

DRAINAGE CALCULATIONS & SUPPLEMENTAL INFORMATION

HIDDEN TRAILS
OFF COUNTY ROAD
W. WAREHAM, MA

SEPTEMBER 7, 2023

REV1: FEBRUARY 9, 2024

Prepared for:

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1. Project Description

Narrative

This project involves the development of a residential 56-lot cluster subdivision and its associated roadway, utilities, and stormwater management systems. The site has been developed to meet the Massachusetts Stormwater Standards and applicable Town of Wareham regulations pertaining to Stormwater Management.

Existing Conditions

The project site is accessed off of County Road and comprises of the formerly permitted subdivision known as “The Pond at Fearing Hill” as well as an adjacent 18 acre undeveloped parcel shown as Lot 1013 on Assessors Map 63. The prior development was not constructed, but involved the creation of approximately 11,900 feet of proposed roadways to provide access to 44 conventional sized residential lots and various open space parcels. The total land area of the current project is approximately 153 acres, which includes a 30.5 acre manmade pond centrally located on the property. The manmade pond was created by a former sand mining operation that is no longer active. Besides the alteration that created the pond, there are approximately 27 acres of adjacent bordering vegetated wetlands and approximately 16.5 acres of unvegetated, previously disturbed property. The approximately 79 acres of the remainder of the property, besides some trails and a couple of former sand pits, is undeveloped woodland.

Proposed Conditions

The proposed project has been designed in accordance with *Article 8: Alternative Residential Site Development* of the Town of Wareham Zoning Bylaw to create a 56-lot residential cluster development. The lots will be accessed from a roadway system that has a total length of approximately 6,700 feet. The roadway and developable lots will utilize approximately 37 acres of the entire property. The remainder of the property will consist of approximately 116 acres of open space, which includes the 30.5 acre manmade pond. The grading has been designed to minimize significant cuts & fills across the site and will follow existing drainage patterns. A Stormwater Management System will capture, treat, and infiltrate runoff up to and including a 100-year storm event.

Soil Description

Existing soil classifications and hydrologic soil groups for the site were obtained from the USDA Soil Conservation Service, Soil Survey of Plymouth County, Massachusetts & The Web Soil Survey. The soil types found within the limits of the drainage analysis are classified as the following:

- 1.) Windsor Loamy Sand, 3 to 8 percent slopes (255B)
- 2.) Deerfield Loamy Fine Sand, 0 to 3 percent slopes (256A)
- 3.) Deerfield Loamy Fine Sand, 3 to 8 percent slopes (256B)
- 4.) Carver Loamy Coarse Sand, 0 to 3 percent slopes (259A)
- 5.) Aquepts, 0 to 3 percent slopes (657A)
- 6.) Udipsamments, 0 to 8 percent slopes (665B)

Besides the Aquepts soils group, which are comprised of the centrally located wetland system, all of the above soil types are within hydrological classification group “A” and is the primary soil type within the portion of the property to be developed.

2. Hydrologic Analysis & Stormwater Management

Methodology

Stormwater runoff was evaluated for the 2-year, 10-year, 25-year, and 100-year, Type III, 24-hour storm for both pre-development and post-development conditions. Pre-development and post-development conditions were modeled using HydroCAD software, which combines USDA Soil Conservation Service hydrology and hydraulic techniques (commonly known as SCS TR-55 and TR-20) to generate hydrographs (calculations are provided in the supplemental section of this report). The rainfall amounts used for calculating runoff for the 2-year, 10-year, 25-year and 100-year storm events were obtained from the NOAA Atlas 14 Volume 10 Frequency Estimates.

Table 1 provided at the end of this report identifies on-site and off-site design points for both existing and proposed conditions. **Table 2** compares the pre-development and post-development peak runoff rates and volumes for the 2-year, 10-year, 25-year, and 100-year storm events at six separate design points for the Type III, 24-hour storm events. The design points were evaluated to ensure post-development peak runoff rates and volumes do not exceed pre-development amounts.

Pre-Development Drainage Conditions

The site was modeled into 7 sub-catchment areas under existing conditions. Four of the existing sub-catchment areas discharge to offsite Design Points, while three existing subcatchment areas drain to onsite depressions or wetlands.

Refer to the EX-DA Plan prepared by this office at the end of this report.

Post-Development Drainage Conditions

Post-development drainage conditions and patterns were maintained to the maximum extent possible. The site was modeled into 6 sub-catchments that correspond with the same offsite and onsite Design Points modeled under pre-development conditions. Three additional sub-catchments were modeled (7S, 8S, and 9S) to evaluate onsite, upland depressions that will collect surface water runoff. These onsite depressions were modeled to determine the peak storage within the depressions for up to and including a 100-year storm, without accounting for any infiltration. To evaluate the Drainage System, subcatchments draining to each catchbasin were utilized to calculate the necessary size of the downstream drainage piping systems and infiltration basins. The drainage piping system was sized for the 25-year storm event, while the infiltration basins were sized to contain up to and including a 100-year storm event.

Refer to the PR-DA Plan and PR-DA for Drainage System Plan prepared by this office at the end of this report.

Results of Stormwater Management Analysis

Table 1 summarizes contributing areas under pre and post development conditions to the design points chosen on the project site. Table 2 summarizes the pre and post development peak rates of runoff and volume for the 2-year, 10-year, 25-year, and 100-year storm events.

Existing Areas	Proposed Areas	Design Point	Description
EX-1	PR-1	DP-1	OFFSITE onto County Road
EX-2	PR-2	DP-2	OFFSITE to East (South of Wishbone Way)
EX-3	PR-3	DP-3	ONSITE (Isolated Wetland)
EX-4	PR-4	DP-4	OFFSITE to West (cranberry bogs)
EX-5	PR-5	DP-5	OFFSITE to North (cranberry bogs)
EX-6	PR-6	DP-6	ONSITE (Manmade Pond)
EX-7	N/A	N/A	ONSITE (Former Sand Pit)

Table 1: Existing and Proposed Contributing Areas to Design Points

	Peak Flow		Peak Volume		% Reduction	
	Existing (cfs)	Proposed (cfs)	Existing (af)	Proposed (af)	Flow (cfs)	Volume (af)
DP-1 (offsite)						
2-Yr Event	0.00	0.00	0.000	0.000	0%	0%
10-Yr Event	0.00	0.00	0.000	0.000	0%	0%
25-Yr Event	0.01	0.00	0.004	0.002	100%	50%
100-Yr Event	0.03	0.02	0.015	0.008	50%	47%
DP-2 (offsite)						
2-Yr Event	0.00	0.00	0.000	0.000	0%	0%
10-Yr Event	0.00	0.00	0.002	0.002	0%	0%
25-Yr Event	0.02	0.01	0.014	0.006	50%	57%
100-Yr Event	0.13	0.08	0.050	0.019	38%	62%
DP-3 (onsite)						
2-Yr Event	0.03	0.03	0.018	0.017	0%	5%
10-Yr Event	0.47	0.47	0.096	0.095	0%	1%
25-Yr Event	1.07	1.06	0.168	0.166	1%	1%
100-Yr Event	2.37	2.34	0.307	0.304	1%	1%
DP-4 (offsite)						
2-Yr Event	0.00	0.00	0.000	0.000	0%	0%
10-Yr Event	0.02	0.02	0.013	0.015	0%	-15%
25-Yr Event	0.14	0.11	0.087	0.044	21%	49%
100-Yr Event	0.70	0.60	0.316	0.113	14%	64%
DP-5 (offsite)						
2-Yr Event	0.00	0.00	0.000	0.000	0%	0%
10-Yr Event	0.04	0.03	0.029	0.019	25%	34%
25-Yr Event	0.22	0.11	0.141	0.064	50%	55%
100-Yr Event	1.04	0.78	0.457	0.176	24%	61%
DP-6 (onsite)						
2-Yr Event	0.02	0.01	0.008	0.007	50%	13%
10-Yr Event	0.50	0.42	0.282	0.135	16%	52%
25-Yr Event	2.03	1.49	0.616	0.282	27%	54%
100-Yr Event	6.54	5.48	1.333	0.590	16%	56%

Table 2: summarizes the pre and post development peak rates of runoff and volume

3. Conformance with Stormwater Management Standards

The stormwater management systems have been designed to comply with the Massachusetts Stormwater Management Policy. The Policy includes the following 10 standards:

- 1. No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.***

This project does not include any new untreated stormwater conveyances or outfalls that discharge directly to wetlands or waters of the Commonwealth.

The stormwater management systems utilize a number of BMPs to catch, treat, and infiltrate stormwater runoff for all storms up to and including the 100-year storm event.

- 2. Stormwater managements systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.***

As can be seen on the Table 1 and 2 of this report and the Drainage Areas Plans at the end of this report, there are (4) offsite Design Points (DP-1, DP-2, DP-4, and DP-5) and (2) onsite Design Points (DP-3 and DP-6). The onsite design points are existing wetland pockets and depressions that were created from prior site mining activities and are not to be altered as part of this project. The results of the 2-year, 10-year, 25-year, and 100-year storm events show that the post-development peak rates and volumes for the offsite and onsite design points are less than the pre-development peak rates and volumes.

- 3. Loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based upon soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.***

The supplemental information and calculations included with this report show that the minimum volume to recharge of 0.6” of runoff multiplied by the impervious area (per Hydrologic Group A) is far exceeded by the available storage volume within each Infiltration Basin. Further, the attached total suspended solids (TSS) calculations show that a minimum of 44% of the TSS will be removed by the use of deep sump catchbasins and proprietary structures prior to discharge to the infiltration basins. This project must achieve a minimum of 44% TSS removal rates prior to infiltration due to the proposed discharges occurring within areas of rapid infiltration rates (greater than 2.4 inches per hour). Also, the calculations show that each infiltration basin will drain within 72 hours.

4. ***Stormwater management systems shall be designed to remove 80% of the average annual post construction load of Total Suspended Solids (TSS). This Standard is met when:***
 - a. ***Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;***
 - b. ***Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and***
 - c. ***Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.***

This project includes the use of numerous BMP's that will achieve a minimum 92.5% TSS removal rates for each stormwater management system. This removal rate is also in compliance with the Town of Wareham Zoning By-Laws, Article 12, Section 1260, which requires a minimum 90% TSS removal rates for newly developed sites. Included with this report are TSS calculations, water quality volume calculations, and a long-term pollution prevention plan.

5. ***For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable....***

This project does not include any land uses with higher potential pollutant loads.

6. ***Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area, require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook.....***

This project does not occur within a Zone II, Interim Wellhead Protection Area, nor within any other critical areas.

7. ***A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.***

This project is considered new development.

- 8. A plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.***

Erosion and sediment control methods and prevention plans are included on the Plans and within this report.

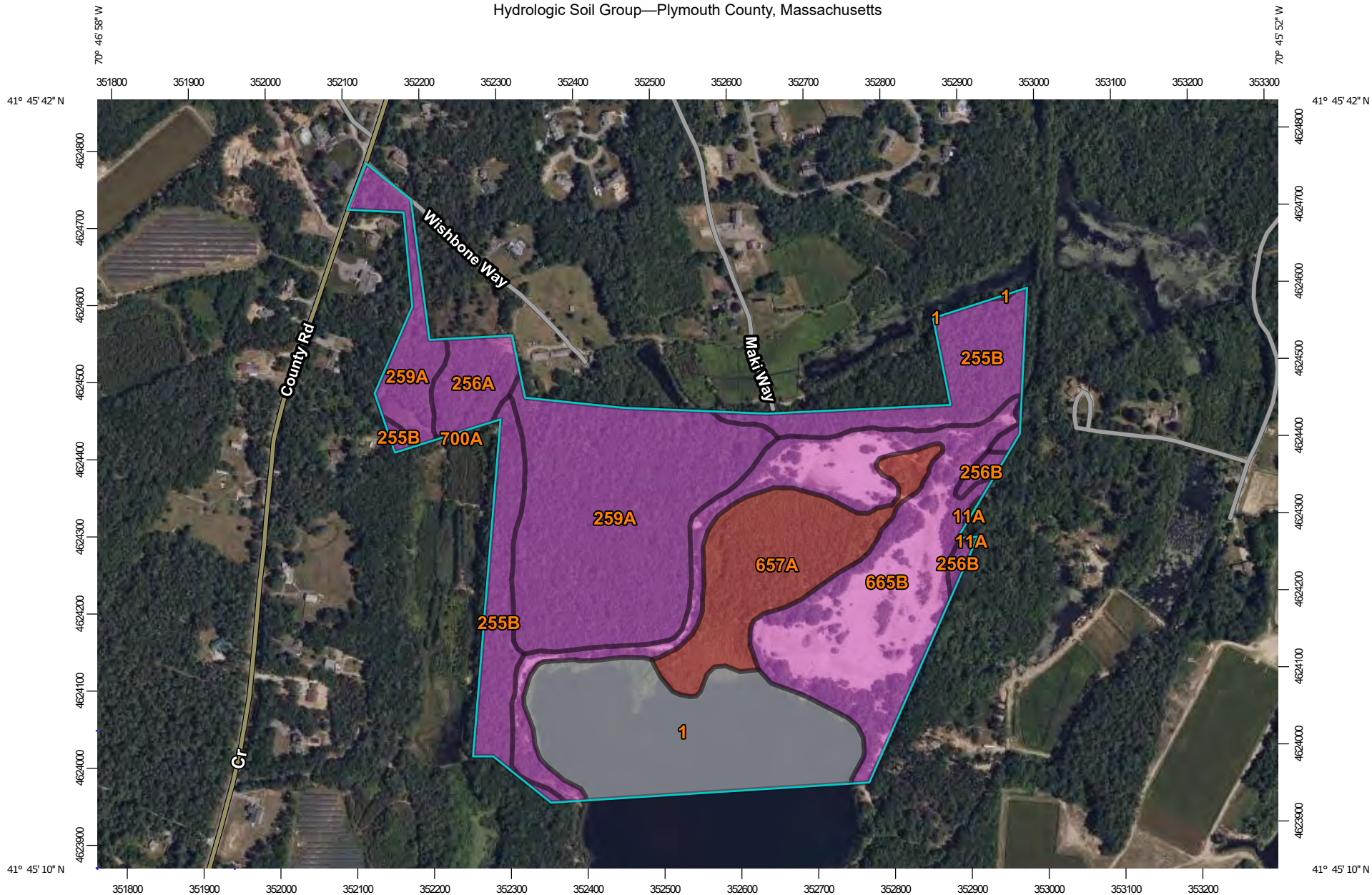
- 9. A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed.***

An operations and maintenance plan is included with this report.

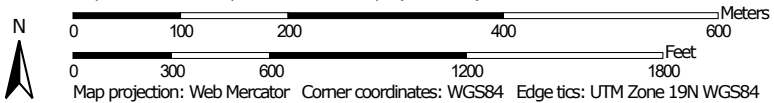
- 10. All illicit discharges to the stormwater management system are prohibited.***

An illicit discharge statement has been included within the operation and maintenance plan.

Hydrologic Soil Group—Plymouth County, Massachusetts




Map Scale: 1:7,030 if printed on A landscape (11" x 8.5") sheet.



MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





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

Soil Rating Lines

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

Soil Rating Points




-  A
-  A/D
-  B
-  B/D

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


Water Features

 Streams and Canals

Transportation

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

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

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

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

Soil Survey Area: Plymouth County, Massachusetts
Survey Area Data: Version 15, Sep 9, 2022

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

Date(s) aerial images were photographed: Jun 10, 2022—Jun 30, 2022

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1	Water		15.3	18.2%
11A	Rainberry coarse sand, 0 to 3 percent slopes	A/D	0.1	0.1%
255B	Windsor loamy sand, 3 to 8 percent slopes	A	10.9	13.0%
256A	Deerfield loamy fine sand, 0 to 3 percent slopes	A	2.8	3.3%
256B	Deerfield loamy fine sand, 3 to 8 percent slopes	A	0.7	0.8%
259A	Carver loamy coarse sand, 0 to 3 percent slopes	A	23.4	27.8%
657A	Aquepts, 0 to 3 percent slopes	D	9.8	11.7%
665B	Udipsamments, 0 to 8 percent slopes	A	21.0	25.0%
700A	Udipsamments, wet substratum, 0 to 3 percent slopes	A/D	0.0	0.0%
Totals for Area of Interest			84.0	100.0%

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



NOAA Atlas 14, Volume 10, Version 3
Location name: West Wareham, Massachusetts,
USA*

Latitude: 41.7611°, Longitude: -70.7783°

Elevation: 49 ft**

* source: ESRI Maps

** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps & aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.295 (0.237-0.362)	0.366 (0.293-0.450)	0.482 (0.385-0.594)	0.578 (0.459-0.715)	0.710 (0.548-0.913)	0.808 (0.612-1.06)	0.914 (0.676-1.24)	1.04 (0.723-1.42)	1.23 (0.821-1.72)	1.39 (0.908-1.97)
10-min	0.418 (0.336-0.514)	0.519 (0.416-0.637)	0.683 (0.545-0.841)	0.819 (0.650-1.01)	1.01 (0.776-1.29)	1.14 (0.867-1.50)	1.30 (0.957-1.75)	1.47 (1.02-2.00)	1.74 (1.16-2.43)	1.96 (1.29-2.79)
15-min	0.492 (0.395-0.604)	0.610 (0.489-0.750)	0.803 (0.641-0.989)	0.964 (0.765-1.19)	1.18 (0.913-1.52)	1.35 (1.02-1.76)	1.52 (1.13-2.06)	1.73 (1.20-2.36)	2.04 (1.37-2.86)	2.31 (1.51-3.28)
30-min	0.703 (0.564-0.864)	0.872 (0.699-1.07)	1.15 (0.917-1.42)	1.38 (1.09-1.70)	1.69 (1.31-2.18)	1.93 (1.46-2.52)	2.18 (1.61-2.95)	2.48 (1.72-3.37)	2.93 (1.96-4.09)	3.30 (2.16-4.69)
60-min	0.915 (0.734-1.12)	1.13 (0.909-1.39)	1.49 (1.19-1.84)	1.79 (1.42-2.22)	2.20 (1.70-2.83)	2.51 (1.90-3.28)	2.83 (2.10-3.84)	3.22 (2.24-4.39)	3.80 (2.55-5.32)	4.30 (2.81-6.10)
2-hr	1.22 (0.989-1.50)	1.53 (1.23-1.86)	2.02 (1.62-2.47)	2.43 (1.94-2.99)	3.00 (2.33-3.83)	3.41 (2.61-4.44)	3.86 (2.89-5.21)	4.42 (3.09-5.96)	5.25 (3.54-7.27)	5.97 (3.94-8.39)
3-hr	1.44 (1.17-1.75)	1.79 (1.45-2.18)	2.37 (1.91-2.88)	2.84 (2.28-3.48)	3.50 (2.73-4.45)	3.98 (3.06-5.16)	4.51 (3.38-6.04)	5.14 (3.62-6.90)	6.12 (4.15-8.43)	6.96 (4.62-9.72)
6-hr	1.88 (1.54-2.28)	2.31 (1.88-2.79)	3.00 (2.43-3.63)	3.57 (2.88-4.34)	4.36 (3.42-5.49)	4.94 (3.81-6.34)	5.57 (4.20-7.38)	6.32 (4.49-8.40)	7.46 (5.10-10.2)	8.43 (5.64-11.6)
12-hr	2.40 (1.97-2.88)	2.87 (2.36-3.45)	3.65 (2.98-4.39)	4.29 (3.49-5.18)	5.18 (4.09-6.46)	5.84 (4.53-7.40)	6.54 (4.94-8.52)	7.34 (5.26-9.66)	8.51 (5.88-11.5)	9.48 (6.41-13.0)
24-hr	2.89 (2.39-3.45)	3.43 (2.84-4.09)	4.32 (3.55-5.15)	5.05 (4.13-6.05)	6.05 (4.81-7.48)	6.81 (5.31-8.54)	7.60 (5.77-9.78)	8.48 (6.13-11.1)	9.74 (6.78-13.0)	10.8 (7.33-14.5)
2-day	3.32 (2.77-3.93)	3.96 (3.29-4.68)	4.99 (4.14-5.92)	5.85 (4.82-6.97)	7.03 (5.63-8.62)	7.92 (6.22-9.85)	8.85 (6.77-11.3)	9.88 (7.20-12.8)	11.3 (7.98-15.0)	12.5 (8.62-16.8)
3-day	3.64 (3.04-4.29)	4.31 (3.60-5.08)	5.40 (4.50-6.38)	6.31 (5.22-7.48)	7.56 (6.07-9.22)	8.50 (6.70-10.5)	9.48 (7.27-12.0)	10.6 (7.73-13.5)	12.1 (8.53-15.9)	13.3 (9.20-17.7)
4-day	3.93 (3.29-4.61)	4.61 (3.86-5.42)	5.73 (4.78-6.75)	6.66 (5.53-7.87)	7.94 (6.39-9.64)	8.90 (7.04-11.0)	9.90 (7.62-12.5)	11.0 (8.08-14.0)	12.5 (8.88-16.4)	13.7 (9.53-18.2)
7-day	4.68 (3.94-5.47)	5.39 (4.54-6.30)	6.56 (5.50-7.68)	7.53 (6.28-8.84)	8.86 (7.17-10.7)	9.88 (7.84-12.0)	10.9 (8.41-13.6)	12.0 (8.88-15.2)	13.5 (9.62-17.4)	14.6 (10.2-19.2)
10-day	5.38 (4.55-6.26)	6.12 (5.16-7.12)	7.32 (6.16-8.55)	8.32 (6.97-9.75)	9.70 (7.88-11.6)	10.8 (8.56-13.0)	11.8 (9.13-14.6)	12.9 (9.60-16.3)	14.3 (10.3-18.4)	15.4 (10.8-20.1)
20-day	7.47 (6.35-8.63)	8.28 (7.04-9.58)	9.61 (8.15-11.1)	10.7 (9.04-12.5)	12.2 (10.0-14.5)	13.4 (10.8-16.1)	14.6 (11.3-17.7)	15.7 (11.8-19.6)	17.1 (12.4-21.7)	18.0 (12.8-23.3)
30-day	9.21 (7.87-10.6)	10.1 (8.62-11.6)	11.5 (9.82-13.3)	12.7 (10.8-14.7)	14.4 (11.8-16.9)	15.7 (12.6-18.7)	16.9 (13.2-20.4)	18.1 (13.6-22.4)	19.4 (14.2-24.6)	20.3 (14.5-26.1)
45-day	11.4 (9.78-13.1)	12.4 (10.6-14.2)	14.0 (11.9-16.0)	15.3 (13.0-17.6)	17.1 (14.1-20.0)	18.6 (15.0-21.9)	19.9 (15.5-23.8)	21.1 (16.0-26.0)	22.5 (16.5-28.2)	23.3 (16.7-29.7)
60-day	13.2 (11.4-15.1)	14.3 (12.3-16.4)	16.0 (13.7-18.4)	17.4 (14.9-20.0)	19.4 (16.0-22.6)	21.0 (17.0-24.7)	22.4 (17.5-26.7)	23.6 (18.0-29.0)	25.0 (18.5-31.3)	25.9 (18.6-32.9)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

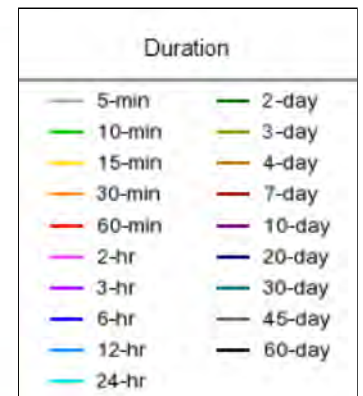
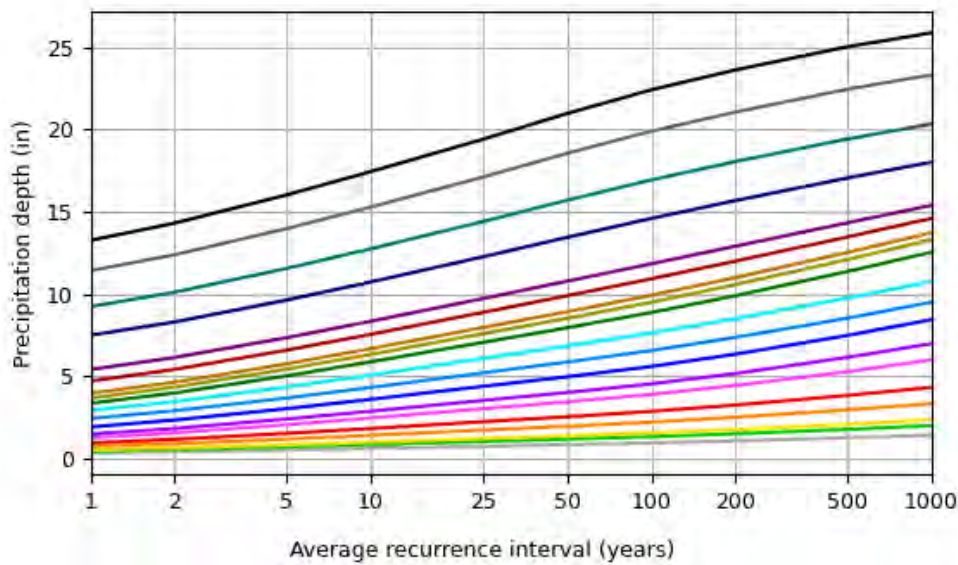
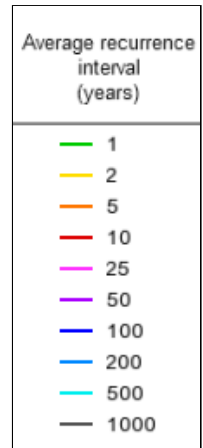
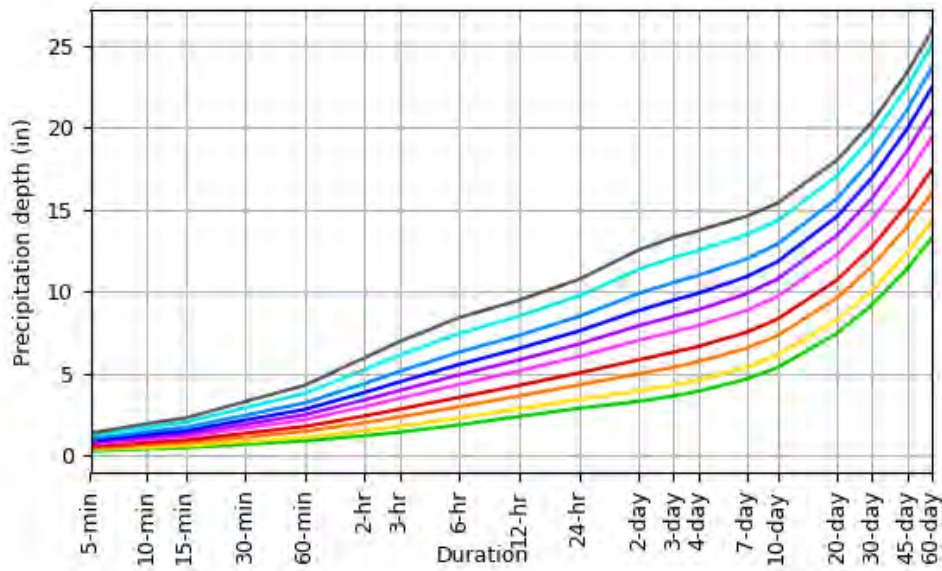
Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based depth-duration-frequency (DDF) curves

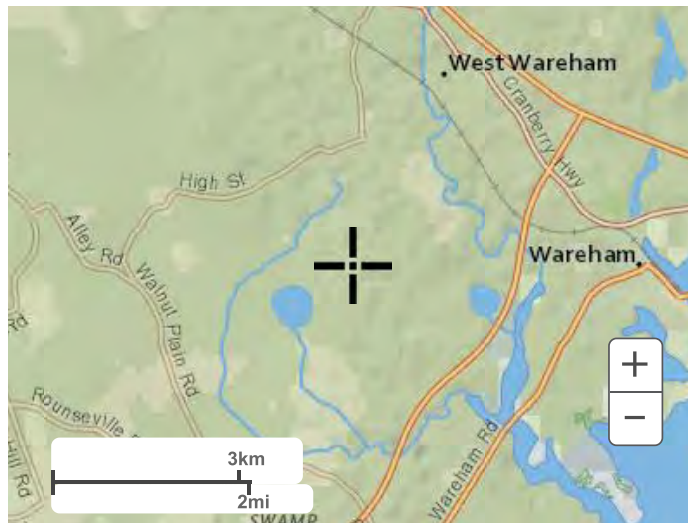
Latitude: 41.7611°, Longitude: -70.7783°



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Maps & aerials

Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



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GROUNDWATER RECHARGE VOLUME CALCULATIONS
HIDDEN TRAILS off County Road
WEST WAREHAM, MA

INFILTRATION BASIN #1:

Impervious Area = 45,807 s.f.

Recharge Factor

Hydrologic Group A Soils = 0.60 inches of runoff

Groundwater Recharge Volume Required

45,807 s.f. x (0.60 inches x 1/12) = **2,290** c.f. required

Groundwater Recharge Volume Provided in Infiltration Basin

- The storage volume is **34,082** c.f. within the infiltration basin below elevation 39.7' (refer to HydroCAD output of "Pond IB1-P" in drainage report)

Conclusion: Total recharge volume of **34,082** c.f. provided is greater than the required recharge volume of **2,290** c.f.; therefore **OK**.

INFILTRATION BASIN #2:

Impervious Area = 84,347 s.f.

Recharge Factor

Hydrologic Group A Soils = 0.60 inches of runoff

Groundwater Recharge Volume Required

84,347 s.f. x (0.60 inches x 1/12) = **4,217** c.f. required

Groundwater Recharge Volume Provided in Infiltration Basin

- The storage volume is **43,350** c.f. within the infiltration basin below elevation 33.5' (refer to HydroCAD output of "Pond IB2-P" in drainage report)

Conclusion: Total recharge volume of **43,350** c.f. provided is greater than the required recharge volume of **4,217** c.f.; therefore **OK**.

INFILTRATION BASIN #3:

Impervious Area = 36,300 s.f.

Recharge Factor

Hydrologic Group A Soils = 0.60 inches of runoff

Groundwater Recharge Volume Required

36,300 s.f. x (0.60 inches x 1/12) = **1,815** c.f. required

Groundwater Recharge Volume Provided in Infiltration Basin

- The storage volume is **27,453** c.f. within the infiltration basin below elevation 37.6' (refer to HydroCAD output of "Pond IB3-P" in drainage report)

Conclusion: Total recharge volume of **27,453** c.f. provided is greater than the required recharge volume of **1,815** c.f.; therefore **OK**.

INFILTRATION BASIN #4:

Impervious Area = 151,870 s.f.

Recharge Factor

Hydrologic Group A Soils = 0.60 inches of runoff

Groundwater Recharge Volume Required

151,870 s.f. x (0.60 inches x 1/12) = **7,594** c.f. required

Groundwater Recharge Volume Provided in Infiltration Basin

- The storage volume is **83,625** c.f. within the infiltration basin below elevation 35.5' (refer to HydroCAD output of "Pond IB4-P" in drainage report)

Conclusion: Total recharge volume of **83,625** c.f. provided is greater than the required recharge volume of **7,594** c.f.; therefore **OK**.

INFILTRATION BASIN #5:

Impervious Area = 23,850 s.f.

Recharge Factor

Hydrologic Group A Soils = 0.60 inches of runoff

Groundwater Recharge Volume Required

23,850 s.f. x (0.60 inches x 1/12) = **1,193** c.f. required

Groundwater Recharge Volume Provided in Infiltration Basin

- The storage volume is **17,080** c.f. within the infiltration basin below elevation 38.0' (refer to HydroCAD output of "Pond IB5-P" in drainage report)

Conclusion: Total recharge volume of **17,080** c.f. provided is greater than the required recharge volume of **1,193** c.f.; therefore **OK**.

WATER QUALITY VOLUME CALCULATIONS
HIDDEN TRAILS off County Road
WEST WAREHAM, MA

Water Quality Depth: 1 inch For Discharge to an area with an infiltration rate >2.4 in/hr

INFILTRATION BASIN #1:

Impervious Area (I) = 45,807 s.f.

Water Quality Volume (WQV) Required to be Treated (1" of runoff)

- $WQV = 1" \times I$ (s.f.)
- $WQV = 1"/(12 \text{ in/ft}) \times 45,807 \text{ s.f.} = \mathbf{3,817 \text{ c.f.}}$ required

Water Quality Volume Provided

- The storage volume is **34,082 c.f.** within the infiltration basin below elevation 39.7' (refer to HydroCAD output of "Pond IB1-P" in drainage report)

Conclusion: Total recharge volume of **34,082 c.f.** provided is greater than the required recharge volume of **3,817 c.f.**; therefore **OK**.

INFILTRATION BASIN #2:

Impervious Area = 84,347 s.f.

Water Quality Volume (WQV) Required to be Treated (1" of runoff)

- $WQV = 1" \times I$ (s.f.)
- $WQV = 1"/(12 \text{ in/ft}) \times 84,347 \text{ s.f.} = \mathbf{7,029 \text{ c.f.}}$ required

Water Quality Volume Provided

- The storage volume is **43,350 c.f.** within the infiltration basin below elevation 33.5' (refer to HydroCAD output of "Pond IB2-P" in drainage report)

Conclusion: Total recharge volume of **43,350 c.f.** provided is greater than the required recharge volume of **7,029 c.f.**; therefore **OK**.

INFILTRATION BASIN #3:

Impervious Area = 36,300 s.f.

Water Quality Volume (WQV) Required to be Treated (1" of runoff)

- $WQV = 1" \times I$ (s.f.)
- $WQV = 1"/(12 \text{ in/ft}) \times 36,300 \text{ s.f.} = \mathbf{3,025 \text{ c.f.}}$ required

Water Quality Volume Provided

- The storage volume is **27,453 c.f.** within the infiltration basin below elevation 37.6' (refer to HydroCAD output of "Pond IB3-P" in drainage report)

Conclusion: Total recharge volume of **27,453 c.f.** provided is greater than the required recharge volume of **3,025 c.f.**; therefore **OK**.

INFILTRATION BASIN #4:

Impervious Area = 151,870 s.f.

Water Quality Volume (WQV) Required to be Treated (1" of runoff)

- $WQV = 1" \times I$ (s.f.)
- $WQV = 1"/(12 \text{ in/ft}) \times 151,870 \text{ s.f.} = \mathbf{12,656 \text{ c.f.}}$ required

Water Quality Volume Provided

- The storage volume is **83,625 c.f.** within the infiltration basin below elevation 35.5' (refer to HydroCAD output of "Pond IB4-P" in drainage report)

Conclusion: Total recharge volume of **83,625 c.f.** provided is greater than the required recharge volume of **12,656 c.f.**; therefore **OK**.

INFILTRATION BASIN #5:

Impervious Area = 23,850 s.f.

Water Quality Volume (WQV) Required to be Treated (1" of runoff)

- $WQV = 1'' \times I$ (s.f.)
- $WQV = 1''/(12 \text{ in/ft}) \times 23,850 \text{ s.f.} = \mathbf{1,988 \text{ c.f.}}$ required

Water Quality Volume Provided

- The storage volume is **17,080 c.f.** within the infiltration basin below elevation 38.0' (refer to HydroCAD output of "Pond IB5-P" in drainage report)

Conclusion: Total recharge volume of **17,080 c.f.** provided is greater than the required recharge volume of **1,988 c.f.**; therefore **OK**.

HYDRODYNAMIC SEPARATOR SIZING:

Standard Method to Convert Required Water Quality Volume to a Discharge Rate for Sizing Flow Based Manufactured Proprietary Stormwater Treatment Practices (attached with Report):

$$Q_{\max} = (qu)*(A)*(D_{wQ})$$

Q_{\max} = peak flow rate associated with first 1-inch of runoff

qu = the unit peak discharge, in csm/in.

A = impervious surface drainage area (in square miles)

D_{wQ} = water quality volume in watershed inches (1.0-inches in this case)

See Table on following page for sizing documentation of Hydrodynamic Separators (CDS) for each contributing drainage area.

- $Q_{\max} = (qu)*(A)*(D_{wQ})$

INFILTRATION DRAIN-DOWN TIME CALCULATIONS
HIDDEN TRAILS off County Road
WEST WAREHAM, MA

INFILTRATION BASIN #1 (Pond IB1-P):

Maximum Drain Time = 72 hours

Provided Drain Time = Storage Volume / (K x Basin Bottom Area*)

Storage Volume = 34,082 c.f.

Bottom Area = 8,550 s.f.

= 34,082 c.f. / [(2.4 in/hr) (1ft/12 inches) x 8,550 s.f.]

= **19.9 hours**, which is less than max. drain time of 72 hours, therefore OK.

INFILTRATION BASIN #2 (Pond IB2-P):

Maximum Drain Time = 72 hours

Provided Drain Time = Storage Volume / (K x Basin Bottom Area*)

Storage Volume = 43,350 c.f.

Bottom Area = 10,900 s.f.

= 43,350 c.f. / [(2.4 in/hr) (1ft/12 inches) x 10,900 s.f.]

= **19.9 hours**, which is less than max. drain time of 72 hours, therefore OK.

INFILTRATION BASIN #3 (Pond IB3-P):

Maximum Drain Time = 72 hours

Provided Drain Time = Storage Volume / (K x Basin Bottom Area*)

Storage Volume = 27,453 c.f.

Bottom Area = 3,200 s.f.

= 27,543 c.f. / [(2.4 in/hr) (1ft/12 inches) x 3,200 s.f.]

= **43.0 hours**, which is less than max. drain time of 72 hours, therefore OK.

INFILTRATION BASIN #4 (Pond IB4-P):

Maximum Drain Time = 72 hours

Provided Drain Time = Storage Volume / (K x Basin Bottom Area*)

Storage Volume = 83,625 c.f.

Bottom Area = 12,950 s.f.

= 83,625 c.f. / [(2.4 in/hr) (1ft/12 inches) x 12,950 s.f.]

= **32.3 hours**, which is less than max. drain time of 72 hours, therefore OK.

INFILTRATION BASIN #5 (Pond IB5-P):

Maximum Drain Time = 72 hours

Provided Drain Time = Storage Volume / (K x Basin Bottom Area*)

Storage Volume = 17,080 c.f.

Bottom Area = 4,000 s.f.

= 17,080 c.f. / [(2.4 in/hr) (1ft/12 inches) x 4,000 s.f.]

= **21.4 hours**, which is less than max. drain time of 72 hours, therefore OK.

GROUNDWATER MOUNDING CALCULATIONS

HIDDEN TRAILS off County Road

WEST WAREHAM, MA

In accordance with Volume 3 of the Massachusetts Stormwater Handbook, a mounding analysis is required when the vertical separation from the bottom of the exfiltration basin to seasonal high groundwater is less than 4 feet. Further, the mounding analysis must show that the groundwater mound that forms under the recharge system will not break out above the land or water surface of a wetland.

The proposed vertical separation beneath each infiltration basis is as follows:

Infiltration Basin #	Bottom elevation	SHGW elevation (max.)	GW separation (min.)
1	37.0'	35.0'	2.0'
2	31.2'	29.2'	2.0'
3	32.6'	30.6'	2.0'
4	30.7'	28.3'	2.4'
5	35.1'	33.1'	2.0'

Table 1

Mounding analysis spreadsheets based upon the Hantush Method (Hantush,1967) have been utilized to determine the peak groundwater mound that would occur beneath the center of the infiltration basin. Additionally, the spreadsheet depicts the height of mound that would occur at specified distances from the center of the basin. Below is an explanation of the input parameters used for the spreadsheet:

R = the recharge or infiltration rate

Infiltration rate has been determined to be the quantity of water discharged from the basin in a 100-year storm event over the drain time of the system.

$$R = \text{Volume for 100-yr} / (\text{Avg. Basin Area}^1 * \text{Infiltration Period}^2)$$

(1) Avg. between basin bottom surface area and peak surface area at 100-year event

(2) Period of time between start and end of outflow on Hydrograph

Infiltration Basin #	Vol. for 100-yr storm (cf)	Avg. Basin Surface Area (sf)	Infiltration Period (hr)	Infiltration Period (t) (days)	Recharge (ft/day)
1	38,438	11,057	27.35 – 6.6 = 20.75	0.87	4.00
2	69,815	14,169	34.6 – 7.95 = 26.65	1.11	4.44
3	32,897	5,006	41.55 – 10.10 = 31.45	1.31	5.02
4	124,669	17,016	45.85 – 6.40 = 39.45	1.64	4.47
5	20,248	5,252	29.02 – 9.0 = 20.02	0.83	4.64

Table 2

Sy = Specific Yield

Per USGS Water Supply Paper 1662-6 (1967), Fine sand has Specific Yield range between 10% and 28%, with the average being held as 21% (0.21 input into Hantush spreadsheet)

K = Horizontal Hydraulic Conductivity

In USGS Soil Investigation Report 2010-5102, The ratio of horizontal hydraulic conductivity to vertical hydraulic conductivity is 10:1. Vertical hydraulic conductivity is estimated to be 8.27 in/hr (or 16.54 ft/day) in sands (Rawls, Brakensick and Saxton, 1982). Horizontal hydraulic conductivity = $10 * 16.54 = 165.4$ ft/day

X = 1/2 length of basin (x direction, in feet)

Y = 1/2 width of basin (y direction, in feet)

Infiltration Basin #	Overall length ¹ (ft)	Average width ² (ft)	X (1/2 of length)	Y (1/2 of width)
1	418	26	209	13
2	290	49	145	24.5
3	90	56	45	28
4	168	101	84	50.5
5	164	32	82	16

Table 3

(1) Dimension of longest side of basin at elevation of average basin surface area

(2) Calculated average width (Avg. Basin Surface / Overall Length)

t = duration of infiltration period (days)

Refer to Table 2 above. Duration of infiltration obtained from period of time between start and end of OUTFLOW on attached HydroCAD results

h(0) = Initial thickness of saturated zone (feet)

The thickness of the saturated zone is determined by calculating the difference between the elevation of seasonal high groundwater and the elevation of bedrock. The average elevation of seasonal high groundwater beneath the infiltration basins is elevation 31.5 feet (average between low and high elevations shown in Table 1). The approximate elevation of bedrock obtained from Water Resource Investigation Report 90-4204 (Hansen and Lapham, 1992) is shown as -25.0 feet.

$$h = 31.5 - (-25.0) = 56.5 \text{ feet}$$

Results of Mounding Analysis

Infiltration Basin #	GW separation (min.)	Peak Mound at Center of Basin (100 yr.)	Peak Mound at Nearest Edge of Basin (100 yr.)	Separation between basin bottom and GW mound at edge basin
1	2.0'	0.99'	0.96'	1.04'
2	2.0'	1.83'	1.71'	0.29'
3	2.0'	1.14'	1.01'	0.99'
4	2.4'	2.67'	2.31'	0.09'
5	2.0'	0.85'	0.80'	1.20'

Table 4

Specific Yield— Compilation of Specific Yields for Various Materials

By A. I. JOHNSON

HYDROLOGIC PROPERTIES OF EARTH MATERIALS

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1662-D

*Prepared in cooperation with the
California Department of
Water Resources*



HYDROLOGIC PROPERTIES OF EARTH MATERIALS

SPECIFIC YIELD—COMPILATION OF SPECIFIC YIELDS FOR VARIOUS MATERIALS

By A. I. JOHNSON

ABSTRACT

Specific yield is defined as the ratio of (1) the volume of water that a saturated rock or soil will yield by gravity to (2) the total volume of the rock or soil. Specific yield is usually expressed as a percentage. The value is not definitive, because the quantity of water that will drain by gravity depends on variables such as duration of drainage, temperature, mineral composition of the water, and various physical characteristics of the rock or soil under consideration. Values of specific yield, nevertheless, offer a convenient means by which hydrologists can estimate the water-yielding capacities of earth materials and, as such, are very useful in hydrologic studies.

The present report consists mostly of direct or modified quotations from many selected reports that present and evaluate methods for determining specific yield, limitations of those methods, and results of the determinations made on a wide variety of rock and soil materials. Although no particular values are recommended in this report, a table summarizes values of specific yield, and their averages, determined for 10 rock textures. The following is an abstract of the table:

Specific yields, in percent, of various materials

[Rounded to nearest whole percent]

Material	Number of determinations	Specific yield		
		Maximum	Minimum	Average
Clay.....	15	5	0	2
Silt.....	16	19	3	8
Sandy clay.....	12	12	3	7
Fine sand.....	17	28	10	21
Medium sand.....	17	32	15	26
Coarse sand.....	17	35	20	27
Gravelly sand.....	15	35	20	25
Fine gravel.....	17	35	21	25
Medium gravel.....	14	26	13	23
Coarse gravel.....	14	26	12	22

INTRODUCTION

PURPOSE AND SCOPE

The purpose of this report is to assist hydrologists in estimating the quantity of water in storage in ground-water reservoirs by providing

Summary for Pond IB1-P: Infiltration Basin #1

Inflow Area = 122,013 sf, 47.21% Impervious, Inflow Depth = 3.78" for 100-year event
 Inflow = 11.09 cfs @ 12.08 hrs, Volume= 38,438 cf
 Outflow = 0.76 cfs @ 14.26 hrs, Volume= 38,438 cf, Atten= 93%, Lag= 130.7 min
 Discarded = 0.76 cfs @ 14.26 hrs, Volume= 38,438 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.66' @ 14.26 hrs Surf.Area= 13,563 sf Storage= 18,299 cf

Plug-Flow detention time= 263.4 min calculated for 38,405 cf (100% of inflow)
 Center-of-Mass det. time= 263.4 min (1,092.6 - 829.2)

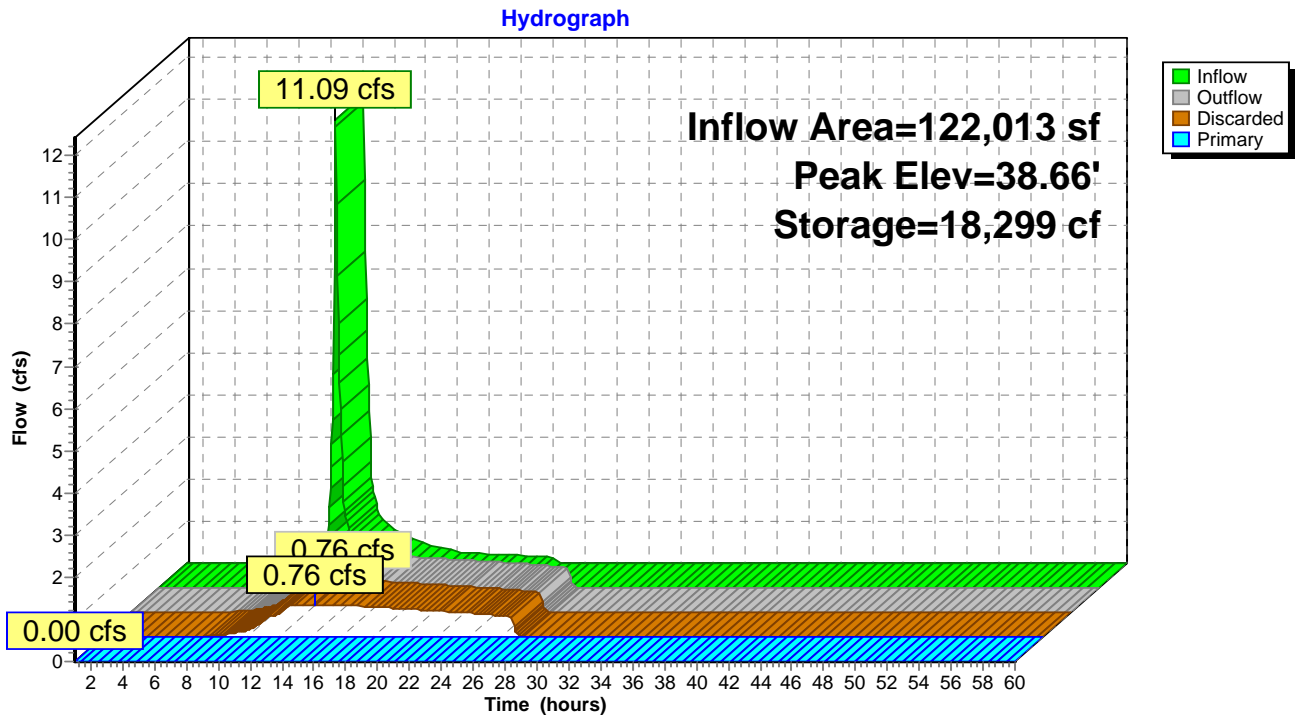
Volume	Invert	Avail.Storage	Storage Description		
#1	37.00'	39,337 cf	Custom Stage Data (Conic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
37.00	8,550	0	0	8,550	
38.00	11,510	9,993	9,993	11,531	
39.00	14,670	13,058	23,052	14,717	
39.70	16,871	11,030	34,082	16,940	
40.00	18,170	5,255	39,337	18,246	

Device	Routing	Invert	Outlet Devices					
#1	Discarded	37.00'	2.410 in/hr Exfiltration over Wetted area					
#2	Primary	39.70'	12.0' long x 0.5' breadth Broad-Crested Rectangular Weir					
			Head (feet)	0.20	0.40	0.60	0.80	1.00
			Coef. (English)	2.80	2.92	3.08	3.30	3.32

Discarded OutFlow Max=0.76 cfs @ 14.26 hrs HW=38.66' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.76 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=37.00' (Free Discharge)
 ↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond IB1-P: Infiltration Basin #1



Hidden Trails-Drainage System-REV1 (Basins 1 thru Type III 24-hr 100-year Rainfall=7.60"

Prepared by JC Engineering, Inc.

