cf Inflow=4.77 cfs 0.344 af
Primary=1.54 cfs 0.342 af Secondary=0.00 cfs 0.000 af Outflow=1.54 cfs 0.342 af

Total Runoff Area = 24.22 ac Runoff Volume = 8.012 af Average Runoff Depth = 3.97"
72.85% Pervious = 17.64 ac 27.15% Impervious = 6.58 ac

Summary for Subcatchment 1S: BASIN 1 (Ocean Ridge)

Runoff = 11.06 cfs @ 12.13 hrs, Volume= 0.914 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
*	0.90	98	IMPERVIOUS
*	0.38	77	WOODS D
*	1.32	80	LAWN D
	2.60	86	Weighted Average
	1.70		65.38% Pervious Area
	0.90		34.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0200	0.10		**Sheet Flow, OVERLAND FLOW** Grass: Dense n= 0.240 P2= 3.00"
0.4	140	0.0430	5.46	65.53	**Trap/Vee/Rect Channel Flow, Segment ID: riprap road ditch** Bot.W=2.00' D=2.00' Z= 2.0 '/' Top.W=10.00' n= 0.060
0.2	90	0.0550	6.18	74.11	**Trap/Vee/Rect Channel Flow, Segment ID: riprap road ditch** Bot.W=2.00' D=2.00' Z= 2.0 '/' Top.W=10.00' n= 0.060
0.8	380	0.0900	7.45	64.10	**Trap/Vee/Rect Channel Flow, Segment ID: riprap road ditch** Bot.W=2.00' D=2.00' Z= 2.0 & 0.3 '/' Top.W=6.60' n= 0.060
9.9	660	Total			

Summary for Subcatchment 3: Sub 3

Runoff = 1.30 cfs @ 12.13 hrs, Volume= 0.105 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
*	0.04	98	Paved roads Ocean Ave
	0.26	84	1 acre lots, 20% imp, HSG D
	0.30	86	Weighted Average
	0.21		69.33% Pervious Area
	0.09		30.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	60	0.1000	0.13		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.00"
1.2	160	0.1000	2.21		**Shallow Concentrated Flow, B-C**
					Short Grass Pasture Kv= 7.0 fps
0.5	80	0.0150	2.49		**Shallow Concentrated Flow, C-D**
					Paved Kv= 20.3 fps
9.4	300	Total			

Summary for Subcatchment 6: Sub 6

Runoff = 2.02 cfs @ 12.07 hrs, Volume= 0.140 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

Area (ac)	CN	Description
0.35	84	1 acre lots, 20% imp, HSG D
0.07	87	1/4 acre lots, 38% imp, HSG D
0.42	84	Weighted Average
0.32		77.00% Pervious Area
0.10		23.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	25	0.1500	0.13		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.00"
0.4	60	0.2300	2.40		**Shallow Concentrated Flow, B-C**
					Woodland Kv= 5.0 fps
0.4	150	0.0400	5.86	41.05	**Trap/Vee/Rect Channel Flow, C-D**
					Bot.W=2.00' D=1.00' Z= 5.0 '/' Top.W=12.00'
					n= 0.035
4.1	235	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment 11: Sub 11

Runoff = 7.96 cfs @ 12.10 hrs, Volume= 0.596 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
	1.04	77	Woods, Good, HSG D
*	0.19	98	Paved roads Ocean Ave
*	0.05	98	Paved roads, Site Drive
	0.02	80	>75% Grass cover, Good, HSG D
	0.29	84	1 acre lots, 20% imp, HSG D
	0.29	87	1/4 acre lots, 38% imp, HSG D
	1.88	82	Weighted Average
	1.47		78.29% Pervious Area
	0.41		21.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	40	0.1000	0.12		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
0.7	95	0.2000	2.24		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.0	240	0.0400	4.06		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
7.3	375	Total			

Summary for Subcatchment 12: Sub 12

Runoff = 7.01 cfs @ 12.30 hrs, Volume= 0.762 af, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
	2.01	77	Woods, Good, HSG D
	0.18	80	>75% Grass cover, Good, HSG D
*	0.04	98	Paved roads OCEAN AVE
*	0.07	98	Roofs, OCEAN RIDGE
*	0.05	98	Paved roads Ocean Ridge
*	0.03	77	Woods, Good, HSG D Ocean Ridge
*	0.23	80	>75% Grass cover, Good, HSG D Ocean Ridge
	2.61	79	Weighted Average
	2.45		93.87% Pervious Area
	0.16		6.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	110	0.0400	0.10		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
2.8	270	0.1000	1.58		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.6	330	0.0500	9.46	47.31	**Trap/Vee/Rect Channel Flow, C-D** Bot.W=2.00' D=1.00' Z= 3.0 '/' Top.W=8.00' n= 0.025 Earth, clean & winding
21.5	710	Total			

Summary for Subcatchment 15: Sub 15

Runoff = 1.50 cfs @ 12.07 hrs, Volume= 0.110 af, Depth= 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

Area (ac)	CN	Description
* 0.18	98	Paved roads Site Drive
0.09	80	>75% Grass cover, Good, HSG D
0.27	92	Weighted Average
0.09		33.33% Pervious Area
0.18		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.87		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
1.2	330	0.0500	4.54		**Shallow Concentrated Flow, B-C**
					Paved Kv= 20.3 fps
3.6					**Direct Entry, C-D**
5.0	342	Total			

Summary for Subcatchment 15A: Sub 15A

Runoff = 0.50 cfs @ 12.07 hrs, Volume= 0.037 af, Depth= 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

Area (ac)	CN	Description
* 0.06	98	Paved roads Site Drive
0.03	80	>75% Grass cover, Good, HSG D
0.09	92	Weighted Average
0.03		33.33% Pervious Area
0.06		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.87		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.00"
0.3	75	0.0500	4.54		**Shallow Concentrated Flow, B-C**
					Paved Kv= 20.3 fps
4.5					**Direct Entry, C-D**
5.0	87	Total			

Summary for Subcatchment 20: Subarea 2

Runoff = 13.85 cfs @ 12.46 hrs, Volume= 1.804 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
	0.64	87	1/4 acre lots, 38% imp, HSG D
	0.12	80	>75% Grass cover, Good, HSG D
*	0.05	98	Roadway, Ocean Ave
	5.55	77	Woods, Good, HSG D
	6.36	78	Weighted Average
	6.07		95.39% Pervious Area
	0.29		4.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	110	0.0800	0.13		**Sheet Flow, Overland Woods** Woods: Light underbrush n= 0.400 P2= 3.00"
18.8	1,325	0.0550	1.17		**Shallow Concentrated Flow, Overland Woods** Woodland Kv= 5.0 fps
32.5	1,435	Total			

Summary for Subcatchment 21: Sub 21

Runoff = 18.15 cfs @ 12.07 hrs, Volume= 1.313 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
	1.20	80	>75% Grass cover, Good, HSG D
*	2.11	98	Site Development
	3.31	91	Weighted Average
	1.20		36.25% Pervious Area
	2.11		63.75% Impervious Area

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

Summary for Subcatchment 22: Sub 22

Runoff = 3.89 cfs @ 12.07 hrs, Volume= 0.284 af, Depth= 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

Area (ac)	CN	Description
* 0.45	98	Site Development
0.25	80	>75% Grass cover, Good, HSG D
0.70	92	Weighted Average
0.25		35.71% Pervious Area
0.45		64.29% Impervious Area

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

Summary for Subcatchment 23: Sub 23

Runoff = 0.87 cfs @ 12.07 hrs, Volume= 0.060 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

Area (ac)	CN	Description
0.20	80	>75% Grass cover, Good, HSG D
0.20		100.00% Pervious Area

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

Summary for Subcatchment 40: Sub 40

Runoff = 3.90 cfs @ 12.13 hrs, Volume= 0.308 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

Area (ac)	CN	Description
1.12	77	Woods, Good, HSG D
1.12		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.1000	0.12		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.00"
2.4	200	0.0750	1.37		**Shallow Concentrated Flow, B-C**
					Woodland Kv= 5.0 fps
9.1	250	Total			

Summary for Subcatchment 50: Sub 50

Runoff = 4.62 cfs @ 12.14 hrs, Volume= 0.377 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
	0.34	77	Woods, Good, HSG D
	0.09	80	>75% Grass cover, Good, HSG D
*	0.03	98	Paved roads Ocean Ave
	0.73	84	1 acre lots, 20% imp, HSG D
	1.19	82	Weighted Average
	1.01		85.21% Pervious Area
	0.18		14.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.1200	0.13		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
3.7	310	0.0800	1.41		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
9.9	360	Total			

Summary for Subcatchment 100: Subarea 100

Runoff = 1.23 cfs @ 12.09 hrs, Volume= 0.102 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
*	0.22	98	Roadway
	0.22		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.87		**Sheet Flow, Road Crown** Smooth surfaces n= 0.011 P2= 3.00"
5.9	480	0.0380	1.36		**Shallow Concentrated Flow, SHALLOW RD DITCH** Short Grass Pasture Kv= 7.0 fps
0.5	80	0.0200	2.87		**Shallow Concentrated Flow, ROAD GUTTER** Paved Kv= 20.3 fps
6.6	572	Total			

Summary for Subcatchment 101S: BASIN 101 (Ocean Ridge)

Runoff = 0.98 cfs @ 12.09 hrs, Volume= 0.074 af, Depth= 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

Area (ac)	CN	Description
* 0.11	98	IMPERVIOUS
* 0.08	80	LAWN D
0.19	90	Weighted Average
0.08		42.11% Pervious Area
0.11		57.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	30	0.0200	0.09		**Sheet Flow, Segment ID: AB, Lawn** Grass: Dense n= 0.240 P2= 3.00"
0.1	25	0.0200	2.87		**Shallow Concentrated Flow, Segment ID: BC,Driveway** Paved Kv= 20.3 fps
0.7	100	0.1200	2.42		**Shallow Concentrated Flow, Segment ID: grass slope** Short Grass Pasture Kv= 7.0 fps
6.4	155	Total			

Summary for Subcatchment 300: Subarea 300

Runoff = 0.53 cfs @ 12.07 hrs, Volume= 0.042 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

Area (ac)	CN	Description
* 0.09	98	Roadway
0.09		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.87		**Sheet Flow, Road Crown** Smooth surfaces n= 0.011 P2= 3.00"
1.1	150	0.0130	2.31		**Shallow Concentrated Flow, Gutter flow** Paved Kv= 20.3 fps
3.7					**Direct Entry,**
5.0	162	Total			

Summary for Subcatchment 301S: BASIN 301 (Ocean Ridge)

Runoff = 3.69 cfs @ 12.13 hrs, Volume= 0.303 af, Depth= 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
*	0.37	98	IMPERVIOUS
*	0.45	80	LAWN D
	0.82	88	Weighted Average
	0.45		54.88% Pervious Area
	0.37		45.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	60	0.0300	0.12		**Sheet Flow, Segment ID: AB** Grass: Dense n= 0.240 P2= 3.00"
0.4	50	0.0200	2.12		**Shallow Concentrated Flow, Segment ID: BC** Grassed Waterway Kv= 15.0 fps
0.6	80	0.0200	2.12		**Shallow Concentrated Flow, Segment ID: CD** Grassed Waterway Kv= 15.0 fps
9.3	190	Total			

Summary for Subcatchment 302S: BASIN 302 (Ocean Ridge)

Runoff = 5.97 cfs @ 12.12 hrs, Volume= 0.492 af, Depth= 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
*	0.74	98	IMPERVIOUS
*	0.05	77	WOODS D
*	0.48	80	LAWN D
	1.27	90	Weighted Average
	0.53		41.73% Pervious Area
	0.74		58.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0200	0.10		**Sheet Flow, Segment ID: AB** Grass: Dense n= 0.240 P2= 3.00"
0.2	30	0.0200	2.87		**Shallow Concentrated Flow, Segment ID: BC** Paved Kv= 20.3 fps
0.4	50	0.0200	2.12		**Shallow Concentrated Flow, Segment ID:** Grassed Waterway Kv= 15.0 fps
9.1	130	Total			

Summary for Subcatchment 303S: BASIN 3 (Ocean Ridge)

Runoff = 2.45 cfs @ 12.11 hrs, Volume= 0.189 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Type III 24-hr Cumberland_25 Rainfall=5.80"

	Area (ac)	CN	Description
*	0.12	98	IMPERVIOUS
*	0.08	77	WOODS D
*	0.38	80	LAWN D
	0.58	83	Weighted Average
	0.46		79.31% Pervious Area
	0.12		20.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	30	0.0300	0.07		**Sheet Flow, Segment ID: AB** Woods: Light underbrush n= 0.400 P2= 3.00"
0.9	120	0.0200	2.12		**Shallow Concentrated Flow, Segment ID: BC** Grassed Waterway Kv= 15.0 fps
8.1	150	Total			

Summary for Reach 3R: VEGETATED SWALE 1 (Ocean Ridge)