Printed 2/9/2024

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Hydrograph for Pond IB1-P: Infiltration Basin #1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
1.00	0.00	0	37.00	0.00	0.00	0.00
1.25	0.00	0	37.00	0.00	0.00	0.00
1.50	0.00	0	37.00	0.00	0.00	0.00
1.75	0.00	0	37.00	0.00	0.00	0.00
2.00	0.00	0	37.00	0.00	0.00	0.00
2.25	0.00	0	37.00	0.00	0.00	0.00
2.50	0.00	0	37.00	0.00	0.00	0.00
2.75	0.00	0	37.00	0.00	0.00	0.00
3.00	0.00	0	37.00	0.00	0.00	0.00
3.25	0.00	0	37.00	0.00	0.00	0.00
3.50	0.00	0	37.00	0.00	0.00	0.00
3.75	0.00	0	37.00	0.00	0.00	0.00
4.00	0.00	0	37.00	0.00	0.00	0.00
4.25	0.00	0	37.00	0.00	0.00	0.00
4.50	0.00	0	37.00	0.00	0.00	0.00
4.75	0.00	0	37.00	0.00	0.00	0.00
5.00	0.00	0	37.00	0.00	0.00	0.00
5.25	0.00	0	37.00	0.00	0.00	0.00
5.50	0.00	0	37.00	0.00	0.00	0.00
5.75	0.00	0	37.00	0.00	0.00	0.00
6.00	0.00	0	37.00	0.00	0.00	0.00
6.25	0.00	1	37.00	0.00	0.00	0.00
6.50	0.01	2	37.00	0.00	0.00	0.00
6.75	0.01	4	37.00	0.01	0.01	0.00
7.00	0.01	5	37.00	0.01	0.01	0.00
7.25	0.02	7	37.00	0.01	0.01	0.00
7.50	0.02	10	37.00	0.02	0.02	0.00
7.75	0.03	12	37.00	0.02	0.02	0.00
8.00	0.03	16	37.00	0.03	0.03	0.00
8.25	0.04	20	37.00	0.04	0.04	0.00
8.50	0.05	26	37.00	0.05	0.05	0.00
8.75	0.07	32	37.00	0.06	0.06	0.00
9.00	0.08	40	37.00	0.08	0.08	0.00
9.25	0.10	49	37.01	0.09	0.09	0.00
9.50	0.12	59	37.01	0.11	0.11	0.00
9.75	0.14	69	37.01	0.13	0.13	0.00
10.00	0.17	82	37.01	0.15	0.15	0.00
10.25	0.22	102	37.01	0.19	0.19	0.00
10.50	0.28	131	37.02	0.25	0.25	0.00
10.75	0.35	166	37.02	0.31	0.31	0.00
11.00	0.43	206	37.02	0.39	0.39	0.00
11.25	0.60	271	37.03	0.48	0.48	0.00
11.50	0.85	487	37.06	0.49	0.49	0.00
11.75	2.36	1,333	37.15	0.50	0.50	0.00
12.00	7.69	4,534	37.49	0.56	0.56	0.00
12.25	6.29	12,087	38.18	0.67	0.67	0.00
12.50	2.98	15,572	38.46	0.72	0.72	0.00
12.75	1.61	16,757	38.55	0.74	0.74	0.00
13.00	1.26	17,379	38.59	0.75	0.75	0.00
13.25	1.08	17,740	38.62	0.75	0.75	0.00
13.50	1.00	18,000	38.64	0.75	0.75	0.00
13.75	0.91	18,178	38.65	0.76	0.76	0.00
14.00	0.82	18,275	38.66	0.76	0.76	0.00

Hydrograph for Pond IB1-P: Infiltration Basin #1 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
14.25	0.76	18,299	38.66	0.76	0.76	0.00
14.50	0.72	18,282	38.66	0.76	0.76	0.00
14.75	0.67	18,226	38.66	0.76	0.76	0.00
15.00	0.63	18,131	38.65	0.76	0.76	0.00
15.25	0.59	17,998	38.64	0.75	0.75	0.00
15.50	0.54	17,826	38.63	0.75	0.75	0.00
15.75	0.49	17,616	38.61	0.75	0.75	0.00
16.00	0.45	17,367	38.59	0.75	0.75	0.00
16.25	0.42	17,085	38.57	0.74	0.74	0.00
16.50	0.40	16,787	38.55	0.74	0.74	0.00
16.75	0.38	16,474	38.53	0.73	0.73	0.00
17.00	0.36	16,147	38.50	0.73	0.73	0.00
17.25	0.34	15,807	38.48	0.73	0.73	0.00
17.50	0.32	15,452	38.45	0.72	0.72	0.00
17.75	0.30	15,083	38.42	0.72	0.72	0.00
18.00	0.28	14,700	38.39	0.71	0.71	0.00
18.25	0.27	14,307	38.36	0.70	0.70	0.00
18.50	0.26	13,912	38.33	0.70	0.70	0.00
18.75	0.25	13,517	38.29	0.69	0.69	0.00
19.00	0.25	13,121	38.26	0.69	0.69	0.00
19.25	0.24	12,724	38.23	0.68	0.68	0.00
19.50	0.24	12,328	38.20	0.68	0.68	0.00
19.75	0.23	11,930	38.16	0.67	0.67	0.00
20.00	0.22	11,533	38.13	0.67	0.67	0.00
20.25	0.22	11,135	38.10	0.66	0.66	0.00
20.50	0.21	10,738	38.06	0.65	0.65	0.00
20.75	0.21	10,343	38.03	0.65	0.65	0.00
21.00	0.20	9,948	38.00	0.64	0.64	0.00
21.25	0.20	9,554	37.96	0.64	0.64	0.00
21.50	0.20	9,162	37.93	0.63	0.63	0.00
21.75	0.19	8,771	37.89	0.62	0.62	0.00
22.00	0.19	8,382	37.86	0.62	0.62	0.00
22.25	0.18	7,994	37.82	0.61	0.61	0.00
22.50	0.18	7,607	37.79	0.61	0.61	0.00
22.75	0.17	7,221	37.75	0.60	0.60	0.00
23.00	0.17	6,837	37.71	0.59	0.59	0.00
23.25	0.16	6,454	37.68	0.59	0.59	0.00
23.50	0.16	6,073	37.64	0.58	0.58	0.00
23.75	0.15	5,693	37.61	0.57	0.57	0.00
24.00	0.15	5,314	37.57	0.57	0.57	0.00
24.25	0.00	4,854	37.52	0.56	0.56	0.00
24.50	0.00	4,354	37.47	0.55	0.55	0.00
24.75	0.00	3,861	37.42	0.54	0.54	0.00
25.00	0.00	3,375	37.37	0.54	0.54	0.00
25.25	0.00	2,896	37.32	0.53	0.53	0.00
25.50	0.00	2,425	37.27	0.52	0.52	0.00
25.75	0.00	1,960	37.22	0.51	0.51	0.00
26.00	0.00	1,504	37.17	0.50	0.50	0.00
26.25	0.00	1,054	37.12	0.50	0.50	0.00
26.50	0.00	611	37.07	0.49	0.49	0.00
26.75	0.00	187	37.02	0.35	0.35	0.00
27.00	0.00	34	37.00	0.06	0.06	0.00
27.25	0.00	6	37.00	0.01	0.01	0.00

Hydrograph for Pond IB1-P: Infiltration Basin #1 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
27.50	0.00	1	37.00	0.00	0.00	0.00
27.75	0.00	0	37.00	0.00	0.00	0.00
28.00	0.00	0	37.00	0.00	0.00	0.00
28.25	0.00	0	37.00	0.00	0.00	0.00
28.50	0.00	0	37.00	0.00	0.00	0.00
28.75	0.00	0	37.00	0.00	0.00	0.00
29.00	0.00	0	37.00	0.00	0.00	0.00
29.25	0.00	0	37.00	0.00	0.00	0.00
29.50	0.00	0	37.00	0.00	0.00	0.00
29.75	0.00	0	37.00	0.00	0.00	0.00
30.00	0.00	0	37.00	0.00	0.00	0.00
30.25	0.00	0	37.00	0.00	0.00	0.00
30.50	0.00	0	37.00	0.00	0.00	0.00
30.75	0.00	0	37.00	0.00	0.00	0.00
31.00	0.00	0	37.00	0.00	0.00	0.00
31.25	0.00	0	37.00	0.00	0.00	0.00
31.50	0.00	0	37.00	0.00	0.00	0.00
31.75	0.00	0	37.00	0.00	0.00	0.00
32.00	0.00	0	37.00	0.00	0.00	0.00
32.25	0.00	0	37.00	0.00	0.00	0.00
32.50	0.00	0	37.00	0.00	0.00	0.00
32.75	0.00	0	37.00	0.00	0.00	0.00
33.00	0.00	0	37.00	0.00	0.00	0.00
33.25	0.00	0	37.00	0.00	0.00	0.00
33.50	0.00	0	37.00	0.00	0.00	0.00
33.75	0.00	0	37.00	0.00	0.00	0.00
34.00	0.00	0	37.00	0.00	0.00	0.00
34.25	0.00	0	37.00	0.00	0.00	0.00
34.50	0.00	0	37.00	0.00	0.00	0.00
34.75	0.00	0	37.00	0.00	0.00	0.00
35.00	0.00	0	37.00	0.00	0.00	0.00
35.25	0.00	0	37.00	0.00	0.00	0.00
35.50	0.00	0	37.00	0.00	0.00	0.00
35.75	0.00	0	37.00	0.00	0.00	0.00
36.00	0.00	0	37.00	0.00	0.00	0.00
36.25	0.00	0	37.00	0.00	0.00	0.00
36.50	0.00	0	37.00	0.00	0.00	0.00
36.75	0.00	0	37.00	0.00	0.00	0.00
37.00	0.00	0	37.00	0.00	0.00	0.00
37.25	0.00	0	37.00	0.00	0.00	0.00
37.50	0.00	0	37.00	0.00	0.00	0.00
37.75	0.00	0	37.00	0.00	0.00	0.00
38.00	0.00	0	37.00	0.00	0.00	0.00
38.25	0.00	0	37.00	0.00	0.00	0.00
38.50	0.00	0	37.00	0.00	0.00	0.00
38.75	0.00	0	37.00	0.00	0.00	0.00
39.00	0.00	0	37.00	0.00	0.00	0.00
39.25	0.00	0	37.00	0.00	0.00	0.00
39.50	0.00	0	37.00	0.00	0.00	0.00
39.75	0.00	0	37.00	0.00	0.00	0.00
40.00	0.00	0	37.00	0.00	0.00	0.00
40.25	0.00	0	37.00	0.00	0.00	0.00
40.50	0.00	0	37.00	0.00	0.00	0.00

Hydrograph for Pond IB1-P: Infiltration Basin #1 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
40.75	0.00	0	37.00	0.00	0.00	0.00
41.00	0.00	0	37.00	0.00	0.00	0.00
41.25	0.00	0	37.00	0.00	0.00	0.00
41.50	0.00	0	37.00	0.00	0.00	0.00
41.75	0.00	0	37.00	0.00	0.00	0.00
42.00	0.00	0	37.00	0.00	0.00	0.00
42.25	0.00	0	37.00	0.00	0.00	0.00
42.50	0.00	0	37.00	0.00	0.00	0.00
42.75	0.00	0	37.00	0.00	0.00	0.00
43.00	0.00	0	37.00	0.00	0.00	0.00
43.25	0.00	0	37.00	0.00	0.00	0.00
43.50	0.00	0	37.00	0.00	0.00	0.00
43.75	0.00	0	37.00	0.00	0.00	0.00
44.00	0.00	0	37.00	0.00	0.00	0.00
44.25	0.00	0	37.00	0.00	0.00	0.00
44.50	0.00	0	37.00	0.00	0.00	0.00
44.75	0.00	0	37.00	0.00	0.00	0.00
45.00	0.00	0	37.00	0.00	0.00	0.00
45.25	0.00	0	37.00	0.00	0.00	0.00
45.50	0.00	0	37.00	0.00	0.00	0.00
45.75	0.00	0	37.00	0.00	0.00	0.00
46.00	0.00	0	37.00	0.00	0.00	0.00
46.25	0.00	0	37.00	0.00	0.00	0.00
46.50	0.00	0	37.00	0.00	0.00	0.00
46.75	0.00	0	37.00	0.00	0.00	0.00
47.00	0.00	0	37.00	0.00	0.00	0.00
47.25	0.00	0	37.00	0.00	0.00	0.00
47.50	0.00	0	37.00	0.00	0.00	0.00
47.75	0.00	0	37.00	0.00	0.00	0.00
48.00	0.00	0	37.00	0.00	0.00	0.00
48.25	0.00	0	37.00	0.00	0.00	0.00
48.50	0.00	0	37.00	0.00	0.00	0.00
48.75	0.00	0	37.00	0.00	0.00	0.00
49.00	0.00	0	37.00	0.00	0.00	0.00
49.25	0.00	0	37.00	0.00	0.00	0.00
49.50	0.00	0	37.00	0.00	0.00	0.00
49.75	0.00	0	37.00	0.00	0.00	0.00
50.00	0.00	0	37.00	0.00	0.00	0.00
50.25	0.00	0	37.00	0.00	0.00	0.00
50.50	0.00	0	37.00	0.00	0.00	0.00
50.75	0.00	0	37.00	0.00	0.00	0.00
51.00	0.00	0	37.00	0.00	0.00	0.00
51.25	0.00	0	37.00	0.00	0.00	0.00
51.50	0.00	0	37.00	0.00	0.00	0.00
51.75	0.00	0	37.00	0.00	0.00	0.00
52.00	0.00	0	37.00	0.00	0.00	0.00
52.25	0.00	0	37.00	0.00	0.00	0.00
52.50	0.00	0	37.00	0.00	0.00	0.00
52.75	0.00	0	37.00	0.00	0.00	0.00
53.00	0.00	0	37.00	0.00	0.00	0.00
53.25	0.00	0	37.00	0.00	0.00	0.00
53.50	0.00	0	37.00	0.00	0.00	0.00
53.75	0.00	0	37.00	0.00	0.00	0.00

Hydrograph for Pond IB1-P: Infiltration Basin #1 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
54.00	0.00	0	37.00	0.00	0.00	0.00
54.25	0.00	0	37.00	0.00	0.00	0.00
54.50	0.00	0	37.00	0.00	0.00	0.00
54.75	0.00	0	37.00	0.00	0.00	0.00
55.00	0.00	0	37.00	0.00	0.00	0.00
55.25	0.00	0	37.00	0.00	0.00	0.00
55.50	0.00	0	37.00	0.00	0.00	0.00
55.75	0.00	0	37.00	0.00	0.00	0.00
56.00	0.00	0	37.00	0.00	0.00	0.00
56.25	0.00	0	37.00	0.00	0.00	0.00
56.50	0.00	0	37.00	0.00	0.00	0.00
56.75	0.00	0	37.00	0.00	0.00	0.00
57.00	0.00	0	37.00	0.00	0.00	0.00
57.25	0.00	0	37.00	0.00	0.00	0.00
57.50	0.00	0	37.00	0.00	0.00	0.00
57.75	0.00	0	37.00	0.00	0.00	0.00
58.00	0.00	0	37.00	0.00	0.00	0.00
58.25	0.00	0	37.00	0.00	0.00	0.00
58.50	0.00	0	37.00	0.00	0.00	0.00
58.75	0.00	0	37.00	0.00	0.00	0.00
59.00	0.00	0	37.00	0.00	0.00	0.00
59.25	0.00	0	37.00	0.00	0.00	0.00
59.50	0.00	0	37.00	0.00	0.00	0.00
59.75	0.00	0	37.00	0.00	0.00	0.00
60.00	0.00	0	37.00	0.00	0.00	0.00

Summary for Pond IB2-P: Infiltration Basin #2

Inflow Area = 262,345 sf, 37.86% Impervious, Inflow Depth = 3.19" for 100-year event
 Inflow = 20.17 cfs @ 12.11 hrs, Volume= 69,815 cf
 Outflow = 0.98 cfs @ 15.77 hrs, Volume= 69,815 cf, Atten= 95%, Lag= 219.3 min
 Discarded = 0.98 cfs @ 15.77 hrs, Volume= 69,815 cf
 Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.24' @ 15.77 hrs Surf.Area= 17,438 sf Storage= 38,825 cf

Plug-Flow detention time= 451.0 min calculated for 69,815 cf (100% of inflow)
 Center-of-Mass det. time= 450.9 min (1,296.1 - 845.2)

Volume	Invert	Avail.Storage	Storage Description
#1	30.50'	73,178 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.50	10,900	0	0	10,900
31.00	11,600	5,624	5,624	11,625
31.20	12,730	2,432	8,056	12,758
32.00	14,520	10,892	18,948	14,578
33.00	16,860	15,675	34,624	16,960
33.50	18,050	8,726	43,350	18,172
34.00	19,280	9,331	52,680	19,426
35.00	21,740	20,498	73,178	21,938

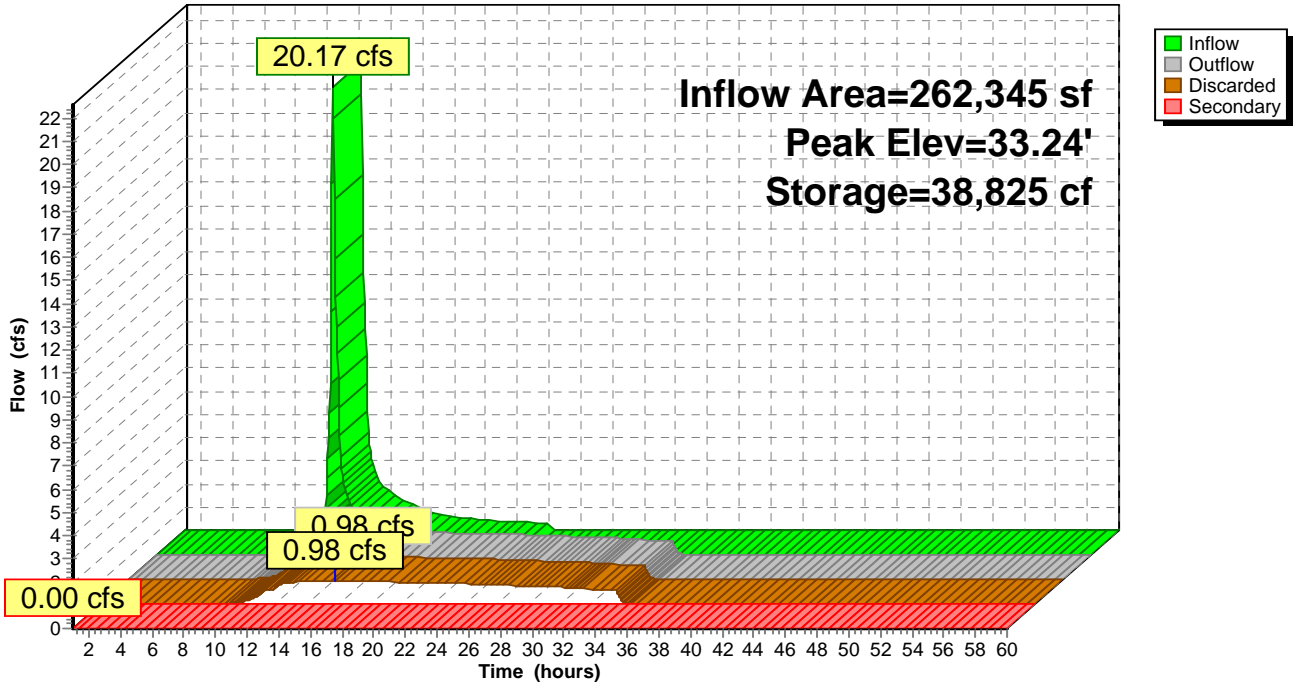
Device	Routing	Invert	Outlet Devices
#1	Discarded	30.50'	2.410 in/hr Exfiltration over Wetted area
#2	Secondary	33.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 1.0' Crest Height

Discarded OutFlow Max=0.98 cfs @ 15.77 hrs HW=33.24' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.98 cfs)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=30.50' (Free Discharge)
 ↑2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond IB2-P: Infiltration Basin #2

Hydrograph



Hydrograph for Pond IB2-P: Infiltration Basin #2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
1.00	0.00	0	30.50	0.00	0.00	0.00
1.25	0.00	0	30.50	0.00	0.00	0.00
1.50	0.00	0	30.50	0.00	0.00	0.00
1.75	0.00	0	30.50	0.00	0.00	0.00
2.00	0.00	0	30.50	0.00	0.00	0.00
2.25	0.00	0	30.50	0.00	0.00	0.00
2.50	0.00	0	30.50	0.00	0.00	0.00
2.75	0.00	0	30.50	0.00	0.00	0.00
3.00	0.00	0	30.50	0.00	0.00	0.00
3.25	0.00	0	30.50	0.00	0.00	0.00
3.50	0.00	0	30.50	0.00	0.00	0.00
3.75	0.00	0	30.50	0.00	0.00	0.00
4.00	0.00	0	30.50	0.00	0.00	0.00
4.25	0.00	0	30.50	0.00	0.00	0.00
4.50	0.00	0	30.50	0.00	0.00	0.00
4.75	0.00	0	30.50	0.00	0.00	0.00
5.00	0.00	0	30.50	0.00	0.00	0.00
5.25	0.00	0	30.50	0.00	0.00	0.00
5.50	0.00	0	30.50	0.00	0.00	0.00
5.75	0.00	0	30.50	0.00	0.00	0.00
6.00	0.00	0	30.50	0.00	0.00	0.00
6.25	0.00	0	30.50	0.00	0.00	0.00
6.50	0.00	0	30.50	0.00	0.00	0.00
6.75	0.00	0	30.50	0.00	0.00	0.00
7.00	0.00	0	30.50	0.00	0.00	0.00
7.25	0.00	1	30.50	0.00	0.00	0.00
7.50	0.00	2	30.50	0.00	0.00	0.00
7.75	0.00	3	30.50	0.00	0.00	0.00
8.00	0.01	5	30.50	0.01	0.01	0.00
8.25	0.01	8	30.50	0.01	0.01	0.00
8.50	0.02	13	30.50	0.02	0.02	0.00
8.75	0.03	19	30.50	0.02	0.02	0.00
9.00	0.04	27	30.50	0.03	0.03	0.00
9.25	0.06	38	30.50	0.05	0.05	0.00
9.50	0.08	51	30.50	0.06	0.06	0.00
9.75	0.10	66	30.51	0.08	0.08	0.00
10.00	0.14	88	30.51	0.11	0.11	0.00
10.25	0.20	121	30.51	0.15	0.15	0.00
10.50	0.28	172	30.52	0.21	0.21	0.00
10.75	0.40	247	30.52	0.31	0.31	0.00
11.00	0.54	342	30.53	0.43	0.43	0.00
11.25	0.79	476	30.54	0.59	0.59	0.00
11.50	1.20	817	30.57	0.61	0.61	0.00
11.75	3.31	2,009	30.68	0.62	0.62	0.00
12.00	10.49	6,764	31.10	0.68	0.68	0.00
12.25	12.76	20,793	32.13	0.83	0.83	0.00
12.50	6.35	28,428	32.62	0.89	0.89	0.00
12.75	3.19	31,432	32.81	0.92	0.92	0.00
13.00	2.51	33,152	32.91	0.93	0.93	0.00
13.25	2.12	34,349	32.98	0.94	0.94	0.00
13.50	1.96	35,332	33.04	0.95	0.95	0.00
13.75	1.79	36,162	33.09	0.96	0.96	0.00
14.00	1.62	36,834	33.13	0.96	0.96	0.00

Hydrograph for Pond IB2-P: Infiltration Basin #2 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
14.25	1.50	37,361	33.16	0.97	0.97	0.00
14.50	1.42	37,799	33.19	0.97	0.97	0.00
14.75	1.33	38,162	33.21	0.97	0.97	0.00
15.00	1.25	38,446	33.22	0.98	0.98	0.00
15.25	1.16	38,652	33.24	0.98	0.98	0.00
15.50	1.07	38,778	33.24	0.98	0.98	0.00
15.75	0.99	38,824	33.24	0.98	0.98	0.00
16.00	0.90	38,790	33.24	0.98	0.98	0.00
16.25	0.83	38,682	33.24	0.98	0.98	0.00
16.50	0.79	38,534	33.23	0.98	0.98	0.00
16.75	0.75	38,352	33.22	0.98	0.98	0.00
17.00	0.71	38,136	33.21	0.97	0.97	0.00
17.25	0.68	37,886	33.19	0.97	0.97	0.00
17.50	0.64	37,603	33.17	0.97	0.97	0.00
17.75	0.60	37,285	33.16	0.97	0.97	0.00
18.00	0.55	36,933	33.14	0.96	0.96	0.00
18.25	0.53	36,552	33.11	0.96	0.96	0.00
18.50	0.52	36,159	33.09	0.96	0.96	0.00
18.75	0.51	35,758	33.07	0.96	0.96	0.00
19.00	0.49	35,350	33.04	0.95	0.95	0.00
19.25	0.48	34,934	33.02	0.95	0.95	0.00
19.50	0.47	34,510	32.99	0.95	0.95	0.00
19.75	0.46	34,079	32.97	0.94	0.94	0.00
20.00	0.45	33,640	32.94	0.94	0.94	0.00
20.25	0.44	33,194	32.91	0.93	0.93	0.00
20.50	0.43	32,743	32.89	0.93	0.93	0.00
20.75	0.42	32,287	32.86	0.93	0.93	0.00
21.00	0.41	31,827	32.83	0.92	0.92	0.00
21.25	0.40	31,362	32.80	0.92	0.92	0.00
21.50	0.39	30,892	32.77	0.92	0.92	0.00
21.75	0.38	30,417	32.75	0.91	0.91	0.00
22.00	0.37	29,938	32.72	0.91	0.91	0.00
22.25	0.36	29,454	32.69	0.90	0.90	0.00
22.50	0.35	28,965	32.66	0.90	0.90	0.00
22.75	0.34	28,472	32.63	0.90	0.90	0.00
23.00	0.34	27,974	32.59	0.89	0.89	0.00
23.25	0.33	27,472	32.56	0.89	0.89	0.00
23.50	0.32	26,965	32.53	0.88	0.88	0.00
23.75	0.31	26,453	32.50	0.88	0.88	0.00
24.00	0.30	25,937	32.46	0.87	0.87	0.00
24.25	0.01	25,279	32.42	0.87	0.87	0.00
24.50	0.00	24,503	32.37	0.86	0.86	0.00
24.75	0.00	23,731	32.32	0.85	0.85	0.00
25.00	0.00	22,964	32.27	0.85	0.85	0.00
25.25	0.00	22,204	32.22	0.84	0.84	0.00
25.50	0.00	21,449	32.17	0.84	0.84	0.00
25.75	0.00	20,700	32.12	0.83	0.83	0.00
26.00	0.00	19,958	32.07	0.82	0.82	0.00
26.25	0.00	19,221	32.02	0.82	0.82	0.00
26.50	0.00	18,489	31.97	0.81	0.81	0.00
26.75	0.00	17,764	31.92	0.80	0.80	0.00
27.00	0.00	17,045	31.87	0.80	0.80	0.00
27.25	0.00	16,331	31.82	0.79	0.79	0.00

Hydrograph for Pond IB2-P: Infiltration Basin #2 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
27.50	0.00	15,624	31.77	0.78	0.78	0.00
27.75	0.00	14,922	31.72	0.78	0.78	0.00
28.00	0.00	14,226	31.67	0.77	0.77	0.00
28.25	0.00	13,536	31.62	0.76	0.76	0.00
28.50	0.00	12,852	31.57	0.76	0.76	0.00
28.75	0.00	12,173	31.51	0.75	0.75	0.00
29.00	0.00	11,500	31.46	0.74	0.74	0.00
29.25	0.00	10,833	31.41	0.74	0.74	0.00
29.50	0.00	10,171	31.36	0.73	0.73	0.00
29.75	0.00	9,515	31.31	0.73	0.73	0.00
30.00	0.00	8,865	31.26	0.72	0.72	0.00
30.25	0.00	8,220	31.21	0.71	0.71	0.00
30.50	0.00	7,584	31.16	0.70	0.70	0.00
30.75	0.00	6,961	31.11	0.68	0.68	0.00
31.00	0.00	6,353	31.06	0.67	0.67	0.00
31.25	0.00	5,759	31.01	0.65	0.65	0.00
31.50	0.00	5,176	30.96	0.65	0.65	0.00
31.75	0.00	4,597	30.91	0.64	0.64	0.00
32.00	0.00	4,022	30.86	0.64	0.64	0.00
32.25	0.00	3,450	30.81	0.63	0.63	0.00
32.50	0.00	2,883	30.76	0.63	0.63	0.00
32.75	0.00	2,318	30.71	0.62	0.62	0.00
33.00	0.00	1,758	30.66	0.62	0.62	0.00
33.25	0.00	1,201	30.61	0.62	0.62	0.00
33.50	0.00	647	30.56	0.61	0.61	0.00
33.75	0.00	221	30.52	0.27	0.27	0.00
34.00	0.00	72	30.51	0.09	0.09	0.00
34.25	0.00	23	30.50	0.03	0.03	0.00
34.50	0.00	8	30.50	0.01	0.01	0.00
34.75	0.00	2	30.50	0.00	0.00	0.00
35.00	0.00	1	30.50	0.00	0.00	0.00
35.25	0.00	0	30.50	0.00	0.00	0.00
35.50	0.00	0	30.50	0.00	0.00	0.00
35.75	0.00	0	30.50	0.00	0.00	0.00
36.00	0.00	0	30.50	0.00	0.00	0.00
36.25	0.00	0	30.50	0.00	0.00	0.00
36.50	0.00	0	30.50	0.00	0.00	0.00
36.75	0.00	0	30.50	0.00	0.00	0.00
37.00	0.00	0	30.50	0.00	0.00	0.00
37.25	0.00	0	30.50	0.00	0.00	0.00
37.50	0.00	0	30.50	0.00	0.00	0.00
37.75	0.00	0	30.50	0.00	0.00	0.00
38.00	0.00	0	30.50	0.00	0.00	0.00
38.25	0.00	0	30.50	0.00	0.00	0.00
38.50	0.00	0	30.50	0.00	0.00	0.00
38.75	0.00	0	30.50	0.00	0.00	0.00
39.00	0.00	0	30.50	0.00	0.00	0.00
39.25	0.00	0	30.50	0.00	0.00	0.00
39.50	0.00	0	30.50	0.00	0.00	0.00
39.75	0.00	0	30.50	0.00	0.00	0.00
40.00	0.00	0	30.50	0.00	0.00	0.00
40.25	0.00	0	30.50	0.00	0.00	0.00
40.50	0.00	0	30.50	0.00	0.00	0.00

Hydrograph for Pond IB2-P: Infiltration Basin #2 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
40.75	0.00	0	30.50	0.00	0.00	0.00
41.00	0.00	0	30.50	0.00	0.00	0.00
41.25	0.00	0	30.50	0.00	0.00	0.00
41.50	0.00	0	30.50	0.00	0.00	0.00
41.75	0.00	0	30.50	0.00	0.00	0.00
42.00	0.00	0	30.50	0.00	0.00	0.00
42.25	0.00	0	30.50	0.00	0.00	0.00
42.50	0.00	0	30.50	0.00	0.00	0.00
42.75	0.00	0	30.50	0.00	0.00	0.00
43.00	0.00	0	30.50	0.00	0.00	0.00
43.25	0.00	0	30.50	0.00	0.00	0.00
43.50	0.00	0	30.50	0.00	0.00	0.00
43.75	0.00	0	30.50	0.00	0.00	0.00
44.00	0.00	0	30.50	0.00	0.00	0.00
44.25	0.00	0	30.50	0.00	0.00	0.00
44.50	0.00	0	30.50	0.00	0.00	0.00
44.75	0.00	0	30.50	0.00	0.00	0.00
45.00	0.00	0	30.50	0.00	0.00	0.00
45.25	0.00	0	30.50	0.00	0.00	0.00
45.50	0.00	0	30.50	0.00	0.00	0.00
45.75	0.00	0	30.50	0.00	0.00	0.00
46.00	0.00	0	30.50	0.00	0.00	0.00
46.25	0.00	0	30.50	0.00	0.00	0.00
46.50	0.00	0	30.50	0.00	0.00	0.00
46.75	0.00	0	30.50	0.00	0.00	0.00
47.00	0.00	0	30.50	0.00	0.00	0.00
47.25	0.00	0	30.50	0.00	0.00	0.00
47.50	0.00	0	30.50	0.00	0.00	0.00
47.75	0.00	0	30.50	0.00	0.00	0.00
48.00	0.00	0	30.50	0.00	0.00	0.00
48.25	0.00	0	30.50	0.00	0.00	0.00
48.50	0.00	0	30.50	0.00	0.00	0.00
48.75	0.00	0	30.50	0.00	0.00	0.00
49.00	0.00	0	30.50	0.00	0.00	0.00
49.25	0.00	0	30.50	0.00	0.00	0.00
49.50	0.00	0	30.50	0.00	0.00	0.00
49.75	0.00	0	30.50	0.00	0.00	0.00
50.00	0.00	0	30.50	0.00	0.00	0.00
50.25	0.00	0	30.50	0.00	0.00	0.00
50.50	0.00	0	30.50	0.00	0.00	0.00
50.75	0.00	0	30.50	0.00	0.00	0.00
51.00	0.00	0	30.50	0.00	0.00	0.00
51.25	0.00	0	30.50	0.00	0.00	0.00
51.50	0.00	0	30.50	0.00	0.00	0.00
51.75	0.00	0	30.50	0.00	0.00	0.00
52.00	0.00	0	30.50	0.00	0.00	0.00
52.25	0.00	0	30.50	0.00	0.00	0.00
52.50	0.00	0	30.50	0.00	0.00	0.00
52.75	0.00	0	30.50	0.00	0.00	0.00
53.00	0.00	0	30.50	0.00	0.00	0.00
53.25	0.00	0	30.50	0.00	0.00	0.00
53.50	0.00	0	30.50	0.00	0.00	0.00
53.75	0.00	0	30.50	0.00	0.00	0.00

Hydrograph for Pond IB2-P: Infiltration Basin #2 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
54.00	0.00	0	30.50	0.00	0.00	0.00
54.25	0.00	0	30.50	0.00	0.00	0.00
54.50	0.00	0	30.50	0.00	0.00	0.00
54.75	0.00	0	30.50	0.00	0.00	0.00
55.00	0.00	0	30.50	0.00	0.00	0.00
55.25	0.00	0	30.50	0.00	0.00	0.00
55.50	0.00	0	30.50	0.00	0.00	0.00
55.75	0.00	0	30.50	0.00	0.00	0.00
56.00	0.00	0	30.50	0.00	0.00	0.00
56.25	0.00	0	30.50	0.00	0.00	0.00
56.50	0.00	0	30.50	0.00	0.00	0.00
56.75	0.00	0	30.50	0.00	0.00	0.00
57.00	0.00	0	30.50	0.00	0.00	0.00
57.25	0.00	0	30.50	0.00	0.00	0.00
57.50	0.00	0	30.50	0.00	0.00	0.00
57.75	0.00	0	30.50	0.00	0.00	0.00
58.00	0.00	0	30.50	0.00	0.00	0.00
58.25	0.00	0	30.50	0.00	0.00	0.00
58.50	0.00	0	30.50	0.00	0.00	0.00
58.75	0.00	0	30.50	0.00	0.00	0.00
59.00	0.00	0	30.50	0.00	0.00	0.00
59.25	0.00	0	30.50	0.00	0.00	0.00
59.50	0.00	0	30.50	0.00	0.00	0.00
59.75	0.00	0	30.50	0.00	0.00	0.00
60.00	0.00	0	30.50	0.00	0.00	0.00

Summary for Pond IB3-P: Infiltration Basin #3

Inflow Area = 155,417 sf, 27.54% Impervious, Inflow Depth = 2.54" for 100-year event
 Inflow = 8.40 cfs @ 12.14 hrs, Volume= 32,897 cf
 Outflow = 0.39 cfs @ 16.85 hrs, Volume= 32,897 cf, Atten= 95%, Lag= 282.8 min
 Discarded = 0.39 cfs @ 16.85 hrs, Volume= 32,897 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.55' @ 16.85 hrs Surf.Area= 6,811 sf Storage= 19,745 cf

Plug-Flow detention time= 611.2 min calculated for 32,870 cf (100% of inflow)
 Center-of-Mass det. time= 611.6 min (1,474.5 - 863.0)

Volume	Invert	Avail.Storage	Storage Description		
#1	32.60'	30,671 cf	Custom Stage Data (Conic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
32.60	3,200	0	0	3,200	
34.00	4,480	5,351	5,351	4,516	
34.10	4,570	452	5,803	4,609	
35.00	5,430	4,494	10,298	5,498	
37.60	7,840	17,155	27,453	8,022	
38.00	8,250	3,218	30,671	8,451	

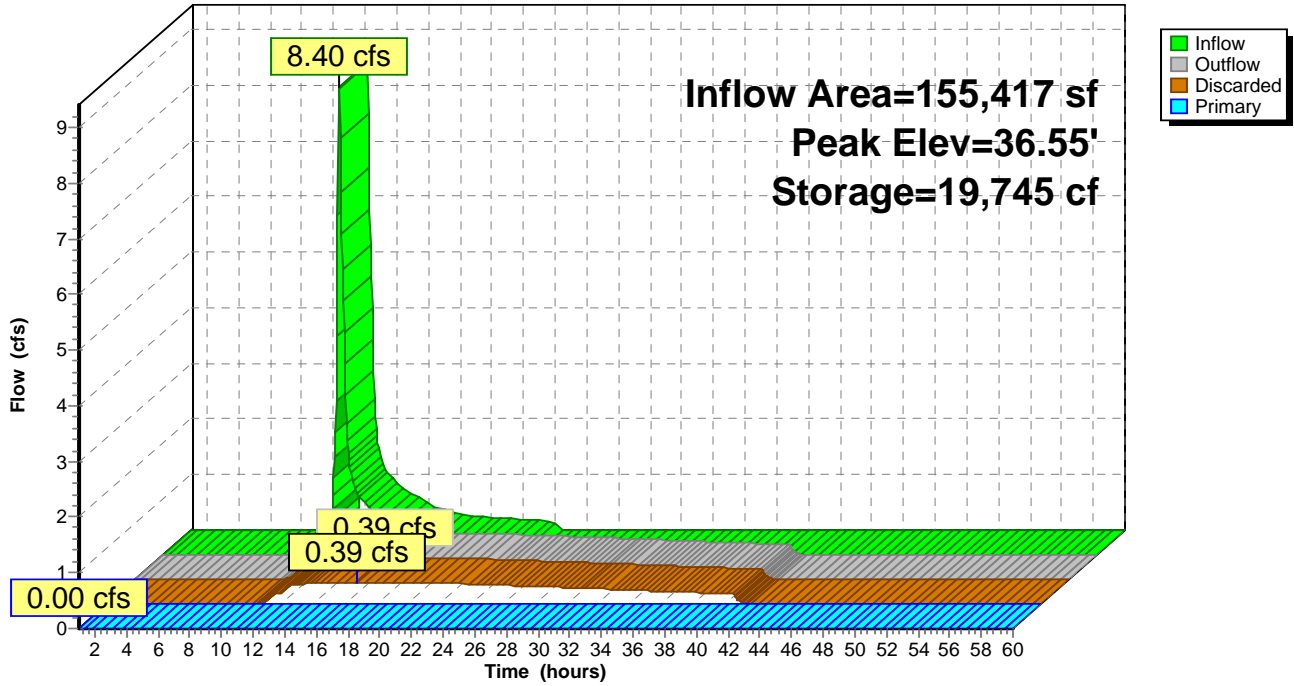
Device	Routing	Invert	Outlet Devices
#1	Discarded	32.60'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	37.60'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.39 cfs @ 16.85 hrs HW=36.55' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.39 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=32.60' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond IB3-P: Infiltration Basin #3

Hydrograph



Hydrograph for Pond IB3-P: Infiltration Basin #3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
1.00	0.00	0	32.60	0.00	0.00	0.00
1.25	0.00	0	32.60	0.00	0.00	0.00
1.50	0.00	0	32.60	0.00	0.00	0.00
1.75	0.00	0	32.60	0.00	0.00	0.00
2.00	0.00	0	32.60	0.00	0.00	0.00
2.25	0.00	0	32.60	0.00	0.00	0.00
2.50	0.00	0	32.60	0.00	0.00	0.00
2.75	0.00	0	32.60	0.00	0.00	0.00
3.00	0.00	0	32.60	0.00	0.00	0.00
3.25	0.00	0	32.60	0.00	0.00	0.00
3.50	0.00	0	32.60	0.00	0.00	0.00
3.75	0.00	0	32.60	0.00	0.00	0.00
4.00	0.00	0	32.60	0.00	0.00	0.00
4.25	0.00	0	32.60	0.00	0.00	0.00
4.50	0.00	0	32.60	0.00	0.00	0.00
4.75	0.00	0	32.60	0.00	0.00	0.00
5.00	0.00	0	32.60	0.00	0.00	0.00
5.25	0.00	0	32.60	0.00	0.00	0.00
5.50	0.00	0	32.60	0.00	0.00	0.00
5.75	0.00	0	32.60	0.00	0.00	0.00
6.00	0.00	0	32.60	0.00	0.00	0.00
6.25	0.00	0	32.60	0.00	0.00	0.00
6.50	0.00	0	32.60	0.00	0.00	0.00
6.75	0.00	0	32.60	0.00	0.00	0.00
7.00	0.00	0	32.60	0.00	0.00	0.00
7.25	0.00	0	32.60	0.00	0.00	0.00
7.50	0.00	0	32.60	0.00	0.00	0.00
7.75	0.00	0	32.60	0.00	0.00	0.00
8.00	0.00	0	32.60	0.00	0.00	0.00
8.25	0.00	0	32.60	0.00	0.00	0.00
8.50	0.00	0	32.60	0.00	0.00	0.00
8.75	0.00	0	32.60	0.00	0.00	0.00
9.00	0.00	0	32.60	0.00	0.00	0.00
9.25	0.00	0	32.60	0.00	0.00	0.00
9.50	0.00	0	32.60	0.00	0.00	0.00
9.75	0.00	1	32.60	0.00	0.00	0.00
10.00	0.01	4	32.60	0.00	0.00	0.00
10.25	0.01	8	32.60	0.01	0.01	0.00
10.50	0.02	13	32.60	0.01	0.01	0.00
10.75	0.04	22	32.61	0.02	0.02	0.00
11.00	0.09	49	32.62	0.05	0.05	0.00
11.25	0.19	102	32.63	0.11	0.11	0.00
11.50	0.35	202	32.66	0.18	0.18	0.00
11.75	1.06	571	32.77	0.19	0.19	0.00
12.00	3.93	2,303	33.26	0.21	0.21	0.00
12.25	6.52	8,428	34.64	0.29	0.29	0.00
12.50	3.44	12,542	35.40	0.33	0.33	0.00
12.75	1.68	14,339	35.70	0.34	0.34	0.00
13.00	1.30	15,355	35.87	0.35	0.35	0.00
13.25	1.09	16,091	35.99	0.36	0.36	0.00
13.50	1.00	16,708	36.09	0.36	0.36	0.00
13.75	0.92	17,248	36.17	0.37	0.37	0.00
14.00	0.84	17,710	36.24	0.37	0.37	0.00

Hydrograph for Pond IB3-P: Infiltration Basin #3 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
14.25	0.77	18,097	36.30	0.37	0.37	0.00
14.50	0.73	18,437	36.35	0.38	0.38	0.00
14.75	0.69	18,738	36.40	0.38	0.38	0.00
15.00	0.65	18,999	36.44	0.38	0.38	0.00
15.25	0.61	19,220	36.47	0.38	0.38	0.00
15.50	0.56	19,400	36.50	0.38	0.38	0.00
15.75	0.52	19,539	36.52	0.39	0.39	0.00
16.00	0.47	19,635	36.53	0.39	0.39	0.00
16.25	0.44	19,693	36.54	0.39	0.39	0.00
16.50	0.42	19,727	36.54	0.39	0.39	0.00
16.75	0.40	19,744	36.55	0.39	0.39	0.00
17.00	0.38	19,742	36.55	0.39	0.39	0.00
17.25	0.35	19,722	36.54	0.39	0.39	0.00
17.50	0.33	19,684	36.54	0.39	0.39	0.00
17.75	0.31	19,627	36.53	0.39	0.39	0.00
18.00	0.29	19,553	36.52	0.39	0.39	0.00
18.25	0.28	19,461	36.51	0.39	0.39	0.00
18.50	0.27	19,363	36.49	0.38	0.38	0.00
18.75	0.27	19,259	36.48	0.38	0.38	0.00
19.00	0.26	19,151	36.46	0.38	0.38	0.00
19.25	0.25	19,039	36.44	0.38	0.38	0.00
19.50	0.25	18,921	36.42	0.38	0.38	0.00
19.75	0.24	18,799	36.41	0.38	0.38	0.00
20.00	0.24	18,673	36.39	0.38	0.38	0.00
20.25	0.23	18,542	36.37	0.38	0.38	0.00
20.50	0.23	18,407	36.35	0.38	0.38	0.00
20.75	0.22	18,269	36.33	0.38	0.38	0.00
21.00	0.22	18,129	36.31	0.37	0.37	0.00
21.25	0.21	17,985	36.28	0.37	0.37	0.00
21.50	0.21	17,838	36.26	0.37	0.37	0.00
21.75	0.20	17,687	36.24	0.37	0.37	0.00
22.00	0.20	17,534	36.21	0.37	0.37	0.00
22.25	0.19	17,377	36.19	0.37	0.37	0.00
22.50	0.19	17,218	36.17	0.37	0.37	0.00
22.75	0.18	17,055	36.14	0.37	0.37	0.00
23.00	0.18	16,889	36.11	0.36	0.36	0.00
23.25	0.17	16,720	36.09	0.36	0.36	0.00
23.50	0.17	16,547	36.06	0.36	0.36	0.00
23.75	0.16	16,372	36.03	0.36	0.36	0.00
24.00	0.16	16,194	36.01	0.36	0.36	0.00
24.25	0.02	15,950	35.97	0.36	0.36	0.00
24.50	0.00	15,635	35.92	0.35	0.35	0.00
24.75	0.00	15,319	35.87	0.35	0.35	0.00
25.00	0.00	15,004	35.81	0.35	0.35	0.00
25.25	0.00	14,692	35.76	0.35	0.35	0.00
25.50	0.00	14,382	35.71	0.34	0.34	0.00
25.75	0.00	14,075	35.66	0.34	0.34	0.00
26.00	0.00	13,770	35.61	0.34	0.34	0.00
26.25	0.00	13,468	35.56	0.33	0.33	0.00
26.50	0.00	13,168	35.51	0.33	0.33	0.00
26.75	0.00	12,870	35.46	0.33	0.33	0.00
27.00	0.00	12,574	35.41	0.33	0.33	0.00
27.25	0.00	12,281	35.36	0.32	0.32	0.00

Hydrograph for Pond IB3-P: Infiltration Basin #3 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
27.50	0.00	11,990	35.30	0.32	0.32	0.00
27.75	0.00	11,702	35.25	0.32	0.32	0.00
28.00	0.00	11,415	35.20	0.32	0.32	0.00
28.25	0.00	11,131	35.15	0.31	0.31	0.00
28.50	0.00	10,850	35.10	0.31	0.31	0.00
28.75	0.00	10,570	35.05	0.31	0.31	0.00
29.00	0.00	10,293	35.00	0.31	0.31	0.00
29.25	0.00	10,019	34.95	0.30	0.30	0.00
29.50	0.00	9,746	34.90	0.30	0.30	0.00
29.75	0.00	9,477	34.85	0.30	0.30	0.00
30.00	0.00	9,210	34.80	0.30	0.30	0.00
30.25	0.00	8,946	34.75	0.29	0.29	0.00
30.50	0.00	8,684	34.69	0.29	0.29	0.00
30.75	0.00	8,425	34.64	0.29	0.29	0.00
31.00	0.00	8,168	34.59	0.28	0.28	0.00
31.25	0.00	7,914	34.54	0.28	0.28	0.00
31.50	0.00	7,662	34.49	0.28	0.28	0.00
31.75	0.00	7,413	34.44	0.28	0.28	0.00
32.00	0.00	7,167	34.39	0.27	0.27	0.00
32.25	0.00	6,923	34.34	0.27	0.27	0.00
32.50	0.00	6,681	34.29	0.27	0.27	0.00
32.75	0.00	6,442	34.24	0.26	0.26	0.00
33.00	0.00	6,205	34.19	0.26	0.26	0.00
33.25	0.00	5,970	34.14	0.26	0.26	0.00
33.50	0.00	5,739	34.09	0.26	0.26	0.00
33.75	0.00	5,509	34.04	0.25	0.25	0.00
34.00	0.00	5,282	33.98	0.25	0.25	0.00
34.25	0.00	5,057	33.93	0.25	0.25	0.00
34.50	0.00	4,835	33.88	0.25	0.25	0.00
34.75	0.00	4,615	33.83	0.24	0.24	0.00
35.00	0.00	4,398	33.78	0.24	0.24	0.00
35.25	0.00	4,184	33.73	0.24	0.24	0.00
35.50	0.00	3,972	33.68	0.23	0.23	0.00
35.75	0.00	3,763	33.63	0.23	0.23	0.00
36.00	0.00	3,556	33.58	0.23	0.23	0.00
36.25	0.00	3,351	33.53	0.23	0.23	0.00
36.50	0.00	3,149	33.48	0.22	0.22	0.00
36.75	0.00	2,949	33.43	0.22	0.22	0.00
37.00	0.00	2,752	33.38	0.22	0.22	0.00
37.25	0.00	2,557	33.33	0.22	0.22	0.00
37.50	0.00	2,365	33.28	0.21	0.21	0.00
37.75	0.00	2,175	33.23	0.21	0.21	0.00
38.00	0.00	1,987	33.18	0.21	0.21	0.00
38.25	0.00	1,802	33.13	0.20	0.20	0.00
38.50	0.00	1,619	33.08	0.20	0.20	0.00
38.75	0.00	1,438	33.03	0.20	0.20	0.00
39.00	0.00	1,260	32.97	0.20	0.20	0.00
39.25	0.00	1,083	32.92	0.19	0.19	0.00
39.50	0.00	910	32.87	0.19	0.19	0.00
39.75	0.00	738	32.82	0.19	0.19	0.00
40.00	0.00	569	32.77	0.19	0.19	0.00
40.25	0.00	401	32.72	0.18	0.18	0.00
40.50	0.00	236	32.67	0.18	0.18	0.00

Hydrograph for Pond IB3-P: Infiltration Basin #3 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
40.75	0.00	97	32.63	0.10	0.10	0.00
41.00	0.00	38	32.61	0.04	0.04	0.00
41.25	0.00	15	32.60	0.02	0.02	0.00
41.50	0.00	6	32.60	0.01	0.01	0.00
41.75	0.00	2	32.60	0.00	0.00	0.00
42.00	0.00	1	32.60	0.00	0.00	0.00
42.25	0.00	0	32.60	0.00	0.00	0.00
42.50	0.00	0	32.60	0.00	0.00	0.00
42.75	0.00	0	32.60	0.00	0.00	0.00
43.00	0.00	0	32.60	0.00	0.00	0.00
43.25	0.00	0	32.60	0.00	0.00	0.00
43.50	0.00	0	32.60	0.00	0.00	0.00
43.75	0.00	0	32.60	0.00	0.00	0.00
44.00	0.00	0	32.60	0.00	0.00	0.00
44.25	0.00	0	32.60	0.00	0.00	0.00
44.50	0.00	0	32.60	0.00	0.00	0.00
44.75	0.00	0	32.60	0.00	0.00	0.00
45.00	0.00	0	32.60	0.00	0.00	0.00
45.25	0.00	0	32.60	0.00	0.00	0.00
45.50	0.00	0	32.60	0.00	0.00	0.00
45.75	0.00	0	32.60	0.00	0.00	0.00
46.00	0.00	0	32.60	0.00	0.00	0.00
46.25	0.00	0	32.60	0.00	0.00	0.00
46.50	0.00	0	32.60	0.00	0.00	0.00
46.75	0.00	0	32.60	0.00	0.00	0.00
47.00	0.00	0	32.60	0.00	0.00	0.00
47.25	0.00	0	32.60	0.00	0.00	0.00
47.50	0.00	0	32.60	0.00	0.00	0.00
47.75	0.00	0	32.60	0.00	0.00	0.00
48.00	0.00	0	32.60	0.00	0.00	0.00
48.25	0.00	0	32.60	0.00	0.00	0.00
48.50	0.00	0	32.60	0.00	0.00	0.00
48.75	0.00	0	32.60	0.00	0.00	0.00
49.00	0.00	0	32.60	0.00	0.00	0.00
49.25	0.00	0	32.60	0.00	0.00	0.00
49.50	0.00	0	32.60	0.00	0.00	0.00
49.75	0.00	0	32.60	0.00	0.00	0.00
50.00	0.00	0	32.60	0.00	0.00	0.00
50.25	0.00	0	32.60	0.00	0.00	0.00
50.50	0.00	0	32.60	0.00	0.00	0.00
50.75	0.00	0	32.60	0.00	0.00	0.00
51.00	0.00	0	32.60	0.00	0.00	0.00
51.25	0.00	0	32.60	0.00	0.00	0.00
51.50	0.00	0	32.60	0.00	0.00	0.00
51.75	0.00	0	32.60	0.00	0.00	0.00
52.00	0.00	0	32.60	0.00	0.00	0.00
52.25	0.00	0	32.60	0.00	0.00	0.00
52.50	0.00	0	32.60	0.00	0.00	0.00
52.75	0.00	0	32.60	0.00	0.00	0.00
53.00	0.00	0	32.60	0.00	0.00	0.00
53.25	0.00	0	32.60	0.00	0.00	0.00
53.50	0.00	0	32.60	0.00	0.00	0.00
53.75	0.00	0	32.60	0.00	0.00	0.00

Hydrograph for Pond IB3-P: Infiltration Basin #3 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
54.00	0.00	0	32.60	0.00	0.00	0.00
54.25	0.00	0	32.60	0.00	0.00	0.00
54.50	0.00	0	32.60	0.00	0.00	0.00
54.75	0.00	0	32.60	0.00	0.00	0.00
55.00	0.00	0	32.60	0.00	0.00	0.00
55.25	0.00	0	32.60	0.00	0.00	0.00
55.50	0.00	0	32.60	0.00	0.00	0.00
55.75	0.00	0	32.60	0.00	0.00	0.00
56.00	0.00	0	32.60	0.00	0.00	0.00
56.25	0.00	0	32.60	0.00	0.00	0.00
56.50	0.00	0	32.60	0.00	0.00	0.00
56.75	0.00	0	32.60	0.00	0.00	0.00
57.00	0.00	0	32.60	0.00	0.00	0.00
57.25	0.00	0	32.60	0.00	0.00	0.00
57.50	0.00	0	32.60	0.00	0.00	0.00
57.75	0.00	0	32.60	0.00	0.00	0.00
58.00	0.00	0	32.60	0.00	0.00	0.00
58.25	0.00	0	32.60	0.00	0.00	0.00
58.50	0.00	0	32.60	0.00	0.00	0.00
58.75	0.00	0	32.60	0.00	0.00	0.00
59.00	0.00	0	32.60	0.00	0.00	0.00
59.25	0.00	0	32.60	0.00	0.00	0.00
59.50	0.00	0	32.60	0.00	0.00	0.00
59.75	0.00	0	32.60	0.00	0.00	0.00
60.00	0.00	0	32.60	0.00	0.00	0.00

Summary for Pond IB4-P: Infiltration Basin #4

Inflow Area = 523,288 sf, 32.44% Impervious, Inflow Depth = 2.86" for 100-year event
 Inflow = 33.93 cfs @ 12.12 hrs, Volume= 124,669 cf
 Outflow = 1.19 cfs @ 17.49 hrs, Volume= 124,669 cf, Atten= 96%, Lag= 322.0 min
 Discarded = 1.19 cfs @ 17.49 hrs, Volume= 124,669 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.28' @ 17.49 hrs Surf.Area= 21,081 sf Storage= 78,977 cf

Plug-Flow detention time= 742.7 min calculated for 124,564 cf (100% of inflow)
 Center-of-Mass det. time= 743.1 min (1,594.9 - 851.8)

Volume	Invert	Avail.Storage	Storage Description
#1	30.70'	117,739 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.70	12,950	0	0	12,950
31.00	13,550	3,975	3,975	13,562
32.00	15,640	14,583	18,557	15,696
32.50	16,640	8,069	26,626	16,721
34.00	18,980	26,696	53,322	19,166
35.50	21,450	30,304	83,625	21,749
36.00	22,310	10,939	94,565	22,648
37.00	24,050	23,175	117,739	24,470

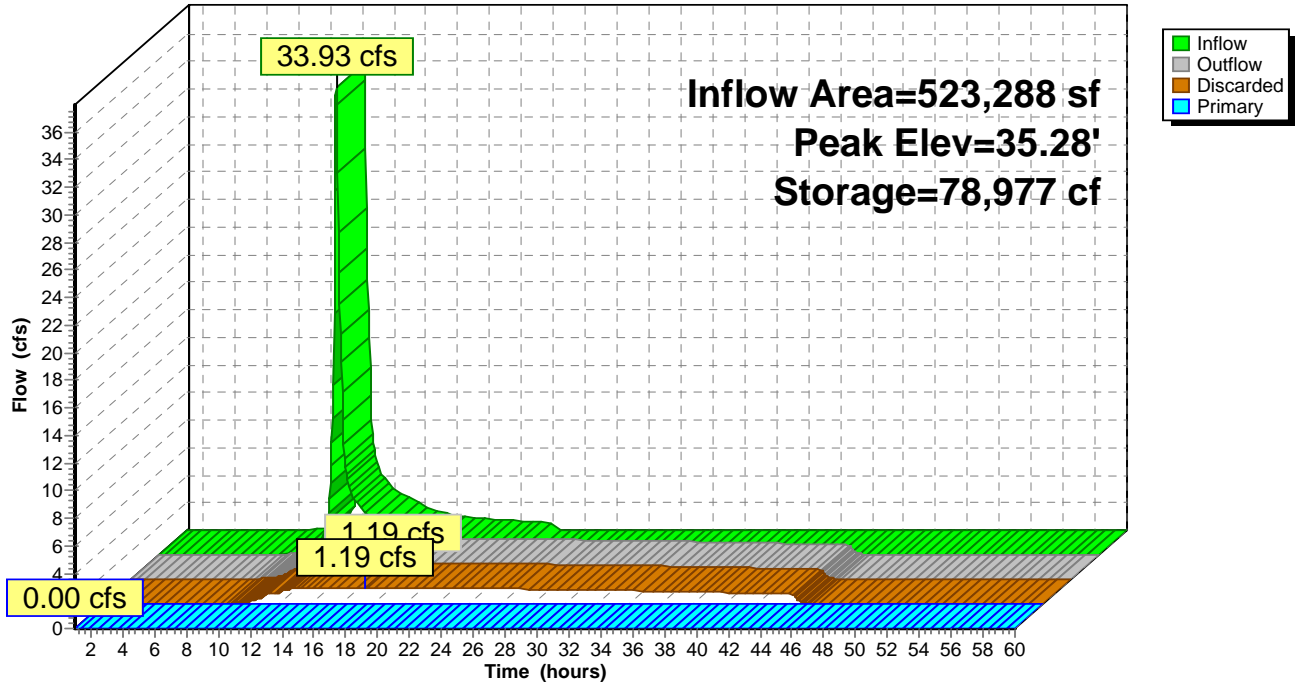
Device	Routing	Invert	Outlet Devices
#1	Discarded	30.70'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	35.50'	15.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=1.19 cfs @ 17.49 hrs HW=35.28' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 1.19 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=30.70' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond IB4-P: Infiltration Basin #4

Hydrograph



Hydrograph for Pond IB4-P: Infiltration Basin #4

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
1.00	0.00	0	30.70	0.00	0.00	0.00
1.25	0.00	0	30.70	0.00	0.00	0.00
1.50	0.00	0	30.70	0.00	0.00	0.00
1.75	0.00	0	30.70	0.00	0.00	0.00
2.00	0.00	0	30.70	0.00	0.00	0.00
2.25	0.00	0	30.70	0.00	0.00	0.00
2.50	0.00	0	30.70	0.00	0.00	0.00
2.75	0.00	0	30.70	0.00	0.00	0.00
3.00	0.00	0	30.70	0.00	0.00	0.00
3.25	0.00	0	30.70	0.00	0.00	0.00
3.50	0.00	0	30.70	0.00	0.00	0.00
3.75	0.00	0	30.70	0.00	0.00	0.00
4.00	0.00	0	30.70	0.00	0.00	0.00
4.25	0.00	0	30.70	0.00	0.00	0.00
4.50	0.00	0	30.70	0.00	0.00	0.00
4.75	0.00	0	30.70	0.00	0.00	0.00
5.00	0.00	0	30.70	0.00	0.00	0.00
5.25	0.00	1	30.70	0.00	0.00	0.00
5.50	0.00	1	30.70	0.00	0.00	0.00
5.75	0.00	2	30.70	0.00	0.00	0.00
6.00	0.00	3	30.70	0.00	0.00	0.00
6.25	0.01	5	30.70	0.00	0.00	0.00
6.50	0.01	6	30.70	0.01	0.01	0.00
6.75	0.01	8	30.70	0.01	0.01	0.00
7.00	0.01	10	30.70	0.01	0.01	0.00
7.25	0.01	12	30.70	0.01	0.01	0.00
7.50	0.02	15	30.70	0.01	0.01	0.00
7.75	0.02	18	30.70	0.02	0.02	0.00
8.00	0.03	23	30.70	0.02	0.02	0.00
8.25	0.03	29	30.70	0.03	0.03	0.00
8.50	0.05	39	30.70	0.03	0.03	0.00
8.75	0.06	50	30.70	0.04	0.04	0.00
9.00	0.07	65	30.70	0.06	0.06	0.00
9.25	0.09	81	30.71	0.07	0.07	0.00
9.50	0.11	100	30.71	0.09	0.09	0.00
9.75	0.14	124	30.71	0.11	0.11	0.00
10.00	0.18	158	30.71	0.14	0.14	0.00
10.25	0.26	208	30.72	0.19	0.19	0.00
10.50	0.37	291	30.72	0.26	0.26	0.00
10.75	0.52	409	30.73	0.36	0.36	0.00
11.00	0.71	570	30.74	0.51	0.51	0.00
11.25	1.12	822	30.76	0.73	0.73	0.00
11.50	1.79	1,459	30.81	0.74	0.74	0.00
11.75	5.17	3,486	30.96	0.75	0.75	0.00
12.00	17.50	11,444	31.53	0.82	0.82	0.00
12.25	23.38	35,929	33.05	0.98	0.98	0.00
12.50	11.86	50,520	33.85	1.06	1.06	0.00
12.75	5.91	56,737	34.18	1.09	1.09	0.00
13.00	4.64	60,471	34.37	1.10	1.10	0.00
13.25	3.91	63,246	34.51	1.12	1.12	0.00
13.50	3.62	65,622	34.63	1.13	1.13	0.00
13.75	3.32	67,723	34.74	1.14	1.14	0.00
14.00	3.01	69,541	34.83	1.15	1.15	0.00

Hydrograph for Pond IB4-P: Infiltration Basin #4 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
14.25	2.78	71,092	34.90	1.15	1.15	0.00
14.50	2.63	72,480	34.97	1.16	1.16	0.00
14.75	2.48	73,729	35.03	1.17	1.17	0.00
15.00	2.32	74,836	35.08	1.17	1.17	0.00
15.25	2.16	75,797	35.13	1.18	1.18	0.00
15.50	2.00	76,611	35.17	1.18	1.18	0.00
15.75	1.84	77,276	35.20	1.18	1.18	0.00
16.00	1.67	77,789	35.22	1.19	1.19	0.00
16.25	1.55	78,163	35.24	1.19	1.19	0.00
16.50	1.48	78,458	35.26	1.19	1.19	0.00
16.75	1.41	78,687	35.27	1.19	1.19	0.00
17.00	1.34	78,850	35.28	1.19	1.19	0.00
17.25	1.26	78,947	35.28	1.19	1.19	0.00
17.50	1.19	78,977	35.28	1.19	1.19	0.00
17.75	1.11	78,940	35.28	1.19	1.19	0.00
18.00	1.04	78,837	35.27	1.19	1.19	0.00
18.25	0.99	78,673	35.27	1.19	1.19	0.00
18.50	0.97	78,483	35.26	1.19	1.19	0.00
18.75	0.95	78,274	35.25	1.19	1.19	0.00
19.00	0.92	78,046	35.24	1.19	1.19	0.00
19.25	0.90	77,800	35.23	1.19	1.19	0.00
19.50	0.88	77,535	35.21	1.19	1.19	0.00
19.75	0.86	77,252	35.20	1.18	1.18	0.00
20.00	0.84	76,950	35.18	1.18	1.18	0.00
20.25	0.82	76,629	35.17	1.18	1.18	0.00
20.50	0.80	76,295	35.15	1.18	1.18	0.00
20.75	0.78	75,947	35.14	1.18	1.18	0.00
21.00	0.77	75,585	35.12	1.18	1.18	0.00
21.25	0.75	75,210	35.10	1.17	1.17	0.00
21.50	0.73	74,821	35.08	1.17	1.17	0.00
21.75	0.72	74,419	35.06	1.17	1.17	0.00
22.00	0.70	74,003	35.04	1.17	1.17	0.00
22.25	0.68	73,573	35.02	1.17	1.17	0.00
22.50	0.66	73,130	35.00	1.16	1.16	0.00
22.75	0.65	72,673	34.98	1.16	1.16	0.00
23.00	0.63	72,203	34.96	1.16	1.16	0.00
23.25	0.61	71,718	34.93	1.16	1.16	0.00
23.50	0.59	71,221	34.91	1.16	1.16	0.00
23.75	0.58	70,709	34.88	1.15	1.15	0.00
24.00	0.56	70,184	34.86	1.15	1.15	0.00
24.25	0.03	69,401	34.82	1.15	1.15	0.00
24.50	0.00	68,378	34.77	1.14	1.14	0.00
24.75	0.00	67,353	34.72	1.14	1.14	0.00
25.00	0.00	66,332	34.67	1.13	1.13	0.00
25.25	0.00	65,315	34.62	1.13	1.13	0.00
25.50	0.00	64,303	34.56	1.12	1.12	0.00
25.75	0.00	63,295	34.51	1.12	1.12	0.00
26.00	0.00	62,291	34.46	1.11	1.11	0.00
26.25	0.00	61,292	34.41	1.11	1.11	0.00
26.50	0.00	60,297	34.36	1.10	1.10	0.00
26.75	0.00	59,306	34.31	1.10	1.10	0.00
27.00	0.00	58,320	34.26	1.09	1.09	0.00
27.25	0.00	57,337	34.21	1.09	1.09	0.00

Hydrograph for Pond IB4-P: Infiltration Basin #4 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
27.50	0.00	56,360	34.16	1.08	1.08	0.00
27.75	0.00	55,386	34.11	1.08	1.08	0.00
28.00	0.00	54,417	34.06	1.07	1.07	0.00
28.25	0.00	53,452	34.01	1.07	1.07	0.00
28.50	0.00	52,491	33.96	1.07	1.07	0.00
28.75	0.00	51,535	33.91	1.06	1.06	0.00
29.00	0.00	50,583	33.85	1.06	1.06	0.00
29.25	0.00	49,635	33.80	1.05	1.05	0.00
29.50	0.00	48,691	33.75	1.05	1.05	0.00
29.75	0.00	47,752	33.70	1.04	1.04	0.00
30.00	0.00	46,816	33.65	1.04	1.04	0.00
30.25	0.00	45,885	33.60	1.03	1.03	0.00
30.50	0.00	44,959	33.55	1.03	1.03	0.00
30.75	0.00	44,036	33.50	1.02	1.02	0.00
31.00	0.00	43,118	33.45	1.02	1.02	0.00
31.25	0.00	42,203	33.40	1.01	1.01	0.00
31.50	0.00	41,293	33.35	1.01	1.01	0.00
31.75	0.00	40,387	33.30	1.00	1.00	0.00
32.00	0.00	39,486	33.25	1.00	1.00	0.00
32.25	0.00	38,588	33.20	1.00	1.00	0.00
32.50	0.00	37,695	33.15	0.99	0.99	0.00
32.75	0.00	36,805	33.10	0.99	0.99	0.00
33.00	0.00	35,920	33.04	0.98	0.98	0.00
33.25	0.00	35,039	32.99	0.98	0.98	0.00
33.50	0.00	34,162	32.94	0.97	0.97	0.00
33.75	0.00	33,289	32.89	0.97	0.97	0.00
34.00	0.00	32,420	32.84	0.96	0.96	0.00
34.25	0.00	31,555	32.79	0.96	0.96	0.00
34.50	0.00	30,694	32.74	0.95	0.95	0.00
34.75	0.00	29,838	32.69	0.95	0.95	0.00
35.00	0.00	28,985	32.64	0.95	0.95	0.00
35.25	0.00	28,136	32.59	0.94	0.94	0.00
35.50	0.00	27,292	32.54	0.94	0.94	0.00
35.75	0.00	26,451	32.49	0.93	0.93	0.00
36.00	0.00	25,615	32.44	0.93	0.93	0.00
36.25	0.00	24,785	32.39	0.92	0.92	0.00
36.50	0.00	23,959	32.34	0.91	0.91	0.00
36.75	0.00	23,139	32.29	0.91	0.91	0.00
37.00	0.00	22,324	32.24	0.90	0.90	0.00
37.25	0.00	21,515	32.19	0.90	0.90	0.00
37.50	0.00	20,710	32.14	0.89	0.89	0.00
37.75	0.00	19,911	32.09	0.89	0.89	0.00
38.00	0.00	19,116	32.04	0.88	0.88	0.00
38.25	0.00	18,327	31.99	0.87	0.87	0.00
38.50	0.00	17,544	31.93	0.87	0.87	0.00
38.75	0.00	16,766	31.88	0.86	0.86	0.00
39.00	0.00	15,993	31.83	0.86	0.86	0.00
39.25	0.00	15,226	31.78	0.85	0.85	0.00
39.50	0.00	14,465	31.73	0.84	0.84	0.00
39.75	0.00	13,709	31.68	0.84	0.84	0.00
40.00	0.00	12,958	31.63	0.83	0.83	0.00
40.25	0.00	12,213	31.58	0.82	0.82	0.00
40.50	0.00	11,473	31.53	0.82	0.82	0.00

Hydrograph for Pond IB4-P: Infiltration Basin #4 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
40.75	0.00	10,739	31.48	0.81	0.81	0.00
41.00	0.00	10,010	31.43	0.81	0.81	0.00
41.25	0.00	9,287	31.38	0.80	0.80	0.00
41.50	0.00	8,568	31.33	0.80	0.80	0.00
41.75	0.00	7,856	31.28	0.79	0.79	0.00
42.00	0.00	7,148	31.23	0.78	0.78	0.00
42.25	0.00	6,446	31.18	0.78	0.78	0.00
42.50	0.00	5,749	31.13	0.77	0.77	0.00
42.75	0.00	5,057	31.08	0.77	0.77	0.00
43.00	0.00	4,370	31.03	0.76	0.76	0.00
43.25	0.00	3,689	30.98	0.75	0.75	0.00
43.50	0.00	3,013	30.93	0.75	0.75	0.00
43.75	0.00	2,342	30.88	0.74	0.74	0.00
44.00	0.00	1,676	30.83	0.74	0.74	0.00
44.25	0.00	1,015	30.78	0.73	0.73	0.00
44.50	0.00	468	30.74	0.42	0.42	0.00
44.75	0.00	210	30.72	0.19	0.19	0.00
45.00	0.00	94	30.71	0.08	0.08	0.00
45.25	0.00	42	30.70	0.04	0.04	0.00
45.50	0.00	19	30.70	0.02	0.02	0.00
45.75	0.00	8	30.70	0.01	0.01	0.00
46.00	0.00	4	30.70	0.00	0.00	0.00
46.25	0.00	2	30.70	0.00	0.00	0.00
46.50	0.00	1	30.70	0.00	0.00	0.00
46.75	0.00	0	30.70	0.00	0.00	0.00
47.00	0.00	0	30.70	0.00	0.00	0.00
47.25	0.00	0	30.70	0.00	0.00	0.00
47.50	0.00	0	30.70	0.00	0.00	0.00
47.75	0.00	0	30.70	0.00	0.00	0.00
48.00	0.00	0	30.70	0.00	0.00	0.00
48.25	0.00	0	30.70	0.00	0.00	0.00
48.50	0.00	0	30.70	0.00	0.00	0.00
48.75	0.00	0	30.70	0.00	0.00	0.00
49.00	0.00	0	30.70	0.00	0.00	0.00
49.25	0.00	0	30.70	0.00	0.00	0.00
49.50	0.00	0	30.70	0.00	0.00	0.00
49.75	0.00	0	30.70	0.00	0.00	0.00
50.00	0.00	0	30.70	0.00	0.00	0.00
50.25	0.00	0	30.70	0.00	0.00	0.00
50.50	0.00	0	30.70	0.00	0.00	0.00
50.75	0.00	0	30.70	0.00	0.00	0.00
51.00	0.00	0	30.70	0.00	0.00	0.00
51.25	0.00	0	30.70	0.00	0.00	0.00
51.50	0.00	0	30.70	0.00	0.00	0.00
51.75	0.00	0	30.70	0.00	0.00	0.00
52.00	0.00	0	30.70	0.00	0.00	0.00
52.25	0.00	0	30.70	0.00	0.00	0.00
52.50	0.00	0	30.70	0.00	0.00	0.00
52.75	0.00	0	30.70	0.00	0.00	0.00
53.00	0.00	0	30.70	0.00	0.00	0.00
53.25	0.00	0	30.70	0.00	0.00	0.00
53.50	0.00	0	30.70	0.00	0.00	0.00
53.75	0.00	0	30.70	0.00	0.00	0.00

Hydrograph for Pond IB4-P: Infiltration Basin #4 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
54.00	0.00	0	30.70	0.00	0.00	0.00
54.25	0.00	0	30.70	0.00	0.00	0.00
54.50	0.00	0	30.70	0.00	0.00	0.00
54.75	0.00	0	30.70	0.00	0.00	0.00
55.00	0.00	0	30.70	0.00	0.00	0.00
55.25	0.00	0	30.70	0.00	0.00	0.00
55.50	0.00	0	30.70	0.00	0.00	0.00
55.75	0.00	0	30.70	0.00	0.00	0.00
56.00	0.00	0	30.70	0.00	0.00	0.00
56.25	0.00	0	30.70	0.00	0.00	0.00
56.50	0.00	0	30.70	0.00	0.00	0.00
56.75	0.00	0	30.70	0.00	0.00	0.00
57.00	0.00	0	30.70	0.00	0.00	0.00
57.25	0.00	0	30.70	0.00	0.00	0.00
57.50	0.00	0	30.70	0.00	0.00	0.00
57.75	0.00	0	30.70	0.00	0.00	0.00
58.00	0.00	0	30.70	0.00	0.00	0.00
58.25	0.00	0	30.70	0.00	0.00	0.00
58.50	0.00	0	30.70	0.00	0.00	0.00
58.75	0.00	0	30.70	0.00	0.00	0.00
59.00	0.00	0	30.70	0.00	0.00	0.00
59.25	0.00	0	30.70	0.00	0.00	0.00
59.50	0.00	0	30.70	0.00	0.00	0.00
59.75	0.00	0	30.70	0.00	0.00	0.00
60.00	0.00	0	30.70	0.00	0.00	0.00

Summary for Pond IB5-P: Infiltration Basin #5

Inflow Area = 70,327 sf, 42.59% Impervious, Inflow Depth = 3.45" for 100-year event
 Inflow = 6.13 cfs @ 12.10 hrs, Volume= 20,248 cf
 Outflow = 0.37 cfs @ 14.85 hrs, Volume= 20,248 cf, Atten= 94%, Lag= 165.0 min
 Discarded = 0.37 cfs @ 14.85 hrs, Volume= 20,248 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.04' @ 14.85 hrs Surf.Area= 6,504 sf Storage= 10,202 cf

Plug-Flow detention time= 315.4 min calculated for 20,248 cf (100% of inflow)
 Center-of-Mass det. time= 315.2 min (1,155.4 - 840.1)

Volume	Invert	Avail.Storage	Storage Description
#1	35.10'	25,516 cf	Custom Stage Data (Conic) Listed below (Recalc)

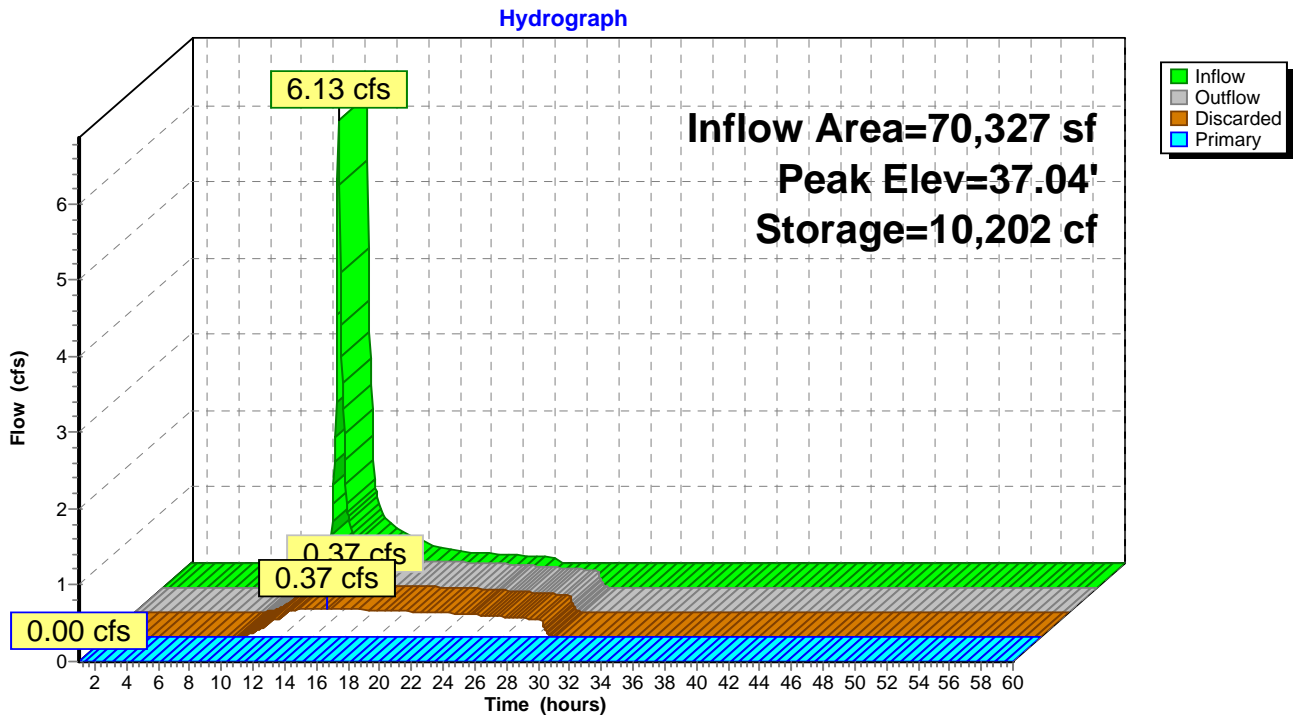
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
35.10	4,000	0	0	4,000
36.00	5,190	4,124	4,124	5,209
36.10	5,380	528	4,652	5,401
38.00	7,775	12,428	17,080	7,857
39.00	9,115	8,436	25,516	9,236

Device	Routing	Invert	Outlet Devices
#1	Discarded	35.10'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	38.00'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.37 cfs @ 14.85 hrs HW=37.04' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.37 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=35.10' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond IB5-P: Infiltration Basin #5



Hydrograph for Pond IB5-P: Infiltration Basin #5

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
1.00	0.00	0	35.10	0.00	0.00	0.00
1.25	0.00	0	35.10	0.00	0.00	0.00
1.50	0.00	0	35.10	0.00	0.00	0.00
1.75	0.00	0	35.10	0.00	0.00	0.00
2.00	0.00	0	35.10	0.00	0.00	0.00
2.25	0.00	0	35.10	0.00	0.00	0.00
2.50	0.00	0	35.10	0.00	0.00	0.00
2.75	0.00	0	35.10	0.00	0.00	0.00
3.00	0.00	0	35.10	0.00	0.00	0.00
3.25	0.00	0	35.10	0.00	0.00	0.00
3.50	0.00	0	35.10	0.00	0.00	0.00
3.75	0.00	0	35.10	0.00	0.00	0.00
4.00	0.00	0	35.10	0.00	0.00	0.00
4.25	0.00	0	35.10	0.00	0.00	0.00
4.50	0.00	0	35.10	0.00	0.00	0.00
4.75	0.00	0	35.10	0.00	0.00	0.00
5.00	0.00	0	35.10	0.00	0.00	0.00
5.25	0.00	0	35.10	0.00	0.00	0.00
5.50	0.00	0	35.10	0.00	0.00	0.00
5.75	0.00	0	35.10	0.00	0.00	0.00
6.00	0.00	0	35.10	0.00	0.00	0.00
6.25	0.00	0	35.10	0.00	0.00	0.00
6.50	0.00	0	35.10	0.00	0.00	0.00
6.75	0.00	0	35.10	0.00	0.00	0.00
7.00	0.00	0	35.10	0.00	0.00	0.00
7.25	0.00	0	35.10	0.00	0.00	0.00
7.50	0.00	0	35.10	0.00	0.00	0.00
7.75	0.00	0	35.10	0.00	0.00	0.00
8.00	0.00	0	35.10	0.00	0.00	0.00
8.25	0.00	0	35.10	0.00	0.00	0.00
8.50	0.00	0	35.10	0.00	0.00	0.00
8.75	0.00	2	35.10	0.00	0.00	0.00
9.00	0.01	4	35.10	0.01	0.01	0.00
9.25	0.01	6	35.10	0.01	0.01	0.00
9.50	0.02	10	35.10	0.01	0.01	0.00
9.75	0.04	17	35.10	0.02	0.02	0.00
10.00	0.05	28	35.11	0.04	0.04	0.00
10.25	0.08	42	35.11	0.06	0.06	0.00
10.50	0.11	60	35.11	0.09	0.09	0.00
10.75	0.14	82	35.12	0.12	0.12	0.00
11.00	0.19	108	35.13	0.16	0.16	0.00
11.25	0.27	146	35.14	0.21	0.21	0.00
11.50	0.39	239	35.16	0.23	0.23	0.00
11.75	1.11	621	35.25	0.23	0.23	0.00
12.00	3.58	2,161	35.60	0.26	0.26	0.00
12.25	3.46	6,295	36.40	0.32	0.32	0.00
12.50	1.68	8,274	36.73	0.34	0.34	0.00
12.75	0.89	8,981	36.84	0.35	0.35	0.00
13.00	0.70	9,376	36.91	0.36	0.36	0.00
13.25	0.60	9,626	36.95	0.36	0.36	0.00
13.50	0.55	9,821	36.98	0.36	0.36	0.00
13.75	0.51	9,971	37.00	0.36	0.36	0.00
14.00	0.46	10,076	37.02	0.36	0.36	0.00

Hydrograph for Pond IB5-P: Infiltration Basin #5 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
14.25	0.42	10,141	37.03	0.36	0.36	0.00
14.50	0.40	10,182	37.03	0.37	0.37	0.00
14.75	0.38	10,201	37.04	0.37	0.37	0.00
15.00	0.35	10,199	37.03	0.37	0.37	0.00
15.25	0.33	10,175	37.03	0.37	0.37	0.00
15.50	0.30	10,129	37.02	0.36	0.36	0.00
15.75	0.28	10,060	37.01	0.36	0.36	0.00
16.00	0.25	9,970	37.00	0.36	0.36	0.00
16.25	0.23	9,860	36.98	0.36	0.36	0.00
16.50	0.22	9,741	36.96	0.36	0.36	0.00
16.75	0.21	9,612	36.94	0.36	0.36	0.00
17.00	0.20	9,475	36.92	0.36	0.36	0.00
17.25	0.19	9,330	36.90	0.36	0.36	0.00
17.50	0.18	9,175	36.88	0.35	0.35	0.00
17.75	0.17	9,012	36.85	0.35	0.35	0.00
18.00	0.16	8,841	36.82	0.35	0.35	0.00
18.25	0.15	8,662	36.79	0.35	0.35	0.00
18.50	0.15	8,482	36.76	0.35	0.35	0.00
18.75	0.14	8,301	36.73	0.34	0.34	0.00
19.00	0.14	8,118	36.70	0.34	0.34	0.00
19.25	0.14	7,934	36.67	0.34	0.34	0.00
19.50	0.13	7,749	36.64	0.34	0.34	0.00
19.75	0.13	7,563	36.61	0.34	0.34	0.00
20.00	0.13	7,376	36.58	0.33	0.33	0.00
20.25	0.12	7,188	36.55	0.33	0.33	0.00
20.50	0.12	6,999	36.52	0.33	0.33	0.00
20.75	0.12	6,811	36.49	0.33	0.33	0.00
21.00	0.11	6,622	36.45	0.32	0.32	0.00
21.25	0.11	6,432	36.42	0.32	0.32	0.00
21.50	0.11	6,242	36.39	0.32	0.32	0.00
21.75	0.11	6,052	36.35	0.32	0.32	0.00
22.00	0.10	5,862	36.32	0.32	0.32	0.00
22.25	0.10	5,672	36.29	0.31	0.31	0.00
22.50	0.10	5,481	36.25	0.31	0.31	0.00
22.75	0.10	5,289	36.22	0.31	0.31	0.00
23.00	0.09	5,098	36.18	0.31	0.31	0.00
23.25	0.09	4,906	36.15	0.30	0.30	0.00
23.50	0.09	4,714	36.11	0.30	0.30	0.00
23.75	0.09	4,522	36.08	0.30	0.30	0.00
24.00	0.08	4,331	36.04	0.29	0.29	0.00
24.25	0.00	4,097	35.99	0.29	0.29	0.00
24.50	0.00	3,838	35.94	0.29	0.29	0.00
24.75	0.00	3,582	35.89	0.28	0.28	0.00
25.00	0.00	3,330	35.84	0.28	0.28	0.00
25.25	0.00	3,081	35.79	0.27	0.27	0.00
25.50	0.00	2,836	35.74	0.27	0.27	0.00
25.75	0.00	2,595	35.69	0.27	0.27	0.00
26.00	0.00	2,356	35.64	0.26	0.26	0.00
26.25	0.00	2,122	35.59	0.26	0.26	0.00
26.50	0.00	1,890	35.54	0.26	0.26	0.00
26.75	0.00	1,662	35.49	0.25	0.25	0.00
27.00	0.00	1,438	35.44	0.25	0.25	0.00
27.25	0.00	1,216	35.39	0.24	0.24	0.00

Hydrograph for Pond IB5-P: Infiltration Basin #5 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
27.50	0.00	998	35.34	0.24	0.24	0.00
27.75	0.00	784	35.29	0.24	0.24	0.00
28.00	0.00	572	35.24	0.23	0.23	0.00
28.25	0.00	364	35.19	0.23	0.23	0.00
28.50	0.00	159	35.14	0.23	0.23	0.00
28.75	0.00	43	35.11	0.06	0.06	0.00
29.00	0.00	12	35.10	0.02	0.02	0.00
29.25	0.00	3	35.10	0.00	0.00	0.00
29.50	0.00	1	35.10	0.00	0.00	0.00
29.75	0.00	0	35.10	0.00	0.00	0.00
30.00	0.00	0	35.10	0.00	0.00	0.00
30.25	0.00	0	35.10	0.00	0.00	0.00
30.50	0.00	0	35.10	0.00	0.00	0.00
30.75	0.00	0	35.10	0.00	0.00	0.00
31.00	0.00	0	35.10	0.00	0.00	0.00
31.25	0.00	0	35.10	0.00	0.00	0.00
31.50	0.00	0	35.10	0.00	0.00	0.00
31.75	0.00	0	35.10	0.00	0.00	0.00
32.00	0.00	0	35.10	0.00	0.00	0.00
32.25	0.00	0	35.10	0.00	0.00	0.00
32.50	0.00	0	35.10	0.00	0.00	0.00
32.75	0.00	0	35.10	0.00	0.00	0.00
33.00	0.00	0	35.10	0.00	0.00	0.00
33.25	0.00	0	35.10	0.00	0.00	0.00
33.50	0.00	0	35.10	0.00	0.00	0.00
33.75	0.00	0	35.10	0.00	0.00	0.00
34.00	0.00	0	35.10	0.00	0.00	0.00
34.25	0.00	0	35.10	0.00	0.00	0.00
34.50	0.00	0	35.10	0.00	0.00	0.00
34.75	0.00	0	35.10	0.00	0.00	0.00
35.00	0.00	0	35.10	0.00	0.00	0.00
35.25	0.00	0	35.10	0.00	0.00	0.00
35.50	0.00	0	35.10	0.00	0.00	0.00
35.75	0.00	0	35.10	0.00	0.00	0.00
36.00	0.00	0	35.10	0.00	0.00	0.00
36.25	0.00	0	35.10	0.00	0.00	0.00
36.50	0.00	0	35.10	0.00	0.00	0.00
36.75	0.00	0	35.10	0.00	0.00	0.00
37.00	0.00	0	35.10	0.00	0.00	0.00
37.25	0.00	0	35.10	0.00	0.00	0.00
37.50	0.00	0	35.10	0.00	0.00	0.00
37.75	0.00	0	35.10	0.00	0.00	0.00
38.00	0.00	0	35.10	0.00	0.00	0.00
38.25	0.00	0	35.10	0.00	0.00	0.00
38.50	0.00	0	35.10	0.00	0.00	0.00
38.75	0.00	0	35.10	0.00	0.00	0.00
39.00	0.00	0	35.10	0.00	0.00	0.00
39.25	0.00	0	35.10	0.00	0.00	0.00
39.50	0.00	0	35.10	0.00	0.00	0.00
39.75	0.00	0	35.10	0.00	0.00	0.00
40.00	0.00	0	35.10	0.00	0.00	0.00
40.25	0.00	0	35.10	0.00	0.00	0.00
40.50	0.00	0	35.10	0.00	0.00	0.00

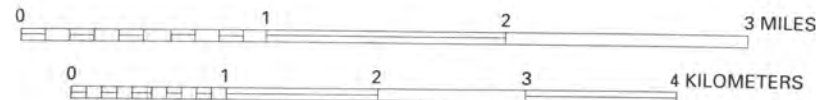
Hydrograph for Pond IB5-P: Infiltration Basin #5 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
40.75	0.00	0	35.10	0.00	0.00	0.00
41.00	0.00	0	35.10	0.00	0.00	0.00
41.25	0.00	0	35.10	0.00	0.00	0.00
41.50	0.00	0	35.10	0.00	0.00	0.00
41.75	0.00	0	35.10	0.00	0.00	0.00
42.00	0.00	0	35.10	0.00	0.00	0.00
42.25	0.00	0	35.10	0.00	0.00	0.00
42.50	0.00	0	35.10	0.00	0.00	0.00
42.75	0.00	0	35.10	0.00	0.00	0.00
43.00	0.00	0	35.10	0.00	0.00	0.00
43.25	0.00	0	35.10	0.00	0.00	0.00
43.50	0.00	0	35.10	0.00	0.00	0.00
43.75	0.00	0	35.10	0.00	0.00	0.00
44.00	0.00	0	35.10	0.00	0.00	0.00
44.25	0.00	0	35.10	0.00	0.00	0.00
44.50	0.00	0	35.10	0.00	0.00	0.00
44.75	0.00	0	35.10	0.00	0.00	0.00
45.00	0.00	0	35.10	0.00	0.00	0.00
45.25	0.00	0	35.10	0.00	0.00	0.00
45.50	0.00	0	35.10	0.00	0.00	0.00
45.75	0.00	0	35.10	0.00	0.00	0.00
46.00	0.00	0	35.10	0.00	0.00	0.00
46.25	0.00	0	35.10	0.00	0.00	0.00
46.50	0.00	0	35.10	0.00	0.00	0.00
46.75	0.00	0	35.10	0.00	0.00	0.00
47.00	0.00	0	35.10	0.00	0.00	0.00
47.25	0.00	0	35.10	0.00	0.00	0.00
47.50	0.00	0	35.10	0.00	0.00	0.00
47.75	0.00	0	35.10	0.00	0.00	0.00
48.00	0.00	0	35.10	0.00	0.00	0.00
48.25	0.00	0	35.10	0.00	0.00	0.00
48.50	0.00	0	35.10	0.00	0.00	0.00
48.75	0.00	0	35.10	0.00	0.00	0.00
49.00	0.00	0	35.10	0.00	0.00	0.00
49.25	0.00	0	35.10	0.00	0.00	0.00
49.50	0.00	0	35.10	0.00	0.00	0.00
49.75	0.00	0	35.10	0.00	0.00	0.00
50.00	0.00	0	35.10	0.00	0.00	0.00
50.25	0.00	0	35.10	0.00	0.00	0.00
50.50	0.00	0	35.10	0.00	0.00	0.00
50.75	0.00	0	35.10	0.00	0.00	0.00
51.00	0.00	0	35.10	0.00	0.00	0.00
51.25	0.00	0	35.10	0.00	0.00	0.00
51.50	0.00	0	35.10	0.00	0.00	0.00
51.75	0.00	0	35.10	0.00	0.00	0.00
52.00	0.00	0	35.10	0.00	0.00	0.00
52.25	0.00	0	35.10	0.00	0.00	0.00
52.50	0.00	0	35.10	0.00	0.00	0.00
52.75	0.00	0	35.10	0.00	0.00	0.00
53.00	0.00	0	35.10	0.00	0.00	0.00
53.25	0.00	0	35.10	0.00	0.00	0.00
53.50	0.00	0	35.10	0.00	0.00	0.00
53.75	0.00	0	35.10	0.00	0.00	0.00

Hydrograph for Pond IB5-P: Infiltration Basin #5 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
54.00	0.00	0	35.10	0.00	0.00	0.00
54.25	0.00	0	35.10	0.00	0.00	0.00
54.50	0.00	0	35.10	0.00	0.00	0.00
54.75	0.00	0	35.10	0.00	0.00	0.00
55.00	0.00	0	35.10	0.00	0.00	0.00
55.25	0.00	0	35.10	0.00	0.00	0.00
55.50	0.00	0	35.10	0.00	0.00	0.00
55.75	0.00	0	35.10	0.00	0.00	0.00
56.00	0.00	0	35.10	0.00	0.00	0.00
56.25	0.00	0	35.10	0.00	0.00	0.00
56.50	0.00	0	35.10	0.00	0.00	0.00
56.75	0.00	0	35.10	0.00	0.00	0.00
57.00	0.00	0	35.10	0.00	0.00	0.00
57.25	0.00	0	35.10	0.00	0.00	0.00
57.50	0.00	0	35.10	0.00	0.00	0.00
57.75	0.00	0	35.10	0.00	0.00	0.00
58.00	0.00	0	35.10	0.00	0.00	0.00
58.25	0.00	0	35.10	0.00	0.00	0.00
58.50	0.00	0	35.10	0.00	0.00	0.00
58.75	0.00	0	35.10	0.00	0.00	0.00
59.00	0.00	0	35.10	0.00	0.00	0.00
59.25	0.00	0	35.10	0.00	0.00	0.00
59.50	0.00	0	35.10	0.00	0.00	0.00
59.75	0.00	0	35.10	0.00	0.00	0.00
60.00	0.00	0	35.10	0.00	0.00	0.00

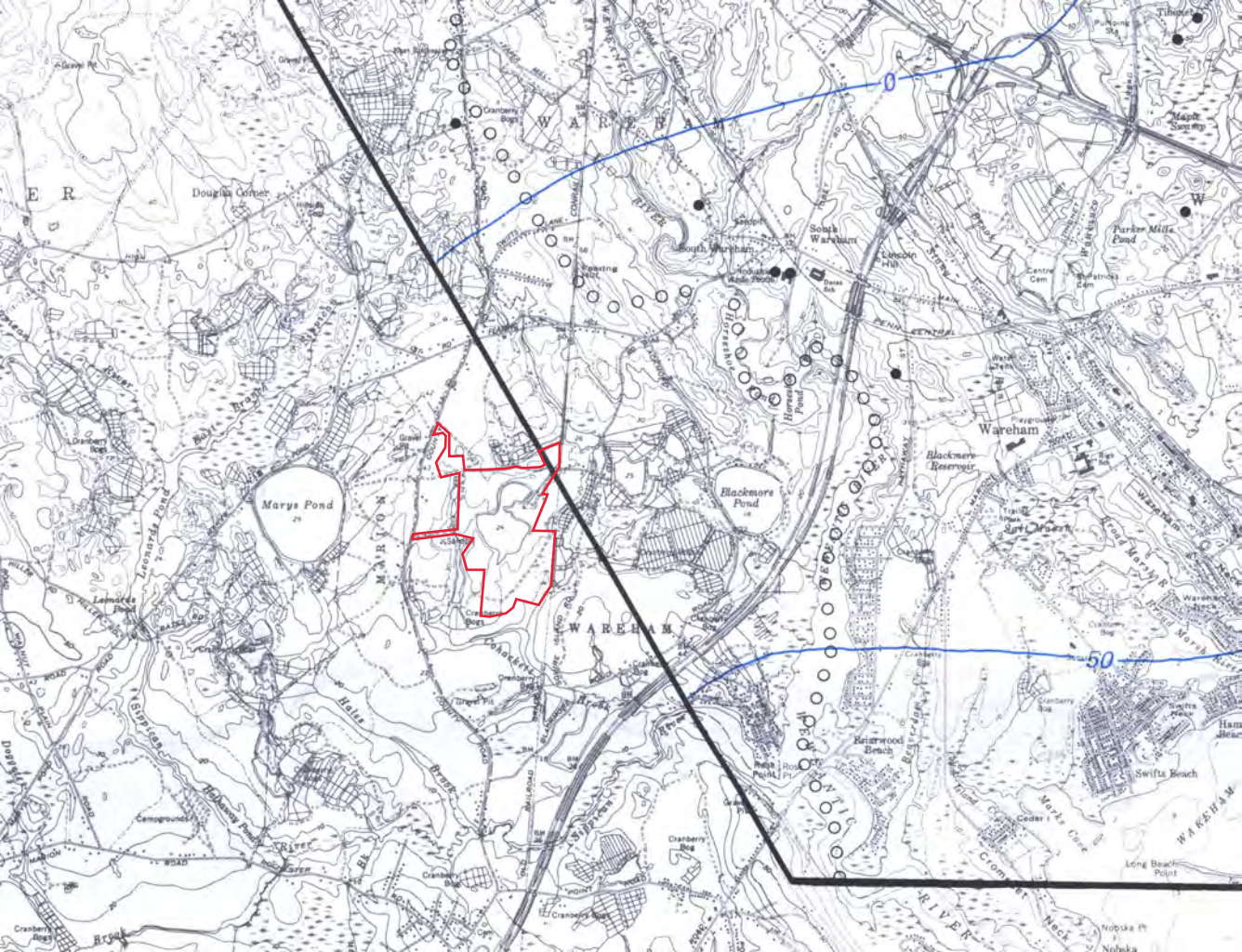
SCALE 1:50,000



CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ALTITUDE OF BEDROCK SURFACE, PLYMOUTH-CARVER AREA, SOUTHEASTERN MASSACHUSETTS

By
Bruce P. Hansen and Wayne W. Lapham
1992



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

The user must specify infiltration rate (R), specific yield (Sy), horizontal hydraulic conductivity (Kh), basin dimensions (x, y), duration of infiltration period (t), and the initial thickness of the saturated zone (hi(0), height of the water table if the bottom of the aquifer is the datum). For a square basin the half width equals the half length (x = y). For a rectangular basin, if the user wants the water-table changes perpendicular to the long side, specify x as the short dimension and y as the long dimension. Conversely, if the user wants the values perpendicular to the short side, specify y as the short dimension, x as the long dimension. All distances are from the center of the basin. Users can change the distances from the center of the basin at which water-table aquifer thickness are calculated.

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Input Values

4.0000	R
0.210	Sy
165.40	K
13.000	x
209.000	y
0.870	t
56.500	hi(0)

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

Recharge (infiltration) rate (feet/day)
Specific yield, Sy (dimensionless, between 0 and 1)
Horizontal hydraulic conductivity, Kh (feet/day)*
1/2 length of basin (x direction, in feet)
1/2 width of basin (y direction, in feet)
duration of infiltration period (days)
initial thickness of saturated zone (feet)

Conversion Table

inch/hour	feet/day
0.67	1.33
2.00	4.00
hours	days
36	1.50

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

57.487	h(max)
0.987	Δh(max)

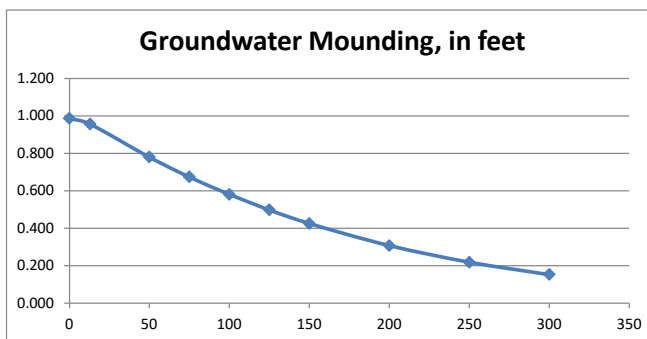
maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet
 Distance from center of basin in x direction, in feet

0.987	0
0.956	13
0.780	50
0.675	75
0.581	100
0.498	125
0.426	150
0.308	200
0.219	250
0.153	300



Re-Calculate Now



Disclaimer

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

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Input Values

4.4400	R
0.210	Sy
165.40	K
24.500	x
145.000	y
1.110	t
56.500	hi(0)

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

Recharge (infiltration) rate (feet/day)
Specific yield, Sy (dimensionless, between 0 and 1)
Horizontal hydraulic conductivity, Kh (feet/day)*
1/2 length of basin (x direction, in feet)
1/2 width of basin (y direction, in feet)
duration of infiltration period (days)
initial thickness of saturated zone (feet)

Conversion Table

inch/hour	feet/day
0.67	1.33
2.00	4.00
hours	days
36	1.50

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

58.329	h(max)
1.829	Δh(max)

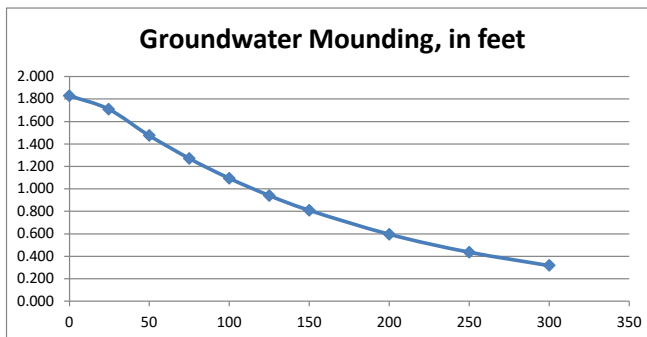
maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet
 Distance from center of basin in x direction, in feet

1.829	0
1.710	24.5
1.475	50
1.270	75
1.094	100
0.941	125
0.809	150
0.595	200
0.436	250
0.317	300



Re-Calculate Now



Disclaimer

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Input Values

5.0200	R
0.210	Sy
165.40	K
28.000	x
45.000	y
1.310	t
56.500	hi(0)

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

Recharge (infiltration) rate (feet/day)
Specific yield, Sy (dimensionless, between 0 and 1)
Horizontal hydraulic conductivity, Kh (feet/day)*
1/2 length of basin (x direction, in feet)
1/2 width of basin (y direction, in feet)
duration of infiltration period (days)
initial thickness of saturated zone (feet)

Conversion Table

inch/hour	feet/day
0.67	1.33
2.00	4.00
hours	days
36	1.50

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

57.637	h(max)
1.137	Δh(max)

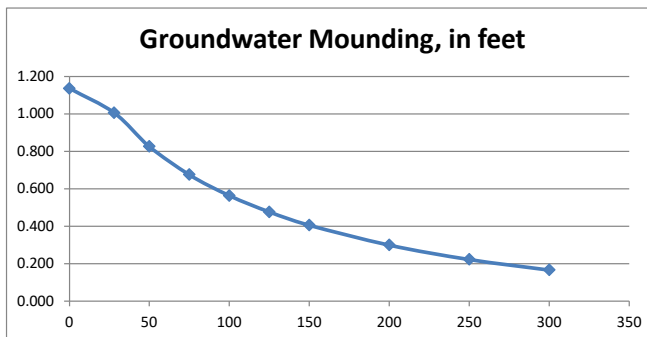
maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet
 Distance from center of basin in x direction, in feet

1.137	0
1.007	28
0.827	50
0.676	75
0.564	100
0.477	125
0.406	150
0.300	200
0.223	250
0.167	300



Re-Calculate Now



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Input Values

4.4700	R
0.210	Sy
165.40	K
50.500	x
84.000	y
1.640	t
58.500	hi(0)

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

Recharge (infiltration) rate (feet/day)
Specific yield, Sy (dimensionless, between 0 and 1)
Horizontal hydraulic conductivity, Kh (feet/day)*
1/2 length of basin (x direction, in feet)
1/2 width of basin (y direction, in feet)
duration of infiltration period (days)
initial thickness of saturated zone (feet)

Conversion Table

inch/hour	feet/day
0.67	1.33
2.00	4.00
hours	days
36	1.50

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

61.174	h(max)
2.674	Δh(max)

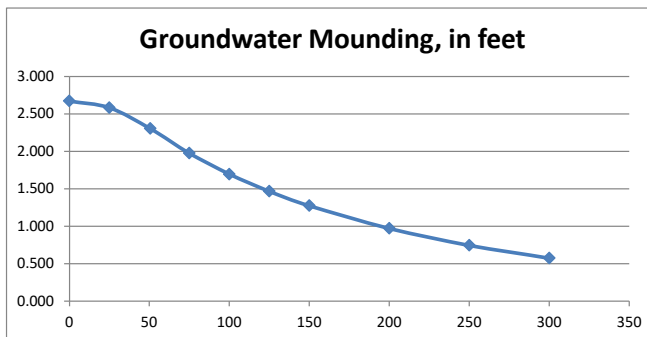
maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet
 Distance from center of basin in x direction, in feet

2.674	0
2.584	25
2.306	50.5
1.977	75
1.697	100
1.467	125
1.275	150
0.972	200
0.746	250
0.574	300



Re-Calculate Now



Disclaimer

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

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

The user must specify infiltration rate (R), specific yield (Sy), horizontal hydraulic conductivity (Kh), basin dimensions (x, y), duration of infiltration period (t), and the initial thickness of the saturated zone (hi(0), height of the water table if the bottom of the aquifer is the datum). For a square basin the half width equals the half length (x = y). For a rectangular basin, if the user wants the water-table changes perpendicular to the long side, specify x as the short dimension and y as the long dimension. Conversely, if the user wants the values perpendicular to the short side, specify y as the short dimension, x as the long dimension. All distances are from the center of the basin. Users can change the distances from the center of the basin at which water-table aquifer thickness are calculated.

Cells highlighted in yellow are values that can be changed by the user. Cells highlighted in red are output values based on user-specified inputs. **The user MUST click the blue "Re-Calculate Now" button each time ANY of the user-specified inputs are changed** otherwise necessary iterations to converge on the correct solution will not be done and values shown will be incorrect. Use consistent units for all input values (for example, feet and days)

Input Values

4.6400	R
0.210	Sy
165.40	K
16.000	x
82.000	y
0.830	t
58.500	hi(0)

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

Recharge (infiltration) rate (feet/day)
Specific yield, Sy (dimensionless, between 0 and 1)
Horizontal hydraulic conductivity, Kh (feet/day)*
1/2 length of basin (x direction, in feet)
1/2 width of basin (y direction, in feet)
duration of infiltration period (days)
initial thickness of saturated zone (feet)

Conversion Table

inch/hour	feet/day
0.67	1.33
2.00	4.00
hours	days
36	1.50

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

59.350	h(max)
0.850	Δh(max)

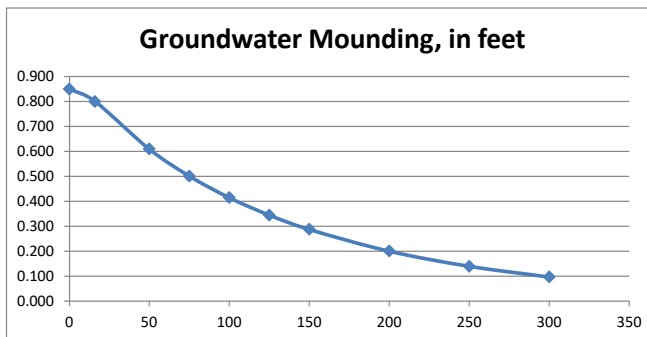
maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet **Distance from center of basin in x direction, in feet**

0.850	0
0.800	16
0.610	50
0.501	75
0.415	100
0.345	125
0.288	150
0.201	200
0.140	250
0.097	300



Re-Calculate Now



Disclaimer

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

SEDIMENT FOREBAY SIZING CALCULATIONS
HIDDEN TRAILS off County Road
WEST WAREHAM, MA

INFILTRATION BASIN #1 (Sediment Forebay 1A):

Impervious Area (I) = 29,257 s.f.

Sediment Forebay Volume Required

- $(0.10''/12) \times I = \mathbf{244}$ c.f.

Sediment Forebay Volume Provided

- The storage volume within forebays below spillway elevation 38.0':
Base area at elevation 37.0' = 2,150 s.f.
Base area at elevation 38.0' = 3,042 s.f.

Volume between elevation 37.0' and 38.0' = **2,596 c.f.**

Conclusion: Proposed sediment forebay volume of **2,596** cubic feet provided is greater than **244** cubic feet required; therefore OK.

INFILTRATION BASIN #1 (Sediment Forebay 1B):

Impervious Area (I) = 16,550 s.f.

Sediment Forebay Volume Required

- $(0.10''/12) \times I = \mathbf{137}$ c.f.

Sediment Forebay Volume Provided

- The storage volume within forebays below spillway elevation 38.5':
Base area at elevation 37.0' = 318 s.f.
Base area at elevation 38.5' = 732 s.f.

Volume between elevation 37.0' and 38.5' = **788 c.f.**

Conclusion: Proposed sediment forebay volume of **788** cubic feet provided is greater than **137** cubic feet required; therefore OK.

INFILTRATION BASIN #2:

Impervious Area (I) = 84,347 s.f.

Sediment Forebay Volume Required

- $(0.10''/12) \times I = \mathbf{703}$ c.f.

Sediment Forebay Volume Provided

- The storage volume within forebays below spillway elevation 31.9':
Base area at elevation 31.2' = 840 s.f.
Base area at elevation 31.9' = 1,344 s.f.

Volume between elevation 31.2' and 31.9' = **764 c.f.**

Conclusion: Proposed sediment forebay volume of **764** cubic feet provided is greater than **703** cubic feet required; therefore OK.

INFILTRATION BASIN #3:

Impervious Area (I) = 36,300 s.f.

Sediment Forebay Volume Required

- $(0.10''/12) \times I = \mathbf{303}$ c.f.

Sediment Forebay Volume Provided

- The storage volume within forebays below spillway elevation 33.8':
Base area at elevation 32.6' = 155 s.f.
Base area at elevation 33.8' = 414 s.f.

Volume between elevation 32.6' and 33.8' = **341 c.f.**

Conclusion: Proposed sediment forebay volume of **341** cubic feet provided is greater than **303** cubic feet required; therefore OK.

INFILTRATION BASIN #4:

Impervious Area (I) = 151,870 s.f.

Sediment Forebay Volume Required

- $(0.10''/12) \times I = \mathbf{1,266}$ c.f.

Sediment Forebay Volume Provided

- The storage volume within forebays below spillway elevation 31.5':
Base area at elevation 30.7' = 1,545 s.f.
Base area at elevation 31.0' = 1,763 s.f.
Base area at elevation 31.5' = 2,132 s.f.

Volume between elevation 30.7' and 31.5' = **1,470** c.f.

Conclusion: Proposed sediment forebay volume of **1,470** cubic feet provided is greater than **1,266** cubic feet required; therefore OK.

INFILTRATION BASIN #5:

Impervious Area (I) = 23,850 s.f.

Sediment Forebay Volume Required

- $(0.10''/12) \times I = \mathbf{199}$ c.f.

Sediment Forebay Volume Provided

- The storage volume within forebays below spillway elevation 35.6':
Base area at elevation 35.1' = 1,049 s.f.
Base area at elevation 35.6' = 1,246 s.f.

Volume between elevation 35.1' and 35.6' = **574** c.f.

Conclusion: Proposed sediment forebay volume of **574** cubic feet provided is greater than **199** cubic feet required; therefore OK.

EMERGENCY SPILLWAY SIZING CALCULATIONS

HIDDEN TRAILS off County Road

WEST WAREHAM, MA

Broad-Crested Weir Formula (HydroCAD Technical Reference Manual):

$$Q = C \times L \times H^{3/2} \quad C = (\text{see Brater and King (1976)})$$

$$L = Q \div (C \times H^{3/2}) = \text{min. length of spillway}$$

$$H = (Q \div (C \times L))^{2/3}$$

- **Infiltration Basin 1** (Hold H=0.50 ft)
100-year discharge Q = 11.09 cfs
Spillway Crest Elevation = 39.7'; Min. Embankment Elevation = 40.7'

For H = 0.50 ft:

$$L = (Q \div (C \times H^{3/2}))$$

$$L = (11.09 \div (2.70 \times 0.50^{3/2})) = \mathbf{11.62 \text{ ft min.}} \text{ (use } L = 12 \text{ ft)}$$

- **Infiltration Basin 3** (Hold H=0.50 ft)
100-year discharge Q = 8.40 cfs
Spillway Crest Elevation = 37.6'; Min. Embankment Elevation = 38.6'

For H = 0.50 ft:

$$L = (Q \div (C \times H^{3/2}))$$

$$L = (8.40 \div (2.70 \times 0.50^{3/2})) = \mathbf{8.8 \text{ ft min.}} \text{ (use } L = 10 \text{ ft)}$$

- **Infiltration Basin 4** (Hold H=1.0 ft)
100-year discharge Q = 33.93 cfs
Spillway Crest Elevation = 35.5'; Min. Embankment Elevation = 36.5'

For H = 1.0 ft:

$$L = (Q \div (C \times H^{3/2}))$$

$$L = (33.93 \div (2.63 \times 1.0^{3/2})) = \mathbf{12.90 \text{ ft min.}} \text{ (use } L = 15 \text{ ft)}$$

- **Infiltration Basin 5** (Hold H=0.50 ft)
100-year discharge Q = 6.13 cfs
Spillway Crest Elevation = 38.0'; Min. Embankment Elevation = 39.0'

For H = 0.5 ft:

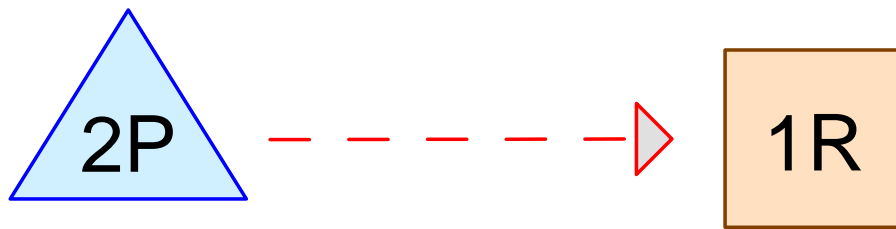
$$L = (Q \div (C \times H^{3/2}))$$

$$L = (6.13 \div (2.70 \times 0.50^{3/2})) = \mathbf{6.42 \text{ ft min.}} \text{ (use } L = 10 \text{ ft)}$$

See HydroCAD report for Spillway Sizing for Infiltration Basin #2 (100-year only)

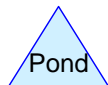
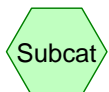
Assumptions made: Assume Infiltration basin is full up to the OCS, then subject the Infiltration Basin to a 100-year storm. All storage within IB#2 below the outlet has been ignored.

Conclusions: A 4' wide by 0.75' wall weir and (2) 12" outlet pipes are necessary. Peak storage in the basin does not exceed the elevation for the top of basin.