Inflow Area = 1.27 ac, 58.27% Impervious, Inflow Depth = 4.65" for Cumberland_25 event
Inflow = 5.97 cfs @ 12.12 hrs, Volume= 0.492 af
Outflow = 5.56 cfs @ 12.22 hrs, Volume= 0.492 af, Atten= 7%, Lag= 5.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.79 fps, Min. Travel Time= 3.6 min
Avg. Velocity = 0.21 fps, Avg. Travel Time= 13.6 min

Peak Storage= 1,192 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.83'
Bank-Full Depth= 2.00' Flow Area= 24.0 sf, Capacity= 30.82 cfs

6.00' x 2.00' deep channel, n= 0.150
Side Slope Z-value= 3.0 '/' Top Width= 18.00'
Length= 170.0' Slope= 0.0120 '/'
Inlet Invert= 0.00', Outlet Invert= -2.04'

‡

Summary for Reach 4R: SP#2

Inflow Area = 1.12 ac, 0.00% Impervious, Inflow Depth = 3.31" for Cumberland_25 event
Inflow = 3.90 cfs @ 12.13 hrs, Volume= 0.308 af
Outflow = 3.90 cfs @ 12.13 hrs, Volume= 0.308 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs

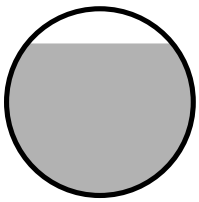
Summary for Reach 31R: CULVERT 3 (Ocean Ridge)

Inflow Area = 0.82 ac, 45.12% Impervious, Inflow Depth = 4.43" for Cumberland_25 event
Inflow = 3.04 cfs @ 12.27 hrs, Volume= 0.303 af
Outflow = 3.04 cfs @ 12.28 hrs, Volume= 0.303 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs / 2
Max. Velocity= 5.29 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.29 fps, Avg. Travel Time= 0.6 min

Peak Storage= 29 cf @ 12.27 hrs
Average Depth at Peak Storage= 0.75'
Bank-Full Depth= 0.92' Flow Area= 0.7 sf, Capacity= 3.06 cfs

11.0" Round Pipe
n= 0.012
Length= 50.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -0.50'



Summary for Reach 32R: VEGETATED SWALE 2 (Ocean Ridge)

Inflow Area = 0.82 ac, 45.12% Impervious, Inflow Depth = 4.43" for Cumberland_25 event
Inflow = 3.69 cfs @ 12.13 hrs, Volume= 0.303 af
Outflow = 3.54 cfs @ 12.20 hrs, Volume= 0.303 af, Atten= 4%, Lag= 4.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.71 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 0.19 fps, Avg. Travel Time= 10.1 min

Peak Storage= 574 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.63'
Bank-Full Depth= 2.00' Flow Area= 24.0 sf, Capacity= 32.02 cfs

6.00' x 2.00' deep channel, n= 0.150
Side Slope Z-value= 3.0 '/' Top Width= 18.00'
Length= 115.0' Slope= 0.0130 '/'
Inlet Invert= 0.00', Outlet Invert= -1.49'

‡

Summary for Reach 33R: Wetland Flow

Inflow Area = 2.67 ac, 46.07% Impervious, Inflow Depth > 4.42" for Cumberland_25 event
Inflow = 3.95 cfs @ 12.58 hrs, Volume= 0.984 af
Outflow = 3.93 cfs @ 12.67 hrs, Volume= 0.984 af, Atten= 0%, Lag= 5.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.87 fps, Min. Travel Time= 2.9 min
Avg. Velocity = 0.26 fps, Avg. Travel Time= 9.8 min

Peak Storage= 680 cf @ 12.62 hrs
Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00' Flow Area= 30.0 sf, Capacity= 52.28 cfs

10.00' x 1.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 20.0 '/' Top Width= 50.00'
Length= 150.0' Slope= 0.0033 '/'
Inlet Invert= 158.00', Outlet Invert= 157.50'

‡

Summary for Reach 106R: SP#1 (Eben Hill Road)

Inflow Area = 23.10 ac, 28.47% Impervious, Inflow Depth > 3.96" for Cumberland_25 event
Inflow = 44.57 cfs @ 12.14 hrs, Volume= 7.626 af
Outflow = 44.57 cfs @ 12.14 hrs, Volume= 7.626 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs

Summary for Reach 122R: ROADWAY GUTTER

Inflow Area = 2.61 ac, 6.13% Impervious, Inflow Depth = 3.50" for Cumberland_25 event
Inflow = 7.01 cfs @ 12.30 hrs, Volume= 0.762 af
Outflow = 6.99 cfs @ 12.32 hrs, Volume= 0.762 af, Atten= 0%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.86 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.70 fps, Avg. Travel Time= 2.8 min

Peak Storage= 418 cf @ 12.31 hrs
Average Depth at Peak Storage= 0.40'
Bank-Full Depth= 0.50' Flow Area= 2.0 sf, Capacity= 10.97 cfs

2.00' x 0.50' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 3.0 5.0 '/' Top Width= 6.00'
Length= 290.0' Slope= 0.0379 '/'
Inlet Invert= 106.50', Outlet Invert= 95.50'

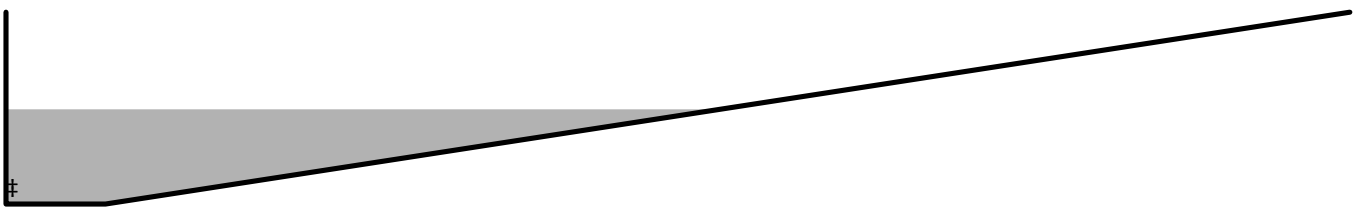
Summary for Reach 123R: CURB ROAD GUTTER

Inflow Area = 3.60 ac, 18.61% Impervious, Inflow Depth > 3.80" for Cumberland_25 event
Inflow = 8.71 cfs @ 12.32 hrs, Volume= 1.139 af
Outflow = 8.71 cfs @ 12.33 hrs, Volume= 1.139 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.32 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.32 fps, Avg. Travel Time= 1.0 min

Peak Storage= 161 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 0.50' Flow Area= 7.3 sf, Capacity= 48.18 cfs