IB#2-no storage below
outlet

Outlet pipes from OCS



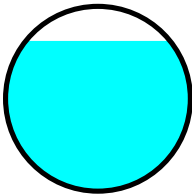
Summary for Reach 1R: Outlet pipes from OCS

Inflow = 10.42 cfs @ 12.33 hrs, Volume= 69,815 cf
 Outflow = 10.42 cfs @ 12.33 hrs, Volume= 69,815 cf, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Max. Velocity= 7.62 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 2.04 fps, Avg. Travel Time= 0.2 min

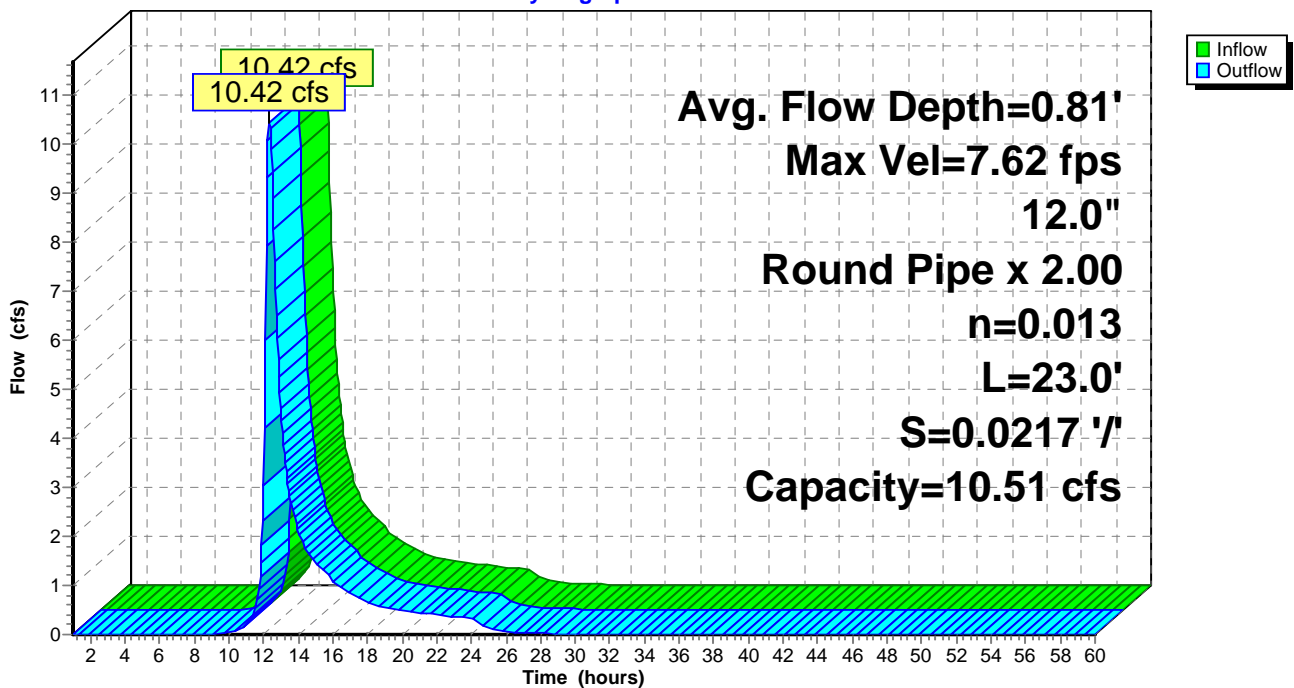
Peak Storage= 31 cf @ 12.33 hrs
 Average Depth at Peak Storage= 0.81'
 Bank-Full Depth= 1.00' Flow Area= 1.6 sf, Capacity= 10.51 cfs

A factor of 2.00 has been applied to the storage and discharge capacity
 12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 23.0' Slope= 0.0217 '/
 Inlet Invert= 33.00', Outlet Invert= 32.50'



Reach 1R: Outlet pipes from OCS

Hydrograph



Summary for Pond 2P: IB#2-no storage below outlet

Inflow Area = 262,345 sf, 37.86% Impervious, Inflow Depth = 3.19" for 100-year event
 Inflow = 20.17 cfs @ 12.11 hrs, Volume= 69,815 cf
 Outflow = 10.42 cfs @ 12.33 hrs, Volume= 69,815 cf, Atten= 48%, Lag= 13.0 min
 Secondary = 10.42 cfs @ 12.33 hrs, Volume= 69,815 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.33' @ 12.33 hrs Surf.Area= 20,072 sf Storage= 15,798 cf

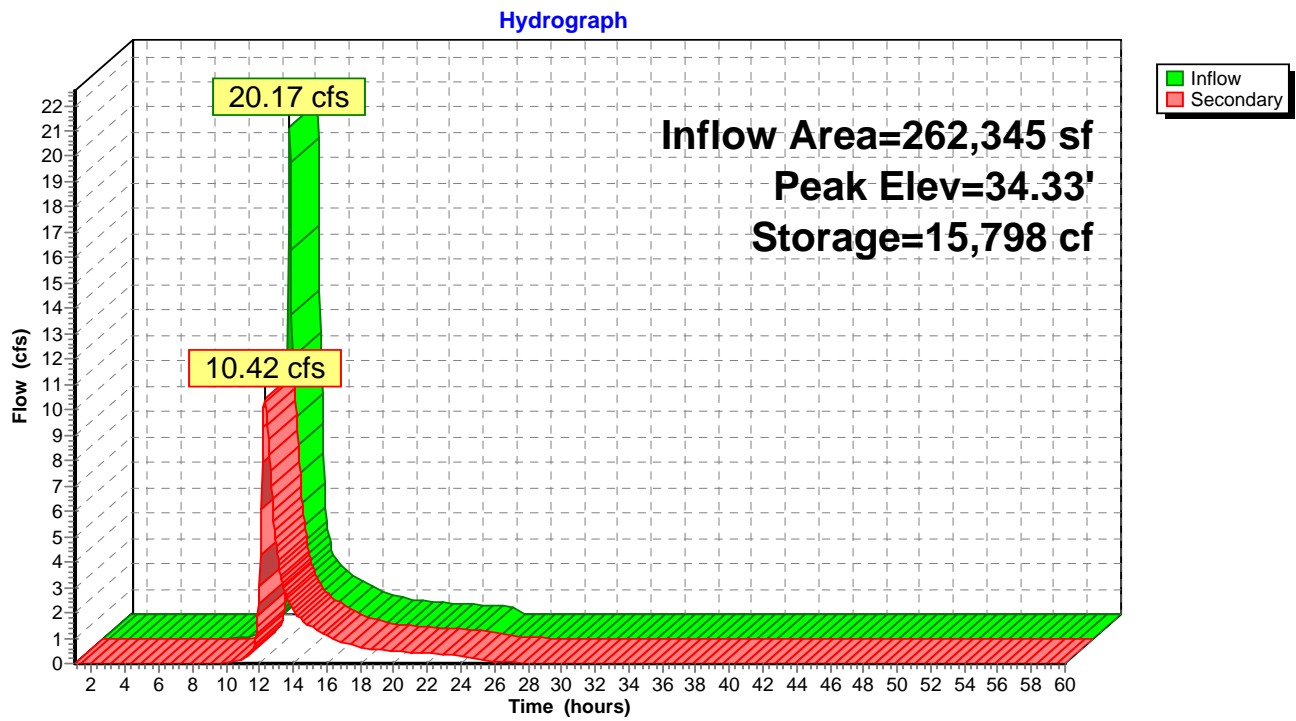
Plug-Flow detention time= 44.2 min calculated for 69,756 cf (100% of inflow)
 Center-of-Mass det. time= 44.8 min (890.0 - 845.2)

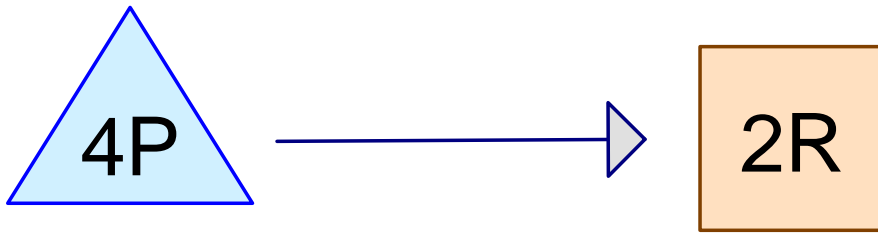
Volume	Invert	Avail.Storage	Storage Description		
#1	33.50'	29,829 cf	Custom Stage Data (Conic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
33.50	18,050	0	0	18,050	
34.00	19,280	9,331	9,331	19,304	
35.00	21,740	20,498	29,829	21,815	

Device	Routing	Invert	Outlet Devices
#1	Secondary	33.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 1.0' Crest Height

Secondary OutFlow Max=10.39 cfs @ 12.33 hrs HW=34.33' (Free Discharge)
 ↳1=Sharp-Crested Rectangular Weir (Weir Controls 10.39 cfs @ 3.28 fps)

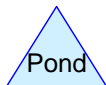
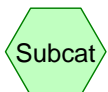
Pond 2P: IB#2-no storage below outlet





IB #4-No Storage below
outlet

Grassed Swale



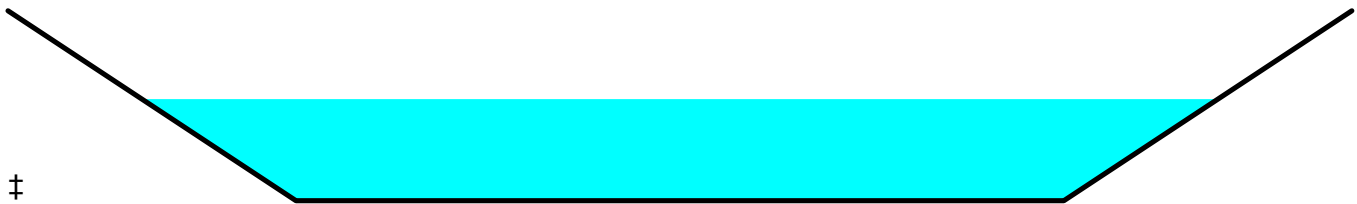
Summary for Reach 2R: Grassed Swale

Inflow Area = 523,288 sf, 32.44% Impervious, Inflow Depth = 2.86" for 100-year event
 Inflow = 25.73 cfs @ 12.23 hrs, Volume= 124,669 cf
 Outflow = 25.61 cfs @ 12.25 hrs, Volume= 124,669 cf, Atten= 0%, Lag= 1.4 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.00 fps, Min. Travel Time= 0.6 min
 Avg. Velocity = 1.11 fps, Avg. Travel Time= 2.7 min

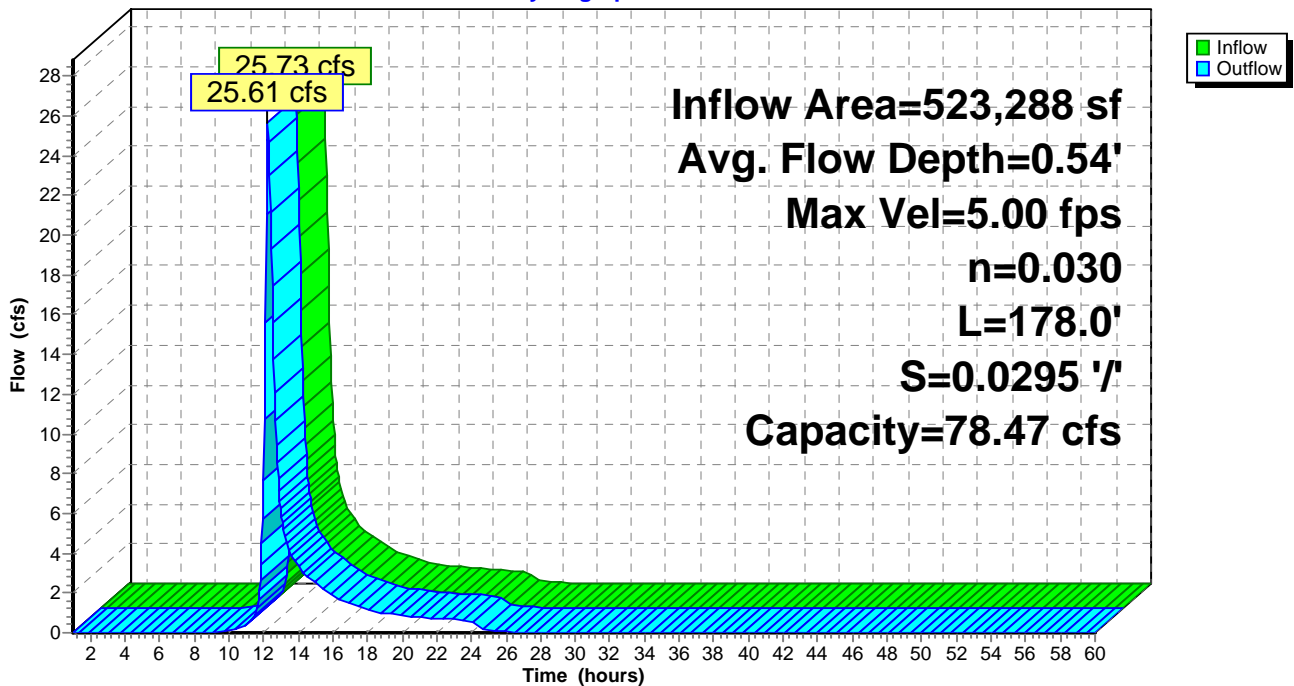
Peak Storage= 915 cf @ 12.23 hrs
 Average Depth at Peak Storage= 0.54'
 Bank-Full Depth= 1.00' Flow Area= 11.0 sf, Capacity= 78.47 cfs

8.00' x 1.00' deep channel, n= 0.030 Short grass
 Side Slope Z-value= 3.0 '/' Top Width= 14.00'
 Length= 178.0' Slope= 0.0295 '/'
 Inlet Invert= 35.25', Outlet Invert= 30.00'



Reach 2R: Grassed Swale

Hydrograph



Summary for Pond 4P: IB #4-No Storage below outlet

Inflow Area = 523,288 sf, 32.44% Impervious, Inflow Depth = 2.86" for 100-year event
 Inflow = 33.93 cfs @ 12.12 hrs, Volume= 124,669 cf
 Outflow = 25.73 cfs @ 12.23 hrs, Volume= 124,669 cf, Atten= 24%, Lag= 6.2 min
 Primary = 25.73 cfs @ 12.23 hrs, Volume= 124,669 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.22' @ 12.23 hrs Surf.Area= 22,687 sf Storage= 15,882 cf

Plug-Flow detention time= 19.8 min calculated for 124,564 cf (100% of inflow)
 Center-of-Mass det. time= 20.0 min (871.8 - 851.8)

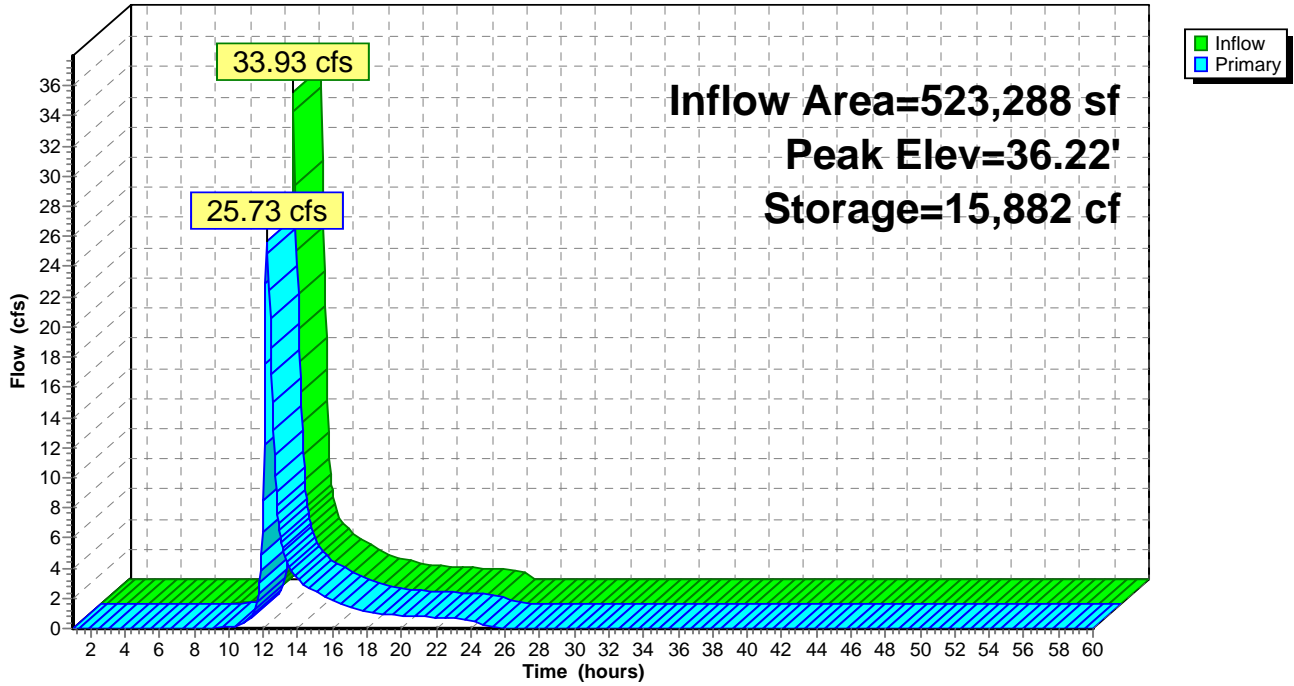
Volume	Invert	Avail.Storage	Storage Description		
#1	35.50'	34,114 cf	Custom Stage Data (Conic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
35.50	21,450	0	0	21,450	
36.00	22,310	10,939	10,939	22,349	
37.00	24,050	23,175	34,114	24,171	

Device	Routing	Invert	Outlet Devices										
#1	Primary	35.50'	15.0' long x 1.0' breadth Broad-Crested Rectangular Weir										
			Head (feet)	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80	2.00
			2.50	3.00									
			Coef. (English)	2.69	2.72	2.75	2.85	2.98	3.08	3.20	3.28	3.31	
			3.30	3.31	3.32								

Primary OutFlow Max=25.56 cfs @ 12.23 hrs HW=36.22' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 25.56 cfs @ 2.38 fps)

Pond 4P: IB #4-No Storage below outlet

Hydrograph



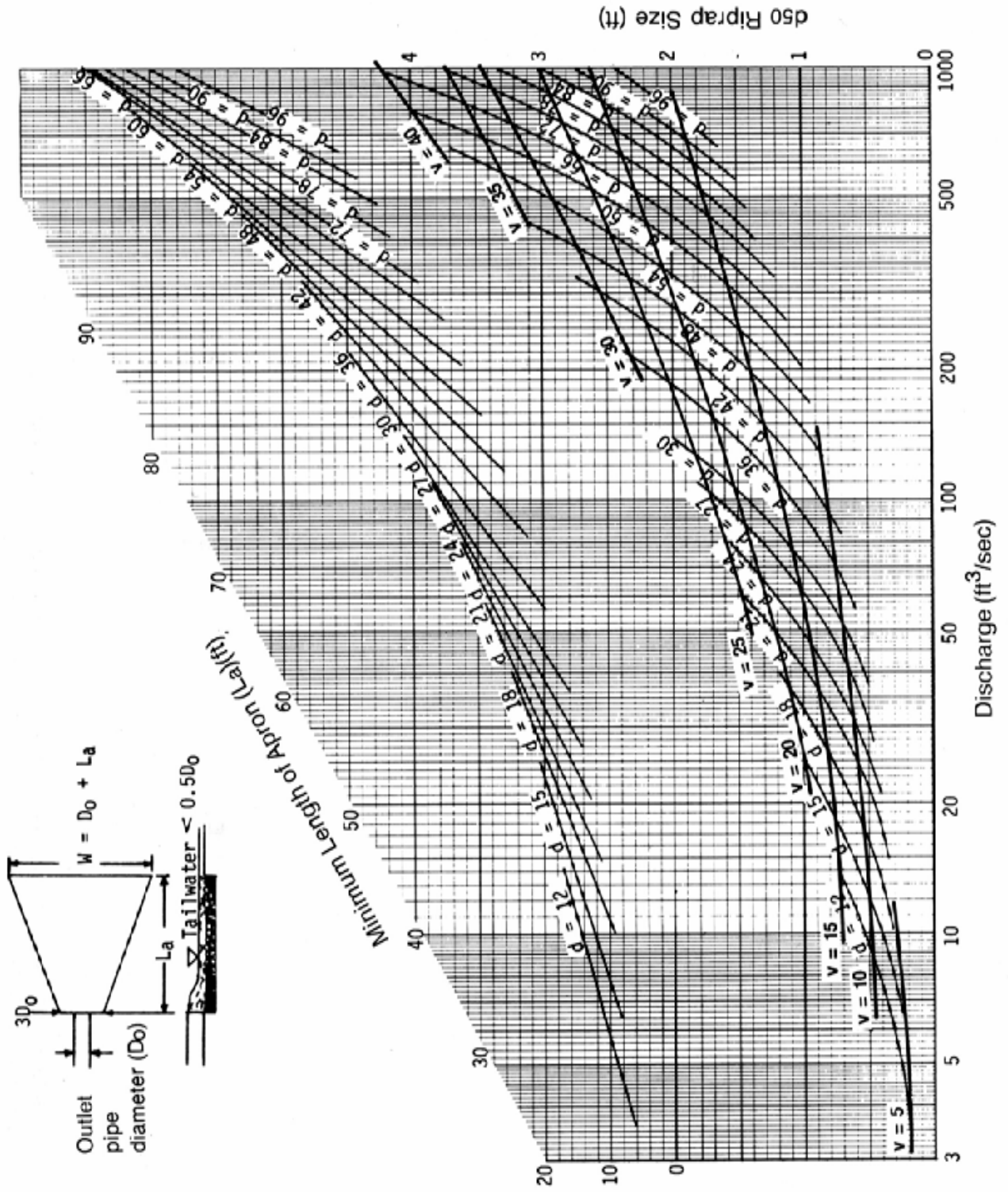
Refer to Figure 1, Outlet Protection Design-Minimum Tailwater Conditions on following page

Note: Stone Outlet Protection based upon 25-year storm event

Outlet	Discharge Structure	Pipe Dia (inch)	Discharge (cfs) ¹	L _a (ft)	W (ft)	Stone Dia (D ⁵⁰)	Stone Dia (D _{max})	Minimum Bed Depth D (inch)
FE #1	DMH 5	18	3.99	9	10.5	4	6	9
FE #2	DMH 7	12	2.21	6	7	4	6	9
FE #3	DMH 22	24	10.32	13	15	5	8	12
FE #4	DMH 25	15	4.1	8	9.25	4	6	9
FE #5	DMH 32	24	14.08	13	15	5	8	12
FE #6	DMH 13	15	4.21	8	9.25	4	6	9
FE #7	DMH 16	15	3.14	8	9.25	4	6	9
FE #8 ²	OCS-2	(2) 12	10.42	13	15	5	8	12

1. See HydroCAD results for 25-year storm event
2. Stone protection sized for 100-year storm

Figure 1
Outlet Protection Design—Minimum Tailwater Condition
(Design of Outlet Protection from a Round Pipe Flowing Full,
Minimum Tailwater Condition: $T_w < 0.5D_o$) (USDA - NRCS)



TSS REMOVAL CALCULATIONS

TSS REMOVAL WORKSHEET (PRETREATMENT)

INFILTRATION BASIN #1

BMP	TSS REMOVAL RATE	STARTING TSS LOAD	AMOUNT REMOVED	REMAINING LOAD
DEEP SUMP CATCH BASIN	0.25	1.00	0.25	0.75
PROPRIETARY SEPARATOR (DMH 5 & 7)	0.50	0.75	0.38	0.38
		0.38	0.00	0.38
TOTAL=			62.5%	

INFILTRATION BASIN #2

BMP	TSS REMOVAL RATE	STARTING TSS LOAD	AMOUNT REMOVED	REMAINING LOAD
DEEP SUMP CATCH BASIN	0.25	1.00	0.25	0.75
PROPRIETARY SEPARATOR (DMH 22)	0.50	0.75	0.38	0.38
		0.38	0.00	0.38
TOTAL=			62.5%	

INFILTRATION BASIN #3

BMP	TSS REMOVAL RATE	STARTING TSS LOAD	AMOUNT REMOVED	REMAINING LOAD
DEEP SUMP CATCH BASIN	0.25	1.00	0.25	0.75
PROPRIETARY SEPARATOR (DMH 25)	0.50	0.75	0.38	0.38
		0.38	0.00	0.38
TOTAL=			62.5%	

INFILTRATION BASIN #4

BMP	TSS REMOVAL RATE	STARTING TSS LOAD	AMOUNT REMOVED	REMAINING LOAD
DEEP SUMP CATCH BASIN	0.25	1.00	0.25	0.75
PROPRIETARY SEPARATOR (DMH 13 & 32)	0.50	0.75	0.38	0.38
		0.38	0.00	0.38
TOTAL=			62.5%	

INFILTRATION BASIN #5

BMP	TSS REMOVAL RATE	STARTING TSS LOAD	AMOUNT REMOVED	REMAINING LOAD
DEEP SUMP CATCH BASIN	0.25	1.00	0.25	0.75
PROPRIETARY SEPARATOR (DMH 16)	0.50	0.75	0.38	0.38
		0.38	0.00	0.38
TOTAL=			62.5%	

TSS REMOVAL WORKSHEET (TOTAL)

INFILTRATION BASIN #1

BMP	TSS REMOVAL RATE	STARTING TSS LOAD	AMOUNT REMOVED	REMAINING LOAD
DEEP SUMP CATCH BASIN	0.25	1.00	0.25	0.75
PROPRIETARY SEPARATOR (DMH 5 & 7)	0.50	0.75	0.38	0.38
FOREBAY/INFILTRATION BASIN	0.80	0.38	0.30	0.08
TOTAL=			92.5%	

INFILTRATION BASIN #2

BMP	TSS REMOVAL RATE	STARTING TSS LOAD	AMOUNT REMOVED	REMAINING LOAD
DEEP SUMP CATCH BASIN	0.25	1.00	0.25	0.75
PROPRIETARY SEPARATOR (DMH 22)	0.50	0.75	0.38	0.38
FOREBAY/INFILTRATION BASIN	0.80	0.38	0.30	0.08
TOTAL=			92.5%	

INFILTRATION BASIN #3

BMP	TSS REMOVAL RATE	STARTING TSS LOAD	AMOUNT REMOVED	REMAINING LOAD
DEEP SUMP CATCH BASIN	0.25	1.00	0.25	0.75
PROPRIETARY SEPARATOR (DMH 25)	0.50	0.75	0.38	0.38
FOREBAY/INFILTRATION BASIN	0.80	0.38	0.30	0.08
TOTAL=			92.5%	

INFILTRATION BASIN #4

BMP	TSS REMOVAL RATE	STARTING TSS LOAD	AMOUNT REMOVED	REMAINING LOAD
DEEP SUMP CATCH BASIN	0.25	1.00	0.25	0.75
PROPRIETARY SEPARATOR (DMH 13 & 32)	0.50	0.75	0.38	0.38
FOREBAY/INFILTRATION BASIN	0.80	0.38	0.30	0.08
TOTAL=			92.5%	

INFILTRATION BASIN #5

BMP	TSS REMOVAL RATE	STARTING TSS LOAD	AMOUNT REMOVED	REMAINING LOAD
DEEP SUMP CATCH BASIN	0.25	1.00	0.25	0.75
PROPRIETARY SEPARATOR (DMH 16)	0.50	0.75	0.38	0.38
FOREBAY/INFILTRATION BASIN	0.80	0.38	0.30	0.08
TOTAL=			92.5%	

Standard Method to Convert Required Water Quality Volume to a Discharge Rate

Water Quality Depth (Dwq) with infiltration rate > 2.4 in/hr = 1 inch

Structure Name	Contributing Imp. Area (A) (s.f.)	Unit Peak Discharge (qu) (csm/in)	Contributing Imp. Area (A) (square miles)	Water Quality Flow (Qmax) (cfs)	Required Treatment Structure*
DMH-7	45,807	795	0.00164	1.31	CDS 2015-4
DMH-22	84,347	795	0.00303	2.41	CDS 2015-4
DMH-25	36,300	795	0.00130	1.04	CDS 2015-4
DMH-12	151,870	795	0.00545	4.33	CDS 2015-4
DMH-16	23,850	795	0.00086	0.68	CDS 2015-4

- $Q_{max} = (qu)*(A)*(D_{wQ})$

Q_{max} = peak flow rate associated with first 1-inch of runoff

qu = the unit peak discharge, in csm/in. (used $t_c = 6$ min)

A = impervious surface drainage area (in square miles)

*Required Treatment Structure per Hydrodynamic Separation Calculator (see attached results)

Hydrodynamic Separation Product Calculator

off County Road, West Wareham, MA

Infiltration Basin #1 (DMH 7)

CDS 2015-4

CDS ESTIMATED NET ANNUAL SOLIDS LOAD REDUCTION BASED ON THE RATIONAL RAINFALL METHOD

Rainfall Intensity ¹ (in/hr)	% Rainfall Volume ¹	Cumulative Rainfall Volume	Rainfall Volume Treated	Total Flowrate (cfs)	Treated Flowrate (cfs)	Operating Rate (%)	Removal Efficiency (%)	Incremental Removal (%)
0.0800	35.30%	35.30%	35.30%	0.0848	0.0848	12.11%	98.99%	34.94%
0.1600	23.79%	59.09%	23.79%	0.1696	0.1696	24.23%	96.56%	22.97%
0.2400	12.91%	72.00%	12.91%	0.2544	0.2544	36.34%	94.14%	12.15%
0.3200	7.83%	79.83%	7.83%	0.3392	0.3392	48.46%	91.71%	7.18%
0.4000	4.91%	84.74%	4.91%	0.4240	0.4240	60.57%	89.29%	4.38%
0.4800	3.50%	88.24%	3.50%	0.5088	0.5088	72.69%	86.86%	3.04%
0.5600	1.71%	89.95%	1.71%	0.5936	0.5936	84.80%	84.44%	1.44%
0.6400	1.83%	91.78%	1.83%	0.6784	0.6784	96.91%	82.02%	1.50%
0.7200	1.87%	93.65%	1.72%	0.7632	0.7000	100.00%	74.66%	1.40%
0.8000	0.91%	94.56%	0.75%	0.8480	0.7000	100.00%	67.19%	0.61%
1.0000	2.32%	96.88%	1.53%	1.0600	0.7000	100.00%	53.75%	1.25%
2.0000	2.88%	99.76%	0.95%	2.1200	0.7000	100.00%	26.88%	0.77%
3.0000	0.23%	99.99%	0.05%	3.1800	0.7000	100.00%	17.92%	0.04%
								91.67%
Removal Efficiency Adjustment ² =								
Predicted % Annual Rainfall Treated =								96.78%
Predicted Net Annual Load Removal Efficiency =								91.67%
1 - Based on 14 years of 15 minute precipitation data from NCDC station 3821, Hyannis, in Barnstable County, MA								
2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.								

Hydrodynamic Separation Product Calculator

off County Road, West Wareham, MA

Infiltration Basin #2 (DMH 22)

CDS 2015-4

CDS ESTIMATED NET ANNUAL SOLIDS LOAD REDUCTION BASED ON THE RATIONAL RAINFALL METHOD

Rainfall Intensity ¹ (in/hr)	% Rainfall Volume ¹	Cumulative Rainfall Volume	Rainfall Volume Treated	Total Flowrate (cfs)	Treated Flowrate (cfs)	Operating Rate (%)	Removal Efficiency (%)	Incremental Removal (%)
0.0800	35.30%	35.30%	35.30%	0.1496	0.1496	21.37%	97.13%	34.29%
0.1600	23.79%	59.09%	23.79%	0.2992	0.2992	42.74%	92.86%	22.09%
0.2400	12.91%	72.00%	12.91%	0.4488	0.4488	64.11%	88.58%	11.44%
0.3200	7.83%	79.83%	7.83%	0.5984	0.5984	85.49%	84.30%	6.60%
0.4000	4.91%	84.74%	4.59%	0.7480	0.7000	100.00%	76.18%	3.74%
0.4800	3.50%	88.24%	2.73%	0.8976	0.7000	100.00%	63.48%	2.22%
0.5600	1.71%	89.95%	1.14%	1.0472	0.7000	100.00%	54.41%	0.93%
0.6400	1.83%	91.78%	1.07%	1.1968	0.7000	100.00%	47.61%	0.87%
0.7200	1.87%	93.65%	0.97%	1.3464	0.7000	100.00%	42.32%	0.79%
0.8000	0.91%	94.56%	0.43%	1.4960	0.7000	100.00%	38.09%	0.35%
1.0000	2.32%	96.88%	0.87%	1.8700	0.7000	100.00%	30.47%	0.71%
2.0000	2.88%	99.76%	0.54%	3.7400	0.7000	100.00%	15.24%	0.44%
3.0000	0.23%	99.99%	0.03%	5.6100	0.7000	100.00%	10.16%	0.02%
								84.49%
Removal Efficiency Adjustment ² =								
Predicted % Annual Rainfall Treated =								92.20%
Predicted Net Annual Load Removal Efficiency =								84.49%
1 - Based on 14 years of 15 minute precipitation data from NCDC station 3821, Hyannis, in Barnstable County, MA								
2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.								

Hydrodynamic Separation Product Calculator

off County Road, West Wareham, MA

Infiltration Basin #3 (DMH 25)

CDS 2015-4

CDS ESTIMATED NET ANNUAL SOLIDS LOAD REDUCTION BASED ON THE RATIONAL RAINFALL METHOD

Rainfall Intensity ¹ (in/hr)	% Rainfall Volume ¹	Cumulative Rainfall Volume	Rainfall Volume Treated	Total Flowrate (cfs)	Treated Flowrate (cfs)	Operating Rate (%)	Removal Efficiency (%)	Incremental Removal (%)
0.0800	35.30%	35.30%	35.30%	0.0656	0.0656	9.37%	99.54%	35.14%
0.1600	23.79%	59.09%	23.79%	0.1312	0.1312	18.74%	97.66%	23.23%
0.2400	12.91%	72.00%	12.91%	0.1968	0.1968	28.11%	95.79%	12.37%
0.3200	7.83%	79.83%	7.83%	0.2624	0.2624	37.49%	93.91%	7.35%
0.4000	4.91%	84.74%	4.91%	0.3280	0.3280	46.86%	92.03%	4.52%
0.4800	3.50%	88.24%	3.50%	0.3936	0.3936	56.23%	90.16%	3.16%
0.5600	1.71%	89.95%	1.71%	0.4592	0.4592	65.60%	88.28%	1.51%
0.6400	1.83%	91.78%	1.83%	0.5248	0.5248	74.97%	86.41%	1.58%
0.7200	1.87%	93.65%	1.87%	0.5904	0.5904	84.34%	84.53%	1.58%
0.8000	0.91%	94.56%	0.91%	0.6560	0.6560	93.71%	82.66%	0.75%
1.0000	2.32%	96.88%	1.98%	0.8200	0.7000	100.00%	69.49%	1.61%
2.0000	2.88%	99.76%	1.23%	1.6400	0.7000	100.00%	34.74%	1.00%
3.0000	0.23%	99.99%	0.07%	2.4600	0.7000	100.00%	23.16%	0.05%
								93.85%
Removal Efficiency Adjustment ² =								
Predicted % Annual Rainfall Treated =								97.84%
Predicted Net Annual Load Removal Efficiency =								93.85%
1 - Based on 14 years of 15 minute precipitation data from NCDC station 3821, Hyannis, in Barnstable County, MA								
2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.								

Hydrodynamic Separation Product Calculator

off County Road, West Wareham, MA

Infiltration Basin #4 (DMH 12)

CDS 2015-4

CDS ESTIMATED NET ANNUAL SOLIDS LOAD REDUCTION BASED ON THE RATIONAL RAINFALL METHOD

Rainfall Intensity ¹ (in/hr)	% Rainfall Volume ¹	Cumulative Rainfall Volume	Rainfall Volume Treated	Total Flowrate (cfs)	Treated Flowrate (cfs)	Operating Rate (%)	Removal Efficiency (%)	Incremental Removal (%)
0.0800	35.30%	35.30%	35.30%	0.2656	0.2656	37.94%	93.82%	33.12%
0.1600	23.79%	59.09%	23.79%	0.5312	0.5312	75.89%	86.22%	20.51%
0.2400	12.91%	72.00%	11.34%	0.7968	0.7000	100.00%	71.51%	9.23%
0.3200	7.83%	79.83%	5.16%	1.0624	0.7000	100.00%	53.63%	4.20%
0.4000	4.91%	84.74%	2.59%	1.3280	0.7000	100.00%	42.91%	2.11%
0.4800	3.50%	88.24%	1.54%	1.5936	0.7000	100.00%	35.76%	1.25%
0.5600	1.71%	89.95%	0.64%	1.8592	0.7000	100.00%	30.65%	0.52%
0.6400	1.83%	91.78%	0.60%	2.1248	0.7000	100.00%	26.82%	0.49%
0.7200	1.87%	93.65%	0.55%	2.3904	0.7000	100.00%	23.84%	0.45%
0.8000	0.91%	94.56%	0.24%	2.6560	0.7000	100.00%	21.45%	0.20%
1.0000	2.32%	96.88%	0.49%	3.3200	0.7000	100.00%	17.16%	0.40%
2.0000	2.88%	99.76%	0.30%	6.6400	0.7000	100.00%	8.58%	0.25%
3.0000	0.23%	99.99%	0.02%	9.9600	0.7000	100.00%	5.72%	0.01%

72.74%

Removal Efficiency Adjustment² =

Predicted % Annual Rainfall Treated = 82.56%

Predicted Net Annual Load Removal Efficiency = 72.74%

1 - Based on 14 years of 15 minute precipitation data from NCDC station 3821, Hyannis, in Barnstable County, MA

2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.

Hydrodynamic Separation Product Calculator

off County Road, West Wareham, MA

Infiltration Basin #5 (DMH 16)

CDS 2015-4

CDS ESTIMATED NET ANNUAL SOLIDS LOAD REDUCTION BASED ON THE RATIONAL RAINFALL METHOD

Rainfall Intensity ¹ (in/hr)	% Rainfall Volume ¹	Cumulative Rainfall Volume	Rainfall Volume Treated	Total Flowrate (cfs)	Treated Flowrate (cfs)	Operating Rate (%)	Removal Efficiency (%)	Incremental Removal (%)
0.0800	35.30%	35.30%	35.30%	0.0416	0.0416	5.94%	100.00%	35.30%
0.1600	23.79%	59.09%	23.79%	0.0832	0.0832	11.89%	99.03%	23.56%
0.2400	12.91%	72.00%	12.91%	0.1248	0.1248	17.83%	97.84%	12.63%
0.3200	7.83%	79.83%	7.83%	0.1664	0.1664	23.77%	96.65%	7.57%
0.4000	4.91%	84.74%	4.91%	0.2080	0.2080	29.71%	95.47%	4.69%
0.4800	3.50%	88.24%	3.50%	0.2496	0.2496	35.66%	94.27%	3.30%
0.5600	1.71%	89.95%	1.71%	0.2912	0.2912	41.60%	93.09%	1.59%
0.6400	1.83%	91.78%	1.83%	0.3328	0.3328	47.54%	91.90%	1.68%
0.7200	1.87%	93.65%	1.87%	0.3744	0.3744	53.49%	90.71%	1.70%
0.8000	0.91%	94.56%	0.91%	0.4160	0.4160	59.43%	89.52%	0.81%
1.0000	2.32%	96.88%	2.32%	0.5200	0.5200	74.29%	86.54%	2.01%
2.0000	2.88%	99.76%	1.94%	1.0400	0.7000	100.00%	54.79%	1.58%
3.0000	0.23%	99.99%	0.10%	1.5600	0.7000	100.00%	36.53%	0.08%
								96.50%
Removal Efficiency Adjustment ² =								
Predicted % Annual Rainfall Treated =								98.92%
Predicted Net Annual Load Removal Efficiency =								96.50%
1 - Based on 14 years of 15 minute precipitation data from NCDC station 3821, Hyannis, in Barnstable County, MA								
2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.								

EXISTING CONDITIONS DRAINAGE CALCULATIONS



To County Road



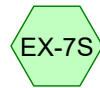
Offsite to Lot 1001



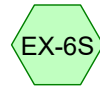
Offsite to North



Onsite to Wetland



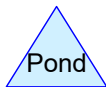
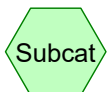
Onsite to pit



Onsite to manmade pond



Offsite to Cranberry Bogs



Routing Diagram for Hidden Trails-Existing Conditions-REV1
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Hidden Trails-Existing Conditions-REV1

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.961	76	Gravel roads, HSG A (EX-4S, EX-5S, EX-6S)
0.573	98	Isolated Wetland, HSG A (EX-2S, EX-3S)
2.463	72	Sand Pits, HSG A (EX-6S)
0.331	98	Wetlands, HSG A (EX-6S)
38.675	30	Woods, Good, HSG A (EX-1S, EX-2S, EX-3S, EX-4S, EX-5S, EX-6S, EX-7S)
43.002	35	TOTAL AREA

Hidden Trails-Existing Conditions-REV1

Type III 24-hr 2-year Rainfall=3.44"

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Summary for Subcatchment EX-1S: To County Road

Runoff = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
24,266	30	Woods, Good, HSG A
24,266		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	50	0.0120	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"

Summary for Subcatchment EX-2S: Offsite to Lot 1001

Runoff = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
66,094	30	Woods, Good, HSG A
* 1,432	98	Isolated Wetland, HSG A
67,526	31	Weighted Average
66,094		97.88% Pervious Area
1,432		2.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	50	0.0080	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
5.6	177	0.0110	0.52		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	18	0.2400	2.45		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.1	40	0.0080	0.63		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
24.0	285	Total			

Summary for Subcatchment EX-3S: Onsite to Wetland

Runoff = 0.03 cfs @ 14.82 hrs, Volume= 0.018 af, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Hidden Trails-Existing Conditions-REV1

Type III 24-hr 2-year Rainfall=3.44"

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Area (sf)	CN	Description
75,251	30	Woods, Good, HSG A
* 23,527	98	Isolated Wetland, HSG A
98,778	46	Weighted Average
75,251		76.18% Pervious Area
23,527		23.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	50	0.0100	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
1.8	75	0.0200	0.71		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	22	0.1400	1.87		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.1	150	0.0130	0.80		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
20.8	297	Total			

Summary for Subcatchment EX-4S: Offsite to Cranberry Bogs

Runoff = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
416,826	30	Woods, Good, HSG A
7,100	76	Gravel roads, HSG A
423,926	31	Weighted Average
423,926		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	50	0.0080	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
2.0	60	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	22	0.3200	2.83		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.2	270	0.0040	0.32		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
33.5	402	Total			

Summary for Subcatchment EX-5S: Offsite to North

Runoff = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Hidden Trails-Existing Conditions-REV1

Type III 24-hr 2-year Rainfall=3.44"

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Area (sf)	CN	Description
503,479	30	Woods, Good, HSG A
20,250	76	Gravel roads, HSG A
523,729	32	Weighted Average
523,729		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.9	50	0.0020	0.03		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
3.8	80	0.0050	0.35		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.6	92	0.0380	0.97		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.1	300	0.0050	0.35		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.7	62	0.0800	1.41		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
50.1	584	Total			

Summary for Subcatchment EX-6S: Onsite to manmade pond

Runoff = 0.02 cfs @ 23.55 hrs, Volume= 0.008 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
564,481	30	Woods, Good, HSG A
* 107,300	72	Sand Pits, HSG A
* 14,400	98	Wetlands, HSG A
14,500	76	Gravel roads, HSG A
700,681	39	Weighted Average
686,281		97.94% Pervious Area
14,400		2.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	50	0.0080	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
17.6	580	0.0120	0.55		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
34.8	630	Total			

Summary for Subcatchment EX-7S: Onsite to pit

Runoff = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Hidden Trails-Existing Conditions-REV1

Type III 24-hr 2-year Rainfall=3.44"

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Area (sf)	CN	Description
34,275	30	Woods, Good, HSG A
34,275		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	40	0.0350	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"

Hidden Trails-Existing Conditions-REV1

Type III 24-hr 10-year Rainfall=5.05"

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Summary for Subcatchment EX-1S: To County Road

Runoff = 0.00 cfs @ 23.74 hrs, Volume= 0.000 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
24,266	30	Woods, Good, HSG A
24,266		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	50	0.0120	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"

Summary for Subcatchment EX-2S: Offsite to Lot 1001

Runoff = 0.00 cfs @ 22.37 hrs, Volume= 0.002 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
66,094	30	Woods, Good, HSG A
* 1,432	98	Isolated Wetland, HSG A
67,526	31	Weighted Average
66,094		97.88% Pervious Area
1,432		2.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	50	0.0080	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
5.6	177	0.0110	0.52		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	18	0.2400	2.45		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.1	40	0.0080	0.63		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
24.0	285	Total			

Summary for Subcatchment EX-3S: Onsite to Wetland

Runoff = 0.47 cfs @ 12.50 hrs, Volume= 0.096 af, Depth= 0.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Hidden Trails-Existing Conditions-REV1

Type III 24-hr 10-year Rainfall=5.05"

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Area (sf)	CN	Description
75,251	30	Woods, Good, HSG A
* 23,527	98	Isolated Wetland, HSG A
98,778	46	Weighted Average
75,251		76.18% Pervious Area
23,527		23.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	50	0.0100	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
1.8	75	0.0200	0.71		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	22	0.1400	1.87		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.1	150	0.0130	0.80		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
20.8	297	Total			

Summary for Subcatchment EX-4S: Offsite to Cranberry Bogs

Runoff = 0.02 cfs @ 22.46 hrs, Volume= 0.013 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
416,826	30	Woods, Good, HSG A
7,100	76	Gravel roads, HSG A
423,926	31	Weighted Average
423,926		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	50	0.0080	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
2.0	60	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	22	0.3200	2.83		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.2	270	0.0040	0.32		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
33.5	402	Total			

Summary for Subcatchment EX-5S: Offsite to North

Runoff = 0.04 cfs @ 21.55 hrs, Volume= 0.029 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Hidden Trails-Existing Conditions-REV1

Type III 24-hr 10-year Rainfall=5.05"

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Area (sf)	CN	Description
503,479	30	Woods, Good, HSG A
20,250	76	Gravel roads, HSG A
523,729	32	Weighted Average
523,729		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.9	50	0.0020	0.03		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
3.8	80	0.0050	0.35		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.6	92	0.0380	0.97		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.1	300	0.0050	0.35		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.7	62	0.0800	1.41		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
50.1	584	Total			

Summary for Subcatchment EX-6S: Onsite to manmade pond

Runoff = 0.50 cfs @ 13.24 hrs, Volume= 0.282 af, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
564,481	30	Woods, Good, HSG A
* 107,300	72	Sand Pits, HSG A
* 14,400	98	Wetlands, HSG A
14,500	76	Gravel roads, HSG A
700,681	39	Weighted Average
686,281		97.94% Pervious Area
14,400		2.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	50	0.0080	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
17.6	580	0.0120	0.55		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
34.8	630	Total			

Summary for Subcatchment EX-7S: Onsite to pit

Runoff = 0.00 cfs @ 23.61 hrs, Volume= 0.000 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Hidden Trails-Existing Conditions-REV1

Type III 24-hr 10-year Rainfall=5.05"

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Area (sf)	CN	Description
34,275	30	Woods, Good, HSG A
34,275		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	40	0.0350	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"

Hidden Trails-Existing Conditions-REV1

Type III 24-hr 25-year Rainfall=6.05"

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Summary for Subcatchment EX-1S: To County Road

Runoff = 0.01 cfs @ 15.57 hrs, Volume= 0.004 af, Depth= 0.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
24,266	30	Woods, Good, HSG A
24,266		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	50	0.0120	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"

Summary for Subcatchment EX-2S: Offsite to Lot 1001

Runoff = 0.02 cfs @ 15.36 hrs, Volume= 0.014 af, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
66,094	30	Woods, Good, HSG A
* 1,432	98	Isolated Wetland, HSG A
67,526	31	Weighted Average
66,094		97.88% Pervious Area
1,432		2.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	50	0.0080	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
5.6	177	0.0110	0.52		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	18	0.2400	2.45		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.1	40	0.0080	0.63		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
24.0	285	Total			

Summary for Subcatchment EX-3S: Onsite to Wetland

Runoff = 1.07 cfs @ 12.41 hrs, Volume= 0.168 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

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Type III 24-hr 25-year Rainfall=6.05"

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Area (sf)	CN	Description
75,251	30	Woods, Good, HSG A
* 23,527	98	Isolated Wetland, HSG A
98,778	46	Weighted Average
75,251		76.18% Pervious Area
23,527		23.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	50	0.0100	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
1.8	75	0.0200	0.71		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	22	0.1400	1.87		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.1	150	0.0130	0.80		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
20.8	297	Total			

Summary for Subcatchment EX-4S: Offsite to Cranberry Bogs

Runoff = 0.14 cfs @ 15.49 hrs, Volume= 0.087 af, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
416,826	30	Woods, Good, HSG A
7,100	76	Gravel roads, HSG A
423,926	31	Weighted Average
423,926		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	50	0.0080	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
2.0	60	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	22	0.3200	2.83		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.2	270	0.0040	0.32		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
33.5	402	Total			

Summary for Subcatchment EX-5S: Offsite to North

Runoff = 0.22 cfs @ 15.42 hrs, Volume= 0.141 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Hidden Trails-Existing Conditions-REV1

Type III 24-hr 25-year Rainfall=6.05"

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Area (sf)	CN	Description
503,479	30	Woods, Good, HSG A
20,250	76	Gravel roads, HSG A
523,729	32	Weighted Average
523,729		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.9	50	0.0020	0.03		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
3.8	80	0.0050	0.35		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.6	92	0.0380	0.97		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.1	300	0.0050	0.35		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.7	62	0.0800	1.41		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
50.1	584	Total			

Summary for Subcatchment EX-6S: Onsite to manmade pond

Runoff = 2.03 cfs @ 12.77 hrs, Volume= 0.616 af, Depth= 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
564,481	30	Woods, Good, HSG A
* 107,300	72	Sand Pits, HSG A
* 14,400	98	Wetlands, HSG A
14,500	76	Gravel roads, HSG A
700,681	39	Weighted Average
686,281		97.94% Pervious Area
14,400		2.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	50	0.0080	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
17.6	580	0.0120	0.55		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
34.8	630	Total			

Summary for Subcatchment EX-7S: Onsite to pit

Runoff = 0.01 cfs @ 15.46 hrs, Volume= 0.005 af, Depth= 0.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

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Type III 24-hr 25-year Rainfall=6.05"

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Area (sf)	CN	Description
34,275	30	Woods, Good, HSG A
34,275		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	40	0.0350	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"

Summary for Subcatchment EX-1S: To County Road

Runoff = 0.03 cfs @ 12.60 hrs, Volume= 0.015 af, Depth= 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
24,266	30	Woods, Good, HSG A
24,266		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	50	0.0120	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"

Summary for Subcatchment EX-2S: Offsite to Lot 1001

Runoff = 0.13 cfs @ 12.71 hrs, Volume= 0.050 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
66,094	30	Woods, Good, HSG A
* 1,432	98	Isolated Wetland, HSG A
67,526	31	Weighted Average
66,094		97.88% Pervious Area
1,432		2.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	50	0.0080	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
5.6	177	0.0110	0.52		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	18	0.2400	2.45		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.1	40	0.0080	0.63		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
24.0	285	Total			

Summary for Subcatchment EX-3S: Onsite to Wetland

Runoff = 2.37 cfs @ 12.35 hrs, Volume= 0.307 af, Depth= 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Hidden Trails-Existing Conditions-REV1

Type III 24-hr 100-year Rainfall=7.60"

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Area (sf)	CN	Description
75,251	30	Woods, Good, HSG A
* 23,527	98	Isolated Wetland, HSG A
98,778	46	Weighted Average
75,251		76.18% Pervious Area
23,527		23.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	50	0.0100	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
1.8	75	0.0200	0.71		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	22	0.1400	1.87		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.1	150	0.0130	0.80		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
20.8	297	Total			

Summary for Subcatchment EX-4S: Offsite to Cranberry Bogs

Runoff = 0.70 cfs @ 12.90 hrs, Volume= 0.316 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
416,826	30	Woods, Good, HSG A
7,100	76	Gravel roads, HSG A
423,926	31	Weighted Average
423,926		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	50	0.0080	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
2.0	60	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	22	0.3200	2.83		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.2	270	0.0040	0.32		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
33.5	402	Total			

Summary for Subcatchment EX-5S: Offsite to North

Runoff = 1.04 cfs @ 13.14 hrs, Volume= 0.457 af, Depth= 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Hidden Trails-Existing Conditions-REV1

Type III 24-hr 100-year Rainfall=7.60"

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Area (sf)	CN	Description
503,479	30	Woods, Good, HSG A
20,250	76	Gravel roads, HSG A
523,729	32	Weighted Average
523,729		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.9	50	0.0020	0.03		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
3.8	80	0.0050	0.35		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.6	92	0.0380	0.97		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.1	300	0.0050	0.35		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.7	62	0.0800	1.41		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
50.1	584	Total			

Summary for Subcatchment EX-6S: Onsite to manmade pond

Runoff = 6.54 cfs @ 12.65 hrs, Volume= 1.333 af, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
564,481	30	Woods, Good, HSG A
* 107,300	72	Sand Pits, HSG A
* 14,400	98	Wetlands, HSG A
14,500	76	Gravel roads, HSG A
700,681	39	Weighted Average
686,281		97.94% Pervious Area
14,400		2.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	50	0.0080	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
17.6	580	0.0120	0.55		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
34.8	630	Total			

Summary for Subcatchment EX-7S: Onsite to pit

Runoff = 0.05 cfs @ 12.49 hrs, Volume= 0.021 af, Depth= 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Hidden Trails-Existing Conditions-REV1

Type III 24-hr 100-year Rainfall=7.60"

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Area (sf)	CN	Description
34,275	30	Woods, Good, HSG A
34,275		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	40	0.0350	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"

PROPOSED CONDITIONS DRAINAGE CALCULATIONS



Hidden Trails-Proposed Conditions-REV1

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.011	98	1/4 of Roof, HSG A (Roof)
5.487	39	>75% Grass cover, Good, HSG A (PR-1S, PR-2S, PR-4S, PR-5S, PR-6S, PR-8S, PR-9S)
0.129	76	Gravel roads, HSG A (PR-4S, PR-9S)
0.540	98	Isolated Wetland, HSG A (PR-3S)
0.076	98	Paved driveway, HSG A (PR-6S)
0.110	98	Roofs, HSG A (PR-2S, PR-5S, PR-8S)
0.055	98	Roofs, HSG A (Lot 54) (PR-6S)
0.127	72	Sand Pits, HSG A (PR-6S)
0.331	98	Wetlands, HSG A (PR-6S)
9.669	30	Woods, Good, HSG A (PR-1S, PR-2S, PR-3S, PR-4S, PR-5S, PR-6S, PR-7S, PR-8S, PR-9S)
16.536	38	TOTAL AREA

Hidden Trails-Proposed Conditions-REV1

Type III 24-hr 2-year Rainfall=3.44"

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Summary for Subcatchment PR-1S: To County Road

Runoff = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
9,603	30	Woods, Good, HSG A
800	39	>75% Grass cover, Good, HSG A
10,403	31	Weighted Average
10,403		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	50	0.0120	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"

Summary for Subcatchment PR-2S: Offsite to Lot 1001

Runoff = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
15,671	30	Woods, Good, HSG A
2,375	39	>75% Grass cover, Good, HSG A
400	98	Roofs, HSG A
18,446	33	Weighted Average
18,046		97.83% Pervious Area
400		2.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	50	0.0250	0.17		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.2	28	0.1900	2.18		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
5.2	78	Total			

Summary for Subcatchment PR-3S: Onsite to Wetland

Runoff = 0.03 cfs @ 14.82 hrs, Volume= 0.017 af, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

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Type III 24-hr 2-year Rainfall=3.44"

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Area (sf)	CN	Description
74,219	30	Woods, Good, HSG A
* 23,527	98	Isolated Wetland, HSG A
97,746	46	Weighted Average
74,219		75.93% Pervious Area
23,527		24.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	50	0.0100	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
1.8	75	0.0200	0.71		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	22	0.1400	1.87		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.1	150	0.0130	0.80		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
20.8	297	Total			

Summary for Subcatchment PR-4S: Offsite to Cranberry Bogs

Runoff = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
51,972	30	Woods, Good, HSG A
31,970	39	>75% Grass cover, Good, HSG A
* 0	98	Roofs, HSG A (use drywells-8000)
* 3,684	76	Gravel roads, HSG A
87,626	35	Weighted Average
87,626		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.6	30	0.0330	0.91		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.8	80	Total			

Summary for Subcatchment PR-5S: Offsite to North

Runoff = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

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Type III 24-hr 2-year Rainfall=3.44"

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Area (sf)	CN	Description
111,315	30	Woods, Good, HSG A
39,531	39	>75% Grass cover, Good, HSG A
2,800	98	Roofs, HSG A
153,646	34	Weighted Average
150,846		98.18% Pervious Area
2,800		1.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	50	0.0200	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
1.9	80	0.0190	0.69		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.5	140	0.0360	0.95		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.3	270	Total			

Summary for Subcatchment PR-6S: Onsite to manmade pond

Runoff = 0.01 cfs @ 21.76 hrs, Volume= 0.007 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
109,268	30	Woods, Good, HSG A
150,971	39	>75% Grass cover, Good, HSG A
* 14,400	98	Wetlands, HSG A
* 3,300	98	Paved driveway, HSG A
* 0	98	Roofs, HSG A (14,400 s.f.)
* 2,400	98	Roofs, HSG A (Lot 54)
* 5,551	72	Sand Pits, HSG A
285,890	40	Weighted Average
265,790		92.97% Pervious Area
20,100		7.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.0500	0.22		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.4	40	0.0600	1.71		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	23	0.2200	3.28		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	53	0.0300	1.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.0	166	Total			

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Type III 24-hr 2-year Rainfall=3.44"

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Summary for Subcatchment PR-7S: Onsite to Depression

Runoff = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
20,614	30	Woods, Good, HSG A
20,614		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	50	0.0200	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
4.4	117	0.0080	0.45		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.3	167	Total			

Summary for Subcatchment PR-8S: Onsite to Ditch

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
18,371	30	Woods, Good, HSG A
11,156	39	>75% Grass cover, Good, HSG A
* 1,600	98	Roofs, HSG A
31,127	37	Weighted Average
29,527		94.86% Pervious Area
1,600		5.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	50	0.0250	0.17		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
1.7	50	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.5	50	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.2	150	Total			

Summary for Subcatchment PR-9S: Onsite to Ditch

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

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Type III 24-hr 2-year Rainfall=3.44"

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Area (sf)	CN	Description
10,150	30	Woods, Good, HSG A
2,222	39	>75% Grass cover, Good, HSG A
1,956	76	Gravel roads, HSG A
14,328	38	Weighted Average
14,328		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	50	0.0400	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
1.3	90	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
10.3	140	Total			

Summary for Subcatchment Roof: Sample Roof Area

Runoff = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
* 500	98	1/4 of Roof, HSG A
500		100.00% Impervious Area

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

Summary for Pond 1P: Typical Drywell

Inflow Area = 0.011 ac, 100.00% Impervious, Inflow Depth = 3.21" for 2-year event

Inflow = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af

Outflow = 0.02 cfs @ 12.28 hrs, Volume= 0.003 af, Atten= 56%, Lag= 11.3 min

Discarded = 0.02 cfs @ 12.28 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs

Peak Elev= 0.52' @ 12.28 hrs Surf.Area= 70 sf Storage= 15 cf

Plug-Flow detention time= 4.0 min calculated for 0.003 af (100% of inflow)

Center-of-Mass det. time= 3.9 min (758.9 - 754.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	45 cf	Custom Stage Data (Conic) Listed below (Recalc) 140 cf Overall - 27 cf Embedded = 113 cf x 40.0% Voids
#2	0.50'	21 cf	2.50'W x 5.50'L x 1.50'H Prismaoid Inside #1 27 cf Overall - 3.0" Wall Thickness = 21 cf
		66 cf	Total Available Storage

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Type III 24-hr 2-year Rainfall=3.44"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
0.00	70	0	0	70
2.00	70	140	140	129

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.270 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.02 cfs @ 12.28 hrs HW=0.51' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Summary for Pond 7P: Depression

Inflow Area = 0.473 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-year event
 Inflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.00' @ 1.00 hrs Surf.Area= 89 sf Storage= 0 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	41.00'	4,845 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.00	89	0	0
42.00	9,600	4,845	4,845

Summary for Pond 8P: Former Ditch

Inflow Area = 0.715 ac, 5.14% Impervious, Inflow Depth = 0.00" for 2-year event
 Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.00' @ 24.45 hrs Surf.Area= 61 sf Storage= 0 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	37.00'	3,036 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Type III 24-hr 2-year Rainfall=3.44"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.00	59	0	0
38.00	884	472	472
39.00	4,245	2,565	3,036

Summary for Pond 9P: Former Ditch

Inflow Area = 0.329 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-year event

Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs

Peak Elev= 36.08' @ 24.65 hrs Surf.Area= 52 sf Storage= 2 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	36.00'	2,216 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.00	8	0	0
37.00	588	298	298
38.00	1,421	1,005	1,303
38.50	2,232	913	2,216

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Type III 24-hr 10-year Rainfall=5.05"

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Summary for Subcatchment PR-1S: To County Road

Runoff = 0.00 cfs @ 22.23 hrs, Volume= 0.000 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
9,603	30	Woods, Good, HSG A
800	39	>75% Grass cover, Good, HSG A
10,403	31	Weighted Average
10,403		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	50	0.0120	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"

Summary for Subcatchment PR-2S: Offsite to Lot 1001

Runoff = 0.00 cfs @ 16.76 hrs, Volume= 0.002 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
15,671	30	Woods, Good, HSG A
2,375	39	>75% Grass cover, Good, HSG A
400	98	Roofs, HSG A
18,446	33	Weighted Average
18,046		97.83% Pervious Area
400		2.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	50	0.0250	0.17		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.2	28	0.1900	2.18		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
5.2	78	Total			

Summary for Subcatchment PR-3S: Onsite to Wetland

Runoff = 0.47 cfs @ 12.50 hrs, Volume= 0.095 af, Depth= 0.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

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Type III 24-hr 10-year Rainfall=5.05"

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Area (sf)	CN	Description
74,219	30	Woods, Good, HSG A
* 23,527	98	Isolated Wetland, HSG A
97,746	46	Weighted Average
74,219		75.93% Pervious Area
23,527		24.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	50	0.0100	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
1.8	75	0.0200	0.71		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	22	0.1400	1.87		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.1	150	0.0130	0.80		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
20.8	297	Total			

Summary for Subcatchment PR-4S: Offsite to Cranberry Bogs

Runoff = 0.02 cfs @ 15.10 hrs, Volume= 0.015 af, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
51,972	30	Woods, Good, HSG A
31,970	39	>75% Grass cover, Good, HSG A
* 0	98	Roofs, HSG A (use drywells-8000)
* 3,684	76	Gravel roads, HSG A
87,626	35	Weighted Average
87,626		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.6	30	0.0330	0.91		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.8	80	Total			

Summary for Subcatchment PR-5S: Offsite to North

Runoff = 0.03 cfs @ 15.56 hrs, Volume= 0.019 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

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Type III 24-hr 10-year Rainfall=5.05"

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Area (sf)	CN	Description
111,315	30	Woods, Good, HSG A
39,531	39	>75% Grass cover, Good, HSG A
2,800	98	Roofs, HSG A
153,646	34	Weighted Average
150,846		98.18% Pervious Area
2,800		1.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	50	0.0200	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
1.9	80	0.0190	0.69		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.5	140	0.0360	0.95		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.3	270	Total			

Summary for Subcatchment PR-6S: Onsite to manmade pond

Runoff = 0.42 cfs @ 12.42 hrs, Volume= 0.135 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
109,268	30	Woods, Good, HSG A
150,971	39	>75% Grass cover, Good, HSG A
* 14,400	98	Wetlands, HSG A
* 3,300	98	Paved driveway, HSG A
* 0	98	Roofs, HSG A (14,400 s.f.)
* 2,400	98	Roofs, HSG A (Lot 54)
* 5,551	72	Sand Pits, HSG A
285,890	40	Weighted Average
265,790		92.97% Pervious Area
20,100		7.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.0500	0.22		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.4	40	0.0600	1.71		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	23	0.2200	3.28		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	53	0.0300	1.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.0	166	Total			

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Type III 24-hr 10-year Rainfall=5.05"

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Summary for Subcatchment PR-7S: Onsite to Depression

Runoff = 0.00 cfs @ 23.79 hrs, Volume= 0.000 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
20,614	30	Woods, Good, HSG A
20,614		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	50	0.0200	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
4.4	117	0.0080	0.45		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.3	167	Total			

Summary for Subcatchment PR-8S: Onsite to Ditch

Runoff = 0.01 cfs @ 14.55 hrs, Volume= 0.009 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
18,371	30	Woods, Good, HSG A
11,156	39	>75% Grass cover, Good, HSG A
* 1,600	98	Roofs, HSG A
31,127	37	Weighted Average
29,527		94.86% Pervious Area
1,600		5.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	50	0.0250	0.17		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
1.7	50	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.5	50	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.2	150	Total			

Summary for Subcatchment PR-9S: Onsite to Ditch

Runoff = 0.01 cfs @ 13.71 hrs, Volume= 0.005 af, Depth= 0.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

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Type III 24-hr 10-year Rainfall=5.05"

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Area (sf)	CN	Description
10,150	30	Woods, Good, HSG A
2,222	39	>75% Grass cover, Good, HSG A
1,956	76	Gravel roads, HSG A
14,328	38	Weighted Average
14,328		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	50	0.0400	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
1.3	90	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
10.3	140	Total			

Summary for Subcatchment Roof: Sample Roof Area

Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 4.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 500	98	1/4 of Roof, HSG A
500		100.00% Impervious Area

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

Summary for Pond 1P: Typical Drywell

Inflow Area = 0.011 ac, 100.00% Impervious, Inflow Depth > 4.81" for 10-year event

Inflow = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af

Outflow = 0.02 cfs @ 12.36 hrs, Volume= 0.005 af, Atten= 65%, Lag= 16.2 min

Discarded = 0.02 cfs @ 12.36 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs

Peak Elev= 1.02' @ 12.36 hrs Surf.Area= 70 sf Storage= 32 cf

Plug-Flow detention time= 8.1 min calculated for 0.005 af (100% of inflow)

Center-of-Mass det. time= 8.1 min (755.9 - 747.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	45 cf	Custom Stage Data (Conic) Listed below (Recalc) 140 cf Overall - 27 cf Embedded = 113 cf x 40.0% Voids
#2	0.50'	21 cf	2.50'W x 5.50'L x 1.50'H Prismaoid Inside #1 27 cf Overall - 3.0" Wall Thickness = 21 cf
		66 cf	Total Available Storage

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Type III 24-hr 10-year Rainfall=5.05"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
0.00	70	0	0	70
2.00	70	140	140	129

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.270 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.02 cfs @ 12.36 hrs HW=1.01' (Free Discharge)
 ↗-1=Exfiltration (Exfiltration Controls 0.02 cfs)

Summary for Pond 7P: Depression

Inflow Area = 0.473 ac, 0.00% Impervious, Inflow Depth = 0.01" for 10-year event
 Inflow = 0.00 cfs @ 23.79 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.04' @ 24.95 hrs Surf.Area= 458 sf Storage= 11 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	41.00'	4,845 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.00	89	0	0
42.00	9,600	4,845	4,845

Summary for Pond 8P: Former Ditch

Inflow Area = 0.715 ac, 5.14% Impervious, Inflow Depth = 0.14" for 10-year event
 Inflow = 0.01 cfs @ 14.55 hrs, Volume= 0.009 af
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.89' @ 24.45 hrs Surf.Area= 790 sf Storage= 376 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	37.00'	3,036 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Type III 24-hr 10-year Rainfall=5.05"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.00	59	0	0
38.00	884	472	472
39.00	4,245	2,565	3,036

Summary for Pond 9P: Former Ditch

Inflow Area = 0.329 ac, 0.00% Impervious, Inflow Depth = 0.18" for 10-year event
 Inflow = 0.01 cfs @ 13.71 hrs, Volume= 0.005 af
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.84' @ 24.65 hrs Surf.Area= 494 sf Storage= 211 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	36.00'	2,216 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.00	8	0	0
37.00	588	298	298
38.00	1,421	1,005	1,303
38.50	2,232	913	2,216

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Type III 24-hr 25-year Rainfall=6.05"

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Summary for Subcatchment PR-1S: To County Road

Runoff = 0.00 cfs @ 15.23 hrs, Volume= 0.002 af, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
9,603	30	Woods, Good, HSG A
800	39	>75% Grass cover, Good, HSG A
10,403	31	Weighted Average
10,403		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	50	0.0120	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"

Summary for Subcatchment PR-2S: Offsite to Lot 1001

Runoff = 0.01 cfs @ 13.79 hrs, Volume= 0.006 af, Depth= 0.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
15,671	30	Woods, Good, HSG A
2,375	39	>75% Grass cover, Good, HSG A
400	98	Roofs, HSG A
18,446	33	Weighted Average
18,046		97.83% Pervious Area
400		2.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	50	0.0250	0.17		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.2	28	0.1900	2.18		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
5.2	78	Total			

Summary for Subcatchment PR-3S: Onsite to Wetland

Runoff = 1.06 cfs @ 12.41 hrs, Volume= 0.166 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

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Type III 24-hr 25-year Rainfall=6.05"

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Area (sf)	CN	Description
74,219	30	Woods, Good, HSG A
* 23,527	98	Isolated Wetland, HSG A
97,746	46	Weighted Average
74,219		75.93% Pervious Area
23,527		24.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	50	0.0100	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
1.8	75	0.0200	0.71		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	22	0.1400	1.87		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.1	150	0.0130	0.80		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
20.8	297	Total			

Summary for Subcatchment PR-4S: Offsite to Cranberry Bogs

Runoff = 0.11 cfs @ 12.49 hrs, Volume= 0.044 af, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
51,972	30	Woods, Good, HSG A
31,970	39	>75% Grass cover, Good, HSG A
* 0	98	Roofs, HSG A (use drywells-8000)
* 3,684	76	Gravel roads, HSG A
87,626	35	Weighted Average
87,626		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.6	30	0.0330	0.91		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.8	80	Total			

Summary for Subcatchment PR-5S: Offsite to North

Runoff = 0.11 cfs @ 13.78 hrs, Volume= 0.064 af, Depth= 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

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Type III 24-hr 25-year Rainfall=6.05"

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Area (sf)	CN	Description
111,315	30	Woods, Good, HSG A
39,531	39	>75% Grass cover, Good, HSG A
2,800	98	Roofs, HSG A
153,646	34	Weighted Average
150,846		98.18% Pervious Area
2,800		1.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	50	0.0200	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
1.9	80	0.0190	0.69		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.5	140	0.0360	0.95		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.3	270	Total			

Summary for Subcatchment PR-6S: Onsite to manmade pond

Runoff = 1.49 cfs @ 12.30 hrs, Volume= 0.282 af, Depth= 0.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
109,268	30	Woods, Good, HSG A
150,971	39	>75% Grass cover, Good, HSG A
* 14,400	98	Wetlands, HSG A
* 3,300	98	Paved driveway, HSG A
* 0	98	Roofs, HSG A (14,400 s.f.)
* 2,400	98	Roofs, HSG A (Lot 54)
* 5,551	72	Sand Pits, HSG A
285,890	40	Weighted Average
265,790		92.97% Pervious Area
20,100		7.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.0500	0.22		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.4	40	0.0600	1.71		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	23	0.2200	3.28		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	53	0.0300	1.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.0	166	Total			

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Type III 24-hr 25-year Rainfall=6.05"

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Summary for Subcatchment PR-7S: Onsite to Depression

Runoff = 0.00 cfs @ 15.59 hrs, Volume= 0.003 af, Depth= 0.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
20,614	30	Woods, Good, HSG A
20,614		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	50	0.0200	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
4.4	117	0.0080	0.45		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.3	167	Total			

Summary for Subcatchment PR-8S: Onsite to Ditch

Runoff = 0.08 cfs @ 12.41 hrs, Volume= 0.021 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
18,371	30	Woods, Good, HSG A
11,156	39	>75% Grass cover, Good, HSG A
* 1,600	98	Roofs, HSG A
31,127	37	Weighted Average
29,527		94.86% Pervious Area
1,600		5.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	50	0.0250	0.17		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
1.7	50	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.5	50	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.2	150	Total			

Summary for Subcatchment PR-9S: Onsite to Ditch

Runoff = 0.05 cfs @ 12.43 hrs, Volume= 0.011 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

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Type III 24-hr 25-year Rainfall=6.05"

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Area (sf)	CN	Description
10,150	30	Woods, Good, HSG A
2,222	39	>75% Grass cover, Good, HSG A
1,956	76	Gravel roads, HSG A
14,328	38	Weighted Average
14,328		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	50	0.0400	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
1.3	90	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
10.3	140	Total			

Summary for Subcatchment Roof: Sample Roof Area

Runoff = 0.07 cfs @ 12.09 hrs, Volume= 0.006 af, Depth> 5.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 500	98	1/4 of Roof, HSG A
500		100.00% Impervious Area

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

Summary for Pond 1P: Typical Drywell

Inflow Area = 0.011 ac, 100.00% Impervious, Inflow Depth > 5.81" for 25-year event

Inflow = 0.07 cfs @ 12.09 hrs, Volume= 0.006 af

Outflow = 0.02 cfs @ 12.39 hrs, Volume= 0.006 af, Atten= 68%, Lag= 18.0 min

Discarded = 0.02 cfs @ 12.39 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs

Peak Elev= 1.35' @ 12.39 hrs Surf.Area= 70 sf Storage= 43 cf

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

Center-of-Mass det. time= 10.6 min (755.7 - 745.1)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	45 cf	Custom Stage Data (Conic) Listed below (Recalc) 140 cf Overall - 27 cf Embedded = 113 cf x 40.0% Voids
#2	0.50'	21 cf	2.50'W x 5.50'L x 1.50'H Prismatic Inside #1 27 cf Overall - 3.0" Wall Thickness = 21 cf
		66 cf	Total Available Storage

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Type III 24-hr 25-year Rainfall=6.05"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
0.00	70	0	0	70
2.00	70	140	140	129

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.270 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.02 cfs @ 12.39 hrs HW=1.35' (Free Discharge)
 ↗-1=Exfiltration (Exfiltration Controls 0.02 cfs)

Summary for Pond 7P: Depression

Inflow Area = 0.473 ac, 0.00% Impervious, Inflow Depth = 0.08" for 25-year event
 Inflow = 0.00 cfs @ 15.59 hrs, Volume= 0.003 af
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.16' @ 24.95 hrs Surf.Area= 1,593 sf Storage= 133 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	41.00'	4,845 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.00	89	0	0
42.00	9,600	4,845	4,845

Summary for Pond 8P: Former Ditch

Inflow Area = 0.715 ac, 5.14% Impervious, Inflow Depth = 0.36" for 25-year event
 Inflow = 0.08 cfs @ 12.41 hrs, Volume= 0.021 af
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.32' @ 24.45 hrs Surf.Area= 1,952 sf Storage= 922 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	37.00'	3,036 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Type III 24-hr 25-year Rainfall=6.05"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.00	59	0	0
38.00	884	472	472
39.00	4,245	2,565	3,036

Summary for Pond 9P: Former Ditch

Inflow Area = 0.329 ac, 0.00% Impervious, Inflow Depth = 0.41" for 25-year event
 Inflow = 0.05 cfs @ 12.43 hrs, Volume= 0.011 af
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.27' @ 24.65 hrs Surf.Area= 811 sf Storage= 485 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	36.00'	2,216 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.00	8	0	0
37.00	588	298	298
38.00	1,421	1,005	1,303
38.50	2,232	913	2,216

Summary for Subcatchment PR-1S: To County Road

Runoff = 0.02 cfs @ 12.55 hrs, Volume= 0.008 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
9,603	30	Woods, Good, HSG A
800	39	>75% Grass cover, Good, HSG A
10,403	31	Weighted Average
10,403		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	50	0.0120	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"

Summary for Subcatchment PR-2S: Offsite to Lot 1001

Runoff = 0.08 cfs @ 12.35 hrs, Volume= 0.019 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
15,671	30	Woods, Good, HSG A
2,375	39	>75% Grass cover, Good, HSG A
400	98	Roofs, HSG A
18,446	33	Weighted Average
18,046		97.83% Pervious Area
400		2.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	50	0.0250	0.17		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.2	28	0.1900	2.18		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
5.2	78	Total			

Summary for Subcatchment PR-3S: Onsite to Wetland

Runoff = 2.34 cfs @ 12.35 hrs, Volume= 0.304 af, Depth= 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

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Type III 24-hr 100-year Rainfall=7.60"

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Area (sf)	CN	Description
74,219	30	Woods, Good, HSG A
* 23,527	98	Isolated Wetland, HSG A
97,746	46	Weighted Average
74,219		75.93% Pervious Area
23,527		24.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	50	0.0100	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
1.8	75	0.0200	0.71		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	22	0.1400	1.87		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.1	150	0.0130	0.80		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
20.8	297	Total			

Summary for Subcatchment PR-4S: Offsite to Cranberry Bogs

Runoff = 0.60 cfs @ 12.33 hrs, Volume= 0.113 af, Depth= 0.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
51,972	30	Woods, Good, HSG A
31,970	39	>75% Grass cover, Good, HSG A
* 0	98	Roofs, HSG A (use drywells-8000)
* 3,684	76	Gravel roads, HSG A
87,626	35	Weighted Average
87,626		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.6	30	0.0330	0.91		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.8	80	Total			

Summary for Subcatchment PR-5S: Offsite to North

Runoff = 0.78 cfs @ 12.49 hrs, Volume= 0.176 af, Depth= 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

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Type III 24-hr 100-year Rainfall=7.60"

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Area (sf)	CN	Description
111,315	30	Woods, Good, HSG A
39,531	39	>75% Grass cover, Good, HSG A
2,800	98	Roofs, HSG A
153,646	34	Weighted Average
150,846		98.18% Pervious Area
2,800		1.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	50	0.0200	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
1.9	80	0.0190	0.69		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.5	140	0.0360	0.95		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.3	270	Total			

Summary for Subcatchment PR-6S: Onsite to manmade pond

Runoff = 5.48 cfs @ 12.11 hrs, Volume= 0.590 af, Depth= 1.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
109,268	30	Woods, Good, HSG A
150,971	39	>75% Grass cover, Good, HSG A
* 14,400	98	Wetlands, HSG A
* 3,300	98	Paved driveway, HSG A
* 0	98	Roofs, HSG A (14,400 s.f.)
* 2,400	98	Roofs, HSG A (Lot 54)
* 5,551	72	Sand Pits, HSG A
285,890	40	Weighted Average
265,790		92.97% Pervious Area
20,100		7.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.0500	0.22		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.4	40	0.0600	1.71		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	23	0.2200	3.28		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	53	0.0300	1.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.0	166	Total			

Summary for Subcatchment PR-7S: Onsite to Depression

Runoff = 0.03 cfs @ 12.63 hrs, Volume= 0.013 af, Depth= 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
20,614	30	Woods, Good, HSG A
20,614		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	50	0.0200	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
4.4	117	0.0080	0.45		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.3	167	Total			

Summary for Subcatchment PR-8S: Onsite to Ditch

Runoff = 0.31 cfs @ 12.19 hrs, Volume= 0.049 af, Depth= 0.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
18,371	30	Woods, Good, HSG A
11,156	39	>75% Grass cover, Good, HSG A
* 1,600	98	Roofs, HSG A
31,127	37	Weighted Average
29,527		94.86% Pervious Area
1,600		5.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	50	0.0250	0.17		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
1.7	50	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.5	50	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.2	150	Total			

Summary for Subcatchment PR-9S: Onsite to Ditch

Runoff = 0.16 cfs @ 12.24 hrs, Volume= 0.025 af, Depth= 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

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Type III 24-hr 100-year Rainfall=7.60"

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Area (sf)	CN	Description
10,150	30	Woods, Good, HSG A
2,222	39	>75% Grass cover, Good, HSG A
1,956	76	Gravel roads, HSG A
14,328	38	Weighted Average
14,328		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	50	0.0400	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.43"
1.3	90	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
10.3	140	Total			

Summary for Subcatchment Roof: Sample Roof Area

Runoff = 0.08 cfs @ 12.09 hrs, Volume= 0.007 af, Depth> 7.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 500	98	1/4 of Roof, HSG A
500		100.00% Impervious Area

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

Summary for Pond 1P: Typical Drywell

Inflow Area = 0.011 ac, 100.00% Impervious, Inflow Depth > 7.36" for 100-year event

Inflow = 0.08 cfs @ 12.09 hrs, Volume= 0.007 af

Outflow = 0.02 cfs @ 12.42 hrs, Volume= 0.007 af, Atten= 71%, Lag= 19.8 min

Discarded = 0.02 cfs @ 12.42 hrs, Volume= 0.007 af

Routing by Stor-Ind method, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs

Peak Elev= 1.90' @ 12.42 hrs Surf.Area= 70 sf Storage= 62 cf

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

Center-of-Mass det. time= 14.3 min (756.4 - 742.1)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	45 cf	Custom Stage Data (Conic) Listed below (Recalc) 140 cf Overall - 27 cf Embedded = 113 cf x 40.0% Voids
#2	0.50'	21 cf	2.50'W x 5.50'L x 1.50'H Prismaoid Inside #1 27 cf Overall - 3.0" Wall Thickness = 21 cf
		66 cf	Total Available Storage

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Type III 24-hr 100-year Rainfall=7.60"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
0.00	70	0	0	70
2.00	70	140	140	129

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.270 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.02 cfs @ 12.42 hrs HW=1.90' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.02 cfs)

Summary for Pond 7P: Depression

Inflow Area = 0.473 ac, 0.00% Impervious, Inflow Depth = 0.33" for 100-year event
 Inflow = 0.03 cfs @ 12.63 hrs, Volume= 0.013 af
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.33' @ 24.95 hrs Surf.Area= 3,273 sf Storage= 563 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	41.00'	4,845 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.00	89	0	0
42.00	9,600	4,845	4,845

Summary for Pond 8P: Former Ditch

Inflow Area = 0.715 ac, 5.14% Impervious, Inflow Depth = 0.83" for 100-year event
 Inflow = 0.31 cfs @ 12.19 hrs, Volume= 0.049 af
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.77' @ 24.45 hrs Surf.Area= 3,474 sf Storage= 2,150 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	37.00'	3,036 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Type III 24-hr 100-year Rainfall=7.60"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.00	59	0	0
38.00	884	472	472
39.00	4,245	2,565	3,036

Summary for Pond 9P: Former Ditch

Inflow Area = 0.329 ac, 0.00% Impervious, Inflow Depth = 0.91" for 100-year event

Inflow = 0.16 cfs @ 12.24 hrs, Volume= 0.025 af

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-40.00 hrs, dt= 0.05 hrs

Peak Elev= 37.84' @ 24.65 hrs Surf.Area= 1,289 sf Storage= 1,087 cf

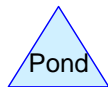
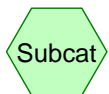
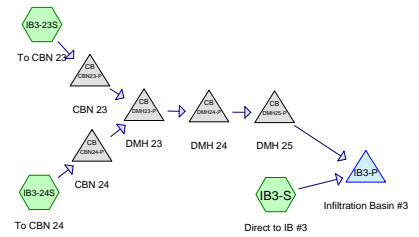
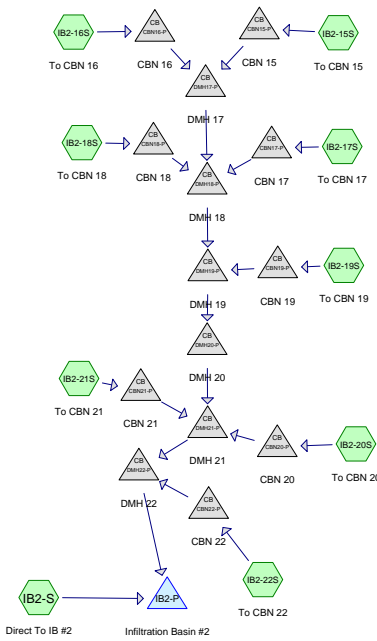
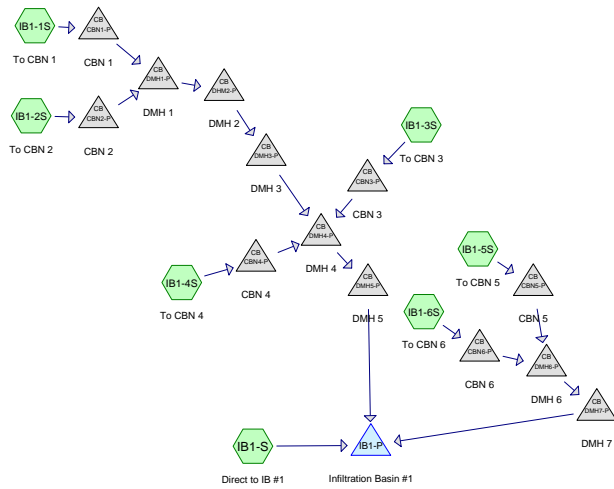
Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	36.00'	2,216 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.00	8	0	0
37.00	588	298	298
38.00	1,421	1,005	1,303
38.50	2,232	913	2,216

DRAINAGE SYSTEM DRAINAGE CALCULATIONS



Routing Diagram for Hidden Trails-Drainage System-REV1 (Basins 1 thru 3)

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Hidden Trails-Drainage System-REV1 (Basins 1 thru 3)

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Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
339,216	39	>75% Grass cover, Good, HSG A (IB1-1S, IB1-2S, IB1-3S, IB1-4S, IB1-5S, IB1-6S, IB1-S, IB2-15S, IB2-16S, IB2-17S, IB2-18S, IB2-19S, IB2-20S, IB2-21S, IB2-22S, IB2-S, IB3-23S, IB3-24S, IB3-S)
33,255	98	Basin (IB1-S, IB2-S, IB3-S)
2,837	98	Paved Driveways, HSG A (IB2-S)
95,217	98	Paved Roadway (IB1-1S, IB1-2S, IB1-3S, IB1-4S, IB1-5S, IB1-6S, IB2-15S, IB2-16S, IB2-17S, IB2-18S, IB2-19S, IB2-20S, IB2-21S, IB2-22S, IB3-23S, IB3-24S)
57,500	98	Roofs and Driveways, HSG A (IB1-5S, IB2-15S, IB2-16S, IB2-17S, IB2-18S, IB2-19S, IB2-20S, IB2-21S, IB3-24S)
10,900	98	Roofs and Driveways, HSG A (6400) (IB3-23S)
850	30	Woods, Good, HSG A (IB1-S)
539,775	61	TOTAL AREA

Hidden Trails-Drainage System-REV1 (Basins 1 thru 3)

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Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	CBN1-P	41.10	41.00	12.1	0.0083	0.013	12.0	0.0	0.0
2	CBN15-P	38.65	38.50	6.6	0.0227	0.013	12.0	0.0	0.0
3	CBN16-P	38.65	38.50	13.9	0.0108	0.013	12.0	0.0	0.0
4	CBN17-P	37.00	36.80	2.4	0.0833	0.013	12.0	0.0	0.0
5	CBN18-P	37.00	36.80	10.5	0.0190	0.013	12.0	0.0	0.0
6	CBN19-P	36.00	35.80	10.8	0.0185	0.013	12.0	0.0	0.0
7	CBN2-P	41.10	41.00	6.2	0.0161	0.013	12.0	0.0	0.0
8	CBN20-P	34.16	34.00	3.0	0.0533	0.013	12.0	0.0	0.0
9	CBN21-P	34.28	34.00	21.6	0.0130	0.013	12.0	0.0	0.0
10	CBN22-P	33.40	33.20	59.7	0.0034	0.013	12.0	0.0	0.0
11	CBN23-P	35.35	35.20	12.0	0.0125	0.013	15.0	0.0	0.0
12	CBN24-P	35.60	35.45	4.0	0.0375	0.013	12.0	0.0	0.0
13	CBN3-P	39.10	39.00	16.0	0.0063	0.013	12.0	0.0	0.0
14	CBN4-P	39.10	39.00	7.0	0.0143	0.013	12.0	0.0	0.0
15	CBN5-P	39.55	39.45	18.0	0.0056	0.013	12.0	0.0	0.0
16	CBN6-P	39.55	39.45	12.8	0.0078	0.013	12.0	0.0	0.0
17	DHM2-P	40.70	40.50	68.0	0.0029	0.013	12.0	0.0	0.0
18	DMH1-P	41.00	40.70	104.7	0.0029	0.013	12.0	0.0	0.0
19	DMH17-P	38.40	36.75	290.7	0.0057	0.013	12.0	0.0	0.0
20	DMH18-P	36.25	34.60	283.4	0.0058	0.013	18.0	0.0	0.0
21	DMH19-P	34.60	33.80	116.2	0.0069	0.013	18.0	0.0	0.0
22	DMH20-P	33.80	33.00	114.8	0.0070	0.013	18.0	0.0	0.0
23	DMH21-P	32.50	32.20	86.1	0.0035	0.013	24.0	0.0	0.0
24	DMH22-P	32.20	32.10	18.6	0.0054	0.013	24.0	0.0	0.0
25	DMH23-P	35.20	34.80	75.0	0.0053	0.013	15.0	0.0	0.0
26	DMH24-P	34.80	34.50	64.0	0.0047	0.013	15.0	0.0	0.0
27	DMH25-P	34.50	34.20	50.5	0.0059	0.013	15.0	0.0	0.0
28	DMH3-P	40.25	39.00	480.2	0.0026	0.013	15.0	0.0	0.0
29	DMH4-P	38.75	38.40	112.2	0.0031	0.013	18.0	0.0	0.0
30	DMH5-P	38.40	38.20	30.2	0.0066	0.013	18.0	0.0	0.0
31	DMH6-P	39.45	39.00	86.3	0.0052	0.013	12.0	0.0	0.0
32	DMH7-P	39.00	38.80	31.2	0.0064	0.013	12.0	0.0	0.0

Summary for Subcatchment IB1-1S: To CBN 1

Runoff = 0.44 cfs @ 12.04 hrs, Volume= 1,234 cf, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
* 6,500	98	Paved Roadway
2,819	39	>75% Grass cover, Good, HSG A
9,319	80	Weighted Average
2,819		30.25% Pervious Area
6,500		69.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
1.4	170	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.3	220	Total			

Summary for Subcatchment IB1-2S: To CBN 2

Runoff = 0.25 cfs @ 12.05 hrs, Volume= 735 cf, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
* 4,400	98	Paved Roadway
2,958	39	>75% Grass cover, Good, HSG A
7,358	74	Weighted Average
2,958		40.20% Pervious Area
4,400		59.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
1.4	170	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.3	220	Total			

Summary for Subcatchment IB1-3S: To CBN 3

Runoff = 0.66 cfs @ 12.07 hrs, Volume= 1,985 cf, Depth= 1.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
* 10,761	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
4,916	39	>75% Grass cover, Good, HSG A
15,677	79	Weighted Average
4,916		31.36% Pervious Area
10,761		68.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
3.3	400	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	450	Total			

Summary for Subcatchment IB1-4S: To CBN 4

Runoff = 0.31 cfs @ 12.16 hrs, Volume= 1,205 cf, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
* 7,596	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
6,502	39	>75% Grass cover, Good, HSG A
14,098	71	Weighted Average
6,502		46.12% Pervious Area
7,596		53.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
3.3	400	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
10.5	450	Total			

Summary for Subcatchment IB1-5S: To CBN 5

Runoff = 0.29 cfs @ 12.15 hrs, Volume= 1,472 cf, Depth= 0.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.44"

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	Area (sf)	CN	Description
*	5,950	98	Paved Roadway
*	6,400	98	Roofs and Driveways, HSG A
	22,564	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	34,914	60	Weighted Average
	22,564		64.63% Pervious Area
	12,350		35.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.9	55	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	150	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.5	255	Total			

Summary for Subcatchment IB1-6S: To CBN 6

Runoff = 0.26 cfs @ 12.07 hrs, Volume= 772 cf, Depth= 1.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

	Area (sf)	CN	Description
*	4,200	98	Paved Roadway
*	0	98	Roofs and Driveways, HSG A
	2,180	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	6,380	78	Weighted Average
	2,180		34.17% Pervious Area
	4,200		65.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	14	0.0200	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	36	0.0100	0.88		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
1.5	188	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	238	Total			

Summary for Subcatchment IB1-S: Direct to IB #1

Runoff = 0.25 cfs @ 12.13 hrs, Volume= 1,334 cf, Depth= 0.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
21,627	39	>75% Grass cover, Good, HSG A
* 11,790	98	Basin
850	30	Woods, Good, HSG A
34,267	59	Weighted Average
22,477		65.59% Pervious Area
11,790		34.41% Impervious Area

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

Summary for Subcatchment IB2-15S: To CBN 15

Runoff = 0.22 cfs @ 12.13 hrs, Volume= 1,033 cf, Depth= 0.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
* 4,150	98	Paved Roadway
* 4,400	98	Roofs and Driveways, HSG A
14,151	39	>75% Grass cover, Good, HSG A
22,701	61	Weighted Average
14,151		62.34% Pervious Area
8,550		37.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	40	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	66	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.6	156	Total			

Summary for Subcatchment IB2-16S: To CBN 16

Runoff = 0.22 cfs @ 12.15 hrs, Volume= 1,092 cf, Depth= 0.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.44"

Hidden Trails-Drainage System-REV1 (Basins 1 thru 3) Type III 24-hr 2-year Rainfall=3.44"

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Area (sf)	CN	Description
* 2,900	98	Paved Roadway
* 6,400	98	Roofs and Driveways, HSG A
16,600	39	>75% Grass cover, Good, HSG A
25,900	60	Weighted Average
16,600		64.09% Pervious Area
9,300		35.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.6	33	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	143	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.2	226	Total			

Summary for Subcatchment IB2-17S: To CBN 17

Runoff = 0.31 cfs @ 12.16 hrs, Volume= 1,568 cf, Depth= 0.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
* 5,900	98	Paved Roadway
* 7,200	98	Roofs and Driveways, HSG A
24,097	39	>75% Grass cover, Good, HSG A
37,197	60	Weighted Average
24,097		64.78% Pervious Area
13,100		35.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.6	33	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.8	217	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.8	300	Total			

Summary for Subcatchment IB2-18S: To CBN 18

Runoff = 0.22 cfs @ 12.17 hrs, Volume= 1,295 cf, Depth= 0.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Hidden Trails-Drainage System-REV1 (Basins 1 thru 3) Type III 24-hr 2-year Rainfall=3.44"

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Area (sf)	CN	Description
* 4,200	98	Paved Roadway
* 7,400	98	Roofs and Driveways, HSG A
24,571	39	>75% Grass cover, Good, HSG A
36,171	58	Weighted Average
24,571		67.93% Pervious Area
11,600		32.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.6	33	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.8	217	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.8	300	Total			

Summary for Subcatchment IB2-19S: To CBN 19

Runoff = 0.14 cfs @ 12.31 hrs, Volume= 1,073 cf, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
* 6,000	98	Paved Roadway
* 4,500	98	Roofs and Driveways, HSG A
25,366	39	>75% Grass cover, Good, HSG A
35,866	56	Weighted Average
25,366		70.72% Pervious Area
10,500		29.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
3.4	200	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.1	130	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.9	380	Total			

Summary for Subcatchment IB2-20S: To CBN 20

Runoff = 0.34 cfs @ 12.15 hrs, Volume= 1,388 cf, Depth= 0.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Hidden Trails-Drainage System-REV1 (Basins 1 thru 3) Type III 24-hr 2-year Rainfall=3.44"

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Area (sf)	CN	Description
* 5,900	98	Paved Roadway
* 4,100	98	Roofs and Driveways, HSG A
11,696	39	>75% Grass cover, Good, HSG A
21,696	66	Weighted Average
11,696		53.91% Pervious Area
10,000		46.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	40	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.6	320	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.7	410	Total			

Summary for Subcatchment IB2-21S: To CBN 21

Runoff = 0.19 cfs @ 12.22 hrs, Volume= 1,259 cf, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
* 4,600	98	Paved Roadway
* 6,900	98	Roofs and Driveways, HSG A
26,877	39	>75% Grass cover, Good, HSG A
38,377	57	Weighted Average
26,877		70.03% Pervious Area
11,500		29.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.9	350	0.0100	2.03		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
9.1	450	Total			

Summary for Subcatchment IB2-22S: To CBN 22

Runoff = 0.39 cfs @ 12.09 hrs, Volume= 1,239 cf, Depth= 1.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Hidden Trails-Drainage System-REV1 (Basins 1 thru 3) Type III 24-hr 2-year Rainfall=3.44"

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	Area (sf)	CN	Description
*	6,960	98	Paved Roadway
*	0	98	Roofs and Driveways, HSG A
	4,283	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	11,243	76	Weighted Average
	4,283		38.09% Pervious Area
	6,960		61.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	36	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
1.1	130	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.3	166	Total			

Summary for Subcatchment IB2-S: Direct To IB #2

Runoff = 0.84 cfs @ 12.10 hrs, Volume= 2,838 cf, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

	Area (sf)	CN	Description
*	0	98	Paved Roadway
*	2,837	98	Paved Driveways, HSG A
	15,392	39	>75% Grass cover, Good, HSG A
*	14,965	98	Basin
	33,194	71	Weighted Average
	15,392		46.37% Pervious Area
	17,802		53.63% Impervious Area

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

Summary for Subcatchment IB3-23S: To CBN 23

Runoff = 0.22 cfs @ 12.41 hrs, Volume= 1,945 cf, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

Hidden Trails-Drainage System-REV1 (Basins 1 thru 3) Type III 24-hr 2-year Rainfall=3.44"

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	Area (sf)	CN	Description
*	8,900	98	Paved Roadway
*	10,900	98	Roofs and Driveways, HSG A (6400)
	59,581	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	79,381	54	Weighted Average
	59,581		75.06% Pervious Area
	19,800		24.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.43"
5.5	230	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.0	125	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
11.9	405	Total			

Summary for Subcatchment IB3-24S: To CBN 24

Runoff = 0.21 cfs @ 12.30 hrs, Volume= 1,616 cf, Depth= 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.44"

	Area (sf)	CN	Description
*	6,300	98	Paved Roadway
*	10,200	98	Roofs and Driveways, HSG A
	43,025	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	59,525	55	Weighted Average
	43,025		72.28% Pervious Area
	16,500		27.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.5	30	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.4	172	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.3	252	Total			

Summary for Subcatchment IB3-S: Direct to IB #3

Runoff = 0.19 cfs @ 12.12 hrs, Volume= 809 cf, Depth= 0.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.44"

Area (sf)	CN	Description
* 0	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
10,011	39	>75% Grass cover, Good, HSG A
* 6,500	98	Basin
16,511	62	Weighted Average
10,011		60.63% Pervious Area
6,500		39.37% Impervious Area

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

Summary for Pond CBN1-P: CBN 1

Inflow Area = 9,319 sf, 69.75% Impervious, Inflow Depth = 1.59" for 2-year event
 Inflow = 0.44 cfs @ 12.04 hrs, Volume= 1,234 cf
 Outflow = 0.44 cfs @ 12.04 hrs, Volume= 1,234 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.44 cfs @ 12.04 hrs, Volume= 1,234 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.49' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.10'	12.0" Round Culvert L= 12.1' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 41.10' / 41.00' S= 0.0083 ' S= 0.0083 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.43 cfs @ 12.04 hrs HW=41.49' (Free Discharge)
 1=Culvert (Barrel Controls 0.43 cfs @ 2.23 fps)

Summary for Pond CBN15-P: CBN 15

Inflow Area = 22,701 sf, 37.66% Impervious, Inflow Depth = 0.55" for 2-year event
 Inflow = 0.22 cfs @ 12.13 hrs, Volume= 1,033 cf
 Outflow = 0.22 cfs @ 12.13 hrs, Volume= 1,033 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.22 cfs @ 12.13 hrs, Volume= 1,033 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.91' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.65'	12.0" Round Culvert

L= 6.6' CPP, projecting, no headwall, Ke= 0.900
 Inlet / Outlet Invert= 38.65' / 38.50' S= 0.0227 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.22 cfs @ 12.13 hrs HW=38.91' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.22 cfs @ 1.36 fps)

Summary for Pond CBN16-P: CBN 16

Inflow Area = 25,900 sf, 35.91% Impervious, Inflow Depth = 0.51" for 2-year event
 Inflow = 0.22 cfs @ 12.15 hrs, Volume= 1,092 cf
 Outflow = 0.22 cfs @ 12.15 hrs, Volume= 1,092 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.22 cfs @ 12.15 hrs, Volume= 1,092 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.91' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.65'	12.0" Round Culvert L= 13.9' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.65' / 38.50' S= 0.0108 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.22 cfs @ 12.15 hrs HW=38.91' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.22 cfs @ 1.36 fps)

Summary for Pond CBN17-P: CBN 17

Inflow Area = 37,197 sf, 35.22% Impervious, Inflow Depth = 0.51" for 2-year event
 Inflow = 0.31 cfs @ 12.16 hrs, Volume= 1,568 cf
 Outflow = 0.31 cfs @ 12.16 hrs, Volume= 1,568 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.31 cfs @ 12.16 hrs, Volume= 1,568 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.31' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	12.0" Round Culvert L= 2.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.00' / 36.80' S= 0.0833 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.30 cfs @ 12.16 hrs HW=37.31' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.30 cfs @ 1.49 fps)

Summary for Pond CBN18-P: CBN 18

Inflow Area = 36,171 sf, 32.07% Impervious, Inflow Depth = 0.43" for 2-year event
 Inflow = 0.22 cfs @ 12.17 hrs, Volume= 1,295 cf
 Outflow = 0.22 cfs @ 12.17 hrs, Volume= 1,295 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.22 cfs @ 12.17 hrs, Volume= 1,295 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.26' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	12.0" Round Culvert L= 10.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.00' / 36.80' S= 0.0190 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.21 cfs @ 12.17 hrs HW=37.25' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.21 cfs @ 1.35 fps)

Summary for Pond CBN19-P: CBN 19

Inflow Area = 35,866 sf, 29.28% Impervious, Inflow Depth = 0.36" for 2-year event
 Inflow = 0.14 cfs @ 12.31 hrs, Volume= 1,073 cf
 Outflow = 0.14 cfs @ 12.31 hrs, Volume= 1,073 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.14 cfs @ 12.31 hrs, Volume= 1,073 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.21' @ 12.31 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.00'	12.0" Round Culvert L= 10.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.00' / 35.80' S= 0.0185 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.14 cfs @ 12.31 hrs HW=36.21' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.14 cfs @ 1.22 fps)

Summary for Pond CBN2-P: CBN 2

Inflow Area = 7,358 sf, 59.80% Impervious, Inflow Depth = 1.20" for 2-year event
 Inflow = 0.25 cfs @ 12.05 hrs, Volume= 735 cf
 Outflow = 0.25 cfs @ 12.05 hrs, Volume= 735 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.25 cfs @ 12.05 hrs, Volume= 735 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.38' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.10'	12.0" Round Culvert L= 6.2' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 41.10' / 41.00' S= 0.0161 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.25 cfs @ 12.05 hrs HW=41.38' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.25 cfs @ 1.41 fps)

Summary for Pond CBN20-P: CBN 20

Inflow Area = 21,696 sf, 46.09% Impervious, Inflow Depth = 0.77" for 2-year event
 Inflow = 0.34 cfs @ 12.15 hrs, Volume= 1,388 cf
 Outflow = 0.34 cfs @ 12.15 hrs, Volume= 1,388 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.34 cfs @ 12.15 hrs, Volume= 1,388 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.49' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.16'	12.0" Round Culvert L= 3.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.16' / 34.00' S= 0.0533 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.34 cfs @ 12.15 hrs HW=34.48' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.34 cfs @ 1.53 fps)

Summary for Pond CBN21-P: CBN 21

Inflow Area = 38,377 sf, 29.97% Impervious, Inflow Depth = 0.39" for 2-year event
 Inflow = 0.19 cfs @ 12.22 hrs, Volume= 1,259 cf
 Outflow = 0.19 cfs @ 12.22 hrs, Volume= 1,259 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.19 cfs @ 12.22 hrs, Volume= 1,259 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.52' @ 12.22 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.28'	12.0" Round Culvert L= 21.6' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.28' / 34.00' S= 0.0130 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.18 cfs @ 12.22 hrs HW=34.51' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.18 cfs @ 1.30 fps)

Summary for Pond CBN22-P: CBN 22

Inflow Area = 11,243 sf, 61.91% Impervious, Inflow Depth = 1.32" for 2-year event
 Inflow = 0.39 cfs @ 12.09 hrs, Volume= 1,239 cf
 Outflow = 0.39 cfs @ 12.09 hrs, Volume= 1,239 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.39 cfs @ 12.09 hrs, Volume= 1,239 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.80' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.40'	12.0" Round Culvert L= 59.7' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.40' / 33.20' S= 0.0034 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.38 cfs @ 12.09 hrs HW=33.79' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.38 cfs @ 1.95 fps)

Summary for Pond CBN23-P: CBN 23

Inflow Area = 79,381 sf, 24.94% Impervious, Inflow Depth = 0.29" for 2-year event
 Inflow = 0.22 cfs @ 12.41 hrs, Volume= 1,945 cf
 Outflow = 0.22 cfs @ 12.41 hrs, Volume= 1,945 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.22 cfs @ 12.41 hrs, Volume= 1,945 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.59' @ 12.41 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.35'	15.0" Round Culvert L= 12.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.35' / 35.20' S= 0.0125 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.22 cfs @ 12.41 hrs HW=35.59' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.22 cfs @ 1.32 fps)

Summary for Pond CBN24-P: CBN 24

Inflow Area = 59,525 sf, 27.72% Impervious, Inflow Depth = 0.33" for 2-year event
 Inflow = 0.21 cfs @ 12.30 hrs, Volume= 1,616 cf
 Outflow = 0.21 cfs @ 12.30 hrs, Volume= 1,616 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.21 cfs @ 12.30 hrs, Volume= 1,616 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.85' @ 12.30 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.60'	12.0" Round Culvert L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.60' / 35.45' S= 0.0375 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.21 cfs @ 12.30 hrs HW=35.85' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.21 cfs @ 1.34 fps)

Summary for Pond CBN3-P: CBN 3

Inflow Area = 15,677 sf, 68.64% Impervious, Inflow Depth = 1.52" for 2-year event
 Inflow = 0.66 cfs @ 12.07 hrs, Volume= 1,985 cf
 Outflow = 0.66 cfs @ 12.07 hrs, Volume= 1,985 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.66 cfs @ 12.07 hrs, Volume= 1,985 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.61' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.10'	12.0" Round Culvert L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.10' / 39.00' S= 0.0063 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.63 cfs @ 12.07 hrs HW=39.60' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.63 cfs @ 2.37 fps)

Summary for Pond CBN4-P: CBN 4

Inflow Area = 14,098 sf, 53.88% Impervious, Inflow Depth = 1.03" for 2-year event
 Inflow = 0.31 cfs @ 12.16 hrs, Volume= 1,205 cf
 Outflow = 0.31 cfs @ 12.16 hrs, Volume= 1,205 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.31 cfs @ 12.16 hrs, Volume= 1,205 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.41' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.10'	12.0" Round Culvert L= 7.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.10' / 39.00' S= 0.0143 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.30 cfs @ 12.16 hrs HW=39.41' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.30 cfs @ 2.19 fps)

Summary for Pond CBN5-P: CBN 5

Inflow Area = 34,914 sf, 35.37% Impervious, Inflow Depth = 0.51" for 2-year event
 Inflow = 0.29 cfs @ 12.15 hrs, Volume= 1,472 cf
 Outflow = 0.29 cfs @ 12.15 hrs, Volume= 1,472 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.29 cfs @ 12.15 hrs, Volume= 1,472 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.88' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.55'	12.0" Round Culvert L= 18.0' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 39.55' / 39.45' S= 0.0056 1' Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.29 cfs @ 12.15 hrs HW=39.88' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.29 cfs @ 1.95 fps)

Summary for Pond CBN6-P: CBN 6

Inflow Area = 6,380 sf, 65.83% Impervious, Inflow Depth = 1.45" for 2-year event
 Inflow = 0.26 cfs @ 12.07 hrs, Volume= 772 cf
 Outflow = 0.26 cfs @ 12.07 hrs, Volume= 772 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.26 cfs @ 12.07 hrs, Volume= 772 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.85' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.55'	12.0" Round Culvert L= 12.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.55' / 39.45' S= 0.0078 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.25 cfs @ 12.07 hrs HW=39.84' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.25 cfs @ 1.96 fps)

Summary for Pond DHM2-P: DMH 2

Inflow Area = 16,677 sf, 65.36% Impervious, Inflow Depth = 1.42" for 2-year event
 Inflow = 0.69 cfs @ 12.05 hrs, Volume= 1,969 cf
 Outflow = 0.69 cfs @ 12.05 hrs, Volume= 1,969 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.69 cfs @ 12.05 hrs, Volume= 1,969 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.24' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	40.70'	12.0" Round Culvert L= 68.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 40.70' / 40.50' S= 0.0029 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.68 cfs @ 12.05 hrs HW=41.24' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.68 cfs @ 2.29 fps)

Summary for Pond DMH1-P: DMH 1

Inflow Area = 16,677 sf, 65.36% Impervious, Inflow Depth = 1.42" for 2-year event
 Inflow = 0.69 cfs @ 12.05 hrs, Volume= 1,969 cf
 Outflow = 0.69 cfs @ 12.05 hrs, Volume= 1,969 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.69 cfs @ 12.05 hrs, Volume= 1,969 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.55' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	12.0" Round Culvert L= 104.7' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 41.00' / 40.70' S= 0.0029 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.68 cfs @ 12.05 hrs HW=41.54' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.68 cfs @ 2.26 fps)

Summary for Pond DMH17-P: DMH 17

Inflow Area = 48,601 sf, 36.73% Impervious, Inflow Depth = 0.52" for 2-year event
 Inflow = 0.44 cfs @ 12.14 hrs, Volume= 2,125 cf
 Outflow = 0.44 cfs @ 12.14 hrs, Volume= 2,125 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.44 cfs @ 12.14 hrs, Volume= 2,125 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.77' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.40'	12.0" Round Culvert L= 290.7' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 38.40' / 36.75' S= 0.0057 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.43 cfs @ 12.14 hrs HW=38.76' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.43 cfs @ 2.48 fps)

Summary for Pond DMH18-P: DMH 18

Inflow Area = 121,969 sf, 34.89% Impervious, Inflow Depth = 0.49" for 2-year event
 Inflow = 0.96 cfs @ 12.15 hrs, Volume= 4,988 cf
 Outflow = 0.96 cfs @ 12.15 hrs, Volume= 4,988 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.96 cfs @ 12.15 hrs, Volume= 4,988 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.72' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.25'	18.0" Round Culvert L= 283.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.25' / 34.60' S= 0.0058 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.95 cfs @ 12.15 hrs HW=36.72' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.95 cfs @ 2.98 fps)

Summary for Pond DMH19-P: DMH 19

Inflow Area = 157,835 sf, 33.61% Impervious, Inflow Depth = 0.46" for 2-year event
 Inflow = 1.07 cfs @ 12.16 hrs, Volume= 6,061 cf
 Outflow = 1.07 cfs @ 12.16 hrs, Volume= 6,061 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.07 cfs @ 12.16 hrs, Volume= 6,061 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.09' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.60'	18.0" Round Culvert L= 116.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.60' / 33.80' S= 0.0069 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.05 cfs @ 12.16 hrs HW=35.09' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.05 cfs @ 3.15 fps)

Summary for Pond DMH20-P: DMH 20

Inflow Area = 157,835 sf, 33.61% Impervious, Inflow Depth = 0.46" for 2-year event
 Inflow = 1.07 cfs @ 12.16 hrs, Volume= 6,061 cf
 Outflow = 1.07 cfs @ 12.16 hrs, Volume= 6,061 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.07 cfs @ 12.16 hrs, Volume= 6,061 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.29' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.80'	18.0" Round Culvert L= 114.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.80' / 33.00' S= 0.0070 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.05 cfs @ 12.16 hrs HW=34.29' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.05 cfs @ 3.17 fps)

Summary for Pond DMH21-P: DMH 21

Inflow Area = 217,908 sf, 34.21% Impervious, Inflow Depth = 0.48" for 2-year event
 Inflow = 1.58 cfs @ 12.16 hrs, Volume= 8,708 cf
 Outflow = 1.58 cfs @ 12.16 hrs, Volume= 8,708 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.58 cfs @ 12.16 hrs, Volume= 8,708 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.13' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	32.50'	24.0" Round Culvert L= 86.1' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 32.50' / 32.20' S= 0.0035 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.55 cfs @ 12.16 hrs HW=33.12' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.55 cfs @ 2.76 fps)

Summary for Pond DMH22-P: DMH 22

Inflow Area = 229,151 sf, 35.57% Impervious, Inflow Depth = 0.52" for 2-year event
 Inflow = 1.87 cfs @ 12.15 hrs, Volume= 9,947 cf
 Outflow = 1.87 cfs @ 12.15 hrs, Volume= 9,947 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.87 cfs @ 12.15 hrs, Volume= 9,947 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 32.88' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	32.20'	24.0" Round Culvert L= 18.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 32.20' / 32.10' S= 0.0054 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.87 cfs @ 12.15 hrs HW=32.88' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.87 cfs @ 2.97 fps)

Summary for Pond DMH23-P: DMH 23

Inflow Area = 138,906 sf, 26.13% Impervious, Inflow Depth = 0.31" for 2-year event
 Inflow = 0.42 cfs @ 12.36 hrs, Volume= 3,561 cf
 Outflow = 0.42 cfs @ 12.36 hrs, Volume= 3,561 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.42 cfs @ 12.36 hrs, Volume= 3,561 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.54' @ 12.36 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.20'	15.0" Round Culvert L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.20' / 34.80' S= 0.0053 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.42 cfs @ 12.36 hrs HW=35.54' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.42 cfs @ 2.29 fps)

Summary for Pond DMH24-P: DMH 24

Inflow Area = 138,906 sf, 26.13% Impervious, Inflow Depth = 0.31" for 2-year event
 Inflow = 0.42 cfs @ 12.36 hrs, Volume= 3,561 cf
 Outflow = 0.42 cfs @ 12.36 hrs, Volume= 3,561 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.42 cfs @ 12.36 hrs, Volume= 3,561 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.15' @ 12.36 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.80'	15.0" Round Culvert L= 64.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.80' / 34.50' S= 0.0047 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.42 cfs @ 12.36 hrs HW=35.15' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.42 cfs @ 2.20 fps)

Summary for Pond DMH25-P: DMH 25

Inflow Area = 138,906 sf, 26.13% Impervious, Inflow Depth = 0.31" for 2-year event
 Inflow = 0.42 cfs @ 12.36 hrs, Volume= 3,561 cf
 Outflow = 0.42 cfs @ 12.36 hrs, Volume= 3,561 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.42 cfs @ 12.36 hrs, Volume= 3,561 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.84' @ 12.36 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.50'	15.0" Round Culvert L= 50.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.50' / 34.20' S= 0.0059 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.42 cfs @ 12.36 hrs HW=34.84' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.42 cfs @ 2.33 fps)

Summary for Pond DMH3-P: DMH 3

Inflow Area = 16,677 sf, 65.36% Impervious, Inflow Depth = 1.42" for 2-year event
 Inflow = 0.69 cfs @ 12.05 hrs, Volume= 1,969 cf
 Outflow = 0.69 cfs @ 12.05 hrs, Volume= 1,969 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.69 cfs @ 12.05 hrs, Volume= 1,969 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.77' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	40.25'	15.0" Round Culvert L= 480.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 40.25' / 39.00' S= 0.0026 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.68 cfs @ 12.05 hrs HW=40.76' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.68 cfs @ 2.12 fps)

Summary for Pond DMH4-P: DMH 4

Inflow Area = 46,452 sf, 62.98% Impervious, Inflow Depth = 1.33" for 2-year event
 Inflow = 1.53 cfs @ 12.06 hrs, Volume= 5,159 cf
 Outflow = 1.53 cfs @ 12.06 hrs, Volume= 5,159 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.53 cfs @ 12.06 hrs, Volume= 5,159 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.47' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.75'	18.0" Round Culvert L= 112.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.75' / 38.40' S= 0.0031 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.48 cfs @ 12.06 hrs HW=39.45' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.48 cfs @ 2.66 fps)

Summary for Pond DMH5-P: DMH 5

Inflow Area = 46,452 sf, 62.98% Impervious, Inflow Depth = 1.33" for 2-year event
 Inflow = 1.53 cfs @ 12.06 hrs, Volume= 5,159 cf
 Outflow = 1.53 cfs @ 12.06 hrs, Volume= 5,159 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.53 cfs @ 12.06 hrs, Volume= 5,159 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.07' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.40'	18.0" Round Culvert L= 30.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.40' / 38.20' S= 0.0066 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.48 cfs @ 12.06 hrs HW=39.06' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.48 cfs @ 2.93 fps)

Summary for Pond DMH6-P: DMH 6

Inflow Area = 41,294 sf, 40.08% Impervious, Inflow Depth = 0.65" for 2-year event
 Inflow = 0.50 cfs @ 12.11 hrs, Volume= 2,244 cf
 Outflow = 0.50 cfs @ 12.11 hrs, Volume= 2,244 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.50 cfs @ 12.11 hrs, Volume= 2,244 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.86' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.45'	12.0" Round Culvert L= 86.3' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 39.45' / 39.00' S= 0.0052 1' Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.49 cfs @ 12.11 hrs HW=39.85' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.49 cfs @ 2.44 fps)