2.00' x 0.50' deep channel, n= 0.013 Asphalt, smooth
Side Slope Z-value= 0.0 50.0 '/' Top Width= 27.00'
Length= 80.0' Slope= 0.0200 '/'
Inlet Invert= 95.50', Outlet Invert= 93.90'



Summary for Reach 210R: Woods overland

Inflow Area = 3.31 ac, 63.75% Impervious, Inflow Depth > 4.66" for Cumberland_25 event
Inflow = 8.03 cfs @ 12.23 hrs, Volume= 1.284 af
Outflow = 8.02 cfs @ 12.24 hrs, Volume= 1.284 af, Atten= 0%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.57 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 0.73 fps, Avg. Travel Time= 1.1 min

Peak Storage= 156 cf @ 12.24 hrs
Average Depth at Peak Storage= 0.22'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 40.80 cfs

10.00' x 0.50' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 20.0 '/' Top Width= 30.00'
Length= 50.0' Slope= 0.0400 '/'
Inlet Invert= 112.00', Outlet Invert= 110.00'

‡

Summary for Reach 220R: Access Ditch

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

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 5.0 sf, Capacity= 47.31 cfs

2.00' x 1.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 3.0 '/' Top Width= 8.00'
Length= 310.0' Slope= 0.0500 '/'
Inlet Invert= 126.00', Outlet Invert= 110.50'

‡

Summary for Reach 221R: Overland Flow

Inflow Area = 0.99 ac, 51.52% Impervious, Inflow Depth > 4.58" for Cumberland_25 event
Inflow = 1.77 cfs @ 12.12 hrs, Volume= 0.378 af
Outflow = 1.77 cfs @ 12.17 hrs, Volume= 0.378 af, Atten= 1%, Lag= 2.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.04 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 0.60 fps, Avg. Travel Time= 5.0 min

Peak Storage= 156 cf @ 12.14 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 59.50 cfs

10.00' x 0.50' deep channel, n= 0.040 Woods Overland flow
Side Slope Z-value= 20.0 '/' Top Width= 30.00'
Length= 180.0' Slope= 0.1111 '/'
Inlet Invert= 120.00', Outlet Invert= 100.00'

‡

Summary for Reach 240R: EXISTING CHANNEL

Inflow Area = 2.67 ac, 46.07% Impervious, Inflow Depth > 4.42" for Cumberland_25 event
Inflow = 3.91 cfs @ 12.80 hrs, Volume= 0.983 af
Outflow = 3.90 cfs @ 12.84 hrs, Volume= 0.983 af, Atten= 0%, Lag= 2.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.65 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 1.40 fps, Avg. Travel Time= 4.1 min

Peak Storage= 286 cf @ 12.81 hrs
Average Depth at Peak Storage= 0.27'
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 57.44 cfs

2.00' x 1.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 4.0 '/' Top Width= 10.00'
Length= 340.0' Slope= 0.0529 '/'
Inlet Invert= 128.00', Outlet Invert= 110.00'

‡

Summary for Reach 241R: EXISTING CHANNEL

Inflow Area = 5.98 ac, 55.85% Impervious, Inflow Depth > 4.55" for Cumberland_25 event
Inflow = 8.98 cfs @ 12.25 hrs, Volume= 2.268 af
Outflow = 8.95 cfs @ 12.27 hrs, Volume= 2.267 af, Atten= 0%, Lag= 1.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.65 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.31 fps, Avg. Travel Time= 2.2 min

Peak Storage= 404 cf @ 12.26 hrs
Average Depth at Peak Storage= 0.38'
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 68.36 cfs

2.00' x 1.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 4.0 '/' Top Width= 10.00'
Length= 300.0' Slope= 0.0750 '/'
Inlet Invert= 110.00', Outlet Invert= 87.50'

‡

Summary for Reach 340R: Woodland Flow

Inflow Area = 2.67 ac, 46.07% Impervious, Inflow Depth > 4.42" for Cumberland_25 event
Inflow = 3.93 cfs @ 12.67 hrs, Volume= 0.984 af
Outflow = 3.91 cfs @ 12.80 hrs, Volume= 0.983 af, Atten= 1%, Lag= 8.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.60 fps, Min. Travel Time= 4.5 min
Avg. Velocity = 0.79 fps, Avg. Travel Time= 14.8 min

Peak Storage= 1,053 cf @ 12.72 hrs
Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 1.00' Flow Area= 15.0 sf, Capacity= 92.76 cfs

5.00' x 1.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 10.0 '/' Top Width= 25.00'
Length= 700.0' Slope= 0.0421 '/'
Inlet Invert= 157.50', Outlet Invert= 128.00'

‡

Summary for Pond 3P: POND 3 (Ocean Ridge)

Inflow Area = 2.67 ac, 46.07% Impervious, Inflow Depth = 4.42" for Cumberland_25 event
Inflow = 9.99 cfs @ 12.22 hrs, Volume= 0.984 af
Outflow = 3.95 cfs @ 12.58 hrs, Volume= 0.984 af, Atten= 61%, Lag= 21.4 min
Primary = 3.95 cfs @ 12.58 hrs, Volume= 0.984 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 161.33' @ 12.58 hrs Surf.Area= 5,928 sf Storage= 13,782 cf

Plug-Flow detention time= 71.1 min calculated for 0.984 af (100% of inflow)
Center-of-Mass det. time= 70.6 min (880.9 - 810.4)

Volume	Invert	Avail.Storage	Storage Description
#1	158.00'	21,813 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
158.00	2,113	0	0
160.00	4,304	6,417	6,417
162.00	6,739	11,043	17,460
162.60	7,772	4,353	21,813

Device	Routing	Invert	Outlet Devices
#1	Primary	158.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	160.00'	**9.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	161.00'	**4.5" Vert. Orifice/Grate** C= 0.600
#4	Primary	161.50'	**20.0' long Broad-Crested Rectangular Weir X 1.81**
			Head (feet) 0.50 1.00 1.50
			Coef. (English) 1.60 1.80 1.90

Primary OutFlow Max=3.95 cfs @ 12.58 hrs HW=161.33' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 1.66 cfs @ 8.46 fps)
- **2=Orifice/Grate** (Orifice Controls 2.08 cfs @ 4.71 fps)
- **3=Orifice/Grate** (Orifice Controls 0.20 cfs @ 1.97 fps)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 30P: POND 30 (Ocean Ridge)

Inflow Area = 0.82 ac, 45.12% Impervious, Inflow Depth = 4.43" for Cumberland_25 event
Inflow = 3.54 cfs @ 12.20 hrs, Volume= 0.303 af
Outflow = 3.04 cfs @ 12.27 hrs, Volume= 0.303 af, Atten= 14%, Lag= 4.1 min
Primary = 3.04 cfs @ 12.27 hrs, Volume= 0.303 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 160.88' @ 12.27 hrs Surf.Area= 1,526 sf Storage= 1,387 cf

Plug-Flow detention time= 22.7 min calculated for 0.303 af (100% of inflow)
Center-of-Mass det. time= 22.6 min (827.1 - 804.5)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	3,156 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	1,150	0	0
162.00	2,006	3,156	3,156

Device	Routing	Invert	Outlet Devices
#1	Primary	160.00'	**18.0" Round Culvert** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 160.00' / 159.70' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.04 cfs @ 12.27 hrs HW=160.88' (Free Discharge)
↑**1=Culvert** (Barrel Controls 3.04 cfs @ 4.07 fps)

Summary for Pond 60R: FIELD CB

Inflow Area = 0.42 ac, 23.00% Impervious, Inflow Depth = 4.01" for Cumberland_25 event
Inflow = 2.02 cfs @ 12.07 hrs, Volume= 0.140 af
Outflow = 2.02 cfs @ 12.07 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min
Primary = 2.02 cfs @ 12.07 hrs, Volume= 0.140 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 90.79' @ 12.07 hrs
Flood Elev= 91.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	**12.0" Round Culvert** L= 110.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 90.00' / 89.00' S= 0.0091 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.02 cfs @ 12.07 hrs HW=90.79' (Free Discharge)
↑**1=Culvert** (Inlet Controls 2.02 cfs @ 3.03 fps)

Summary for Pond 62P: Driveway Culvert

Inflow Area = 12.76 ac, 29.23% Impervious, Inflow Depth > 3.96" for Cumberland_25 event
Inflow = 21.95 cfs @ 12.39 hrs, Volume= 4.211 af
Outflow = 21.92 cfs @ 12.40 hrs, Volume= 4.211 af, Atten= 0%, Lag= 0.8 min
Primary = 8.56 cfs @ 12.40 hrs, Volume= 3.382 af
Secondary = 13.35 cfs @ 12.40 hrs, Volume= 0.829 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 89.88' @ 12.40 hrs Surf.Area= 3,283 sf Storage= 1,753 cf

Plug-Flow detention time= 0.8 min calculated for 4.210 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (918.3 - 917.5)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	2,197 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
88.00	47	50.0	0	0	47
89.00	540	284.0	249	249	6,269
90.00	3,860	500.0	1,948	2,197	19,750

Device	Routing	Invert	Outlet Devices
#1	Primary	87.50'	**18.0" Round Culvert** L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 87.50' / 87.00' S= 0.0143 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	89.50'	**22.0' long x 13.0' 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) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=8.56 cfs @ 12.40 hrs HW=89.88' (Free Discharge)
1=Culvert (Inlet Controls 8.56 cfs @ 4.85 fps)

Secondary OutFlow Max=13.35 cfs @ 12.40 hrs HW=89.88' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 13.35 cfs @ 1.62 fps)

Summary for Pond 66P: 24" Cross culvert

Inflow Area = 13.95 ac, 28.00% Impervious, Inflow Depth > 3.95" for Cumberland_25 event
Inflow = 24.07 cfs @ 12.36 hrs, Volume= 4.588 af
Outflow = 23.78 cfs @ 12.36 hrs, Volume= 4.581 af, Atten= 1%, Lag= 0.0 min
Primary = 21.46 cfs @ 12.36 hrs, Volume= 4.544 af
Secondary = 2.33 cfs @ 12.36 hrs, Volume= 0.037 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs / 6
Peak Elev= 88.68' @ 12.36 hrs Surf.Area= 1,850 sf Storage= 1,817 cf

Plug-Flow detention time= 3.3 min calculated for 4.581 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (910.4 - 909.7)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	1,817 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
84.00	5	5.0	0	0	5
85.00	25	25.0	14	14	55
86.00	63	40.0	43	56	139
87.00	425	195.0	217	273	3,040
88.00	1,210	305.0	784	1,058	7,424
88.50	1,850	330.0	759	1,817	8,697

Device	Routing	Invert	Outlet Devices
#1	Primary	84.45'	**24.0" Round Culvert** L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 84.45' / 84.13' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Secondary	88.50'	**12.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=21.46 cfs @ 12.36 hrs HW=88.68' (Free Discharge)
└**1=Culvert** (Inlet Controls 21.46 cfs @ 6.83 fps)

Secondary OutFlow Max=2.32 cfs @ 12.36 hrs HW=88.68' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 2.32 cfs @ 1.09 fps)

Summary for Pond 100R: Vortech-DMH2

Inflow Area = 3.06 ac, 38.89% Impervious, Inflow Depth = 4.30" for Cumberland_25 event
Inflow = 13.11 cfs @ 12.12 hrs, Volume= 1.098 af
Outflow = 13.11 cfs @ 12.12 hrs, Volume= 1.098 af, Atten= 0%, Lag= 0.0 min
Primary = 13.11 cfs @ 12.12 hrs, Volume= 1.098 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 110.12' @ 12.12 hrs
Flood Elev= 112.16'

Device	Routing	Invert	Outlet Devices
#1	Primary	107.00'	**18.0" Round Culvert** L= 318.0' Ke= 0.500 Inlet / Outlet Invert= 107.00' / 98.52' S= 0.0267 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=13.10 cfs @ 12.12 hrs HW=110.12' (Free Discharge)
└**1=Culvert** (Inlet Controls 13.10 cfs @ 7.41 fps)

Summary for Pond 101R: DMH2-DMH1(DMH1606)

Inflow Area = 3.06 ac, 38.89% Impervious, Inflow Depth = 4.30" for Cumberland_25 event
Inflow = 13.11 cfs @ 12.12 hrs, Volume= 1.098 af
Outflow = 13.11 cfs @ 12.12 hrs, Volume= 1.098 af, Atten= 0%, Lag= 0.0 min
Primary = 13.11 cfs @ 12.12 hrs, Volume= 1.098 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 101.50' @ 12.12 hrs
Flood Elev= 103.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	98.38'	**18.0" Round Culvert** L= 177.0' Ke= 0.500 Inlet / Outlet Invert= 98.38' / 91.46' S= 0.0391 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=13.10 cfs @ 12.12 hrs HW=101.50' (Free Discharge)
└**1=Culvert** (Inlet Controls 13.10 cfs @ 7.41 fps)