Summary for Pond DMH7-P: DMH 7

Inflow Area = 41,294 sf, 40.08% Impervious, Inflow Depth = 0.65" for 2-year event
 Inflow = 0.50 cfs @ 12.11 hrs, Volume= 2,244 cf
 Outflow = 0.50 cfs @ 12.11 hrs, Volume= 2,244 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.50 cfs @ 12.11 hrs, Volume= 2,244 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.40' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.00'	12.0" Round Culvert L= 31.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.00' / 38.80' S= 0.0064 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.49 cfs @ 12.11 hrs HW=39.40' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.49 cfs @ 2.48 fps)

Summary for Pond IB1-P: Infiltration Basin #1

Inflow Area = 122,013 sf, 47.21% Impervious, Inflow Depth = 0.86" for 2-year event
 Inflow = 2.15 cfs @ 12.08 hrs, Volume= 8,737 cf
 Outflow = 0.51 cfs @ 12.61 hrs, Volume= 8,737 cf, Atten= 76%, Lag= 31.3 min
 Discarded = 0.51 cfs @ 12.61 hrs, Volume= 8,737 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.23' @ 12.61 hrs Surf.Area= 9,204 sf Storage= 2,079 cf

Plug-Flow detention time= 29.9 min calculated for 8,729 cf (100% of inflow)
 Center-of-Mass det. time= 29.9 min (899.1 - 869.2)

Volume	Invert	Avail.Storage	Storage Description
#1	37.00'	39,337 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
37.00	8,550	0	0	8,550
38.00	11,510	9,993	9,993	11,531
39.00	14,670	13,058	23,052	14,717
39.70	16,871	11,030	34,082	16,940
40.00	18,170	5,255	39,337	18,246

Hidden Trails-Drainage System-REV1 (Basins 1 thru 3) Type III 24-hr 2-year Rainfall=3.44"

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Device	Routing	Invert	Outlet Devices
#1	Discarded	37.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	39.70'	12.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.51 cfs @ 12.61 hrs HW=37.23' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.51 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=37.00' (Free Discharge)
 ↳2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond IB2-P: Infiltration Basin #2

Inflow Area = 262,345 sf, 37.86% Impervious, Inflow Depth = 0.58" for 2-year event
 Inflow = 2.61 cfs @ 12.13 hrs, Volume= 12,784 cf
 Outflow = 0.63 cfs @ 12.84 hrs, Volume= 12,784 cf, Atten= 76%, Lag= 42.2 min
 Discarded = 0.63 cfs @ 12.84 hrs, Volume= 12,784 cf
 Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 30.76' @ 12.84 hrs Surf.Area= 11,259 sf Storage= 2,866 cf

Plug-Flow detention time= 37.7 min calculated for 12,773 cf (100% of inflow)
 Center-of-Mass det. time= 37.7 min (936.0 - 898.2)

Volume	Invert	Avail.Storage	Storage Description		
#1	30.50'	73,178 cf	Custom Stage Data (Conic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
30.50	10,900	0	0	10,900	
31.00	11,600	5,624	5,624	11,625	
31.20	12,730	2,432	8,056	12,758	
32.00	14,520	10,892	18,948	14,578	
33.00	16,860	15,675	34,624	16,960	
33.50	18,050	8,726	43,350	18,172	
34.00	19,280	9,331	52,680	19,426	
35.00	21,740	20,498	73,178	21,938	

Device	Routing	Invert	Outlet Devices
#1	Discarded	30.50'	2.410 in/hr Exfiltration over Wetted area
#2	Secondary	33.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 1.0' Crest Height

Discarded OutFlow Max=0.63 cfs @ 12.84 hrs HW=30.76' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.63 cfs)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=30.50' (Free Discharge)
 ↳2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond IB3-P: Infiltration Basin #3

Inflow Area = 155,417 sf, 27.54% Impervious, Inflow Depth = 0.34" for 2-year event
 Inflow = 0.53 cfs @ 12.33 hrs, Volume= 4,369 cf
 Outflow = 0.19 cfs @ 13.12 hrs, Volume= 4,369 cf, Atten= 65%, Lag= 47.1 min
 Discarded = 0.19 cfs @ 13.12 hrs, Volume= 4,369 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 32.80' @ 13.12 hrs Surf.Area= 3,373 sf Storage= 672 cf

Plug-Flow detention time= 32.8 min calculated for 4,366 cf (100% of inflow)
 Center-of-Mass det. time= 32.8 min (973.0 - 940.2)

Volume	Invert	Avail.Storage	Storage Description		
#1	32.60'	30,671 cf	Custom Stage Data (Conic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
32.60	3,200	0	0	3,200	
34.00	4,480	5,351	5,351	4,516	
34.10	4,570	452	5,803	4,609	
35.00	5,430	4,494	10,298	5,498	
37.60	7,840	17,155	27,453	8,022	
38.00	8,250	3,218	30,671	8,451	

Device	Routing	Invert	Outlet Devices
#1	Discarded	32.60'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	37.60'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.19 cfs @ 13.12 hrs HW=32.80' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=32.60' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Subcatchment IB1-1S: To CBN 1

Runoff = 0.81 cfs @ 12.04 hrs, Volume= 2,280 cf, Depth= 2.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 6,500	98	Paved Roadway
2,819	39	>75% Grass cover, Good, HSG A
9,319	80	Weighted Average
2,819		30.25% Pervious Area
6,500		69.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
1.4	170	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.3	220	Total			

Summary for Subcatchment IB1-2S: To CBN 2

Runoff = 0.52 cfs @ 12.04 hrs, Volume= 1,474 cf, Depth= 2.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 4,400	98	Paved Roadway
2,958	39	>75% Grass cover, Good, HSG A
7,358	74	Weighted Average
2,958		40.20% Pervious Area
4,400		59.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
1.4	170	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.3	220	Total			

Summary for Subcatchment IB1-3S: To CBN 3

Runoff = 1.25 cfs @ 12.06 hrs, Volume= 3,716 cf, Depth= 2.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 10,761	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
4,916	39	>75% Grass cover, Good, HSG A
15,677	79	Weighted Average
4,916		31.36% Pervious Area
10,761		68.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
3.3	400	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	450	Total			

Summary for Subcatchment IB1-4S: To CBN 4

Runoff = 0.69 cfs @ 12.16 hrs, Volume= 2,531 cf, Depth= 2.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 7,596	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
6,502	39	>75% Grass cover, Good, HSG A
14,098	71	Weighted Average
6,502		46.12% Pervious Area
7,596		53.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
3.3	400	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
10.5	450	Total			

Summary for Subcatchment IB1-5S: To CBN 5

Runoff = 1.05 cfs @ 12.12 hrs, Volume= 3,871 cf, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Hidden Trails-Drainage System-REV1 (Basins 1 thru Type III 24-hr 10-year Rainfall=5.05"

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Area (sf)	CN	Description
* 5,950	98	Paved Roadway
* 6,400	98	Roofs and Driveways, HSG A
22,564	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
34,914	60	Weighted Average
22,564		64.63% Pervious Area
12,350		35.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.9	55	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	150	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.5	255	Total			

Summary for Subcatchment IB1-6S: To CBN 6

Runoff = 0.49 cfs @ 12.07 hrs, Volume= 1,464 cf, Depth= 2.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 4,200	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
2,180	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
6,380	78	Weighted Average
2,180		34.17% Pervious Area
4,200		65.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	14	0.0200	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	36	0.0100	0.88		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
1.5	188	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	238	Total			

Summary for Subcatchment IB1-S: Direct to IB #1

Runoff = 1.02 cfs @ 12.11 hrs, Volume= 3,606 cf, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
21,627	39	>75% Grass cover, Good, HSG A
* 11,790	98	Basin
850	30	Woods, Good, HSG A
34,267	59	Weighted Average
22,477		65.59% Pervious Area
11,790		34.41% Impervious Area

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

Summary for Subcatchment IB2-15S: To CBN 15

Runoff = 0.75 cfs @ 12.11 hrs, Volume= 2,647 cf, Depth= 1.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 4,150	98	Paved Roadway
* 4,400	98	Roofs and Driveways, HSG A
14,151	39	>75% Grass cover, Good, HSG A
22,701	61	Weighted Average
14,151		62.34% Pervious Area
8,550		37.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	40	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	66	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.6	156	Total			

Summary for Subcatchment IB2-16S: To CBN 16

Runoff = 0.79 cfs @ 12.12 hrs, Volume= 2,871 cf, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Hidden Trails-Drainage System-REV1 (Basins 1 thru Type III 24-hr 10-year Rainfall=5.05"

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Area (sf)	CN	Description
* 2,900	98	Paved Roadway
* 6,400	98	Roofs and Driveways, HSG A
16,600	39	>75% Grass cover, Good, HSG A
25,900	60	Weighted Average
16,600		64.09% Pervious Area
9,300		35.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.6	33	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	143	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.2	226	Total			

Summary for Subcatchment IB2-17S: To CBN 17

Runoff = 1.09 cfs @ 12.13 hrs, Volume= 4,124 cf, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 5,900	98	Paved Roadway
* 7,200	98	Roofs and Driveways, HSG A
24,097	39	>75% Grass cover, Good, HSG A
37,197	60	Weighted Average
24,097		64.78% Pervious Area
13,100		35.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.6	33	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.8	217	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.8	300	Total			

Summary for Subcatchment IB2-18S: To CBN 18

Runoff = 0.92 cfs @ 12.13 hrs, Volume= 3,606 cf, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Hidden Trails-Drainage System-REV1 (Basins 1 thru Type III 24-hr 10-year Rainfall=5.05"

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Area (sf)	CN	Description
* 4,200	98	Paved Roadway
* 7,400	98	Roofs and Driveways, HSG A
24,571	39	>75% Grass cover, Good, HSG A
36,171	58	Weighted Average
24,571		67.93% Pervious Area
11,600		32.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.6	33	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.8	217	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.8	300	Total			

Summary for Subcatchment IB2-19S: To CBN 19

Runoff = 0.74 cfs @ 12.17 hrs, Volume= 3,190 cf, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 6,000	98	Paved Roadway
* 4,500	98	Roofs and Driveways, HSG A
25,366	39	>75% Grass cover, Good, HSG A
35,866	56	Weighted Average
25,366		70.72% Pervious Area
10,500		29.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
3.4	200	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.1	130	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.9	380	Total			

Summary for Subcatchment IB2-20S: To CBN 20

Runoff = 0.88 cfs @ 12.14 hrs, Volume= 3,185 cf, Depth= 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Hidden Trails-Drainage System-REV1 (Basins 1 thru Type III 24-hr 10-year Rainfall=5.05"

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Area (sf)	CN	Description
* 5,900	98	Paved Roadway
* 4,100	98	Roofs and Driveways, HSG A
11,696	39	>75% Grass cover, Good, HSG A
21,696	66	Weighted Average
11,696		53.91% Pervious Area
10,000		46.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	40	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.6	320	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.7	410	Total			

Summary for Subcatchment IB2-21S: To CBN 21

Runoff = 0.88 cfs @ 12.15 hrs, Volume= 3,618 cf, Depth= 1.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 4,600	98	Paved Roadway
* 6,900	98	Roofs and Driveways, HSG A
26,877	39	>75% Grass cover, Good, HSG A
38,377	57	Weighted Average
26,877		70.03% Pervious Area
11,500		29.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.9	350	0.0100	2.03		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
9.1	450	Total			

Summary for Subcatchment IB2-22S: To CBN 22

Runoff = 0.78 cfs @ 12.08 hrs, Volume= 2,414 cf, Depth= 2.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

	Area (sf)	CN	Description
*	6,960	98	Paved Roadway
*	0	98	Roofs and Driveways, HSG A
	4,283	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	11,243	76	Weighted Average
	4,283		38.09% Pervious Area
	6,960		61.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	36	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
1.1	130	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.3	166	Total			

Summary for Subcatchment IB2-S: Direct To IB #2

Runoff = 1.87 cfs @ 12.10 hrs, Volume= 5,959 cf, Depth= 2.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

	Area (sf)	CN	Description
*	0	98	Paved Roadway
*	2,837	98	Paved Driveways, HSG A
	15,392	39	>75% Grass cover, Good, HSG A
*	14,965	98	Basin
	33,194	71	Weighted Average
	15,392		46.37% Pervious Area
	17,802		53.63% Impervious Area

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

Summary for Subcatchment IB3-23S: To CBN 23

Runoff = 1.27 cfs @ 12.21 hrs, Volume= 6,243 cf, Depth= 0.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Hidden Trails-Drainage System-REV1 (Basins 1 thru Type III 24-hr 10-year Rainfall=5.05"

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	Area (sf)	CN	Description
*	8,900	98	Paved Roadway
*	10,900	98	Roofs and Driveways, HSG A (6400)
	59,581	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	79,381	54	Weighted Average
	59,581		75.06% Pervious Area
	19,800		24.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.43"
5.5	230	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.0	125	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
11.9	405	Total			

Summary for Subcatchment IB3-24S: To CBN 24

Runoff = 1.20 cfs @ 12.13 hrs, Volume= 4,985 cf, Depth= 1.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.05"

	Area (sf)	CN	Description
*	6,300	98	Paved Roadway
*	10,200	98	Roofs and Driveways, HSG A
	43,025	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	59,525	55	Weighted Average
	43,025		72.28% Pervious Area
	16,500		27.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.5	30	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.4	172	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.3	252	Total			

Summary for Subcatchment IB3-S: Direct to IB #3

Runoff = 0.59 cfs @ 12.10 hrs, Volume= 2,022 cf, Depth= 1.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 0	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
10,011	39	>75% Grass cover, Good, HSG A
* 6,500	98	Basin
16,511	62	Weighted Average
10,011		60.63% Pervious Area
6,500		39.37% Impervious Area

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

Summary for Pond CBN1-P: CBN 1

Inflow Area = 9,319 sf, 69.75% Impervious, Inflow Depth = 2.94" for 10-year event
 Inflow = 0.81 cfs @ 12.04 hrs, Volume= 2,280 cf
 Outflow = 0.81 cfs @ 12.04 hrs, Volume= 2,280 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.81 cfs @ 12.04 hrs, Volume= 2,280 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.66' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.10'	12.0" Round Culvert L= 12.1' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 41.10' / 41.00' S= 0.0083 ' S= 0.0083 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.78 cfs @ 12.04 hrs HW=41.65' (Free Discharge)
 1=Culvert (Barrel Controls 0.78 cfs @ 2.55 fps)

Summary for Pond CBN15-P: CBN 15

Inflow Area = 22,701 sf, 37.66% Impervious, Inflow Depth = 1.40" for 10-year event
 Inflow = 0.75 cfs @ 12.11 hrs, Volume= 2,647 cf
 Outflow = 0.75 cfs @ 12.11 hrs, Volume= 2,647 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.75 cfs @ 12.11 hrs, Volume= 2,647 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.15' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.65'	12.0" Round Culvert

L= 6.6' CPP, projecting, no headwall, Ke= 0.900
 Inlet / Outlet Invert= 38.65' / 38.50' S= 0.0227 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.74 cfs @ 12.11 hrs HW=39.15' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.74 cfs @ 1.89 fps)

Summary for Pond CBN16-P: CBN 16

Inflow Area = 25,900 sf, 35.91% Impervious, Inflow Depth = 1.33" for 10-year event
 Inflow = 0.79 cfs @ 12.12 hrs, Volume= 2,871 cf
 Outflow = 0.79 cfs @ 12.12 hrs, Volume= 2,871 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.79 cfs @ 12.12 hrs, Volume= 2,871 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.18' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.65'	12.0" Round Culvert L= 13.9' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.65' / 38.50' S= 0.0108 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.76 cfs @ 12.12 hrs HW=39.17' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.76 cfs @ 2.71 fps)

Summary for Pond CBN17-P: CBN 17

Inflow Area = 37,197 sf, 35.22% Impervious, Inflow Depth = 1.33" for 10-year event
 Inflow = 1.09 cfs @ 12.13 hrs, Volume= 4,124 cf
 Outflow = 1.09 cfs @ 12.13 hrs, Volume= 4,124 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.09 cfs @ 12.13 hrs, Volume= 4,124 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.62' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	12.0" Round Culvert L= 2.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.00' / 36.80' S= 0.0833 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.07 cfs @ 12.13 hrs HW=37.62' (Free Discharge)
 ↑1=Culvert (Inlet Controls 1.07 cfs @ 2.11 fps)

Summary for Pond CBN18-P: CBN 18

Inflow Area = 36,171 sf, 32.07% Impervious, Inflow Depth = 1.20" for 10-year event
 Inflow = 0.92 cfs @ 12.13 hrs, Volume= 3,606 cf
 Outflow = 0.92 cfs @ 12.13 hrs, Volume= 3,606 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.92 cfs @ 12.13 hrs, Volume= 3,606 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.56' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	12.0" Round Culvert L= 10.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.00' / 36.80' S= 0.0190 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.90 cfs @ 12.13 hrs HW=37.56' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.90 cfs @ 2.01 fps)

Summary for Pond CBN19-P: CBN 19

Inflow Area = 35,866 sf, 29.28% Impervious, Inflow Depth = 1.07" for 10-year event
 Inflow = 0.74 cfs @ 12.17 hrs, Volume= 3,190 cf
 Outflow = 0.74 cfs @ 12.17 hrs, Volume= 3,190 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.74 cfs @ 12.17 hrs, Volume= 3,190 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.50' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.00'	12.0" Round Culvert L= 10.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.00' / 35.80' S= 0.0185 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.72 cfs @ 12.17 hrs HW=36.49' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.72 cfs @ 1.88 fps)

Summary for Pond CBN2-P: CBN 2

Inflow Area = 7,358 sf, 59.80% Impervious, Inflow Depth = 2.40" for 10-year event
 Inflow = 0.52 cfs @ 12.04 hrs, Volume= 1,474 cf
 Outflow = 0.52 cfs @ 12.04 hrs, Volume= 1,474 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.52 cfs @ 12.04 hrs, Volume= 1,474 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.52' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.10'	12.0" Round Culvert L= 6.2' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 41.10' / 41.00' S= 0.0161 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.51 cfs @ 12.04 hrs HW=41.52' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.51 cfs @ 2.44 fps)

Summary for Pond CBN20-P: CBN 20

Inflow Area = 21,696 sf, 46.09% Impervious, Inflow Depth = 1.76" for 10-year event
 Inflow = 0.88 cfs @ 12.14 hrs, Volume= 3,185 cf
 Outflow = 0.88 cfs @ 12.14 hrs, Volume= 3,185 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.88 cfs @ 12.14 hrs, Volume= 3,185 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.71' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.16'	12.0" Round Culvert L= 3.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.16' / 34.00' S= 0.0533 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.86 cfs @ 12.14 hrs HW=34.70' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.86 cfs @ 1.98 fps)

Summary for Pond CBN21-P: CBN 21

Inflow Area = 38,377 sf, 29.97% Impervious, Inflow Depth = 1.13" for 10-year event
 Inflow = 0.88 cfs @ 12.15 hrs, Volume= 3,618 cf
 Outflow = 0.88 cfs @ 12.15 hrs, Volume= 3,618 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.88 cfs @ 12.15 hrs, Volume= 3,618 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.83' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.28'	12.0" Round Culvert L= 21.6' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.28' / 34.00' S= 0.0130 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.87 cfs @ 12.15 hrs HW=34.83' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.87 cfs @ 1.99 fps)

Summary for Pond CBN22-P: CBN 22

Inflow Area = 11,243 sf, 61.91% Impervious, Inflow Depth = 2.58" for 10-year event
 Inflow = 0.78 cfs @ 12.08 hrs, Volume= 2,414 cf
 Outflow = 0.78 cfs @ 12.08 hrs, Volume= 2,414 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.78 cfs @ 12.08 hrs, Volume= 2,414 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.98' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.40'	12.0" Round Culvert L= 59.7' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.40' / 33.20' S= 0.0034 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.75 cfs @ 12.08 hrs HW=33.97' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.75 cfs @ 2.34 fps)

Summary for Pond CBN23-P: CBN 23

Inflow Area = 79,381 sf, 24.94% Impervious, Inflow Depth = 0.94" for 10-year event
 Inflow = 1.27 cfs @ 12.21 hrs, Volume= 6,243 cf
 Outflow = 1.27 cfs @ 12.21 hrs, Volume= 6,243 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.27 cfs @ 12.21 hrs, Volume= 6,243 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.98' @ 12.21 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.35'	15.0" Round Culvert L= 12.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.35' / 35.20' S= 0.0125 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.26 cfs @ 12.21 hrs HW=35.98' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.26 cfs @ 2.96 fps)

Summary for Pond CBN24-P: CBN 24

Inflow Area = 59,525 sf, 27.72% Impervious, Inflow Depth = 1.00" for 10-year event
 Inflow = 1.20 cfs @ 12.13 hrs, Volume= 4,985 cf
 Outflow = 1.20 cfs @ 12.13 hrs, Volume= 4,985 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.20 cfs @ 12.13 hrs, Volume= 4,985 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.26' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.60'	12.0" Round Culvert L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.60' / 35.45' S= 0.0375 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.18 cfs @ 12.13 hrs HW=36.25' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 1.18 cfs @ 2.17 fps)

Summary for Pond CBN3-P: CBN 3

Inflow Area = 15,677 sf, 68.64% Impervious, Inflow Depth = 2.84" for 10-year event
 Inflow = 1.25 cfs @ 12.06 hrs, Volume= 3,716 cf
 Outflow = 1.25 cfs @ 12.06 hrs, Volume= 3,716 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.25 cfs @ 12.06 hrs, Volume= 3,716 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.84' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.10'	12.0" Round Culvert L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.10' / 39.00' S= 0.0063 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.20 cfs @ 12.06 hrs HW=39.82' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.20 cfs @ 2.76 fps)

Summary for Pond CBN4-P: CBN 4

Inflow Area = 14,098 sf, 53.88% Impervious, Inflow Depth = 2.15" for 10-year event
 Inflow = 0.69 cfs @ 12.16 hrs, Volume= 2,531 cf
 Outflow = 0.69 cfs @ 12.16 hrs, Volume= 2,531 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.69 cfs @ 12.16 hrs, Volume= 2,531 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.60' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.10'	12.0" Round Culvert L= 7.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.10' / 39.00' S= 0.0143 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.68 cfs @ 12.16 hrs HW=39.59' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.68 cfs @ 2.56 fps)

Summary for Pond CBN5-P: CBN 5

Inflow Area = 34,914 sf, 35.37% Impervious, Inflow Depth = 1.33" for 10-year event
 Inflow = 1.05 cfs @ 12.12 hrs, Volume= 3,871 cf
 Outflow = 1.05 cfs @ 12.12 hrs, Volume= 3,871 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.05 cfs @ 12.12 hrs, Volume= 3,871 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.22' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.55'	12.0" Round Culvert L= 18.0' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 39.55' / 39.45' S= 0.0056 1' Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.01 cfs @ 12.12 hrs HW=40.21' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.01 cfs @ 2.63 fps)

Summary for Pond CBN6-P: CBN 6

Inflow Area = 6,380 sf, 65.83% Impervious, Inflow Depth = 2.75" for 10-year event
 Inflow = 0.49 cfs @ 12.07 hrs, Volume= 1,464 cf
 Outflow = 0.49 cfs @ 12.07 hrs, Volume= 1,464 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.49 cfs @ 12.07 hrs, Volume= 1,464 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.97' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.55'	12.0" Round Culvert L= 12.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.55' / 39.45' S= 0.0078 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.47 cfs @ 12.07 hrs HW=39.96' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.47 cfs @ 2.27 fps)

Summary for Pond DHM2-P: DMH 2

Inflow Area = 16,677 sf, 65.36% Impervious, Inflow Depth = 2.70" for 10-year event
 Inflow = 1.33 cfs @ 12.04 hrs, Volume= 3,755 cf
 Outflow = 1.33 cfs @ 12.04 hrs, Volume= 3,755 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.33 cfs @ 12.04 hrs, Volume= 3,755 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.49' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	40.70'	12.0" Round Culvert L= 68.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 40.70' / 40.50' S= 0.0029 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.29 cfs @ 12.04 hrs HW=41.48' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.29 cfs @ 2.73 fps)

Summary for Pond DMH1-P: DMH 1

Inflow Area = 16,677 sf, 65.36% Impervious, Inflow Depth = 2.70" for 10-year event
 Inflow = 1.33 cfs @ 12.04 hrs, Volume= 3,755 cf
 Outflow = 1.33 cfs @ 12.04 hrs, Volume= 3,755 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.33 cfs @ 12.04 hrs, Volume= 3,755 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.80' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	12.0" Round Culvert L= 104.7' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 41.00' / 40.70' S= 0.0029 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.29 cfs @ 12.04 hrs HW=41.78' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.29 cfs @ 2.70 fps)

Summary for Pond DMH17-P: DMH 17

Inflow Area = 48,601 sf, 36.73% Impervious, Inflow Depth = 1.36" for 10-year event
 Inflow = 1.54 cfs @ 12.11 hrs, Volume= 5,518 cf
 Outflow = 1.54 cfs @ 12.11 hrs, Volume= 5,518 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.54 cfs @ 12.11 hrs, Volume= 5,518 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.14' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.40'	12.0" Round Culvert L= 290.7' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 38.40' / 36.75' S= 0.0057 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.50 cfs @ 12.11 hrs HW=39.12' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.50 cfs @ 3.43 fps)

Summary for Pond DMH18-P: DMH 18

Inflow Area = 121,969 sf, 34.89% Impervious, Inflow Depth = 1.30" for 10-year event
 Inflow = 3.57 cfs @ 12.12 hrs, Volume= 13,248 cf
 Outflow = 3.57 cfs @ 12.12 hrs, Volume= 13,248 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.57 cfs @ 12.12 hrs, Volume= 13,248 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.22' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.25'	18.0" Round Culvert L= 283.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.25' / 34.60' S= 0.0058 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.45 cfs @ 12.12 hrs HW=37.20' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 3.45 cfs @ 4.19 fps)

Summary for Pond DMH19-P: DMH 19

Inflow Area = 157,835 sf, 33.61% Impervious, Inflow Depth = 1.25" for 10-year event
 Inflow = 4.20 cfs @ 12.13 hrs, Volume= 16,439 cf
 Outflow = 4.20 cfs @ 12.13 hrs, Volume= 16,439 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.20 cfs @ 12.13 hrs, Volume= 16,439 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.66' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.60'	18.0" Round Culvert L= 116.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.60' / 33.80' S= 0.0069 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.12 cfs @ 12.13 hrs HW=35.65' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 4.12 cfs @ 4.39 fps)

Summary for Pond DMH20-P: DMH 20

Inflow Area = 157,835 sf, 33.61% Impervious, Inflow Depth = 1.25" for 10-year event
 Inflow = 4.20 cfs @ 12.13 hrs, Volume= 16,439 cf
 Outflow = 4.20 cfs @ 12.13 hrs, Volume= 16,439 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.20 cfs @ 12.13 hrs, Volume= 16,439 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.86' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.80'	18.0" Round Culvert L= 114.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.80' / 33.00' S= 0.0070 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.12 cfs @ 12.13 hrs HW=34.85' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 4.12 cfs @ 4.40 fps)

Summary for Pond DMH21-P: DMH 21

Inflow Area = 217,908 sf, 34.21% Impervious, Inflow Depth = 1.28" for 10-year event
 Inflow = 5.94 cfs @ 12.13 hrs, Volume= 23,242 cf
 Outflow = 5.94 cfs @ 12.13 hrs, Volume= 23,242 cf, Atten= 0%, Lag= 0.0 min
 Primary = 5.94 cfs @ 12.13 hrs, Volume= 23,242 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.79' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	32.50'	24.0" Round Culvert L= 86.1' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 32.50' / 32.20' S= 0.0035 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.83 cfs @ 12.13 hrs HW=33.78' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 5.83 cfs @ 3.91 fps)

Summary for Pond DMH22-P: DMH 22

Inflow Area = 229,151 sf, 35.57% Impervious, Inflow Depth = 1.34" for 10-year event
 Inflow = 6.59 cfs @ 12.13 hrs, Volume= 25,656 cf
 Outflow = 6.59 cfs @ 12.13 hrs, Volume= 25,656 cf, Atten= 0%, Lag= 0.0 min
 Primary = 6.59 cfs @ 12.13 hrs, Volume= 25,656 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.57' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	32.20'	24.0" Round Culvert L= 18.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 32.20' / 32.10' S= 0.0054 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=6.47 cfs @ 12.13 hrs HW=33.55' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 6.47 cfs @ 4.04 fps)

Summary for Pond DMH23-P: DMH 23

Inflow Area = 138,906 sf, 26.13% Impervious, Inflow Depth = 0.97" for 10-year event
 Inflow = 2.36 cfs @ 12.17 hrs, Volume= 11,228 cf
 Outflow = 2.36 cfs @ 12.17 hrs, Volume= 11,228 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.36 cfs @ 12.17 hrs, Volume= 11,228 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.09' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.20'	15.0" Round Culvert L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.20' / 34.80' S= 0.0053 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.32 cfs @ 12.17 hrs HW=36.08' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 2.32 cfs @ 3.54 fps)

Summary for Pond DMH24-P: DMH 24

Inflow Area = 138,906 sf, 26.13% Impervious, Inflow Depth = 0.97" for 10-year event
 Inflow = 2.36 cfs @ 12.17 hrs, Volume= 11,228 cf
 Outflow = 2.36 cfs @ 12.17 hrs, Volume= 11,228 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.36 cfs @ 12.17 hrs, Volume= 11,228 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.71' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.80'	15.0" Round Culvert L= 64.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.80' / 34.50' S= 0.0047 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.32 cfs @ 12.17 hrs HW=35.70' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 2.32 cfs @ 3.42 fps)

Summary for Pond DMH25-P: DMH 25

Inflow Area = 138,906 sf, 26.13% Impervious, Inflow Depth = 0.97" for 10-year event
 Inflow = 2.36 cfs @ 12.17 hrs, Volume= 11,228 cf
 Outflow = 2.36 cfs @ 12.17 hrs, Volume= 11,228 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.36 cfs @ 12.17 hrs, Volume= 11,228 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.38' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.50'	15.0" Round Culvert L= 50.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.50' / 34.20' S= 0.0059 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.32 cfs @ 12.17 hrs HW=35.37' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 2.32 cfs @ 3.56 fps)

Summary for Pond DMH3-P: DMH 3

Inflow Area = 16,677 sf, 65.36% Impervious, Inflow Depth = 2.70" for 10-year event
 Inflow = 1.33 cfs @ 12.04 hrs, Volume= 3,755 cf
 Outflow = 1.33 cfs @ 12.04 hrs, Volume= 3,755 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.33 cfs @ 12.04 hrs, Volume= 3,755 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.98' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	40.25'	15.0" Round Culvert L= 480.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 40.25' / 39.00' S= 0.0026 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.29 cfs @ 12.04 hrs HW=40.97' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.29 cfs @ 2.54 fps)

Summary for Pond DMH4-P: DMH 4

Inflow Area = 46,452 sf, 62.98% Impervious, Inflow Depth = 2.58" for 10-year event
 Inflow = 3.01 cfs @ 12.06 hrs, Volume= 10,002 cf
 Outflow = 3.01 cfs @ 12.06 hrs, Volume= 10,002 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.01 cfs @ 12.06 hrs, Volume= 10,002 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.80' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.75'	18.0" Round Culvert L= 112.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.75' / 38.40' S= 0.0031 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.93 cfs @ 12.06 hrs HW=39.79' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 2.93 cfs @ 3.17 fps)

Summary for Pond DMH5-P: DMH 5

Inflow Area = 46,452 sf, 62.98% Impervious, Inflow Depth = 2.58" for 10-year event
 Inflow = 3.01 cfs @ 12.06 hrs, Volume= 10,002 cf
 Outflow = 3.01 cfs @ 12.06 hrs, Volume= 10,002 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.01 cfs @ 12.06 hrs, Volume= 10,002 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.40' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.40'	18.0" Round Culvert L= 30.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.40' / 38.20' S= 0.0066 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.93 cfs @ 12.06 hrs HW=39.38' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 2.93 cfs @ 3.41 fps)

Summary for Pond DMH6-P: DMH 6

Inflow Area = 41,294 sf, 40.08% Impervious, Inflow Depth = 1.55" for 10-year event
 Inflow = 1.47 cfs @ 12.11 hrs, Volume= 5,335 cf
 Outflow = 1.47 cfs @ 12.11 hrs, Volume= 5,335 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.47 cfs @ 12.11 hrs, Volume= 5,335 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.20' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.45'	12.0" Round Culvert L= 86.3' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 39.45' / 39.00' S= 0.0052 1/ S= 0.0052 1/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.45 cfs @ 12.11 hrs HW=40.20' (Free Discharge)
 ↑1=Culvert (Barrel Controls 1.45 cfs @ 3.21 fps)

Summary for Pond DMH7-P: DMH 7

Inflow Area = 41,294 sf, 40.08% Impervious, Inflow Depth = 1.55" for 10-year event
 Inflow = 1.47 cfs @ 12.11 hrs, Volume= 5,335 cf
 Outflow = 1.47 cfs @ 12.11 hrs, Volume= 5,335 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.47 cfs @ 12.11 hrs, Volume= 5,335 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.75' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.00'	12.0" Round Culvert L= 31.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.00' / 38.80' S= 0.0064 1/ S= 0.0064 1/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.45 cfs @ 12.11 hrs HW=39.74' (Free Discharge)
 ↑1=Culvert (Barrel Controls 1.45 cfs @ 3.22 fps)

Summary for Pond IB1-P: Infiltration Basin #1

Inflow Area = 122,013 sf, 47.21% Impervious, Inflow Depth = 1.86" for 10-year event
 Inflow = 5.26 cfs @ 12.08 hrs, Volume= 18,943 cf
 Outflow = 0.60 cfs @ 13.18 hrs, Volume= 18,943 cf, Atten= 89%, Lag= 65.9 min
 Discarded = 0.60 cfs @ 13.18 hrs, Volume= 18,943 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.73' @ 13.18 hrs Surf.Area= 10,674 sf Storage= 7,022 cf

Plug-Flow detention time= 113.3 min calculated for 18,943 cf (100% of inflow)
 Center-of-Mass det. time= 113.3 min (961.2 - 847.9)

Volume	Invert	Avail.Storage	Storage Description
#1	37.00'	39,337 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
37.00	8,550	0	0	8,550
38.00	11,510	9,993	9,993	11,531
39.00	14,670	13,058	23,052	14,717
39.70	16,871	11,030	34,082	16,940
40.00	18,170	5,255	39,337	18,246

Hidden Trails-Drainage System-REV1 (Basins 1 thru Type III 24-hr 10-year Rainfall=5.05"

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Device	Routing	Invert	Outlet Devices
#1	Discarded	37.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	39.70'	12.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.60 cfs @ 13.18 hrs HW=37.73' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.60 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=37.00' (Free Discharge)
 ↳2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond IB2-P: Infiltration Basin #2

Inflow Area = 262,345 sf, 37.86% Impervious, Inflow Depth = 1.45" for 10-year event
 Inflow = 8.47 cfs @ 12.12 hrs, Volume= 31,616 cf
 Outflow = 0.76 cfs @ 14.30 hrs, Volume= 31,616 cf, Atten= 91%, Lag= 131.0 min
 Discarded = 0.76 cfs @ 14.30 hrs, Volume= 31,616 cf
 Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 31.58' @ 14.30 hrs Surf.Area= 13,571 sf Storage= 13,086 cf

Plug-Flow detention time= 188.9 min calculated for 31,589 cf (100% of inflow)
 Center-of-Mass det. time= 188.7 min (1,057.1 - 868.4)

Volume	Invert	Avail.Storage	Storage Description
#1	30.50'	73,178 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.50	10,900	0	0	10,900
31.00	11,600	5,624	5,624	11,625
31.20	12,730	2,432	8,056	12,758
32.00	14,520	10,892	18,948	14,578
33.00	16,860	15,675	34,624	16,960
33.50	18,050	8,726	43,350	18,172
34.00	19,280	9,331	52,680	19,426
35.00	21,740	20,498	73,178	21,938

Device	Routing	Invert	Outlet Devices
#1	Discarded	30.50'	2.410 in/hr Exfiltration over Wetted area
#2	Secondary	33.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 1.0' Crest Height

Discarded OutFlow Max=0.76 cfs @ 14.30 hrs HW=31.58' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.76 cfs)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=30.50' (Free Discharge)
 ↳2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond IB3-P: Infiltration Basin #3

Inflow Area = 155,417 sf, 27.54% Impervious, Inflow Depth = 1.02" for 10-year event
 Inflow = 2.86 cfs @ 12.15 hrs, Volume= 13,250 cf
 Outflow = 0.26 cfs @ 15.62 hrs, Volume= 13,250 cf, Atten= 91%, Lag= 208.2 min
 Discarded = 0.26 cfs @ 15.62 hrs, Volume= 13,250 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.13' @ 15.62 hrs Surf.Area= 4,593 sf Storage= 5,918 cf

Plug-Flow detention time= 274.4 min calculated for 13,239 cf (100% of inflow)
 Center-of-Mass det. time= 274.4 min (1,167.4 - 893.1)

Volume	Invert	Avail.Storage	Storage Description		
#1	32.60'	30,671 cf	Custom Stage Data (Conic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
32.60	3,200	0	0	3,200	
34.00	4,480	5,351	5,351	4,516	
34.10	4,570	452	5,803	4,609	
35.00	5,430	4,494	10,298	5,498	
37.60	7,840	17,155	27,453	8,022	
38.00	8,250	3,218	30,671	8,451	

Device	Routing	Invert	Outlet Devices
#1	Discarded	32.60'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	37.60'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.26 cfs @ 15.62 hrs HW=34.13' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.26 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=32.60' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Subcatchment IB1-1S: To CBN 1

Runoff = 1.05 cfs @ 12.04 hrs, Volume= 2,972 cf, Depth= 3.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 6,500	98	Paved Roadway
2,819	39	>75% Grass cover, Good, HSG A
9,319	80	Weighted Average
2,819		30.25% Pervious Area
6,500		69.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
1.4	170	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.3	220	Total			

Summary for Subcatchment IB1-2S: To CBN 2

Runoff = 0.70 cfs @ 12.04 hrs, Volume= 1,979 cf, Depth= 3.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 4,400	98	Paved Roadway
2,958	39	>75% Grass cover, Good, HSG A
7,358	74	Weighted Average
2,958		40.20% Pervious Area
4,400		59.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
1.4	170	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.3	220	Total			

Summary for Subcatchment IB1-3S: To CBN 3

Runoff = 1.63 cfs @ 12.06 hrs, Volume= 4,866 cf, Depth= 3.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Hidden Trails-Drainage System-REV1 (Basins 1 thru Type III 24-hr 25-year Rainfall=6.05"

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Area (sf)	CN	Description
* 10,761	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
4,916	39	>75% Grass cover, Good, HSG A
15,677	79	Weighted Average
4,916		31.36% Pervious Area
10,761		68.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
3.3	400	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	450	Total			

Summary for Subcatchment IB1-4S: To CBN 4

Runoff = 0.95 cfs @ 12.15 hrs, Volume= 3,453 cf, Depth= 2.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 7,596	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
6,502	39	>75% Grass cover, Good, HSG A
14,098	71	Weighted Average
6,502		46.12% Pervious Area
7,596		53.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
3.3	400	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
10.5	450	Total			

Summary for Subcatchment IB1-5S: To CBN 5

Runoff = 1.63 cfs @ 12.12 hrs, Volume= 5,686 cf, Depth= 1.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

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	Area (sf)	CN	Description
*	5,950	98	Paved Roadway
*	6,400	98	Roofs and Driveways, HSG A
	22,564	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	34,914	60	Weighted Average
	22,564		64.63% Pervious Area
	12,350		35.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.9	55	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	150	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.5	255	Total			

Summary for Subcatchment IB1-6S: To CBN 6

Runoff = 0.65 cfs @ 12.06 hrs, Volume= 1,926 cf, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

	Area (sf)	CN	Description
*	4,200	98	Paved Roadway
*	0	98	Roofs and Driveways, HSG A
	2,180	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	6,380	78	Weighted Average
	2,180		34.17% Pervious Area
	4,200		65.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	14	0.0200	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	36	0.0100	0.88		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
1.5	188	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	238	Total			

Summary for Subcatchment IB1-S: Direct to IB #1

Runoff = 1.59 cfs @ 12.10 hrs, Volume= 5,342 cf, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
21,627	39	>75% Grass cover, Good, HSG A
* 11,790	98	Basin
850	30	Woods, Good, HSG A
34,267	59	Weighted Average
22,477		65.59% Pervious Area
11,790		34.41% Impervious Area

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

Summary for Subcatchment IB2-15S: To CBN 15

Runoff = 1.15 cfs @ 12.11 hrs, Volume= 3,857 cf, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 4,150	98	Paved Roadway
* 4,400	98	Roofs and Driveways, HSG A
14,151	39	>75% Grass cover, Good, HSG A
22,701	61	Weighted Average
14,151		62.34% Pervious Area
8,550		37.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	40	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	66	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.6	156	Total			

Summary for Subcatchment IB2-16S: To CBN 16

Runoff = 1.22 cfs @ 12.11 hrs, Volume= 4,218 cf, Depth= 1.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

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Area (sf)	CN	Description
* 2,900	98	Paved Roadway
* 6,400	98	Roofs and Driveways, HSG A
16,600	39	>75% Grass cover, Good, HSG A
25,900	60	Weighted Average
16,600		64.09% Pervious Area
9,300		35.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.6	33	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	143	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.2	226	Total			

Summary for Subcatchment IB2-17S: To CBN 17

Runoff = 1.71 cfs @ 12.12 hrs, Volume= 6,058 cf, Depth= 1.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 5,900	98	Paved Roadway
* 7,200	98	Roofs and Driveways, HSG A
24,097	39	>75% Grass cover, Good, HSG A
37,197	60	Weighted Average
24,097		64.78% Pervious Area
13,100		35.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.6	33	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.8	217	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.8	300	Total			

Summary for Subcatchment IB2-18S: To CBN 18

Runoff = 1.49 cfs @ 12.12 hrs, Volume= 5,390 cf, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Hidden Trails-Drainage System-REV1 (Basins 1 thru Type III 24-hr 25-year Rainfall=6.05"

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Area (sf)	CN	Description
* 4,200	98	Paved Roadway
* 7,400	98	Roofs and Driveways, HSG A
24,571	39	>75% Grass cover, Good, HSG A
36,171	58	Weighted Average
24,571		67.93% Pervious Area
11,600		32.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.6	33	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.8	217	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.8	300	Total			

Summary for Subcatchment IB2-19S: To CBN 19

Runoff = 1.23 cfs @ 12.16 hrs, Volume= 4,860 cf, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 6,000	98	Paved Roadway
* 4,500	98	Roofs and Driveways, HSG A
25,366	39	>75% Grass cover, Good, HSG A
35,866	56	Weighted Average
25,366		70.72% Pervious Area
10,500		29.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
3.4	200	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.1	130	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.9	380	Total			

Summary for Subcatchment IB2-20S: To CBN 20

Runoff = 1.27 cfs @ 12.13 hrs, Volume= 4,479 cf, Depth= 2.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Hidden Trails-Drainage System-REV1 (Basins 1 thru Type III 24-hr 25-year Rainfall=6.05"

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Area (sf)	CN	Description
* 5,900	98	Paved Roadway
* 4,100	98	Roofs and Driveways, HSG A
11,696	39	>75% Grass cover, Good, HSG A
21,696	66	Weighted Average
11,696		53.91% Pervious Area
10,000		46.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	40	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.6	320	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.7	410	Total			

Summary for Subcatchment IB2-21S: To CBN 21

Runoff = 1.43 cfs @ 12.15 hrs, Volume= 5,457 cf, Depth= 1.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 4,600	98	Paved Roadway
* 6,900	98	Roofs and Driveways, HSG A
26,877	39	>75% Grass cover, Good, HSG A
38,377	57	Weighted Average
26,877		70.03% Pervious Area
11,500		29.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.9	350	0.0100	2.03		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
9.1	450	Total			

Summary for Subcatchment IB2-22S: To CBN 22

Runoff = 1.03 cfs @ 12.08 hrs, Volume= 3,207 cf, Depth= 3.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Hidden Trails-Drainage System-REV1 (Basins 1 thru Type III 24-hr 25-year Rainfall=6.05"

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	Area (sf)	CN	Description
*	6,960	98	Paved Roadway
*	0	98	Roofs and Driveways, HSG A
	4,283	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	11,243	76	Weighted Average
	4,283		38.09% Pervious Area
	6,960		61.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	36	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
1.1	130	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.3	166	Total			

Summary for Subcatchment IB2-S: Direct To IB #2

Runoff = 2.57 cfs @ 12.09 hrs, Volume= 8,130 cf, Depth= 2.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

	Area (sf)	CN	Description
*	0	98	Paved Roadway
*	2,837	98	Paved Driveways, HSG A
	15,392	39	>75% Grass cover, Good, HSG A
*	14,965	98	Basin
	33,194	71	Weighted Average
	15,392		46.37% Pervious Area
	17,802		53.63% Impervious Area

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

Summary for Subcatchment IB3-23S: To CBN 23

Runoff = 2.21 cfs @ 12.19 hrs, Volume= 9,713 cf, Depth= 1.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

Hidden Trails-Drainage System-REV1 (Basins 1 thru Type III 24-hr 25-year Rainfall=6.05"

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	Area (sf)	CN	Description
*	8,900	98	Paved Roadway
*	10,900	98	Roofs and Driveways, HSG A (6400)
	59,581	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	79,381	54	Weighted Average
	59,581		75.06% Pervious Area
	19,800		24.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.43"
5.5	230	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.0	125	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
11.9	405	Total			

Summary for Subcatchment IB3-24S: To CBN 24

Runoff = 2.08 cfs @ 12.12 hrs, Volume= 7,672 cf, Depth= 1.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.05"

	Area (sf)	CN	Description
*	6,300	98	Paved Roadway
*	10,200	98	Roofs and Driveways, HSG A
	43,025	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	59,525	55	Weighted Average
	43,025		72.28% Pervious Area
	16,500		27.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.5	30	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.4	172	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.3	252	Total			

Summary for Subcatchment IB3-S: Direct to IB #3

Runoff = 0.89 cfs @ 12.10 hrs, Volume= 2,923 cf, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 0	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
10,011	39	>75% Grass cover, Good, HSG A
* 6,500	98	Basin
16,511	62	Weighted Average
10,011		60.63% Pervious Area
6,500		39.37% Impervious Area

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

Summary for Pond CBN1-P: CBN 1

Inflow Area = 9,319 sf, 69.75% Impervious, Inflow Depth = 3.83" for 25-year event
 Inflow = 1.05 cfs @ 12.04 hrs, Volume= 2,972 cf
 Outflow = 1.05 cfs @ 12.04 hrs, Volume= 2,972 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.05 cfs @ 12.04 hrs, Volume= 2,972 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.76' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.10'	12.0" Round Culvert L= 12.1' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 41.10' / 41.00' S= 0.0083 ' S= 0.0083 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.01 cfs @ 12.04 hrs HW=41.74' (Free Discharge)
 1=Culvert (Barrel Controls 1.01 cfs @ 2.71 fps)

Summary for Pond CBN15-P: CBN 15

Inflow Area = 22,701 sf, 37.66% Impervious, Inflow Depth = 2.04" for 25-year event
 Inflow = 1.15 cfs @ 12.11 hrs, Volume= 3,857 cf
 Outflow = 1.15 cfs @ 12.11 hrs, Volume= 3,857 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.15 cfs @ 12.11 hrs, Volume= 3,857 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.29' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.65'	12.0" Round Culvert

L= 6.6' CPP, projecting, no headwall, Ke= 0.900
 Inlet / Outlet Invert= 38.65' / 38.50' S= 0.0227 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.13 cfs @ 12.11 hrs HW=39.29' (Free Discharge)
 ↑1=Culvert (Inlet Controls 1.13 cfs @ 2.14 fps)

Summary for Pond CBN16-P: CBN 16

Inflow Area = 25,900 sf, 35.91% Impervious, Inflow Depth = 1.95" for 25-year event
 Inflow = 1.22 cfs @ 12.11 hrs, Volume= 4,218 cf
 Outflow = 1.22 cfs @ 12.11 hrs, Volume= 4,218 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.22 cfs @ 12.11 hrs, Volume= 4,218 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.34' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.65'	12.0" Round Culvert L= 13.9' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.65' / 38.50' S= 0.0108 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.18 cfs @ 12.11 hrs HW=39.33' (Free Discharge)
 ↑1=Culvert (Barrel Controls 1.18 cfs @ 2.97 fps)

Summary for Pond CBN17-P: CBN 17

Inflow Area = 37,197 sf, 35.22% Impervious, Inflow Depth = 1.95" for 25-year event
 Inflow = 1.71 cfs @ 12.12 hrs, Volume= 6,058 cf
 Outflow = 1.71 cfs @ 12.12 hrs, Volume= 6,058 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.71 cfs @ 12.12 hrs, Volume= 6,058 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.83' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	12.0" Round Culvert L= 2.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.00' / 36.80' S= 0.0833 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.66 cfs @ 12.12 hrs HW=37.81' (Free Discharge)
 ↑1=Culvert (Inlet Controls 1.66 cfs @ 2.42 fps)

Summary for Pond CBN18-P: CBN 18

Inflow Area = 36,171 sf, 32.07% Impervious, Inflow Depth = 1.79" for 25-year event
 Inflow = 1.49 cfs @ 12.12 hrs, Volume= 5,390 cf
 Outflow = 1.49 cfs @ 12.12 hrs, Volume= 5,390 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.49 cfs @ 12.12 hrs, Volume= 5,390 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.76' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	12.0" Round Culvert L= 10.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.00' / 36.80' S= 0.0190 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.44 cfs @ 12.12 hrs HW=37.74' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 1.44 cfs @ 2.31 fps)

Summary for Pond CBN19-P: CBN 19

Inflow Area = 35,866 sf, 29.28% Impervious, Inflow Depth = 1.63" for 25-year event
 Inflow = 1.23 cfs @ 12.16 hrs, Volume= 4,860 cf
 Outflow = 1.23 cfs @ 12.16 hrs, Volume= 4,860 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.23 cfs @ 12.16 hrs, Volume= 4,860 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.67' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.00'	12.0" Round Culvert L= 10.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.00' / 35.80' S= 0.0185 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.21 cfs @ 12.16 hrs HW=36.66' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 1.21 cfs @ 2.19 fps)

Summary for Pond CBN2-P: CBN 2

Inflow Area = 7,358 sf, 59.80% Impervious, Inflow Depth = 3.23" for 25-year event
 Inflow = 0.70 cfs @ 12.04 hrs, Volume= 1,979 cf
 Outflow = 0.70 cfs @ 12.04 hrs, Volume= 1,979 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.70 cfs @ 12.04 hrs, Volume= 1,979 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.60' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.10'	12.0" Round Culvert L= 6.2' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 41.10' / 41.00' S= 0.0161 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.68 cfs @ 12.04 hrs HW=41.59' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.68 cfs @ 2.58 fps)

Summary for Pond CBN20-P: CBN 20

Inflow Area = 21,696 sf, 46.09% Impervious, Inflow Depth = 2.48" for 25-year event
 Inflow = 1.27 cfs @ 12.13 hrs, Volume= 4,479 cf
 Outflow = 1.27 cfs @ 12.13 hrs, Volume= 4,479 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.27 cfs @ 12.13 hrs, Volume= 4,479 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.84' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.16'	12.0" Round Culvert L= 3.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.16' / 34.00' S= 0.0533 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.24 cfs @ 12.13 hrs HW=34.83' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 1.24 cfs @ 2.21 fps)

Summary for Pond CBN21-P: CBN 21

Inflow Area = 38,377 sf, 29.97% Impervious, Inflow Depth = 1.71" for 25-year event
 Inflow = 1.43 cfs @ 12.15 hrs, Volume= 5,457 cf
 Outflow = 1.43 cfs @ 12.15 hrs, Volume= 5,457 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.43 cfs @ 12.15 hrs, Volume= 5,457 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.02' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.28'	12.0" Round Culvert L= 21.6' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.28' / 34.00' S= 0.0130 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.42 cfs @ 12.15 hrs HW=35.01' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 1.42 cfs @ 2.30 fps)

Summary for Pond CBN22-P: CBN 22

Inflow Area = 11,243 sf, 61.91% Impervious, Inflow Depth = 3.42" for 25-year event
 Inflow = 1.03 cfs @ 12.08 hrs, Volume= 3,207 cf
 Outflow = 1.03 cfs @ 12.08 hrs, Volume= 3,207 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.03 cfs @ 12.08 hrs, Volume= 3,207 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.09' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.40'	12.0" Round Culvert L= 59.7' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.40' / 33.20' S= 0.0034 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.00 cfs @ 12.08 hrs HW=34.07' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.00 cfs @ 2.51 fps)

Summary for Pond CBN23-P: CBN 23

Inflow Area = 79,381 sf, 24.94% Impervious, Inflow Depth = 1.47" for 25-year event
 Inflow = 2.21 cfs @ 12.19 hrs, Volume= 9,713 cf
 Outflow = 2.21 cfs @ 12.19 hrs, Volume= 9,713 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.21 cfs @ 12.19 hrs, Volume= 9,713 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.24' @ 12.19 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.35'	15.0" Round Culvert L= 12.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.35' / 35.20' S= 0.0125 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.20 cfs @ 12.19 hrs HW=36.23' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 2.20 cfs @ 3.32 fps)

Summary for Pond CBN24-P: CBN 24

Inflow Area = 59,525 sf, 27.72% Impervious, Inflow Depth = 1.55" for 25-year event
 Inflow = 2.08 cfs @ 12.12 hrs, Volume= 7,672 cf
 Outflow = 2.08 cfs @ 12.12 hrs, Volume= 7,672 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.08 cfs @ 12.12 hrs, Volume= 7,672 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.57' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.60'	12.0" Round Culvert L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.60' / 35.45' S= 0.0375 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.01 cfs @ 12.12 hrs HW=36.55' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 2.01 cfs @ 2.61 fps)

Summary for Pond CBN3-P: CBN 3

Inflow Area = 15,677 sf, 68.64% Impervious, Inflow Depth = 3.72" for 25-year event
 Inflow = 1.63 cfs @ 12.06 hrs, Volume= 4,866 cf
 Outflow = 1.63 cfs @ 12.06 hrs, Volume= 4,866 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.63 cfs @ 12.06 hrs, Volume= 4,866 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.98' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.10'	12.0" Round Culvert L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.10' / 39.00' S= 0.0063 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.57 cfs @ 12.06 hrs HW=39.96' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.57 cfs @ 2.95 fps)

Summary for Pond CBN4-P: CBN 4

Inflow Area = 14,098 sf, 53.88% Impervious, Inflow Depth = 2.94" for 25-year event
 Inflow = 0.95 cfs @ 12.15 hrs, Volume= 3,453 cf
 Outflow = 0.95 cfs @ 12.15 hrs, Volume= 3,453 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.95 cfs @ 12.15 hrs, Volume= 3,453 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.70' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.10'	12.0" Round Culvert L= 7.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.10' / 39.00' S= 0.0143 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.94 cfs @ 12.15 hrs HW=39.70' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.94 cfs @ 2.74 fps)

Summary for Pond CBN5-P: CBN 5

Inflow Area = 34,914 sf, 35.37% Impervious, Inflow Depth = 1.95" for 25-year event
 Inflow = 1.63 cfs @ 12.12 hrs, Volume= 5,686 cf
 Outflow = 1.63 cfs @ 12.12 hrs, Volume= 5,686 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.63 cfs @ 12.12 hrs, Volume= 5,686 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.43' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.55'	12.0" Round Culvert L= 18.0' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 39.55' / 39.45' S= 0.0056 1' Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.58 cfs @ 12.12 hrs HW=40.41' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.58 cfs @ 2.93 fps)

Summary for Pond CBN6-P: CBN 6

Inflow Area = 6,380 sf, 65.83% Impervious, Inflow Depth = 3.62" for 25-year event
 Inflow = 0.65 cfs @ 12.06 hrs, Volume= 1,926 cf
 Outflow = 0.65 cfs @ 12.06 hrs, Volume= 1,926 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.65 cfs @ 12.06 hrs, Volume= 1,926 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.05' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.55'	12.0" Round Culvert L= 12.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.55' / 39.45' S= 0.0078 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.62 cfs @ 12.06 hrs HW=40.03' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.62 cfs @ 2.41 fps)

Summary for Pond DHM2-P: DMH 2

Inflow Area = 16,677 sf, 65.36% Impervious, Inflow Depth = 3.56" for 25-year event
 Inflow = 1.75 cfs @ 12.04 hrs, Volume= 4,950 cf
 Outflow = 1.75 cfs @ 12.04 hrs, Volume= 4,950 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.75 cfs @ 12.04 hrs, Volume= 4,950 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.64' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	40.70'	12.0" Round Culvert L= 68.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 40.70' / 40.50' S= 0.0029 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.70 cfs @ 12.04 hrs HW=41.62' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.70 cfs @ 2.94 fps)