Summary for Pond 102R: DMH1606-DMH9

Inflow Area = 3.06 ac, 38.89% Impervious, Inflow Depth = 4.30" for Cumberland_25 event
Inflow = 13.11 cfs @ 12.12 hrs, Volume= 1.098 af
Outflow = 13.11 cfs @ 12.12 hrs, Volume= 1.098 af, Atten= 0%, Lag= 0.0 min
Primary = 13.11 cfs @ 12.12 hrs, Volume= 1.098 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 94.42' @ 12.12 hrs
Flood Elev= 96.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	91.30'	**18.0" Round Culvert** L= 110.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 91.30' / 89.27' S= 0.0185 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=13.10 cfs @ 12.12 hrs HW=94.42' (Free Discharge)
↑**1=Culvert** (Inlet Controls 13.10 cfs @ 7.41 fps)

Summary for Pond 103R: DMH9-DMH8

Inflow Area = 8.76 ac, 28.40% Impervious, Inflow Depth > 4.02" for Cumberland_25 event
Inflow = 27.40 cfs @ 12.12 hrs, Volume= 2.935 af
Outflow = 27.40 cfs @ 12.12 hrs, Volume= 2.935 af, Atten= 0%, Lag= 0.0 min
Primary = 27.40 cfs @ 12.12 hrs, Volume= 2.935 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 102.54' @ 12.12 hrs
Flood Elev= 94.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	89.07'	**18.0" Round Culvert** L= 132.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 89.07' / 87.76' S= 0.0099 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=27.38 cfs @ 12.12 hrs HW=102.52' (Free Discharge)
↑**1=Culvert** (Barrel Controls 27.38 cfs @ 15.49 fps)

Summary for Pond 104R: DMH8-DMH200

Inflow Area = 9.15 ac, 29.18% Impervious, Inflow Depth > 4.04" for Cumberland_25 event
Inflow = 29.13 cfs @ 12.12 hrs, Volume= 3.082 af
Outflow = 29.13 cfs @ 12.12 hrs, Volume= 3.082 af, Atten= 0%, Lag= 0.0 min
Primary = 29.13 cfs @ 12.12 hrs, Volume= 3.082 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 112.37' @ 12.12 hrs
Flood Elev= 92.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	87.66'	**18.0" Round Culvert** L= 273.0' RCP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 87.66' / 86.60' S= 0.0039 '/' Cc= 0.900
n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=29.11 cfs @ 12.12 hrs HW=112.34' (Free Discharge)
↑**1=Culvert** (Barrel Controls 29.11 cfs @ 16.47 fps)

Summary for Pond 105R: DMH200-OUTLET

Inflow Area = 9.15 ac, 29.18% Impervious, Inflow Depth > 4.04" for Cumberland_25 event
Inflow = 29.13 cfs @ 12.12 hrs, Volume= 3.082 af
Outflow = 29.13 cfs @ 12.12 hrs, Volume= 3.082 af, Atten= 0%, Lag= 0.0 min
Primary = 29.13 cfs @ 12.12 hrs, Volume= 3.082 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 99.00' @ 12.12 hrs
Flood Elev= 89.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	86.53'	**18.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 86.53' / 84.13' S= 0.0400 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=29.11 cfs @ 12.12 hrs HW=98.98' (Free Discharge)
↑**1=Culvert** (Inlet Controls 29.11 cfs @ 16.47 fps)

Summary for Pond 210P: Sand Filter mc3500

Inflow Area = 3.31 ac, 63.75% Impervious, Inflow Depth = 4.76" for Cumberland_25 event
Inflow = 18.15 cfs @ 12.07 hrs, Volume= 1.313 af
Outflow = 8.03 cfs @ 12.23 hrs, Volume= 1.284 af, Atten= 56%, Lag= 9.8 min
Primary = 8.03 cfs @ 12.23 hrs, Volume= 1.284 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 130.18' @ 12.23 hrs Surf.Area= 6,773 sf Storage= 23,017 cf

Plug-Flow detention time= 270.8 min calculated for 1.284 af (98% of inflow)
Center-of-Mass det. time= 257.4 min (1,038.6 - 781.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	124.70'	9,447 cf	**80.08'W x 84.57'L x 5.50'H Field A** 37,250 cf Overall - 13,632 cf Embedded = 23,618 cf x 40.0% Voids
#2A	125.45'	13,632 cf	**ADS_StormTech MC-3500 d +Cap** x 121 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 11 Rows of 11 Chambers Cap Storage= +14.9 cf x 2 x 11 rows = 327.8 cf
		23,079 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	121.00'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 121.00' / 117.00' S= 0.0800 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	121.00'	**1.0" Vert. Orifice/Grate X 2.00** C= 0.600
#3	Device 1	126.80'	**7.0" Vert. Orifice/Grate X 2.00** C= 0.600
#4	Device 1	129.87'	**6.0' long x 1.50' rise Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)

Primary OutFlow Max=8.02 cfs @ 12.23 hrs HW=130.18' (Free Discharge)
└**1=Culvert** (Passes 8.02 cfs of 17.28 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.16 cfs @ 14.55 fps)
  ├**3=Orifice/Grate** (Orifice Controls 4.52 cfs @ 8.46 fps)
  └**4=Sharp-Crested Vee/Trap Weir** (Weir Controls 3.34 cfs @ 1.81 fps)

Summary for Pond 220P: UDF

Inflow Area = 0.90 ac, 50.00% Impervious, Inflow Depth = 4.59" for Cumberland_25 event
Inflow = 4.77 cfs @ 12.07 hrs, Volume= 0.344 af
Outflow = 1.54 cfs @ 12.36 hrs, Volume= 0.342 af, Atten= 68%, Lag= 17.1 min
Primary = 1.54 cfs @ 12.36 hrs, Volume= 0.342 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-45.00 hrs, dt= 0.01 hrs
Peak Elev= 126.96' @ 12.36 hrs Surf.Area= 3,954 sf Storage= 5,960 cf

Plug-Flow detention time= 277.3 min calculated for 0.342 af (99% of inflow)
Center-of-Mass det. time= 272.4 min (1,056.2 - 783.7)

Volume	Invert	Avail.Storage	Storage Description
#1	125.00'	10,527 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
125.00	2,326	0	0
126.00	2,974	2,650	2,650
127.00	4,000	3,487	6,137
128.00	4,780	4,390	10,527

Device	Routing	Invert	Outlet Devices
#1	Primary	122.83'	**12.0" Round Culvert** L= 78.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 122.83' / 122.28' S= 0.0071 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	122.83'	**0.9" Vert. Orifice/Grate** C= 0.600
#3	Device 2	125.00'	**2.400 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'
#4	Device 1	126.00'	**4.0" Vert. Orifice/Grate X 4.00** C= 0.600
#5	Device 1	127.00'	**20.0" Vert. Orifice/Grate** C= 0.600
#6	Secondary	127.50'	**10.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=1.54 cfs @ 12.36 hrs HW=126.96' (Free Discharge)
└**1=Culvert** (Passes 1.54 cfs of 6.38 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.04 cfs @ 9.74 fps)
  │ └**3=Exfiltration** (Passes 0.04 cfs of 0.22 cfs potential flow)
  ├**4=Orifice/Grate** (Orifice Controls 1.49 cfs @ 4.28 fps)
  └**5=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=125.00' (Free Discharge)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment C

Inspection, Maintenance and Housekeeping Plan

14432

INSPECTION, MAINTENANCE, AND HOUSEKEEPING PLAN

Portland Retirement Residence
Portland, ME

Introduction

Upon completion of the proposed development, Hawthorne Development Group, LLC (or a subsidiary of) will be the responsible party for maintaining the stormwater management system. Until such time as the condominium association is established, such as during construction, the developer (Hawthorne Development Group, LLC) shall be responsible for maintaining the stormwater management system. The responsible party shall schedule maintenance of all stormwater management structures, the establishment of any contract services required to implement the program, and the keeping of records and maintenance logbook.

Records of all inspections and maintenance work accomplished must be kept on file and retained for a minimum 5-year time span. The maintenance logbook will be made available to the Maine Department of Environmental Protection (MDEP) and the City of Portland upon request. At a minimum, the appropriate and relevant activities for each of the stormwater management systems will be performed on the prescribed schedule.

The following plan outlines the anticipated inspection, maintenance, and housekeeping procedures for the erosion and sedimentation controls as well as stormwater management devices for the project site. Also, this plan outlines several housekeeping requirements that shall be followed during and after construction. These procedures should be followed in order to ensure the intended function of the designed measures and to prevent unreasonable adverse impacts to the surrounding environment.

The procedures outlined in the Inspection, Maintenance, and Housekeeping Plan is provided as an overview of the anticipated practices to be used on this site. In some instances, additional measures may be required due to unexpected conditions. For additional details on any of the erosion and sedimentation control measures or stormwater management devices to be utilized on this project, refer to the most recently revised edition of the "Maine Erosion and Sedimentation Control BMP" manual and/or the "Stormwater Management for Maine: Best Management Practices" manual as published by the MDEP.

During Construction

1. **Inspection:** During the construction process, it is the Contractor's responsibility to comply with

the inspection and maintenance procedures outlined in this section. These responsibilities include inspecting disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. These areas shall be inspected at least once a week as well as before and after a storm event, and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in any applicable permits, shall conduct the inspections.

2. **Maintenance:** All measures shall be maintained in an effective operating condition until areas are permanently stabilized. If Best Management Practices (BMPs) need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation must be completed within seven (7) calendar days and prior to any storm event (rainfall).

3. **Documentation:** A log summarizing the inspections and any corrective action taken must be maintained on-site. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, material storage areas, and vehicle access points to the site. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken.

   The log must be made accessible to the appropriate regulatory agency upon request. The permittee shall retain a copy of the log for a period of at least three (3) years from the completion of permanent stabilization.

4. **Specific Inspection and Maintenance Tasks:** The following is a list of erosion control and stormwater management measures and the specific inspection and maintenance tasks to be performed during construction.

   A. <u>Sediment Barriers:</u>

   - Hay bale barriers, silt fences, and filter berms shall be inspected immediately after each rainfall and at least daily during prolonged rainfall.
   - If the fabric on silt fence or filter barrier should decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, it shall be replaced.
   - Sediment deposits should be removed after each storm event. They must be removed before deposits reach approximately one-half the height of the barrier.
   - Filter berms shall be reshaped as needed.
   - Any sediment deposits remaining in place after the silt fence or filter barrier is no longer

required should be dressed to conform to the existing grade, prepared, and seeded.

B. Riprap Materials:

- Once a riprap installation has been completed, it should require very little maintenance. It shall, however, be inspected periodically to determine if high flows have caused scour beneath the riprap or dislodged any of the stone.

C. Erosion Control Blankets:

- Inspect these reinforced areas semi-annually and after significant rainfall events for slumping, sliding, seepage, and scour. Pay close attention to unreinforced areas adjacent to the erosion control blankets, which may experience accelerated erosion.
- Review all applicable inspection and maintenance procedures recommended by the specific blanket manufacturer. These tasks shall be included in addition to this plan.

D. Temporary Storm Drain Inlet Protection:

- The inlet protection structure shall be inspected before each rain event and repaired as necessary.
- Sediment shall be removed and the storm drain sediment barrier restored to its original dimensions when the sediment has accumulated to half of the design depth of the trap.
- Structures shall be removed upon permanent stabilization of the tributary area.
- Upon removal of the structure, all accumulated sediments downstream of the structure shall be cleaned from the storm drain system.

E. Stabilized Construction Entrances/Exits:

- The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way.
- When the control pad becomes ineffective, the stone shall be removed along with the collected soil material. The entrance should then be reconstructed.
- Areas that have received mud-tracking or sediment deposits shall be swept or washed. Washing shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device (not into storm drains, ditches, or waterways).

F. Temporary Seed and Mulch:

- Mulched areas should be inspected after rain events to check for rill erosion.
- If less than 90% of the soil surface is covered by mulch, additional mulch shall be applied in bare areas.

- In applications where seeding and mulch have been applied in conjunction with erosion control blankets, the blankets must be inspected after rain events for dislocation or undercutting.
- Mulch shall continue to be reapplied until 95% of the soil surface has established temporary vegetative cover.

G. Stabilized Drainage Swales:

- Sediment accumulation in the swale shall be removed once the cross section of the swale is reduced by 25%.
- The swales shall be inspected after rainfall events. Any evidence of sloughing of the side slopes or channel erosion shall be repaired and corrective action should be taken to prevent reoccurrence of the problem.
- In addition to the stabilized lining of the channel (i.e. erosion control blankets), stone check dams may be needed to further reduce channel velocity.

5. **Housekeeping:** The following general performance standards apply to the proposed project.

A. Spill Prevention: Controls must be used to prevent pollutants from being discharged from materials on-site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.

B. Groundwater Protection: During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors, accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.

C. Fugitive Sediment and Dust: Actions must be taken to insure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control.

D. Debris and Other Materials: Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.

E. Trench or Foundation Dewatering: Trench dewatering is the removal of water from trenches, foundations, cofferdams, ponds, and other areas within the construction area that retain water after excavation. In most cases, the collected water is heavily silted and hinders correct and safe construction practices. The collected water must be removed from the ponded area, either through gravity or pumping, and must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment

possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved.