Summary for Pond DMH1-P: DMH 1

Inflow Area = 16,677 sf, 65.36% Impervious, Inflow Depth = 3.56" for 25-year event
 Inflow = 1.75 cfs @ 12.04 hrs, Volume= 4,950 cf
 Outflow = 1.75 cfs @ 12.04 hrs, Volume= 4,950 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.75 cfs @ 12.04 hrs, Volume= 4,950 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.95' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	12.0" Round Culvert L= 104.7' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 41.00' / 40.70' S= 0.0029 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.70 cfs @ 12.04 hrs HW=41.93' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.70 cfs @ 2.89 fps)

Summary for Pond DMH17-P: DMH 17

Inflow Area = 48,601 sf, 36.73% Impervious, Inflow Depth = 1.99" for 25-year event
 Inflow = 2.37 cfs @ 12.11 hrs, Volume= 8,075 cf
 Outflow = 2.37 cfs @ 12.11 hrs, Volume= 8,075 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.37 cfs @ 12.11 hrs, Volume= 8,075 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.39' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.40'	12.0" Round Culvert L= 290.7' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 38.40' / 36.75' S= 0.0057 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.31 cfs @ 12.11 hrs HW=39.38' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 2.31 cfs @ 3.75 fps)

Summary for Pond DMH18-P: DMH 18

Inflow Area = 121,969 sf, 34.89% Impervious, Inflow Depth = 1.92" for 25-year event
 Inflow = 5.56 cfs @ 12.12 hrs, Volume= 19,523 cf
 Outflow = 5.56 cfs @ 12.12 hrs, Volume= 19,523 cf, Atten= 0%, Lag= 0.0 min
 Primary = 5.56 cfs @ 12.12 hrs, Volume= 19,523 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.53' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.25'	18.0" Round Culvert L= 283.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.25' / 34.60' S= 0.0058 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.39 cfs @ 12.12 hrs HW=37.50' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 5.39 cfs @ 4.63 fps)

Summary for Pond DMH19-P: DMH 19

Inflow Area = 157,835 sf, 33.61% Impervious, Inflow Depth = 1.85" for 25-year event
 Inflow = 6.71 cfs @ 12.12 hrs, Volume= 24,383 cf
 Outflow = 6.71 cfs @ 12.12 hrs, Volume= 24,383 cf, Atten= 0%, Lag= 0.0 min
 Primary = 6.71 cfs @ 12.12 hrs, Volume= 24,383 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.06' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.60'	18.0" Round Culvert L= 116.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.60' / 33.80' S= 0.0069 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.50 cfs @ 12.12 hrs HW=36.02' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 6.50 cfs @ 4.83 fps)

Summary for Pond DMH20-P: DMH 20

Inflow Area = 157,835 sf, 33.61% Impervious, Inflow Depth = 1.85" for 25-year event
 Inflow = 6.71 cfs @ 12.12 hrs, Volume= 24,383 cf
 Outflow = 6.71 cfs @ 12.12 hrs, Volume= 24,383 cf, Atten= 0%, Lag= 0.0 min
 Primary = 6.71 cfs @ 12.12 hrs, Volume= 24,383 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.25' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.80'	18.0" Round Culvert L= 114.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.80' / 33.00' S= 0.0070 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.50 cfs @ 12.12 hrs HW=35.22' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 6.50 cfs @ 4.85 fps)

Summary for Pond DMH21-P: DMH 21

Inflow Area = 217,908 sf, 34.21% Impervious, Inflow Depth = 1.89" for 25-year event
 Inflow = 9.28 cfs @ 12.13 hrs, Volume= 34,319 cf
 Outflow = 9.28 cfs @ 12.13 hrs, Volume= 34,319 cf, Atten= 0%, Lag= 0.0 min
 Primary = 9.28 cfs @ 12.13 hrs, Volume= 34,319 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.19' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	32.50'	24.0" Round Culvert L= 86.1' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 32.50' / 32.20' S= 0.0035 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=9.10 cfs @ 12.13 hrs HW=34.17' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 9.10 cfs @ 4.38 fps)

Summary for Pond DMH22-P: DMH 22

Inflow Area = 229,151 sf, 35.57% Impervious, Inflow Depth = 1.97" for 25-year event
 Inflow = 10.32 cfs @ 12.12 hrs, Volume= 37,527 cf
 Outflow = 10.32 cfs @ 12.12 hrs, Volume= 37,527 cf, Atten= 0%, Lag= 0.0 min
 Primary = 10.32 cfs @ 12.12 hrs, Volume= 37,527 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.00' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	32.20'	24.0" Round Culvert L= 18.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 32.20' / 32.10' S= 0.0054 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=10.00 cfs @ 12.12 hrs HW=33.96' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 10.00 cfs @ 4.54 fps)

Summary for Pond DMH23-P: DMH 23

Inflow Area = 138,906 sf, 26.13% Impervious, Inflow Depth = 1.50" for 25-year event
 Inflow = 4.10 cfs @ 12.16 hrs, Volume= 17,385 cf
 Outflow = 4.10 cfs @ 12.16 hrs, Volume= 17,385 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.10 cfs @ 12.16 hrs, Volume= 17,385 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.49' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.20'	15.0" Round Culvert L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.20' / 34.80' S= 0.0053 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.06 cfs @ 12.16 hrs HW=36.48' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 4.06 cfs @ 4.03 fps)

Summary for Pond DMH24-P: DMH 24

Inflow Area = 138,906 sf, 26.13% Impervious, Inflow Depth = 1.50" for 25-year event
 Inflow = 4.10 cfs @ 12.16 hrs, Volume= 17,385 cf
 Outflow = 4.10 cfs @ 12.16 hrs, Volume= 17,385 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.10 cfs @ 12.16 hrs, Volume= 17,385 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.13' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.80'	15.0" Round Culvert L= 64.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.80' / 34.50' S= 0.0047 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.06 cfs @ 12.16 hrs HW=36.12' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 4.06 cfs @ 3.91 fps)

Summary for Pond DMH25-P: DMH 25

Inflow Area = 138,906 sf, 26.13% Impervious, Inflow Depth = 1.50" for 25-year event
 Inflow = 4.10 cfs @ 12.16 hrs, Volume= 17,385 cf
 Outflow = 4.10 cfs @ 12.16 hrs, Volume= 17,385 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.10 cfs @ 12.16 hrs, Volume= 17,385 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.78' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.50'	15.0" Round Culvert L= 50.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.50' / 34.20' S= 0.0059 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.06 cfs @ 12.16 hrs HW=35.77' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 4.06 cfs @ 4.06 fps)

Summary for Pond DMH3-P: DMH 3

Inflow Area = 16,677 sf, 65.36% Impervious, Inflow Depth = 3.56" for 25-year event
 Inflow = 1.75 cfs @ 12.04 hrs, Volume= 4,950 cf
 Outflow = 1.75 cfs @ 12.04 hrs, Volume= 4,950 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.75 cfs @ 12.04 hrs, Volume= 4,950 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.11' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	40.25'	15.0" Round Culvert L= 480.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 40.25' / 39.00' S= 0.0026 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.70 cfs @ 12.04 hrs HW=41.09' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.70 cfs @ 2.73 fps)

Summary for Pond DMH4-P: DMH 4

Inflow Area = 46,452 sf, 62.98% Impervious, Inflow Depth = 3.43" for 25-year event
 Inflow = 3.99 cfs @ 12.06 hrs, Volume= 13,269 cf
 Outflow = 3.99 cfs @ 12.06 hrs, Volume= 13,269 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.99 cfs @ 12.06 hrs, Volume= 13,269 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.00' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.75'	18.0" Round Culvert L= 112.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.75' / 38.40' S= 0.0031 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.89 cfs @ 12.06 hrs HW=39.98' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 3.89 cfs @ 3.41 fps)

Summary for Pond DMH5-P: DMH 5

Inflow Area = 46,452 sf, 62.98% Impervious, Inflow Depth = 3.43" for 25-year event
 Inflow = 3.99 cfs @ 12.06 hrs, Volume= 13,269 cf
 Outflow = 3.99 cfs @ 12.06 hrs, Volume= 13,269 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.99 cfs @ 12.06 hrs, Volume= 13,269 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.58' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.40'	18.0" Round Culvert L= 30.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.40' / 38.20' S= 0.0066 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.89 cfs @ 12.06 hrs HW=39.57' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 3.89 cfs @ 3.64 fps)

Summary for Pond DMH6-P: DMH 6

Inflow Area = 41,294 sf, 40.08% Impervious, Inflow Depth = 2.21" for 25-year event
 Inflow = 2.19 cfs @ 12.10 hrs, Volume= 7,612 cf
 Outflow = 2.19 cfs @ 12.10 hrs, Volume= 7,612 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.19 cfs @ 12.10 hrs, Volume= 7,612 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.43' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.45'	12.0" Round Culvert L= 86.3' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 39.45' / 39.00' S= 0.0052 1/ S= 0.0052 1/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.16 cfs @ 12.10 hrs HW=40.43' (Free Discharge)
 ↖1=Culvert (Barrel Controls 2.16 cfs @ 3.51 fps)

Summary for Pond DMH7-P: DMH 7

Inflow Area = 41,294 sf, 40.08% Impervious, Inflow Depth = 2.21" for 25-year event
 Inflow = 2.19 cfs @ 12.10 hrs, Volume= 7,612 cf
 Outflow = 2.19 cfs @ 12.10 hrs, Volume= 7,612 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.19 cfs @ 12.10 hrs, Volume= 7,612 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.98' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.00'	12.0" Round Culvert L= 31.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.00' / 38.80' S= 0.0064 1/ S= 0.0064 1/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.16 cfs @ 12.10 hrs HW=39.97' (Free Discharge)
 ↖1=Culvert (Barrel Controls 2.16 cfs @ 3.54 fps)

Summary for Pond IB1-P: Infiltration Basin #1

Inflow Area = 122,013 sf, 47.21% Impervious, Inflow Depth = 2.58" for 25-year event
 Inflow = 7.45 cfs @ 12.08 hrs, Volume= 26,223 cf
 Outflow = 0.66 cfs @ 13.73 hrs, Volume= 26,223 cf, Atten= 91%, Lag= 99.0 min
 Discarded = 0.66 cfs @ 13.73 hrs, Volume= 26,223 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.09' @ 13.73 hrs Surf.Area= 11,780 sf Storage= 11,048 cf

Plug-Flow detention time= 173.6 min calculated for 26,223 cf (100% of inflow)
 Center-of-Mass det. time= 173.5 min (1,012.8 - 839.3)

Volume	Invert	Avail.Storage	Storage Description
#1	37.00'	39,337 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
37.00	8,550	0	0	8,550
38.00	11,510	9,993	9,993	11,531
39.00	14,670	13,058	23,052	14,717
39.70	16,871	11,030	34,082	16,940
40.00	18,170	5,255	39,337	18,246

Hidden Trails-Drainage System-REV1 (Basins 1 thru Type III 24-hr 25-year Rainfall=6.05"

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Device	Routing	Invert	Outlet Devices
#1	Discarded	37.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	39.70'	12.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.66 cfs @ 13.73 hrs HW=38.09' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.66 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=37.00' (Free Discharge)
 ↳2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond IB2-P: Infiltration Basin #2

Inflow Area = 262,345 sf, 37.86% Impervious, Inflow Depth = 2.09" for 25-year event
 Inflow = 12.80 cfs @ 12.12 hrs, Volume= 45,657 cf
 Outflow = 0.84 cfs @ 15.15 hrs, Volume= 45,657 cf, Atten= 93%, Lag= 182.1 min
 Discarded = 0.84 cfs @ 15.15 hrs, Volume= 45,657 cf
 Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 32.22' @ 15.15 hrs Surf.Area= 15,023 sf Storage= 22,218 cf

Plug-Flow detention time= 299.1 min calculated for 45,618 cf (100% of inflow)
 Center-of-Mass det. time= 299.1 min (1,156.5 - 857.4)

Volume	Invert	Avail.Storage	Storage Description		
#1	30.50'	73,178 cf	Custom Stage Data (Conic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
30.50	10,900	0	0	10,900	
31.00	11,600	5,624	5,624	11,625	
31.20	12,730	2,432	8,056	12,758	
32.00	14,520	10,892	18,948	14,578	
33.00	16,860	15,675	34,624	16,960	
33.50	18,050	8,726	43,350	18,172	
34.00	19,280	9,331	52,680	19,426	
35.00	21,740	20,498	73,178	21,938	

Device	Routing	Invert	Outlet Devices
#1	Discarded	30.50'	2.410 in/hr Exfiltration over Wetted area
#2	Secondary	33.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 1.0' Crest Height

Discarded OutFlow Max=0.84 cfs @ 15.15 hrs HW=32.22' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.84 cfs)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=30.50' (Free Discharge)
 ↳2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond IB3-P: Infiltration Basin #3

Inflow Area = 155,417 sf, 27.54% Impervious, Inflow Depth = 1.57" for 25-year event
 Inflow = 4.85 cfs @ 12.14 hrs, Volume= 20,309 cf
 Outflow = 0.31 cfs @ 16.07 hrs, Volume= 20,309 cf, Atten= 94%, Lag= 235.4 min
 Discarded = 0.31 cfs @ 16.07 hrs, Volume= 20,309 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.08' @ 16.07 hrs Surf.Area= 5,496 sf Storage= 10,722 cf

Plug-Flow detention time= 417.4 min calculated for 20,291 cf (100% of inflow)
 Center-of-Mass det. time= 417.5 min (1,295.8 - 878.3)

Volume	Invert	Avail.Storage	Storage Description		
#1	32.60'	30,671 cf	Custom Stage Data (Conic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
32.60	3,200	0	0	3,200	
34.00	4,480	5,351	5,351	4,516	
34.10	4,570	452	5,803	4,609	
35.00	5,430	4,494	10,298	5,498	
37.60	7,840	17,155	27,453	8,022	
38.00	8,250	3,218	30,671	8,451	

Device	Routing	Invert	Outlet Devices
#1	Discarded	32.60'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	37.60'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.31 cfs @ 16.07 hrs HW=35.08' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.31 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=32.60' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Subcatchment IB1-1S: To CBN 1

Runoff = 1.42 cfs @ 12.04 hrs, Volume= 4,078 cf, Depth= 5.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 6,500	98	Paved Roadway
2,819	39	>75% Grass cover, Good, HSG A
9,319	80	Weighted Average
2,819		30.25% Pervious Area
6,500		69.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
1.4	170	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.3	220	Total			

Summary for Subcatchment IB1-2S: To CBN 2

Runoff = 0.99 cfs @ 12.04 hrs, Volume= 2,802 cf, Depth= 4.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 4,400	98	Paved Roadway
2,958	39	>75% Grass cover, Good, HSG A
7,358	74	Weighted Average
2,958		40.20% Pervious Area
4,400		59.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
1.4	170	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.3	220	Total			

Summary for Subcatchment IB1-3S: To CBN 3

Runoff = 2.23 cfs @ 12.06 hrs, Volume= 6,711 cf, Depth= 5.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Hidden Trails-Drainage System-REV1 (Basins 1 thru Type III 24-hr 100-year Rainfall=7.60"

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Area (sf)	CN	Description
* 10,761	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
4,916	39	>75% Grass cover, Good, HSG A
15,677	79	Weighted Average
4,916		31.36% Pervious Area
10,761		68.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
3.3	400	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	450	Total			

Summary for Subcatchment IB1-4S: To CBN 4

Runoff = 1.37 cfs @ 12.15 hrs, Volume= 4,974 cf, Depth= 4.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 7,596	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
6,502	39	>75% Grass cover, Good, HSG A
14,098	71	Weighted Average
6,502		46.12% Pervious Area
7,596		53.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
3.3	400	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
10.5	450	Total			

Summary for Subcatchment IB1-5S: To CBN 5

Runoff = 2.62 cfs @ 12.11 hrs, Volume= 8,834 cf, Depth= 3.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

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	Area (sf)	CN	Description
*	5,950	98	Paved Roadway
*	6,400	98	Roofs and Driveways, HSG A
	22,564	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	34,914	60	Weighted Average
	22,564		64.63% Pervious Area
	12,350		35.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.9	55	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	150	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.5	255	Total			

Summary for Subcatchment IB1-6S: To CBN 6

Runoff = 0.89 cfs @ 12.06 hrs, Volume= 2,670 cf, Depth= 5.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

	Area (sf)	CN	Description
*	4,200	98	Paved Roadway
*	0	98	Roofs and Driveways, HSG A
	2,180	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	6,380	78	Weighted Average
	2,180		34.17% Pervious Area
	4,200		65.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	14	0.0200	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	36	0.0100	0.88		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
1.5	188	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	238	Total			

Summary for Subcatchment IB1-S: Direct to IB #1

Runoff = 2.59 cfs @ 12.10 hrs, Volume= 8,369 cf, Depth= 2.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
21,627	39	>75% Grass cover, Good, HSG A
* 11,790	98	Basin
850	30	Woods, Good, HSG A
34,267	59	Weighted Average
22,477		65.59% Pervious Area
11,790		34.41% Impervious Area

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

Summary for Subcatchment IB2-15S: To CBN 15

Runoff = 1.83 cfs @ 12.10 hrs, Volume= 5,945 cf, Depth= 3.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 4,150	98	Paved Roadway
* 4,400	98	Roofs and Driveways, HSG A
14,151	39	>75% Grass cover, Good, HSG A
22,701	61	Weighted Average
14,151		62.34% Pervious Area
8,550		37.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	40	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	66	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.6	156	Total			

Summary for Subcatchment IB2-16S: To CBN 16

Runoff = 1.96 cfs @ 12.11 hrs, Volume= 6,554 cf, Depth= 3.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

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Area (sf)	CN	Description
* 2,900	98	Paved Roadway
* 6,400	98	Roofs and Driveways, HSG A
16,600	39	>75% Grass cover, Good, HSG A
25,900	60	Weighted Average
16,600		64.09% Pervious Area
9,300		35.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.6	33	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	143	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.2	226	Total			

Summary for Subcatchment IB2-17S: To CBN 17

Runoff = 2.76 cfs @ 12.12 hrs, Volume= 9,412 cf, Depth= 3.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 5,900	98	Paved Roadway
* 7,200	98	Roofs and Driveways, HSG A
24,097	39	>75% Grass cover, Good, HSG A
37,197	60	Weighted Average
24,097		64.78% Pervious Area
13,100		35.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.6	33	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.8	217	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.8	300	Total			

Summary for Subcatchment IB2-18S: To CBN 18

Runoff = 2.47 cfs @ 12.12 hrs, Volume= 8,517 cf, Depth= 2.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Hidden Trails-Drainage System-REV1 (Basins 1 thru Type III 24-hr 100-year Rainfall=7.60"

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Area (sf)	CN	Description
* 4,200	98	Paved Roadway
* 7,400	98	Roofs and Driveways, HSG A
24,571	39	>75% Grass cover, Good, HSG A
36,171	58	Weighted Average
24,571		67.93% Pervious Area
11,600		32.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.6	33	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.8	217	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.8	300	Total			

Summary for Subcatchment IB2-19S: To CBN 19

Runoff = 2.09 cfs @ 12.15 hrs, Volume= 7,823 cf, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 6,000	98	Paved Roadway
* 4,500	98	Roofs and Driveways, HSG A
25,366	39	>75% Grass cover, Good, HSG A
35,866	56	Weighted Average
25,366		70.72% Pervious Area
10,500		29.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
3.4	200	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.1	130	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.9	380	Total			

Summary for Subcatchment IB2-20S: To CBN 20

Runoff = 1.91 cfs @ 12.13 hrs, Volume= 6,658 cf, Depth= 3.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Hidden Trails-Drainage System-REV1 (Basins 1 thru Type III 24-hr 100-year Rainfall=7.60"

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Area (sf)	CN	Description
* 5,900	98	Paved Roadway
* 4,100	98	Roofs and Driveways, HSG A
11,696	39	>75% Grass cover, Good, HSG A
21,696	66	Weighted Average
11,696		53.91% Pervious Area
10,000		46.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	40	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.6	320	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.7	410	Total			

Summary for Subcatchment IB2-21S: To CBN 21

Runoff = 2.39 cfs @ 12.14 hrs, Volume= 8,702 cf, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 4,600	98	Paved Roadway
* 6,900	98	Roofs and Driveways, HSG A
26,877	39	>75% Grass cover, Good, HSG A
38,377	57	Weighted Average
26,877		70.03% Pervious Area
11,500		29.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.9	350	0.0100	2.03		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
9.1	450	Total			

Summary for Subcatchment IB2-22S: To CBN 22

Runoff = 1.44 cfs @ 12.08 hrs, Volume= 4,493 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

	Area (sf)	CN	Description
*	6,960	98	Paved Roadway
*	0	98	Roofs and Driveways, HSG A
	4,283	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	11,243	76	Weighted Average
	4,283		38.09% Pervious Area
	6,960		61.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	36	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
1.1	130	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.3	166	Total			

Summary for Subcatchment IB2-S: Direct To IB #2

Runoff = 3.71 cfs @ 12.09 hrs, Volume= 11,711 cf, Depth= 4.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

	Area (sf)	CN	Description
*	0	98	Paved Roadway
*	2,837	98	Paved Driveways, HSG A
	15,392	39	>75% Grass cover, Good, HSG A
*	14,965	98	Basin
	33,194	71	Weighted Average
	15,392		46.37% Pervious Area
	17,802		53.63% Impervious Area

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

Summary for Subcatchment IB3-23S: To CBN 23

Runoff = 3.92 cfs @ 12.18 hrs, Volume= 15,955 cf, Depth= 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

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	Area (sf)	CN	Description
*	8,900	98	Paved Roadway
*	10,900	98	Roofs and Driveways, HSG A (6400)
	59,581	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	79,381	54	Weighted Average
	59,581		75.06% Pervious Area
	19,800		24.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.43"
5.5	230	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.0	125	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
11.9	405	Total			

Summary for Subcatchment IB3-24S: To CBN 24

Runoff = 3.61 cfs @ 12.11 hrs, Volume= 12,472 cf, Depth= 2.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.60"

	Area (sf)	CN	Description
*	6,300	98	Paved Roadway
*	10,200	98	Roofs and Driveways, HSG A
	43,025	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	59,525	55	Weighted Average
	43,025		72.28% Pervious Area
	16,500		27.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.5	30	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.4	172	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.3	252	Total			

Summary for Subcatchment IB3-S: Direct to IB #3

Runoff = 1.40 cfs @ 12.10 hrs, Volume= 4,471 cf, Depth= 3.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 0	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
10,011	39	>75% Grass cover, Good, HSG A
* 6,500	98	Basin
16,511	62	Weighted Average
10,011		60.63% Pervious Area
6,500		39.37% Impervious Area

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

Summary for Pond CBN1-P: CBN 1

Inflow Area = 9,319 sf, 69.75% Impervious, Inflow Depth = 5.25" for 100-year event
 Inflow = 1.42 cfs @ 12.04 hrs, Volume= 4,078 cf
 Outflow = 1.42 cfs @ 12.04 hrs, Volume= 4,078 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.42 cfs @ 12.04 hrs, Volume= 4,078 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.89' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.10'	12.0" Round Culvert L= 12.1' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 41.10' / 41.00' S= 0.0083 ' S= 0.0083 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.37 cfs @ 12.04 hrs HW=41.87' (Free Discharge)
 1=Culvert (Barrel Controls 1.37 cfs @ 2.91 fps)

Summary for Pond CBN15-P: CBN 15

Inflow Area = 22,701 sf, 37.66% Impervious, Inflow Depth = 3.14" for 100-year event
 Inflow = 1.83 cfs @ 12.10 hrs, Volume= 5,945 cf
 Outflow = 1.83 cfs @ 12.10 hrs, Volume= 5,945 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.83 cfs @ 12.10 hrs, Volume= 5,945 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.52' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.65'	12.0" Round Culvert

L= 6.6' CPP, projecting, no headwall, Ke= 0.900
 Inlet / Outlet Invert= 38.65' / 38.50' S= 0.0227 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.81 cfs @ 12.10 hrs HW=39.52' (Free Discharge)

↑1=Culvert (Inlet Controls 1.81 cfs @ 2.50 fps)

Summary for Pond CBN16-P: CBN 16

Inflow Area = 25,900 sf, 35.91% Impervious, Inflow Depth = 3.04" for 100-year event
 Inflow = 1.96 cfs @ 12.11 hrs, Volume= 6,554 cf
 Outflow = 1.96 cfs @ 12.11 hrs, Volume= 6,554 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.96 cfs @ 12.11 hrs, Volume= 6,554 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs

Peak Elev= 39.59' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.65'	12.0" Round Culvert L= 13.9' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.65' / 38.50' S= 0.0108 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.92 cfs @ 12.11 hrs HW=39.57' (Free Discharge)

↑1=Culvert (Barrel Controls 1.92 cfs @ 3.30 fps)

Summary for Pond CBN17-P: CBN 17

Inflow Area = 37,197 sf, 35.22% Impervious, Inflow Depth = 3.04" for 100-year event
 Inflow = 2.76 cfs @ 12.12 hrs, Volume= 9,412 cf
 Outflow = 2.76 cfs @ 12.12 hrs, Volume= 9,412 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.76 cfs @ 12.12 hrs, Volume= 9,412 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs

Peak Elev= 38.35' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	12.0" Round Culvert L= 2.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.00' / 36.80' S= 0.0833 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.68 cfs @ 12.12 hrs HW=38.30' (Free Discharge)

↑1=Culvert (Inlet Controls 2.68 cfs @ 3.41 fps)

Summary for Pond CBN18-P: CBN 18

Inflow Area = 36,171 sf, 32.07% Impervious, Inflow Depth = 2.83" for 100-year event
 Inflow = 2.47 cfs @ 12.12 hrs, Volume= 8,517 cf
 Outflow = 2.47 cfs @ 12.12 hrs, Volume= 8,517 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.47 cfs @ 12.12 hrs, Volume= 8,517 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.18' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	12.0" Round Culvert L= 10.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.00' / 36.80' S= 0.0190 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.39 cfs @ 12.12 hrs HW=38.14' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 2.39 cfs @ 3.05 fps)

Summary for Pond CBN19-P: CBN 19

Inflow Area = 35,866 sf, 29.28% Impervious, Inflow Depth = 2.62" for 100-year event
 Inflow = 2.09 cfs @ 12.15 hrs, Volume= 7,823 cf
 Outflow = 2.09 cfs @ 12.15 hrs, Volume= 7,823 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.09 cfs @ 12.15 hrs, Volume= 7,823 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.99' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.00'	12.0" Round Culvert L= 10.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.00' / 35.80' S= 0.0185 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.09 cfs @ 12.15 hrs HW=36.98' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 2.09 cfs @ 2.67 fps)

Summary for Pond CBN2-P: CBN 2

Inflow Area = 7,358 sf, 59.80% Impervious, Inflow Depth = 4.57" for 100-year event
 Inflow = 0.99 cfs @ 12.04 hrs, Volume= 2,802 cf
 Outflow = 0.99 cfs @ 12.04 hrs, Volume= 2,802 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.99 cfs @ 12.04 hrs, Volume= 2,802 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.72' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.10'	12.0" Round Culvert L= 6.2' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 41.10' / 41.00' S= 0.0161 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.96 cfs @ 12.04 hrs HW=41.71' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.96 cfs @ 2.77 fps)

Summary for Pond CBN20-P: CBN 20

Inflow Area = 21,696 sf, 46.09% Impervious, Inflow Depth = 3.68" for 100-year event
 Inflow = 1.91 cfs @ 12.13 hrs, Volume= 6,658 cf
 Outflow = 1.91 cfs @ 12.13 hrs, Volume= 6,658 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.91 cfs @ 12.13 hrs, Volume= 6,658 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.06' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.16'	12.0" Round Culvert L= 3.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.16' / 34.00' S= 0.0533 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.87 cfs @ 12.13 hrs HW=35.05' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 1.87 cfs @ 2.53 fps)

Summary for Pond CBN21-P: CBN 21

Inflow Area = 38,377 sf, 29.97% Impervious, Inflow Depth = 2.72" for 100-year event
 Inflow = 2.39 cfs @ 12.14 hrs, Volume= 8,702 cf
 Outflow = 2.39 cfs @ 12.14 hrs, Volume= 8,702 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.39 cfs @ 12.14 hrs, Volume= 8,702 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.42' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.28'	12.0" Round Culvert L= 21.6' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.28' / 34.00' S= 0.0130 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.36 cfs @ 12.14 hrs HW=35.40' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 2.36 cfs @ 3.00 fps)

Summary for Pond CBN22-P: CBN 22

Inflow Area = 11,243 sf, 61.91% Impervious, Inflow Depth = 4.80" for 100-year event
 Inflow = 1.44 cfs @ 12.08 hrs, Volume= 4,493 cf
 Outflow = 1.44 cfs @ 12.08 hrs, Volume= 4,493 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.44 cfs @ 12.08 hrs, Volume= 4,493 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.24' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.40'	12.0" Round Culvert L= 59.7' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.40' / 33.20' S= 0.0034 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.39 cfs @ 12.08 hrs HW=34.22' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.39 cfs @ 2.73 fps)

Summary for Pond CBN23-P: CBN 23

Inflow Area = 79,381 sf, 24.94% Impervious, Inflow Depth = 2.41" for 100-year event
 Inflow = 3.92 cfs @ 12.18 hrs, Volume= 15,955 cf
 Outflow = 3.92 cfs @ 12.18 hrs, Volume= 15,955 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.92 cfs @ 12.18 hrs, Volume= 15,955 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.68' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.35'	15.0" Round Culvert L= 12.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.35' / 35.20' S= 0.0125 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.87 cfs @ 12.18 hrs HW=36.66' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 3.87 cfs @ 3.15 fps)

Summary for Pond CBN24-P: CBN 24

Inflow Area = 59,525 sf, 27.72% Impervious, Inflow Depth = 2.51" for 100-year event
 Inflow = 3.61 cfs @ 12.11 hrs, Volume= 12,472 cf
 Outflow = 3.61 cfs @ 12.11 hrs, Volume= 12,472 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.61 cfs @ 12.11 hrs, Volume= 12,472 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.56' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.60'	12.0" Round Culvert L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.60' / 35.45' S= 0.0375 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.51 cfs @ 12.11 hrs HW=37.48' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 3.51 cfs @ 4.46 fps)

Summary for Pond CBN3-P: CBN 3

Inflow Area = 15,677 sf, 68.64% Impervious, Inflow Depth = 5.14" for 100-year event
 Inflow = 2.23 cfs @ 12.06 hrs, Volume= 6,711 cf
 Outflow = 2.23 cfs @ 12.06 hrs, Volume= 6,711 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.23 cfs @ 12.06 hrs, Volume= 6,711 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.19' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.10'	12.0" Round Culvert L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.10' / 39.00' S= 0.0063 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.16 cfs @ 12.06 hrs HW=40.16' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 2.16 cfs @ 3.21 fps)

Summary for Pond CBN4-P: CBN 4

Inflow Area = 14,098 sf, 53.88% Impervious, Inflow Depth = 4.23" for 100-year event
 Inflow = 1.37 cfs @ 12.15 hrs, Volume= 4,974 cf
 Outflow = 1.37 cfs @ 12.15 hrs, Volume= 4,974 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.37 cfs @ 12.15 hrs, Volume= 4,974 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.86' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.10'	12.0" Round Culvert L= 7.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.10' / 39.00' S= 0.0143 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.37 cfs @ 12.15 hrs HW=39.86' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.37 cfs @ 2.98 fps)

Summary for Pond CBN5-P: CBN 5

Inflow Area = 34,914 sf, 35.37% Impervious, Inflow Depth = 3.04" for 100-year event
 Inflow = 2.62 cfs @ 12.11 hrs, Volume= 8,834 cf
 Outflow = 2.62 cfs @ 12.11 hrs, Volume= 8,834 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.62 cfs @ 12.11 hrs, Volume= 8,834 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.82' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.55'	12.0" Round Culvert L= 18.0' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 39.55' / 39.45' S= 0.0056 1' Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.55 cfs @ 12.11 hrs HW=40.79' (Free Discharge)
 ↑1=Culvert (Barrel Controls 2.55 cfs @ 3.35 fps)

Summary for Pond CBN6-P: CBN 6

Inflow Area = 6,380 sf, 65.83% Impervious, Inflow Depth = 5.02" for 100-year event
 Inflow = 0.89 cfs @ 12.06 hrs, Volume= 2,670 cf
 Outflow = 0.89 cfs @ 12.06 hrs, Volume= 2,670 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.89 cfs @ 12.06 hrs, Volume= 2,670 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.15' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.55'	12.0" Round Culvert L= 12.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.55' / 39.45' S= 0.0078 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.86 cfs @ 12.06 hrs HW=40.13' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.86 cfs @ 2.60 fps)

Summary for Pond DHM2-P: DMH 2

Inflow Area = 16,677 sf, 65.36% Impervious, Inflow Depth = 4.95" for 100-year event
 Inflow = 2.41 cfs @ 12.04 hrs, Volume= 6,880 cf
 Outflow = 2.41 cfs @ 12.04 hrs, Volume= 6,880 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.41 cfs @ 12.04 hrs, Volume= 6,880 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.92' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	40.70'	12.0" Round Culvert L= 68.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 40.70' / 40.50' S= 0.0029 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.35 cfs @ 12.04 hrs HW=41.89' (Free Discharge)
 ↑1=Culvert (Barrel Controls 2.35 cfs @ 3.17 fps)

Summary for Pond DMH1-P: DMH 1

Inflow Area = 16,677 sf, 65.36% Impervious, Inflow Depth = 4.95" for 100-year event
 Inflow = 2.41 cfs @ 12.04 hrs, Volume= 6,880 cf
 Outflow = 2.41 cfs @ 12.04 hrs, Volume= 6,880 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.41 cfs @ 12.04 hrs, Volume= 6,880 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 42.39' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	12.0" Round Culvert L= 104.7' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 41.00' / 40.70' S= 0.0029 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.30 cfs @ 12.04 hrs HW=42.34' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 2.30 cfs @ 2.92 fps)

Summary for Pond DMH17-P: DMH 17

Inflow Area = 48,601 sf, 36.73% Impervious, Inflow Depth = 3.09" for 100-year event
 Inflow = 3.79 cfs @ 12.11 hrs, Volume= 12,499 cf
 Outflow = 3.79 cfs @ 12.11 hrs, Volume= 12,499 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.79 cfs @ 12.11 hrs, Volume= 12,499 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.58' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.40'	12.0" Round Culvert L= 290.7' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 38.40' / 36.75' S= 0.0057 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.72 cfs @ 12.11 hrs HW=41.45' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 3.72 cfs @ 4.74 fps)

Summary for Pond DMH18-P: DMH 18

Inflow Area = 121,969 sf, 34.89% Impervious, Inflow Depth = 2.99" for 100-year event
 Inflow = 9.00 cfs @ 12.11 hrs, Volume= 30,428 cf
 Outflow = 9.00 cfs @ 12.11 hrs, Volume= 30,428 cf, Atten= 0%, Lag= 0.0 min
 Primary = 9.00 cfs @ 12.11 hrs, Volume= 30,428 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.75' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.25'	18.0" Round Culvert L= 283.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.25' / 34.60' S= 0.0058 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=8.61 cfs @ 12.11 hrs HW=38.56' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 8.61 cfs @ 4.87 fps)

Summary for Pond DMH19-P: DMH 19

Inflow Area = 157,835 sf, 33.61% Impervious, Inflow Depth = 2.91" for 100-year event
 Inflow = 10.98 cfs @ 12.12 hrs, Volume= 38,251 cf
 Outflow = 10.98 cfs @ 12.12 hrs, Volume= 38,251 cf, Atten= 0%, Lag= 0.0 min
 Primary = 10.98 cfs @ 12.12 hrs, Volume= 38,251 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.48' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.60'	18.0" Round Culvert L= 116.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.60' / 33.80' S= 0.0069 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=10.65 cfs @ 12.12 hrs HW=37.35' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 10.65 cfs @ 6.03 fps)

Summary for Pond DMH20-P: DMH 20

Inflow Area = 157,835 sf, 33.61% Impervious, Inflow Depth = 2.91" for 100-year event
 Inflow = 10.98 cfs @ 12.12 hrs, Volume= 38,251 cf
 Outflow = 10.98 cfs @ 12.12 hrs, Volume= 38,251 cf, Atten= 0%, Lag= 0.0 min
 Primary = 10.98 cfs @ 12.12 hrs, Volume= 38,251 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.67' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.80'	18.0" Round Culvert L= 114.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.80' / 33.00' S= 0.0070 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=10.65 cfs @ 12.12 hrs HW=36.53' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 10.65 cfs @ 6.03 fps)

Summary for Pond DMH21-P: DMH 21

Inflow Area = 217,908 sf, 34.21% Impervious, Inflow Depth = 2.95" for 100-year event
 Inflow = 15.26 cfs @ 12.12 hrs, Volume= 53,611 cf
 Outflow = 15.26 cfs @ 12.12 hrs, Volume= 53,611 cf, Atten= 0%, Lag= 0.0 min
 Primary = 15.26 cfs @ 12.12 hrs, Volume= 53,611 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.96' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	32.50'	24.0" Round Culvert L= 86.1' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 32.50' / 32.20' S= 0.0035 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=14.80 cfs @ 12.12 hrs HW=34.90' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 14.80 cfs @ 4.97 fps)

Summary for Pond DMH22-P: DMH 22

Inflow Area = 229,151 sf, 35.57% Impervious, Inflow Depth = 3.04" for 100-year event
 Inflow = 16.57 cfs @ 12.12 hrs, Volume= 58,104 cf
 Outflow = 16.57 cfs @ 12.12 hrs, Volume= 58,104 cf, Atten= 0%, Lag= 0.0 min
 Primary = 16.57 cfs @ 12.12 hrs, Volume= 58,104 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.77' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	32.20'	24.0" Round Culvert L= 18.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 32.20' / 32.10' S= 0.0054 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=16.11 cfs @ 12.12 hrs HW=34.70' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 16.11 cfs @ 5.26 fps)

Summary for Pond DMH23-P: DMH 23

Inflow Area = 138,906 sf, 26.13% Impervious, Inflow Depth = 2.46" for 100-year event
 Inflow = 7.20 cfs @ 12.15 hrs, Volume= 28,426 cf
 Outflow = 7.20 cfs @ 12.15 hrs, Volume= 28,426 cf, Atten= 0%, Lag= 0.0 min
 Primary = 7.20 cfs @ 12.15 hrs, Volume= 28,426 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.79' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.20'	15.0" Round Culvert L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.20' / 34.80' S= 0.0053 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=7.19 cfs @ 12.15 hrs HW=37.78' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 7.19 cfs @ 5.86 fps)

Summary for Pond DMH24-P: DMH 24

Inflow Area = 138,906 sf, 26.13% Impervious, Inflow Depth = 2.46" for 100-year event
 Inflow = 7.20 cfs @ 12.15 hrs, Volume= 28,426 cf
 Outflow = 7.20 cfs @ 12.15 hrs, Volume= 28,426 cf, Atten= 0%, Lag= 0.0 min
 Primary = 7.20 cfs @ 12.15 hrs, Volume= 28,426 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.35' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.80'	15.0" Round Culvert L= 64.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.80' / 34.50' S= 0.0047 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=7.19 cfs @ 12.15 hrs HW=37.34' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 7.19 cfs @ 5.86 fps)

Summary for Pond DMH25-P: DMH 25

Inflow Area = 138,906 sf, 26.13% Impervious, Inflow Depth = 2.46" for 100-year event
 Inflow = 7.20 cfs @ 12.15 hrs, Volume= 28,426 cf
 Outflow = 7.20 cfs @ 12.15 hrs, Volume= 28,426 cf, Atten= 0%, Lag= 0.0 min
 Primary = 7.20 cfs @ 12.15 hrs, Volume= 28,426 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.88' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.50'	15.0" Round Culvert L= 50.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.50' / 34.20' S= 0.0059 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=7.19 cfs @ 12.15 hrs HW=36.88' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 7.19 cfs @ 5.86 fps)

Summary for Pond DMH3-P: DMH 3

Inflow Area = 16,677 sf, 65.36% Impervious, Inflow Depth = 4.95" for 100-year event
 Inflow = 2.41 cfs @ 12.04 hrs, Volume= 6,880 cf
 Outflow = 2.41 cfs @ 12.04 hrs, Volume= 6,880 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.41 cfs @ 12.04 hrs, Volume= 6,880 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.29' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	40.25'	15.0" Round Culvert L= 480.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 40.25' / 39.00' S= 0.0026 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.34 cfs @ 12.04 hrs HW=41.27' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 2.34 cfs @ 2.96 fps)

Summary for Pond DMH4-P: DMH 4

Inflow Area = 46,452 sf, 62.98% Impervious, Inflow Depth = 4.80" for 100-year event
 Inflow = 5.54 cfs @ 12.06 hrs, Volume= 18,564 cf
 Outflow = 5.54 cfs @ 12.06 hrs, Volume= 18,564 cf, Atten= 0%, Lag= 0.0 min
 Primary = 5.54 cfs @ 12.06 hrs, Volume= 18,564 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.33' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.75'	18.0" Round Culvert L= 112.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.75' / 38.40' S= 0.0031 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.42 cfs @ 12.06 hrs HW=40.30' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 5.42 cfs @ 3.69 fps)

Summary for Pond DMH5-P: DMH 5

Inflow Area = 46,452 sf, 62.98% Impervious, Inflow Depth = 4.80" for 100-year event
 Inflow = 5.54 cfs @ 12.06 hrs, Volume= 18,564 cf
 Outflow = 5.54 cfs @ 12.06 hrs, Volume= 18,564 cf, Atten= 0%, Lag= 0.0 min
 Primary = 5.54 cfs @ 12.06 hrs, Volume= 18,564 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.88' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.40'	18.0" Round Culvert L= 30.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.40' / 38.20' S= 0.0066 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.42 cfs @ 12.06 hrs HW=39.85' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 5.42 cfs @ 3.94 fps)

Summary for Pond DMH6-P: DMH 6

Inflow Area = 41,294 sf, 40.08% Impervious, Inflow Depth = 3.34" for 100-year event
 Inflow = 3.39 cfs @ 12.10 hrs, Volume= 11,505 cf
 Outflow = 3.39 cfs @ 12.10 hrs, Volume= 11,505 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.39 cfs @ 12.10 hrs, Volume= 11,505 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.22' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.45'	12.0" Round Culvert L= 86.3' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 39.45' / 39.00' S= 0.0052 1/ S= 0.0052 1/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.37 cfs @ 12.10 hrs HW=41.20' (Free Discharge)
 ↑1=Culvert (Barrel Controls 3.37 cfs @ 4.29 fps)

Summary for Pond DMH7-P: DMH 7

Inflow Area = 41,294 sf, 40.08% Impervious, Inflow Depth = 3.34" for 100-year event
 Inflow = 3.39 cfs @ 12.10 hrs, Volume= 11,505 cf
 Outflow = 3.39 cfs @ 12.10 hrs, Volume= 11,505 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.39 cfs @ 12.10 hrs, Volume= 11,505 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.52' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.00'	12.0" Round Culvert L= 31.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.00' / 38.80' S= 0.0064 1/ S= 0.0064 1/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.37 cfs @ 12.10 hrs HW=40.51' (Free Discharge)
 ↑1=Culvert (Barrel Controls 3.37 cfs @ 4.29 fps)

Summary for Pond IB1-P: Infiltration Basin #1

Inflow Area = 122,013 sf, 47.21% Impervious, Inflow Depth = 3.78" for 100-year event
 Inflow = 11.09 cfs @ 12.08 hrs, Volume= 38,438 cf
 Outflow = 0.76 cfs @ 14.26 hrs, Volume= 38,438 cf, Atten= 93%, Lag= 130.7 min
 Discarded = 0.76 cfs @ 14.26 hrs, Volume= 38,438 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.66' @ 14.26 hrs Surf.Area= 13,563 sf Storage= 18,299 cf

Plug-Flow detention time= 263.4 min calculated for 38,405 cf (100% of inflow)
 Center-of-Mass det. time= 263.4 min (1,092.6 - 829.2)

Volume	Invert	Avail.Storage	Storage Description		
#1	37.00'	39,337 cf	Custom Stage Data (Conic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
37.00	8,550	0	0	8,550	
38.00	11,510	9,993	9,993	11,531	
39.00	14,670	13,058	23,052	14,717	
39.70	16,871	11,030	34,082	16,940	
40.00	18,170	5,255	39,337	18,246	

Hidden Trails-Drainage System-REV1 (Basins 1 thru Type III 24-hr 100-year Rainfall=7.60"

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Device	Routing	Invert	Outlet Devices
#1	Discarded	37.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	39.70'	12.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.76 cfs @ 14.26 hrs HW=38.66' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.76 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=37.00' (Free Discharge)
 ↳2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond IB2-P: Infiltration Basin #2

Inflow Area = 262,345 sf, 37.86% Impervious, Inflow Depth = 3.19" for 100-year event
 Inflow = 20.17 cfs @ 12.11 hrs, Volume= 69,815 cf
 Outflow = 0.98 cfs @ 15.77 hrs, Volume= 69,815 cf, Atten= 95%, Lag= 219.3 min
 Discarded = 0.98 cfs @ 15.77 hrs, Volume= 69,815 cf
 Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.24' @ 15.77 hrs Surf.Area= 17,438 sf Storage= 38,825 cf

Plug-Flow detention time= 451.0 min calculated for 69,815 cf (100% of inflow)
 Center-of-Mass det. time= 450.9 min (1,296.1 - 845.2)

Volume	Invert	Avail.Storage	Storage Description		
#1	30.50'	73,178 cf	Custom Stage Data (Conic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
30.50	10,900	0	0	10,900	
31.00	11,600	5,624	5,624	11,625	
31.20	12,730	2,432	8,056	12,758	
32.00	14,520	10,892	18,948	14,578	
33.00	16,860	15,675	34,624	16,960	
33.50	18,050	8,726	43,350	18,172	
34.00	19,280	9,331	52,680	19,426	
35.00	21,740	20,498	73,178	21,938	

Device	Routing	Invert	Outlet Devices
#1	Discarded	30.50'	2.410 in/hr Exfiltration over Wetted area
#2	Secondary	33.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 1.0' Crest Height

Discarded OutFlow Max=0.98 cfs @ 15.77 hrs HW=33.24' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.98 cfs)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=30.50' (Free Discharge)
 ↳2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond IB3-P: Infiltration Basin #3

Inflow Area = 155,417 sf, 27.54% Impervious, Inflow Depth = 2.54" for 100-year event
 Inflow = 8.40 cfs @ 12.14 hrs, Volume= 32,897 cf
 Outflow = 0.39 cfs @ 16.85 hrs, Volume= 32,897 cf, Atten= 95%, Lag= 282.8 min
 Discarded = 0.39 cfs @ 16.85 hrs, Volume= 32,897 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.55' @ 16.85 hrs Surf.Area= 6,811 sf Storage= 19,745 cf

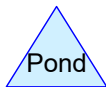
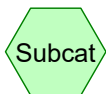
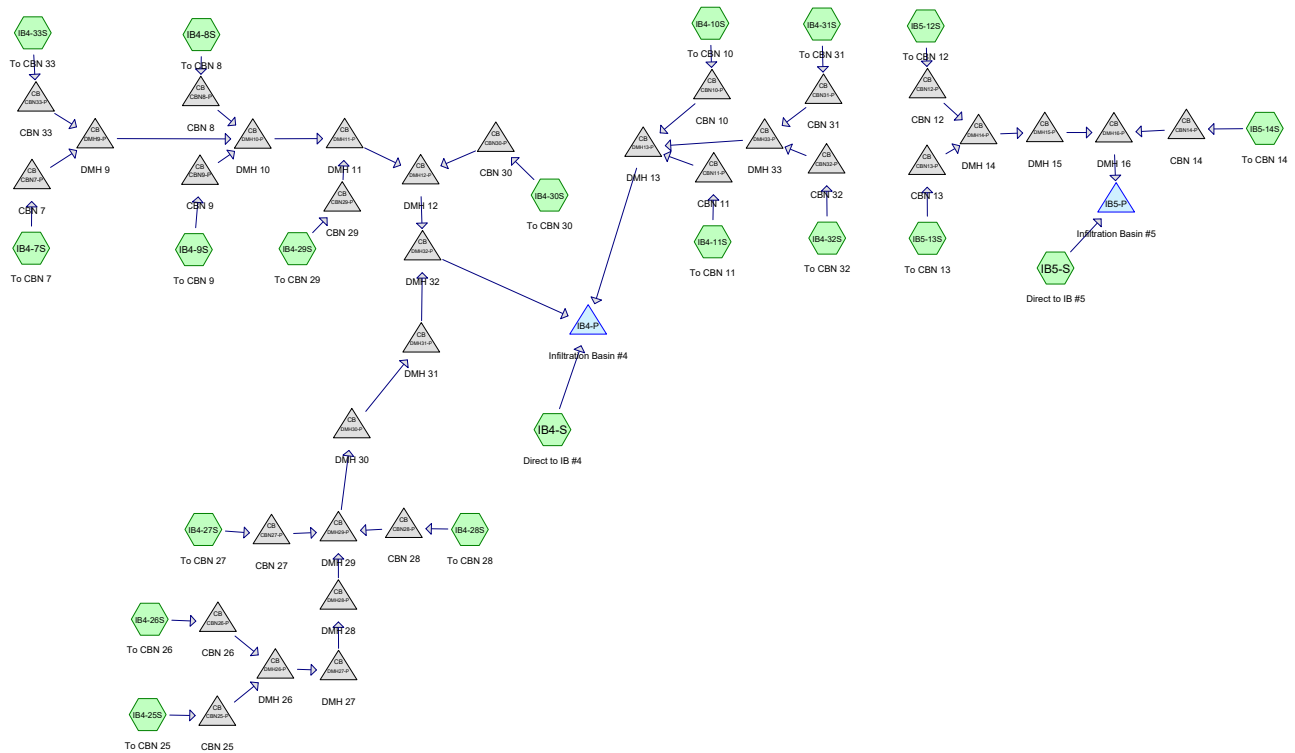
Plug-Flow detention time= 611.2 min calculated for 32,870 cf (100% of inflow)
 Center-of-Mass det. time= 611.6 min (1,474.5 - 863.0)

Volume	Invert	Avail.Storage	Storage Description		
#1	32.60'	30,671 cf	Custom Stage Data (Conic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
32.60	3,200	0	0	3,200	
34.00	4,480	5,351	5,351	4,516	
34.10	4,570	452	5,803	4,609	
35.00	5,430	4,494	10,298	5,498	
37.60	7,840	17,155	27,453	8,022	
38.00	8,250	3,218	30,671	8,451	

Device	Routing	Invert	Outlet Devices
#1	Discarded	32.60'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	37.60'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.39 cfs @ 16.85 hrs HW=36.55' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.39 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=32.60' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)



Routing Diagram for Hidden Trails-Drainage System-REV1 (Basins 4 and 5)
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Hidden Trails-Drainage System-REV1 (Basins 4 and 5)

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Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
393,895	39	>75% Grass cover, Good, HSG A (IB4-10S, IB4-11S, IB4-25S, IB4-26S, IB4-27S, IB4-28S, IB4-29S, IB4-30S, IB4-31S, IB4-32S, IB4-33S, IB4-7S, IB4-8S, IB4-9S, IB4-S, IB5-12S, IB5-13S, IB5-14S, IB5-S)
24,000	98	Basin (IB4-S, IB5-S)
100,620	98	Paved Roadway (IB4-10S, IB4-11S, IB4-25S, IB4-26S, IB4-27S, IB4-28S, IB4-29S, IB4-30S, IB4-31S, IB4-32S, IB4-33S, IB4-7S, IB4-8S, IB4-9S, IB5-12S, IB5-13S, IB5-14S)
75,100	98	Roofs and Driveways, HSG A (IB4-11S, IB4-25S, IB4-26S, IB4-27S, IB4-28S, IB4-29S, IB4-30S, IB4-32S, IB4-33S, IB4-7S, IB4-9S, IB5-13S, IB5-14S)
593,615	59	TOTAL AREA

Hidden Trails-Drainage System-REV1 (Basins 4 and 5)

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Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	CBN10-P	33.60	33.50	9.8	0.0102	0.013	12.0	0.0	0.0
2	CBN11-P	33.60	33.50	3.2	0.0313	0.013	12.0	0.0	0.0
3	CBN12-P	37.10	36.90	14.0	0.0143	0.013	12.0	0.0	0.0
4	CBN13-P	37.10	36.90	6.5	0.0308	0.013	12.0	0.0	0.0
5	CBN14-P	36.56	36.20	125.9	0.0029	0.013	12.0	0.0	0.0
6	CBN25-P	37.40	37.30	7.4	0.0135	0.013	12.0	0.0	0.0
7	CBN26-P	37.40	37.30	14.5	0.0069	0.013	12.0	0.0	0.0
8	CBN27-P	36.50	36.30	10.7	0.0187	0.013	12.0	0.0	0.0
9	CBN28-P	36.50	36.30	3.1	0.0645	0.013	12.0	0.0	0.0
10	CBN29-P	35.20	35.00	9.3	0.0215	0.013	12.0	0.0	0.0
11	CBN30-P	34.80	34.60	20.1	0.0100	0.013	12.0	0.0	0.0
12	CBN31-P	35.00	34.80	12.0	0.0167	0.013	12.0	0.0	0.0
13	CBN32-P	35.00	34.80	6.2	0.0323	0.013	12.0	0.0	0.0
14	CBN33-P	36.70	36.50	11.4	0.0175	0.013	12.0	0.0	0.0
15	CBN7-P	36.70	36.50	5.7	0.0351	0.013	12.0	0.0	0.0
16	CBN8-P	35.30	35.20	9.1	0.0110	0.013	12.0	0.0	0.0
17	CBN9-P	35.05	34.95	3.8	0.0263	0.013	15.0	0.0	0.0
18	DMH10-P	34.70	33.60	297.6	0.0037	0.013	18.0	0.0	0.0
19	DMH11-P	33.60	33.40	22.0	0.0091	0.013	18.0	0.0	0.0
20	DMH12-P	33.40	33.10	26.9	0.0112	0.013	18.0	0.0	0.0
21	DMH13-P	33.25	32.70	72.3	0.0076	0.013	15.0	0.0	0.0
22	DMH14-P	36.80	36.55	62.0	0.0040	0.013	12.0	0.0	0.0
23	DMH15-P	36.50	36.20	71.0	0.0042	0.013	12.0	0.0	0.0
24	DMH16-P	35.95	35.80	14.2	0.0106	0.013	15.0	0.0	0.0
25	DMH26-P	37.05	36.60	111.6	0.0040	0.013	15.0	0.0	0.0
26	DMH27-P	36.50	36.10	75.4	0.0053	0.013	15.0	0.0	0.0
27	DMH28-P	36.00	35.50	101.1	0.0049	0.013	15.0	0.0	0.0
28	DMH29-P	35.25	34.30	118.3	0.0080	0.013	18.0	0.0	0.0
29	DMH30-P	33.80	33.40	146.1	0.0027	0.013	24.0	0.0	0.0
30	DMH31-P	33.30	33.10	62.6	0.0032	0.013	24.0	0.0	0.0
31	DMH32-P	32.60	32.20	31.6	0.0127	0.013	24.0	0.0	0.0
32	DMH33-P	34.70	33.70	199.4	0.0050	0.013	12.0	0.0	0.0
33	DMH9-P	36.40	35.20	176.9	0.0068	0.013	12.0	0.0	0.0

Summary for Subcatchment IB4-10S: To CBN 10

Runoff = 0.48 cfs @ 12.06 hrs, Volume= 1,378 cf, Depth= 1.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

Area (sf)	CN	Description
* 6,890	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
2,296	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
9,186	83	Weighted Average
2,296		24.99% Pervious Area
6,890		75.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	10	0.0200	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	40	0.0100	0.90		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.43"
1.3	160	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.5	210	Total			

Summary for Subcatchment IB4-11S: To CBN 11

Runoff = 0.20 cfs @ 12.17 hrs, Volume= 1,207 cf, Depth= 0.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

Area (sf)	CN	Description
* 6,290	98	Paved Roadway
* 4,600	98	Roofs and Driveways, HSG A
23,113	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
34,003	58	Weighted Average
23,113		67.97% Pervious Area
10,890		32.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.6	190	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.8	290	Total			

Summary for Subcatchment IB4-25S: To CBN 25

Runoff = 0.23 cfs @ 12.28 hrs, Volume= 1,715 cf, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

Area (sf)	CN	Description
* 8,750	98	Paved Roadway
* 8,300	98	Roofs and Driveways, HSG A
40,832	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
57,882	56	Weighted Average
40,832		70.54% Pervious Area
17,050		29.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	250	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.3	350	Total			

Summary for Subcatchment IB4-26S: To CBN 26

Runoff = 0.15 cfs @ 12.37 hrs, Volume= 1,260 cf, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