After Construction

1. **Inspection:** After construction, the owner or operator shall hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs, in accordance with all municipal and state inspection, cleaning and maintenance requirements of the approved post-construction stormwater management plan.

2. **Maintenance, and repair:** If a BMP requires maintenance, repair or replacement to function as intended by the approved post-construction stormwater management plan, the owner or operator shall take corrective actions to address the deficiency or deficiencies as soon as possible after the deficiency is discovered and shall provide a record of the deficiency and corrective actions to the Department of Public Services (DPS). The following is a list of permanent erosion control and stormwater management measures and the inspection, maintenance, and housekeeping tasks to be performed after construction.

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

   B. Ditches, Swales and Other Open Channels:
      - Inspect ditches, swales, and other open stormwater channels in the spring, in the late fall, and after heavy rains to remove any obstructions to the flow. Remove accumulated sediments and debris, remove woody vegetative growth that could obstruct flow and repair any erosion of the ditch lining.
      - Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity.
      - Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable.
      - Replace riprap in areas where any underlying filter fabric or underlying gravel is showing through the stone or where stones have dislodged.

   C. Level Lip Spreaders/Ditch Turnouts:
      - The level lip spreader pool shall be inspected after significant rainfall events for sediment accumulation and debris that may reduce its capacity. Sediment and debris buildup shall be removed once the volume of the pool has been reduced by 25%.

- The level lip must be constructed so that runoff flows slowly over the lip to a sheet flow condition through the receiving area. Repair or reconstruction of the level lip is required when the flow from the spreader becomes channelized.
- Do not store snow removed from the street/parking lot within the area of the level spreader.

D. Winter Sanding:
- Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring.
- Accumulations on pavement may be removed by pavement sweeping.
- Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader or other acceptable method.

E. Underdrained Grass Filter
- The inlet and outlet of the BMP shall be checked periodically to ensure that flow structures are not blocked by debris. Inspections should be conducted monthly during wet weather conditions from March to November.
- Debris and sediment buildup shall be removed from the forebay and basin upon reaching a 6-inch accumulation within the forebay and 2 inches within the basin, but not less than annually.
- Mowing of grass may be conducted semiannually to a height of no less than 6-inches, with hand held trimmers or push mowers
- Grass filters shall be inspected annually for erosion, destabilization of sideslopes, embankment settling and other signs of structural failure. Corrective action should be taken immediately upon identification of problems.
- Rototill top of filter bed when ponding exceeds 48 hours
- Replace top several inches of filter material when ponding exceeds 72 hours

F. Underdrained Subsurface Sand Filter
- Inspect the site monthly for the first few months after construction. Then inspections can occur on an annual basis, preferably after rain events when clogging will be obvious.
- Make any repairs necessary to ensure the measure is operating properly.
- Regular maintenance is necessary to remove surface sediment, trash, debris, and leaf litter.
- Outlets and chambers need to be cleaned/repaired when drawdown times in the filter exceed 36 hours.
- In certain cases, layers of sand may need to be replaced every 3 to 5 years.

G. Stormtech Chambers/Isolator Row:
   - Stormtech Chambers shall be inspected and maintained according to manufacturer's recommendations.
   - Recommended maintenance includes, but not limited to, visual inspection of accumulated sediment within isolator row and jet-vac flushing when required.

H. Catch Basins:
   - Inspect and, if required, clean-out catch basins at least once a year, preferably in early spring.
   - Clean out must include the removal and legal disposal of accumulated sediments and debris at the bottom of the basin, at any inlet grates, at any inflow channels to the basin, and at any pipes between basins.

I. Culverts:
   - Inspect culverts in the spring, in the late fall, and after heavy rains to remove any obstructions to flow.
   - Remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit.
   - Inspect and repair any erosion damage at the culvert's inlet and outlet.
   - Inspect embankment for erosion, settling, and structural failure.

3. **Annual Report:** The owner or operator or a qualified post-construction stormwater inspector hired by that person, shall, on or by June 30 of each year, provide a completed and signed certification that the person has inspected the BMPs and that they are adequately maintained and functioning as intended by the approved post-construction stormwater management plan, or that they require maintenance or repair, including the record of the deficiency and corrective actions taken.

4. **Duration of Maintenance:** Perform maintenance as described and required for any associated permits unless and until the system is formally accepted by a municipality or quasi-municipal district, or is placed under the jurisdiction of a legally created association that will be responsible for the maintenance of the system. If a municipality or quasi-municipal district chooses to accept a stormwater management system, or a component of a stormwater system, it must provide a letter to the MDEP stating that it assumes responsibility for the system. The letter must specify the components of the system for which the municipality or district will assume responsibility, and that the municipality or district agrees to maintain those components of the system in compliance with MDEP standards. Upon such assumption of responsibility, and approval by the MDEP, the municipality, quasi-municipal district, or association becomes a co-permittee for this purpose only and must comply with all terms and conditions of the permit.

Attachments

Attachment 1 – Sample Stormwater Inspection and Maintenance Form

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Sample Stormwater Inspection and Maintenance Form

Portland Retirement Residence; Portland, ME
Attachment 1

This log is intended to accompany the stormwater Inspection, Maintenance and Housekeeping Plan for the Portland Retirement Residence. The following items shall be checked, cleaned and maintained on a regular basis as specified in the Maintenance Plan and as described in the table below. This log shall be kept on file for a minimum of five (5) years and shall be available for review. Qualified personnel familiar with drainage systems and soils shall perform all inspections. Attached is a copy of the construction and post-construction maintenance logs.

Item	Maintenance Required & Frequency	Date Completed	Maintenance Personnel	Comments
Ditches and Swales	Inspect after major rainfall event producing greater than 3" of rain in 2 hours.			
	Repair erosion or damage immediately.			
Catch Basins and Culverts	Remove accumulated sediment and debris			
	Sump depth			
Vegetated Areas	Inspect Slopes			
	Replant Bare Areas			
	Check after Major Storms			
Winter Sanding	Clean annually (Spring)			
	Remove sand and sediment from roadway shoulders			
Level Lip Spreaders	Inspect after significant rainfall			
	Remove sediment if pool volume reduced by 25%			
	Repair the riprap if flow become s channelized			
Subsurface Sand Filter	Inspect system thru inspection ports following major storm event			
	Remove sediment/debris from inlet structure annually			
Underdrained Grass Filter	Inspect inlets/outlets to ensure no blockage from debris			
	Inspect sideslopes annually for erosion, destabilization, and embankment settling.			

Item	Maintenance Required & Frequency	Date Completed	Maintenance Personnel	Comments
Stormtech	Follow manufacturer's recommendations			