Area (sf)	CN	Description
* 6,300	98	Paved Roadway
* 6,900	98	Roofs and Driveways, HSG A
38,797	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
51,997	54	Weighted Average
38,797		74.61% Pervious Area
13,200		25.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.43"
1.8	75	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.0	245	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.2	370	Total			

Summary for Subcatchment IB4-27S: To CBN 27

Runoff = 0.24 cfs @ 12.17 hrs, Volume= 1,422 cf, Depth= 0.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

Area (sf)	CN	Description
* 6,000	98	Paved Roadway
* 6,900	98	Roofs and Driveways, HSG A
27,181	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
40,081	58	Weighted Average
27,181		67.82% Pervious Area
12,900		32.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.43"
1.0	43	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	150	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.6	243	Total			

Summary for Subcatchment IB4-28S: To CBN 28

Runoff = 0.41 cfs @ 12.16 hrs, Volume= 2,006 cf, Depth= 0.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

Area (sf)	CN	Description
* 7,640	98	Paved Roadway
* 8,700	98	Roofs and Driveways, HSG A
28,106	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
44,446	61	Weighted Average
28,106		63.24% Pervious Area
16,340		36.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	250	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.3	350	Total			

Summary for Subcatchment IB4-29S: To CBN 29

Runoff = 0.23 cfs @ 12.14 hrs, Volume= 1,064 cf, Depth= 0.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

Area (sf)	CN	Description
* 5,830	98	Paved Roadway
* 2,600	98	Roofs and Driveways, HSG A
13,463	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
21,893	62	Weighted Average
13,463		61.49% Pervious Area
8,430		38.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.5	30	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	180	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.4	260	Total			

Summary for Subcatchment IB4-30S: To CBN 30

Runoff = 0.18 cfs @ 12.14 hrs, Volume= 790 cf, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

Area (sf)	CN	Description
* 3,980	98	Paved Roadway
* 2,300	98	Roofs and Driveways, HSG A
8,869	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
15,149	63	Weighted Average
8,869		58.55% Pervious Area
6,280		41.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.6	190	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.8	290	Total			

Summary for Subcatchment IB4-31S: To CBN 31

Runoff = 0.19 cfs @ 12.06 hrs, Volume= 588 cf, Depth= 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

	Area (sf)	CN	Description
*	3,960	98	Paved Roadway
*	0	98	Roofs and Driveways, HSG A
	3,772	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	7,732	69	Weighted Average
	3,772		48.78% Pervious Area
	3,960		51.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.43"
2.3	280	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.2	330	Total			

Summary for Subcatchment IB4-32S: To CBN 32

Runoff = 0.24 cfs @ 12.18 hrs, Volume= 1,416 cf, Depth= 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

	Area (sf)	CN	Description
*	5,610	98	Paved Roadway
*	6,900	98	Roofs and Driveways, HSG A
	24,187	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	36,697	59	Weighted Average
	24,187		65.91% Pervious Area
	12,510		34.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.7	325	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.9	425	Total			

Summary for Subcatchment IB4-33S: To CBN 33

Runoff = 0.12 cfs @ 12.18 hrs, Volume= 672 cf, Depth= 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

Area (sf)	CN	Description
* 5,420	98	Paved Roadway
* 500	98	Roofs and Driveways, HSG A
11,504	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
17,424	59	Weighted Average
11,504		66.02% Pervious Area
5,920		33.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.6	315	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.8	415	Total			

Summary for Subcatchment IB4-7S: To CBN 7

Runoff = 0.15 cfs @ 12.41 hrs, Volume= 1,377 cf, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

Area (sf)	CN	Description
* 7,600	98	Paved Roadway
* 7,500	98	Roofs and Driveways, HSG A
48,305	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
63,405	53	Weighted Average
48,305		76.18% Pervious Area
15,100		23.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
4.8	284	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	10	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
10.3	344	Total			

Summary for Subcatchment IB4-8S: To CBN 8

Runoff = 0.29 cfs @ 12.05 hrs, Volume= 825 cf, Depth= 1.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

	Area (sf)	CN	Description
*	4,200	98	Paved Roadway
*	0	98	Roofs and Driveways, HSG A
	1,538	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	5,738	82	Weighted Average
	1,538		26.80% Pervious Area
	4,200		73.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	10	0.0200	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.2	40	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.1	140	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.8	190	Total			

Summary for Subcatchment IB4-9S: To CBN 9

Runoff = 0.16 cfs @ 12.43 hrs, Volume= 1,648 cf, Depth= 0.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

	Area (sf)	CN	Description
*	6,000	98	Paved Roadway
*	12,200	98	Roofs and Driveways, HSG A
	67,056	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	85,256	52	Weighted Average
	67,056		78.65% Pervious Area
	18,200		21.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
4.0	236	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	92	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
10.2	378	Total			

Summary for Subcatchment IB4-S: Direct to IB #4

Runoff = 0.87 cfs @ 12.10 hrs, Volume= 2,903 cf, Depth= 1.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

Area (sf)	CN	Description
14,499	39	>75% Grass cover, Good, HSG A
* 17,900	98	Basin
32,399	72	Weighted Average
14,499		44.75% Pervious Area
17,900		55.25% Impervious Area

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

Summary for Subcatchment IB5-12S: To CBN 12

Runoff = 0.14 cfs @ 12.06 hrs, Volume= 451 cf, Depth= 0.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

Area (sf)	CN	Description
* 3,200	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
3,475	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
6,675	67	Weighted Average
3,475		52.06% Pervious Area
3,200		47.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	5	0.0200	0.78		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
0.9	5	0.0200	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	40	0.0100	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
1.1	130	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.8	180	Total			

Summary for Subcatchment IB5-13S: To CBN 13

Runoff = 0.20 cfs @ 12.13 hrs, Volume= 868 cf, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

Area (sf)	CN	Description
* 4,570	98	Paved Roadway
* 2,300	98	Roofs and Driveways, HSG A
9,777	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
16,647	63	Weighted Average
9,777		58.73% Pervious Area
6,870		41.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.5	50	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.1	135	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.0	235	Total			

Summary for Subcatchment IB5-14S: To CBN 14

Runoff = 0.38 cfs @ 12.13 hrs, Volume= 1,708 cf, Depth= 0.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

Area (sf)	CN	Description
* 8,380	98	Paved Roadway
* 5,400	98	Roofs and Driveways, HSG A
21,376	39	>75% Grass cover, Good, HSG A
35,156	62	Weighted Average
21,376		60.80% Pervious Area
13,780		39.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.9	55	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	80	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.0	185	Total			

Summary for Subcatchment IB5-S: Direct to IB #5

Runoff = 0.26 cfs @ 12.10 hrs, Volume= 901 cf, Depth= 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.43"

Area (sf)	CN	Description
* 0	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
5,749	39	>75% Grass cover, Good, HSG A
* 6,100	98	Basin
11,849	69	Weighted Average
5,749		48.52% Pervious Area
6,100		51.48% Impervious Area

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

Summary for Pond CBN10-P: CBN 10

Inflow Area = 9,186 sf, 75.01% Impervious, Inflow Depth = 1.80" for 2-year event
 Inflow = 0.48 cfs @ 12.06 hrs, Volume= 1,378 cf
 Outflow = 0.48 cfs @ 12.06 hrs, Volume= 1,378 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.48 cfs @ 12.06 hrs, Volume= 1,378 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.01' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.60'	12.0" Round Culvert L= 9.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.60' / 33.50' S= 0.0102 ' S Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.46 cfs @ 12.06 hrs HW=34.00' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.46 cfs @ 2.32 fps)

Summary for Pond CBN11-P: CBN 11

Inflow Area = 34,003 sf, 32.03% Impervious, Inflow Depth = 0.43" for 2-year event
 Inflow = 0.20 cfs @ 12.17 hrs, Volume= 1,207 cf
 Outflow = 0.20 cfs @ 12.17 hrs, Volume= 1,207 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.20 cfs @ 12.17 hrs, Volume= 1,207 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.85' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.60'	12.0" Round Culvert

L= 3.2' CPP, projecting, no headwall, Ke= 0.900
 Inlet / Outlet Invert= 33.60' / 33.50' S= 0.0313 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.20 cfs @ 12.17 hrs HW=33.84' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.20 cfs @ 1.33 fps)

Summary for Pond CBN12-P: CBN 12

Inflow Area = 6,675 sf, 47.94% Impervious, Inflow Depth = 0.81" for 2-year event
 Inflow = 0.14 cfs @ 12.06 hrs, Volume= 451 cf
 Outflow = 0.14 cfs @ 12.06 hrs, Volume= 451 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.14 cfs @ 12.06 hrs, Volume= 451 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.30' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.10'	12.0" Round Culvert L= 14.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.10' / 36.90' S= 0.0143 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.13 cfs @ 12.06 hrs HW=37.30' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.13 cfs @ 1.20 fps)

Summary for Pond CBN13-P: CBN 13

Inflow Area = 16,647 sf, 41.27% Impervious, Inflow Depth = 0.63" for 2-year event
 Inflow = 0.20 cfs @ 12.13 hrs, Volume= 868 cf
 Outflow = 0.20 cfs @ 12.13 hrs, Volume= 868 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.20 cfs @ 12.13 hrs, Volume= 868 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.35' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.10'	12.0" Round Culvert L= 6.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.10' / 36.90' S= 0.0308 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.20 cfs @ 12.13 hrs HW=37.34' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.20 cfs @ 1.33 fps)

Summary for Pond CBN14-P: CBN 14

Inflow Area = 35,156 sf, 39.20% Impervious, Inflow Depth = 0.58" for 2-year event
 Inflow = 0.38 cfs @ 12.13 hrs, Volume= 1,708 cf
 Outflow = 0.38 cfs @ 12.13 hrs, Volume= 1,708 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.38 cfs @ 12.13 hrs, Volume= 1,708 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.96' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.56'	12.0" Round Culvert L= 125.9' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.56' / 36.20' S= 0.0029 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.37 cfs @ 12.13 hrs HW=36.96' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.37 cfs @ 1.87 fps)

Summary for Pond CBN25-P: CBN 25

Inflow Area = 57,882 sf, 29.46% Impervious, Inflow Depth = 0.36" for 2-year event
 Inflow = 0.23 cfs @ 12.28 hrs, Volume= 1,715 cf
 Outflow = 0.23 cfs @ 12.28 hrs, Volume= 1,715 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.23 cfs @ 12.28 hrs, Volume= 1,715 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.67' @ 12.28 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.40'	12.0" Round Culvert L= 7.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.40' / 37.30' S= 0.0135 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.23 cfs @ 12.28 hrs HW=37.67' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.23 cfs @ 2.06 fps)

Summary for Pond CBN26-P: CBN 26

Inflow Area = 51,997 sf, 25.39% Impervious, Inflow Depth = 0.29" for 2-year event
 Inflow = 0.15 cfs @ 12.37 hrs, Volume= 1,260 cf
 Outflow = 0.15 cfs @ 12.37 hrs, Volume= 1,260 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.15 cfs @ 12.37 hrs, Volume= 1,260 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.62' @ 12.37 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.40'	12.0" Round Culvert L= 14.5' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 37.40' / 37.30' S= 0.0069 ' S= 0.0069 ' Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.15 cfs @ 12.37 hrs HW=37.62' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.15 cfs @ 1.71 fps)

Summary for Pond CBN27-P: CBN 27

Inflow Area = 40,081 sf, 32.18% Impervious, Inflow Depth = 0.43" for 2-year event
 Inflow = 0.24 cfs @ 12.17 hrs, Volume= 1,422 cf
 Outflow = 0.24 cfs @ 12.17 hrs, Volume= 1,422 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.24 cfs @ 12.17 hrs, Volume= 1,422 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.77' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.50'	12.0" Round Culvert L= 10.7' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.50' / 36.30' S= 0.0187 ' S= 0.0187 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.23 cfs @ 12.17 hrs HW=36.77' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.23 cfs @ 1.39 fps)

Summary for Pond CBN28-P: CBN 28

Inflow Area = 44,446 sf, 36.76% Impervious, Inflow Depth = 0.54" for 2-year event
 Inflow = 0.41 cfs @ 12.16 hrs, Volume= 2,006 cf
 Outflow = 0.41 cfs @ 12.16 hrs, Volume= 2,006 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.41 cfs @ 12.16 hrs, Volume= 2,006 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.86' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.50'	12.0" Round Culvert L= 3.1' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.50' / 36.30' S= 0.0645 ' S= 0.0645 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.40 cfs @ 12.16 hrs HW=36.86' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.40 cfs @ 1.61 fps)

Summary for Pond CBN29-P: CBN 29

Inflow Area = 21,893 sf, 38.51% Impervious, Inflow Depth = 0.58" for 2-year event
 Inflow = 0.23 cfs @ 12.14 hrs, Volume= 1,064 cf
 Outflow = 0.23 cfs @ 12.14 hrs, Volume= 1,064 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.23 cfs @ 12.14 hrs, Volume= 1,064 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.47' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.20'	12.0" Round Culvert L= 9.3' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.20' / 35.00' S= 0.0215 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.23 cfs @ 12.14 hrs HW=35.46' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.23 cfs @ 1.38 fps)

Summary for Pond CBN30-P: CBN 30

Inflow Area = 15,149 sf, 41.45% Impervious, Inflow Depth = 0.63" for 2-year event
 Inflow = 0.18 cfs @ 12.14 hrs, Volume= 790 cf
 Outflow = 0.18 cfs @ 12.14 hrs, Volume= 790 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.18 cfs @ 12.14 hrs, Volume= 790 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.03' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.80'	12.0" Round Culvert L= 20.1' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.80' / 34.60' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.18 cfs @ 12.14 hrs HW=35.03' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.18 cfs @ 1.29 fps)

Summary for Pond CBN31-P: CBN 31

Inflow Area = 7,732 sf, 51.22% Impervious, Inflow Depth = 0.91" for 2-year event
 Inflow = 0.19 cfs @ 12.06 hrs, Volume= 588 cf
 Outflow = 0.19 cfs @ 12.06 hrs, Volume= 588 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.19 cfs @ 12.06 hrs, Volume= 588 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.24' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.00'	12.0" Round Culvert L= 12.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.00' / 34.80' S= 0.0167 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.18 cfs @ 12.06 hrs HW=35.23' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.18 cfs @ 1.29 fps)

Summary for Pond CBN32-P: CBN 32

Inflow Area = 36,697 sf, 34.09% Impervious, Inflow Depth = 0.46" for 2-year event
 Inflow = 0.24 cfs @ 12.18 hrs, Volume= 1,416 cf
 Outflow = 0.24 cfs @ 12.18 hrs, Volume= 1,416 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.24 cfs @ 12.18 hrs, Volume= 1,416 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.27' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.00'	12.0" Round Culvert L= 6.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.00' / 34.80' S= 0.0323 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.24 cfs @ 12.18 hrs HW=35.27' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.24 cfs @ 1.40 fps)

Summary for Pond CBN33-P: CBN 33

Inflow Area = 17,424 sf, 33.98% Impervious, Inflow Depth = 0.46" for 2-year event
 Inflow = 0.12 cfs @ 12.18 hrs, Volume= 672 cf
 Outflow = 0.12 cfs @ 12.18 hrs, Volume= 672 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.12 cfs @ 12.18 hrs, Volume= 672 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.89' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.70'	12.0" Round Culvert L= 11.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.70' / 36.50' S= 0.0175 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.12 cfs @ 12.18 hrs HW=36.88' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.12 cfs @ 1.15 fps)

Summary for Pond CBN7-P: CBN 7

Inflow Area = 63,405 sf, 23.82% Impervious, Inflow Depth = 0.26" for 2-year event
 Inflow = 0.15 cfs @ 12.41 hrs, Volume= 1,377 cf
 Outflow = 0.15 cfs @ 12.41 hrs, Volume= 1,377 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.15 cfs @ 12.41 hrs, Volume= 1,377 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.91' @ 12.41 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.70'	12.0" Round Culvert L= 5.7' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 36.70' / 36.50' S= 0.0351 '/' Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.15 cfs @ 12.41 hrs HW=36.91' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.15 cfs @ 1.23 fps)

Summary for Pond CBN8-P: CBN 8

Inflow Area = 5,738 sf, 73.20% Impervious, Inflow Depth = 1.72" for 2-year event
 Inflow = 0.29 cfs @ 12.05 hrs, Volume= 825 cf
 Outflow = 0.29 cfs @ 12.05 hrs, Volume= 825 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.29 cfs @ 12.05 hrs, Volume= 825 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.61' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.30'	12.0" Round Culvert L= 9.1' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.30' / 35.20' S= 0.0110 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.29 cfs @ 12.05 hrs HW=35.61' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.29 cfs @ 2.12 fps)

Summary for Pond CBN9-P: CBN 9

Inflow Area = 85,256 sf, 21.35% Impervious, Inflow Depth = 0.23" for 2-year event
 Inflow = 0.16 cfs @ 12.43 hrs, Volume= 1,648 cf
 Outflow = 0.16 cfs @ 12.43 hrs, Volume= 1,648 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.16 cfs @ 12.43 hrs, Volume= 1,648 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.25' @ 12.43 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.05'	15.0" Round Culvert L= 3.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.05' / 34.95' S= 0.0263 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.16 cfs @ 12.43 hrs HW=35.25' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.16 cfs @ 1.21 fps)

Summary for Pond DMH10-P: DMH 10

Inflow Area = 171,823 sf, 25.27% Impervious, Inflow Depth = 0.32" for 2-year event
 Inflow = 0.48 cfs @ 12.36 hrs, Volume= 4,523 cf
 Outflow = 0.48 cfs @ 12.36 hrs, Volume= 4,523 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.48 cfs @ 12.36 hrs, Volume= 4,523 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.07' @ 12.36 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.70'	18.0" Round Culvert L= 297.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.70' / 33.60' S= 0.0037 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.48 cfs @ 12.36 hrs HW=35.07' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.48 cfs @ 2.11 fps)

Summary for Pond DMH11-P: DMH 11

Inflow Area = 193,716 sf, 26.77% Impervious, Inflow Depth = 0.35" for 2-year event
 Inflow = 0.64 cfs @ 12.33 hrs, Volume= 5,586 cf
 Outflow = 0.64 cfs @ 12.33 hrs, Volume= 5,586 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.64 cfs @ 12.33 hrs, Volume= 5,586 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.98' @ 12.33 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.60'	18.0" Round Culvert L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.60' / 33.40' S= 0.0091 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.63 cfs @ 12.33 hrs HW=33.98' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.63 cfs @ 2.69 fps)

Summary for Pond DMH12-P: DMH 12

Inflow Area = 208,865 sf, 27.83% Impervious, Inflow Depth = 0.37" for 2-year event
 Inflow = 0.76 cfs @ 12.30 hrs, Volume= 6,376 cf
 Outflow = 0.76 cfs @ 12.30 hrs, Volume= 6,376 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.76 cfs @ 12.30 hrs, Volume= 6,376 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.80' @ 12.30 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.40'	18.0" Round Culvert L= 26.9' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.40' / 33.10' S= 0.0112 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.76 cfs @ 12.30 hrs HW=33.80' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.76 cfs @ 3.03 fps)

Summary for Pond DMH13-P: DMH 13

Inflow Area = 87,618 sf, 39.09% Impervious, Inflow Depth = 0.63" for 2-year event
 Inflow = 0.90 cfs @ 12.10 hrs, Volume= 4,588 cf
 Outflow = 0.90 cfs @ 12.10 hrs, Volume= 4,588 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.90 cfs @ 12.10 hrs, Volume= 4,588 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.73' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.25'	15.0" Round Culvert L= 72.3' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.25' / 32.70' S= 0.0076 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.89 cfs @ 12.10 hrs HW=33.72' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.89 cfs @ 3.10 fps)

Summary for Pond DMH14-P: DMH 14

Inflow Area = 23,322 sf, 43.18% Impervious, Inflow Depth = 0.68" for 2-year event
 Inflow = 0.31 cfs @ 12.10 hrs, Volume= 1,319 cf
 Outflow = 0.31 cfs @ 12.10 hrs, Volume= 1,319 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.31 cfs @ 12.10 hrs, Volume= 1,319 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.14' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.80'	12.0" Round Culvert L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.80' / 36.55' S= 0.0040 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.31 cfs @ 12.10 hrs HW=37.14' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.31 cfs @ 2.00 fps)

Summary for Pond DMH15-P: DMH 15

Inflow Area = 23,322 sf, 43.18% Impervious, Inflow Depth = 0.68" for 2-year event
 Inflow = 0.31 cfs @ 12.10 hrs, Volume= 1,319 cf
 Outflow = 0.31 cfs @ 12.10 hrs, Volume= 1,319 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.31 cfs @ 12.10 hrs, Volume= 1,319 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.84' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.50'	12.0" Round Culvert L= 71.0' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 36.50' / 36.20' S= 0.0042 ' / ' Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.31 cfs @ 12.10 hrs HW=36.83' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.31 cfs @ 2.03 fps)

Summary for Pond DMH16-P: DMH 16

Inflow Area = 58,478 sf, 40.78% Impervious, Inflow Depth = 0.62" for 2-year event
 Inflow = 0.69 cfs @ 12.12 hrs, Volume= 3,027 cf
 Outflow = 0.69 cfs @ 12.12 hrs, Volume= 3,027 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.69 cfs @ 12.12 hrs, Volume= 3,027 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.38' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.95'	15.0" Round Culvert L= 14.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.95' / 35.80' S= 0.0106 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.67 cfs @ 12.12 hrs HW=36.37' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.67 cfs @ 2.75 fps)

Summary for Pond DMH26-P: DMH 26

Inflow Area = 109,879 sf, 27.53% Impervious, Inflow Depth = 0.32" for 2-year event
 Inflow = 0.37 cfs @ 12.33 hrs, Volume= 2,975 cf
 Outflow = 0.37 cfs @ 12.33 hrs, Volume= 2,975 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.37 cfs @ 12.33 hrs, Volume= 2,975 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.39' @ 12.33 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.05'	15.0" Round Culvert L= 111.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.05' / 36.60' S= 0.0040 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.37 cfs @ 12.33 hrs HW=37.39' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.37 cfs @ 2.05 fps)

Summary for Pond DMH27-P: DMH 27

Inflow Area = 109,879 sf, 27.53% Impervious, Inflow Depth = 0.32" for 2-year event
 Inflow = 0.37 cfs @ 12.33 hrs, Volume= 2,975 cf
 Outflow = 0.37 cfs @ 12.33 hrs, Volume= 2,975 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.37 cfs @ 12.33 hrs, Volume= 2,975 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.83' @ 12.33 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.50'	15.0" Round Culvert L= 75.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.50' / 36.10' S= 0.0053 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.37 cfs @ 12.33 hrs HW=36.82' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.37 cfs @ 2.22 fps)

Summary for Pond DMH28-P: DMH 28

Inflow Area = 109,879 sf, 27.53% Impervious, Inflow Depth = 0.32" for 2-year event
 Inflow = 0.37 cfs @ 12.33 hrs, Volume= 2,975 cf
 Outflow = 0.37 cfs @ 12.33 hrs, Volume= 2,975 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.37 cfs @ 12.33 hrs, Volume= 2,975 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.33' @ 12.33 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.00'	15.0" Round Culvert L= 101.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.00' / 35.50' S= 0.0049 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.37 cfs @ 12.33 hrs HW=36.33' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.37 cfs @ 2.18 fps)

Summary for Pond DMH29-P: DMH 29

Inflow Area = 194,406 sf, 30.60% Impervious, Inflow Depth = 0.40" for 2-year event
 Inflow = 0.95 cfs @ 12.20 hrs, Volume= 6,404 cf
 Outflow = 0.95 cfs @ 12.20 hrs, Volume= 6,404 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.95 cfs @ 12.20 hrs, Volume= 6,404 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.70' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.25'	18.0" Round Culvert L= 118.3' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.25' / 34.30' S= 0.0080 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.95 cfs @ 12.20 hrs HW=35.69' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.95 cfs @ 3.23 fps)

Summary for Pond DMH30-P: DMH 30

Inflow Area = 194,406 sf, 30.60% Impervious, Inflow Depth = 0.40" for 2-year event
 Inflow = 0.95 cfs @ 12.20 hrs, Volume= 6,404 cf
 Outflow = 0.95 cfs @ 12.20 hrs, Volume= 6,404 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.95 cfs @ 12.20 hrs, Volume= 6,404 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.31' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.80'	24.0" Round Culvert L= 146.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.80' / 33.40' S= 0.0027 ' S= 0.0027 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=0.95 cfs @ 12.20 hrs HW=34.31' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.95 cfs @ 2.27 fps)

Summary for Pond DMH31-P: DMH 31

Inflow Area = 194,406 sf, 30.60% Impervious, Inflow Depth = 0.40" for 2-year event
 Inflow = 0.95 cfs @ 12.20 hrs, Volume= 6,404 cf
 Outflow = 0.95 cfs @ 12.20 hrs, Volume= 6,404 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.95 cfs @ 12.20 hrs, Volume= 6,404 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.80' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.30'	24.0" Round Culvert L= 62.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.30' / 33.10' S= 0.0032 ' S= 0.0032 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=0.95 cfs @ 12.20 hrs HW=33.79' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.95 cfs @ 2.36 fps)

Summary for Pond DMH32-P: DMH 32

Inflow Area = 403,271 sf, 29.17% Impervious, Inflow Depth = 0.38" for 2-year event
 Inflow = 1.69 cfs @ 12.20 hrs, Volume= 12,780 cf
 Outflow = 1.69 cfs @ 12.20 hrs, Volume= 12,780 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.69 cfs @ 12.20 hrs, Volume= 12,780 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.14' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	32.60'	24.0" Round Culvert L= 31.6' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 32.60' / 32.20' S= 0.0127 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.69 cfs @ 12.20 hrs HW=33.14' (Free Discharge)
 ↑1=Culvert (Barrel Controls 1.69 cfs @ 3.70 fps)

Summary for Pond DMH33-P: DMH 33

Inflow Area = 44,429 sf, 37.07% Impervious, Inflow Depth = 0.54" for 2-year event
 Inflow = 0.36 cfs @ 12.15 hrs, Volume= 2,004 cf
 Outflow = 0.36 cfs @ 12.15 hrs, Volume= 2,004 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.36 cfs @ 12.15 hrs, Volume= 2,004 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.04' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.70'	12.0" Round Culvert L= 199.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.70' / 33.70' S= 0.0050 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.36 cfs @ 12.15 hrs HW=35.04' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.36 cfs @ 2.24 fps)

Summary for Pond DMH9-P: DMH 9

Inflow Area = 80,829 sf, 26.01% Impervious, Inflow Depth = 0.30" for 2-year event
 Inflow = 0.24 cfs @ 12.37 hrs, Volume= 2,050 cf
 Outflow = 0.24 cfs @ 12.37 hrs, Volume= 2,050 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.24 cfs @ 12.37 hrs, Volume= 2,050 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.66' @ 12.37 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.40'	12.0" Round Culvert L= 176.9' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.40' / 35.20' S= 0.0068 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.24 cfs @ 12.37 hrs HW=36.66' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.24 cfs @ 2.21 fps)

Summary for Pond IB4-P: Infiltration Basin #4

Inflow Area = 523,288 sf, 32.44% Impervious, Inflow Depth = 0.46" for 2-year event
 Inflow = 3.25 cfs @ 12.14 hrs, Volume= 20,272 cf
 Outflow = 0.76 cfs @ 13.27 hrs, Volume= 20,272 cf, Atten= 77%, Lag= 67.6 min
 Discarded = 0.76 cfs @ 13.27 hrs, Volume= 20,272 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 31.05' @ 13.27 hrs Surf.Area= 13,658 sf Storage= 4,702 cf

Plug-Flow detention time= 58.3 min calculated for 20,255 cf (100% of inflow)
 Center-of-Mass det. time= 58.4 min (966.9 - 908.6)

Volume	Invert	Avail.Storage	Storage Description		
#1	30.70'	117,739 cf	Custom Stage Data (Conic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
30.70	12,950	0	0	12,950	
31.00	13,550	3,975	3,975	13,562	
32.00	15,640	14,583	18,557	15,696	
32.50	16,640	8,069	26,626	16,721	
34.00	18,980	26,696	53,322	19,166	
35.50	21,450	30,304	83,625	21,749	
36.00	22,310	10,939	94,565	22,648	
37.00	24,050	23,175	117,739	24,470	

Device	Routing	Invert	Outlet Devices											
#1	Discarded	30.70'	2.410 in/hr Exfiltration over Wetted area											
#2	Primary	35.50'	15.0' long x 1.0' breadth Broad-Crested Rectangular Weir											
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00											
			2.50 3.00											
			Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31											
			3.30 3.31 3.32											

Discarded OutFlow Max=0.76 cfs @ 13.27 hrs HW=31.05' (Free Discharge)
 ↖1=**Exfiltration** (Exfiltration Controls 0.76 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=30.70' (Free Discharge)
 ↖2=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond IB5-P: Infiltration Basin #5

Inflow Area = 70,327 sf, 42.59% Impervious, Inflow Depth = 0.67" for 2-year event
 Inflow = 0.95 cfs @ 12.11 hrs, Volume= 3,928 cf
 Outflow = 0.24 cfs @ 12.62 hrs, Volume= 3,928 cf, Atten= 75%, Lag= 30.6 min
 Discarded = 0.24 cfs @ 12.62 hrs, Volume= 3,928 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.31' @ 12.62 hrs Surf.Area= 4,262 sf Storage= 861 cf

Plug-Flow detention time= 28.3 min calculated for 3,925 cf (100% of inflow)
 Center-of-Mass det. time= 28.3 min (920.5 - 892.2)

Hidden Trails-Drainage System-REV1 (Basins 4 and 5) Type III 24-hr 2-year Rainfall=3.43"

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Volume	Invert	Avail.Storage	Storage Description
#1	35.10'	25,516 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
35.10	4,000	0	0	4,000
36.00	5,190	4,124	4,124	5,209
36.10	5,380	528	4,652	5,401
38.00	7,775	12,428	17,080	7,857
39.00	9,115	8,436	25,516	9,236

Device	Routing	Invert	Outlet Devices
#1	Discarded	35.10'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	38.00'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.24 cfs @ 12.62 hrs HW=35.31' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.24 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=35.10' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment IB4-10S: To CBN 10

Runoff = 0.85 cfs @ 12.06 hrs, Volume= 2,464 cf, Depth= 3.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 6,890	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
2,296	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
9,186	83	Weighted Average
2,296		24.99% Pervious Area
6,890		75.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	10	0.0200	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	40	0.0100	0.90		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.43"
1.3	160	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.5	210	Total			

Summary for Subcatchment IB4-11S: To CBN 11

Runoff = 0.87 cfs @ 12.13 hrs, Volume= 3,390 cf, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 6,290	98	Paved Roadway
* 4,600	98	Roofs and Driveways, HSG A
23,113	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
34,003	58	Weighted Average
23,113		67.97% Pervious Area
10,890		32.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.6	190	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.8	290	Total			

Summary for Subcatchment IB4-25S: To CBN 25

Runoff = 1.24 cfs @ 12.14 hrs, Volume= 5,149 cf, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 8,750	98	Paved Roadway
* 8,300	98	Roofs and Driveways, HSG A
40,832	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
57,882	56	Weighted Average
40,832		70.54% Pervious Area
17,050		29.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	250	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.3	350	Total			

Summary for Subcatchment IB4-26S: To CBN 26

Runoff = 0.91 cfs @ 12.16 hrs, Volume= 4,089 cf, Depth= 0.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 6,300	98	Paved Roadway
* 6,900	98	Roofs and Driveways, HSG A
38,797	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
51,997	54	Weighted Average
38,797		74.61% Pervious Area
13,200		25.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.43"
1.8	75	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.0	245	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.2	370	Total			

Summary for Subcatchment IB4-27S: To CBN 27

Runoff = 1.03 cfs @ 12.13 hrs, Volume= 3,996 cf, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 6,000	98	Paved Roadway
* 6,900	98	Roofs and Driveways, HSG A
27,181	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
40,081	58	Weighted Average
27,181		67.82% Pervious Area
12,900		32.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.43"
1.0	43	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	150	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.6	243	Total			

Summary for Subcatchment IB4-28S: To CBN 28

Runoff = 1.38 cfs @ 12.14 hrs, Volume= 5,183 cf, Depth= 1.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 7,640	98	Paved Roadway
* 8,700	98	Roofs and Driveways, HSG A
28,106	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
44,446	61	Weighted Average
28,106		63.24% Pervious Area
16,340		36.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	250	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.3	350	Total			

Summary for Subcatchment IB4-29S: To CBN 29

Runoff = 0.75 cfs @ 12.12 hrs, Volume= 2,681 cf, Depth= 1.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 5,830	98	Paved Roadway
* 2,600	98	Roofs and Driveways, HSG A
13,463	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
21,893	62	Weighted Average
13,463		61.49% Pervious Area
8,430		38.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.5	30	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	180	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.4	260	Total			

Summary for Subcatchment IB4-30S: To CBN 30

Runoff = 0.54 cfs @ 12.12 hrs, Volume= 1,945 cf, Depth= 1.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 3,980	98	Paved Roadway
* 2,300	98	Roofs and Driveways, HSG A
8,869	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
15,149	63	Weighted Average
8,869		58.55% Pervious Area
6,280		41.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.6	190	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.8	290	Total			

Summary for Subcatchment IB4-31S: To CBN 31

Runoff = 0.44 cfs @ 12.06 hrs, Volume= 1,285 cf, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

	Area (sf)	CN	Description
*	3,960	98	Paved Roadway
*	0	98	Roofs and Driveways, HSG A
	3,772	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	7,732	69	Weighted Average
	3,772		48.78% Pervious Area
	3,960		51.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.43"
2.3	280	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.2	330	Total			

Summary for Subcatchment IB4-32S: To CBN 32

Runoff = 0.98 cfs @ 12.15 hrs, Volume= 3,862 cf, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

	Area (sf)	CN	Description
*	5,610	98	Paved Roadway
*	6,900	98	Roofs and Driveways, HSG A
	24,187	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	36,697	59	Weighted Average
	24,187		65.91% Pervious Area
	12,510		34.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.7	325	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.9	425	Total			

Summary for Subcatchment IB4-33S: To CBN 33

Runoff = 0.47 cfs @ 12.15 hrs, Volume= 1,834 cf, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 5,420	98	Paved Roadway
* 500	98	Roofs and Driveways, HSG A
11,504	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
17,424	59	Weighted Average
11,504		66.02% Pervious Area
5,920		33.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.6	315	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.8	415	Total			

Summary for Subcatchment IB4-7S: To CBN 7

Runoff = 0.95 cfs @ 12.18 hrs, Volume= 4,671 cf, Depth= 0.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 7,600	98	Paved Roadway
* 7,500	98	Roofs and Driveways, HSG A
48,305	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
63,405	53	Weighted Average
48,305		76.18% Pervious Area
15,100		23.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
4.8	284	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	10	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
10.3	344	Total			

Summary for Subcatchment IB4-8S: To CBN 8

Runoff = 0.52 cfs @ 12.05 hrs, Volume= 1,494 cf, Depth= 3.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

	Area (sf)	CN	Description
*	4,200	98	Paved Roadway
*	0	98	Roofs and Driveways, HSG A
	1,538	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	5,738	82	Weighted Average
	1,538		26.80% Pervious Area
	4,200		73.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	10	0.0200	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.2	40	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.1	140	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.8	190	Total			

Summary for Subcatchment IB4-9S: To CBN 9

Runoff = 1.14 cfs @ 12.19 hrs, Volume= 5,865 cf, Depth= 0.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

	Area (sf)	CN	Description
*	6,000	98	Paved Roadway
*	12,200	98	Roofs and Driveways, HSG A
	67,056	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	85,256	52	Weighted Average
	67,056		78.65% Pervious Area
	18,200		21.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
4.0	236	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	92	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
10.2	378	Total			

Summary for Subcatchment IB4-S: Direct to IB #4

Runoff = 1.90 cfs @ 12.10 hrs, Volume= 6,038 cf, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
14,499	39	>75% Grass cover, Good, HSG A
* 17,900	98	Basin
32,399	72	Weighted Average
14,499		44.75% Pervious Area
17,900		55.25% Impervious Area

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

Summary for Subcatchment IB5-12S: To CBN 12

Runoff = 0.35 cfs @ 12.05 hrs, Volume= 1,022 cf, Depth= 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 3,200	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
3,475	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
6,675	67	Weighted Average
3,475		52.06% Pervious Area
3,200		47.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	5	0.0200	0.78		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
0.9	5	0.0200	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	40	0.0100	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
1.1	130	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.8	180	Total			

Summary for Subcatchment IB5-13S: To CBN 13

Runoff = 0.62 cfs @ 12.11 hrs, Volume= 2,137 cf, Depth= 1.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 4,570	98	Paved Roadway
* 2,300	98	Roofs and Driveways, HSG A
9,777	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
16,647	63	Weighted Average
9,777		58.73% Pervious Area
6,870		41.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.5	50	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.1	135	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.0	235	Total			

Summary for Subcatchment IB5-14S: To CBN 14

Runoff = 1.22 cfs @ 12.11 hrs, Volume= 4,305 cf, Depth= 1.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 8,380	98	Paved Roadway
* 5,400	98	Roofs and Driveways, HSG A
21,376	39	>75% Grass cover, Good, HSG A
35,156	62	Weighted Average
21,376		60.80% Pervious Area
13,780		39.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.9	55	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	80	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.0	185	Total			

Summary for Subcatchment IB5-S: Direct to IB #5

Runoff = 0.61 cfs @ 12.10 hrs, Volume= 1,969 cf, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=5.05"

Area (sf)	CN	Description
* 0	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
5,749	39	>75% Grass cover, Good, HSG A
* 6,100	98	Basin
11,849	69	Weighted Average
5,749		48.52% Pervious Area
6,100		51.48% Impervious Area

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

Summary for Pond CBN10-P: CBN 10

Inflow Area = 9,186 sf, 75.01% Impervious, Inflow Depth = 3.22" for 10-year event
 Inflow = 0.85 cfs @ 12.06 hrs, Volume= 2,464 cf
 Outflow = 0.85 cfs @ 12.06 hrs, Volume= 2,464 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.85 cfs @ 12.06 hrs, Volume= 2,464 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.17' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.60'	12.0" Round Culvert L= 9.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.60' / 33.50' S= 0.0102 ' S= 0.0102 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.83 cfs @ 12.06 hrs HW=34.17' (Free Discharge)
 1=Culvert (Barrel Controls 0.83 cfs @ 2.62 fps)

Summary for Pond CBN11-P: CBN 11

Inflow Area = 34,003 sf, 32.03% Impervious, Inflow Depth = 1.20" for 10-year event
 Inflow = 0.87 cfs @ 12.13 hrs, Volume= 3,390 cf
 Outflow = 0.87 cfs @ 12.13 hrs, Volume= 3,390 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.87 cfs @ 12.13 hrs, Volume= 3,390 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.16' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.60'	12.0" Round Culvert

L= 3.2' CPP, projecting, no headwall, Ke= 0.900
 Inlet / Outlet Invert= 33.60' / 33.50' S= 0.0313 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.85 cfs @ 12.13 hrs HW=34.15' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.85 cfs @ 2.76 fps)

Summary for Pond CBN12-P: CBN 12

Inflow Area = 6,675 sf, 47.94% Impervious, Inflow Depth = 1.84" for 10-year event
 Inflow = 0.35 cfs @ 12.05 hrs, Volume= 1,022 cf
 Outflow = 0.35 cfs @ 12.05 hrs, Volume= 1,022 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.35 cfs @ 12.05 hrs, Volume= 1,022 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.43' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.10'	12.0" Round Culvert L= 14.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.10' / 36.90' S= 0.0143 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.35 cfs @ 12.05 hrs HW=37.43' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.35 cfs @ 1.54 fps)

Summary for Pond CBN13-P: CBN 13

Inflow Area = 16,647 sf, 41.27% Impervious, Inflow Depth = 1.54" for 10-year event
 Inflow = 0.62 cfs @ 12.11 hrs, Volume= 2,137 cf
 Outflow = 0.62 cfs @ 12.11 hrs, Volume= 2,137 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.62 cfs @ 12.11 hrs, Volume= 2,137 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.55' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.10'	12.0" Round Culvert L= 6.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.10' / 36.90' S= 0.0308 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.60 cfs @ 12.11 hrs HW=37.54' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.60 cfs @ 1.79 fps)

Summary for Pond CBN14-P: CBN 14

Inflow Area = 35,156 sf, 39.20% Impervious, Inflow Depth = 1.47" for 10-year event
 Inflow = 1.22 cfs @ 12.11 hrs, Volume= 4,305 cf
 Outflow = 1.22 cfs @ 12.11 hrs, Volume= 4,305 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.22 cfs @ 12.11 hrs, Volume= 4,305 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.34' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.56'	12.0" Round Culvert L= 125.9' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.56' / 36.20' S= 0.0029 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.19 cfs @ 12.11 hrs HW=37.32' (Free Discharge)
 ↑1=Culvert (Barrel Controls 1.19 cfs @ 2.55 fps)

Summary for Pond CBN25-P: CBN 25

Inflow Area = 57,882 sf, 29.46% Impervious, Inflow Depth = 1.07" for 10-year event
 Inflow = 1.24 cfs @ 12.14 hrs, Volume= 5,149 cf
 Outflow = 1.24 cfs @ 12.14 hrs, Volume= 5,149 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.24 cfs @ 12.14 hrs, Volume= 5,149 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.11' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.40'	12.0" Round Culvert L= 7.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.40' / 37.30' S= 0.0135 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.23 cfs @ 12.14 hrs HW=38.11' (Free Discharge)
 ↑1=Culvert (Barrel Controls 1.23 cfs @ 2.90 fps)

Summary for Pond CBN26-P: CBN 26

Inflow Area = 51,997 sf, 25.39% Impervious, Inflow Depth = 0.94" for 10-year event
 Inflow = 0.91 cfs @ 12.16 hrs, Volume= 4,089 cf
 Outflow = 0.91 cfs @ 12.16 hrs, Volume= 4,089 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.91 cfs @ 12.16 hrs, Volume= 4,089 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.01' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.40'	12.0" Round Culvert L= 14.5' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 37.40' / 37.30' S= 0.0069 ' S= 0.0069 ' Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.89 cfs @ 12.16 hrs HW=38.00' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.89 cfs @ 2.59 fps)

Summary for Pond CBN27-P: CBN 27

Inflow Area = 40,081 sf, 32.18% Impervious, Inflow Depth = 1.20" for 10-year event
 Inflow = 1.03 cfs @ 12.13 hrs, Volume= 3,996 cf
 Outflow = 1.03 cfs @ 12.13 hrs, Volume= 3,996 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.03 cfs @ 12.13 hrs, Volume= 3,996 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.10' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.50'	12.0" Round Culvert L= 10.7' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.50' / 36.30' S= 0.0187 ' S= 0.0187 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.01 cfs @ 12.13 hrs HW=37.09' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 1.01 cfs @ 2.07 fps)

Summary for Pond CBN28-P: CBN 28

Inflow Area = 44,446 sf, 36.76% Impervious, Inflow Depth = 1.40" for 10-year event
 Inflow = 1.38 cfs @ 12.14 hrs, Volume= 5,183 cf
 Outflow = 1.38 cfs @ 12.14 hrs, Volume= 5,183 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.38 cfs @ 12.14 hrs, Volume= 5,183 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.22' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.50'	12.0" Round Culvert L= 3.1' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.50' / 36.30' S= 0.0645 ' S= 0.0645 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.35 cfs @ 12.14 hrs HW=37.21' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 1.35 cfs @ 2.26 fps)

Summary for Pond CBN29-P: CBN 29

Inflow Area = 21,893 sf, 38.51% Impervious, Inflow Depth = 1.47" for 10-year event
 Inflow = 0.75 cfs @ 12.12 hrs, Volume= 2,681 cf
 Outflow = 0.75 cfs @ 12.12 hrs, Volume= 2,681 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.75 cfs @ 12.12 hrs, Volume= 2,681 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.70' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.20'	12.0" Round Culvert L= 9.3' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.20' / 35.00' S= 0.0215 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.73 cfs @ 12.12 hrs HW=35.69' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.73 cfs @ 1.89 fps)

Summary for Pond CBN30-P: CBN 30

Inflow Area = 15,149 sf, 41.45% Impervious, Inflow Depth = 1.54" for 10-year event
 Inflow = 0.54 cfs @ 12.12 hrs, Volume= 1,945 cf
 Outflow = 0.54 cfs @ 12.12 hrs, Volume= 1,945 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.54 cfs @ 12.12 hrs, Volume= 1,945 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.22' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.80'	12.0" Round Culvert L= 20.1' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.80' / 34.60' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.53 cfs @ 12.12 hrs HW=35.21' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.53 cfs @ 1.72 fps)

Summary for Pond CBN31-P: CBN 31

Inflow Area = 7,732 sf, 51.22% Impervious, Inflow Depth = 1.99" for 10-year event
 Inflow = 0.44 cfs @ 12.06 hrs, Volume= 1,285 cf
 Outflow = 0.44 cfs @ 12.06 hrs, Volume= 1,285 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.44 cfs @ 12.06 hrs, Volume= 1,285 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.37' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.00'	12.0" Round Culvert L= 12.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.00' / 34.80' S= 0.0167 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.43 cfs @ 12.06 hrs HW=35.37' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.43 cfs @ 1.63 fps)

Summary for Pond CBN32-P: CBN 32

Inflow Area = 36,697 sf, 34.09% Impervious, Inflow Depth = 1.26" for 10-year event
 Inflow = 0.98 cfs @ 12.15 hrs, Volume= 3,862 cf
 Outflow = 0.98 cfs @ 12.15 hrs, Volume= 3,862 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.98 cfs @ 12.15 hrs, Volume= 3,862 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.58' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.00'	12.0" Round Culvert L= 6.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.00' / 34.80' S= 0.0323 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.97 cfs @ 12.15 hrs HW=35.58' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.97 cfs @ 2.05 fps)

Summary for Pond CBN33-P: CBN 33

Inflow Area = 17,424 sf, 33.98% Impervious, Inflow Depth = 1.26" for 10-year event
 Inflow = 0.47 cfs @ 12.15 hrs, Volume= 1,834 cf
 Outflow = 0.47 cfs @ 12.15 hrs, Volume= 1,834 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.47 cfs @ 12.15 hrs, Volume= 1,834 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.09' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.70'	12.0" Round Culvert L= 11.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.70' / 36.50' S= 0.0175 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.46 cfs @ 12.15 hrs HW=37.08' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.46 cfs @ 1.67 fps)

Summary for Pond CBN7-P: CBN 7

Inflow Area = 63,405 sf, 23.82% Impervious, Inflow Depth = 0.88" for 10-year event
 Inflow = 0.95 cfs @ 12.18 hrs, Volume= 4,671 cf
 Outflow = 0.95 cfs @ 12.18 hrs, Volume= 4,671 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.95 cfs @ 12.18 hrs, Volume= 4,671 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.27' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.70'	12.0" Round Culvert L= 5.7' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 36.70' / 36.50' S= 0.0351 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.94 cfs @ 12.18 hrs HW=37.27' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.94 cfs @ 2.03 fps)

Summary for Pond CBN8-P: CBN 8

Inflow Area = 5,738 sf, 73.20% Impervious, Inflow Depth = 3.12" for 10-year event
 Inflow = 0.52 cfs @ 12.05 hrs, Volume= 1,494 cf
 Outflow = 0.52 cfs @ 12.05 hrs, Volume= 1,494 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.52 cfs @ 12.05 hrs, Volume= 1,494 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.73' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.30'	12.0" Round Culvert L= 9.1' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.30' / 35.20' S= 0.0110 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.52 cfs @ 12.05 hrs HW=35.73' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.52 cfs @ 2.39 fps)

Summary for Pond CBN9-P: CBN 9

Inflow Area = 85,256 sf, 21.35% Impervious, Inflow Depth = 0.83" for 10-year event
 Inflow = 1.14 cfs @ 12.19 hrs, Volume= 5,865 cf
 Outflow = 1.14 cfs @ 12.19 hrs, Volume= 5,865 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.14 cfs @ 12.19 hrs, Volume= 5,865 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.66' @ 12.19 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.05'	15.0" Round Culvert L= 3.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.05' / 34.95' S= 0.0263 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.13 cfs @ 12.19 hrs HW=35.65' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.13 cfs @ 2.83 fps)

Summary for Pond DMH10-P: DMH 10

Inflow Area = 171,823 sf, 25.27% Impervious, Inflow Depth = 0.97" for 10-year event
 Inflow = 2.80 cfs @ 12.17 hrs, Volume= 13,863 cf
 Outflow = 2.80 cfs @ 12.17 hrs, Volume= 13,863 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.80 cfs @ 12.17 hrs, Volume= 13,863 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.64' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.70'	18.0" Round Culvert L= 297.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.70' / 33.60' S= 0.0037 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.75 cfs @ 12.17 hrs HW=35.63' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 2.75 cfs @ 3.43 fps)

Summary for Pond DMH11-P: DMH 11

Inflow Area = 193,716 sf, 26.77% Impervious, Inflow Depth = 1.02" for 10-year event
 Inflow = 3.49 cfs @ 12.16 hrs, Volume= 16,543 cf
 Outflow = 3.49 cfs @ 12.16 hrs, Volume= 16,543 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.49 cfs @ 12.16 hrs, Volume= 16,543 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.61' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.60'	18.0" Round Culvert L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.60' / 33.40' S= 0.0091 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.45 cfs @ 12.16 hrs HW=34.60' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 3.45 cfs @ 3.90 fps)

Summary for Pond DMH12-P: DMH 12

Inflow Area = 208,865 sf, 27.83% Impervious, Inflow Depth = 1.06" for 10-year event
 Inflow = 4.00 cfs @ 12.15 hrs, Volume= 18,488 cf
 Outflow = 4.00 cfs @ 12.15 hrs, Volume= 18,488 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.00 cfs @ 12.15 hrs, Volume= 18,488 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.45' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.40'	18.0" Round Culvert L= 26.9' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.40' / 33.10' S= 0.0112 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.98 cfs @ 12.15 hrs HW=34.44' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 3.98 cfs @ 4.27 fps)

Summary for Pond DMH13-P: DMH 13

Inflow Area = 87,618 sf, 39.09% Impervious, Inflow Depth = 1.51" for 10-year event
 Inflow = 2.81 cfs @ 12.10 hrs, Volume= 11,001 cf
 Outflow = 2.81 cfs @ 12.10 hrs, Volume= 11,001 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.81 cfs @ 12.10 hrs, Volume= 11,001 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.17' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.25'	15.0" Round Culvert L= 72.3' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.25' / 32.70' S= 0.0076 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.79 cfs @ 12.10 hrs HW=34.16' (Free Discharge)
 ↑1=Culvert (Barrel Controls 2.79 cfs @ 4.05 fps)

Summary for Pond DMH14-P: DMH 14

Inflow Area = 23,322 sf, 43.18% Impervious, Inflow Depth = 1.63" for 10-year event
 Inflow = 0.89 cfs @ 12.09 hrs, Volume= 3,160 cf
 Outflow = 0.89 cfs @ 12.09 hrs, Volume= 3,160 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.89 cfs @ 12.09 hrs, Volume= 3,160 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.39' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.80'	12.0" Round Culvert L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.80' / 36.55' S= 0.0040 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.88 cfs @ 12.09 hrs HW=37.39' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.88 cfs @ 2.64 fps)

Summary for Pond DMH15-P: DMH 15

Inflow Area = 23,322 sf, 43.18% Impervious, Inflow Depth = 1.63" for 10-year event
 Inflow = 0.89 cfs @ 12.09 hrs, Volume= 3,160 cf
 Outflow = 0.89 cfs @ 12.09 hrs, Volume= 3,160 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.89 cfs @ 12.09 hrs, Volume= 3,160 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.09' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.50'	12.0" Round Culvert L= 71.0' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 36.50' / 36.20' S= 0.0042 ' / ' Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.88 cfs @ 12.09 hrs HW=37.08' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.88 cfs @ 2.67 fps)

Summary for Pond DMH16-P: DMH 16

Inflow Area = 58,478 sf, 40.78% Impervious, Inflow Depth = 1.53" for 10-year event
 Inflow = 2.11 cfs @ 12.11 hrs, Volume= 7,464 cf
 Outflow = 2.11 cfs @ 12.11 hrs, Volume= 7,464 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.11 cfs @ 12.11 hrs, Volume= 7,464 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.77' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.95'	15.0" Round Culvert L= 14.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.95' / 35.80' S= 0.0106 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.08 cfs @ 12.11 hrs HW=36.76' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 2.08 cfs @ 3.51 fps)

Summary for Pond DMH26-P: DMH 26

Inflow Area = 109,879 sf, 27.53% Impervious, Inflow Depth = 1.01" for 10-year event
 Inflow = 2.14 cfs @ 12.15 hrs, Volume= 9,238 cf
 Outflow = 2.14 cfs @ 12.15 hrs, Volume= 9,238 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.14 cfs @ 12.15 hrs, Volume= 9,238 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.93' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.05'	15.0" Round Culvert L= 111.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.05' / 36.60' S= 0.0040 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.13 cfs @ 12.15 hrs HW=37.92' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 2.13 cfs @ 3.28 fps)

Summary for Pond DMH27-P: DMH 27

Inflow Area = 109,879 sf, 27.53% Impervious, Inflow Depth = 1.01" for 10-year event
 Inflow = 2.14 cfs @ 12.15 hrs, Volume= 9,238 cf
 Outflow = 2.14 cfs @ 12.15 hrs, Volume= 9,238 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.14 cfs @ 12.15 hrs, Volume= 9,238 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.34' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.50'	15.0" Round Culvert L= 75.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.50' / 36.10' S= 0.0053 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.13 cfs @ 12.15 hrs HW=37.33' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 2.13 cfs @ 3.47 fps)

Summary for Pond DMH28-P: DMH 28

Inflow Area = 109,879 sf, 27.53% Impervious, Inflow Depth = 1.01" for 10-year event
 Inflow = 2.14 cfs @ 12.15 hrs, Volume= 9,238 cf
 Outflow = 2.14 cfs @ 12.15 hrs, Volume= 9,238 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.14 cfs @ 12.15 hrs, Volume= 9,238 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.84' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.00'	15.0" Round Culvert L= 101.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.00' / 35.50' S= 0.0049 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.13 cfs @ 12.15 hrs HW=36.84' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 2.13 cfs @ 3.45 fps)

Summary for Pond DMH29-P: DMH 29

Inflow Area = 194,406 sf, 30.60% Impervious, Inflow Depth = 1.14" for 10-year event
 Inflow = 4.53 cfs @ 12.14 hrs, Volume= 18,417 cf
 Outflow = 4.53 cfs @ 12.14 hrs, Volume= 18,417 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.53 cfs @ 12.14 hrs, Volume= 18,417 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.32' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.25'	18.0" Round Culvert L= 118.3' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.25' / 34.30' S= 0.0080 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.47 cfs @ 12.14 hrs HW=36.31' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 4.47 cfs @ 4.69 fps)

Summary for Pond DMH30-P: DMH 30

Inflow Area = 194,406 sf, 30.60% Impervious, Inflow Depth = 1.14" for 10-year event
 Inflow = 4.53 cfs @ 12.14 hrs, Volume= 18,417 cf
 Outflow = 4.53 cfs @ 12.14 hrs, Volume= 18,417 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.53 cfs @ 12.14 hrs, Volume= 18,417 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.95' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.80'	24.0" Round Culvert L= 146.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.80' / 33.40' S= 0.0027 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=4.47 cfs @ 12.14 hrs HW=34.94' (Free Discharge)
 ↑1=Culvert (Barrel Controls 4.47 cfs @ 3.50 fps)

Summary for Pond DMH31-P: DMH 31

Inflow Area = 194,406 sf, 30.60% Impervious, Inflow Depth = 1.14" for 10-year event
 Inflow = 4.53 cfs @ 12.14 hrs, Volume= 18,417 cf
 Outflow = 4.53 cfs @ 12.14 hrs, Volume= 18,417 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.53 cfs @ 12.14 hrs, Volume= 18,417 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.43' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.30'	24.0" Round Culvert L= 62.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.30' / 33.10' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=4.47 cfs @ 12.14 hrs HW=34.42' (Free Discharge)
 ↑1=Culvert (Barrel Controls 4.47 cfs @ 3.58 fps)

Summary for Pond DMH32-P: DMH 32

Inflow Area = 403,271 sf, 29.17% Impervious, Inflow Depth = 1.10" for 10-year event
 Inflow = 8.52 cfs @ 12.15 hrs, Volume= 36,905 cf
 Outflow = 8.52 cfs @ 12.15 hrs, Volume= 36,905 cf, Atten= 0%, Lag= 0.0 min
 Primary = 8.52 cfs @ 12.15 hrs, Volume= 36,905 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.01' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	32.60'	24.0" Round Culvert L= 31.6' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 32.60' / 32.20' S= 0.0127 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.48 cfs @ 12.15 hrs HW=34.00' (Free Discharge)
 ↑1=Culvert (Barrel Controls 8.48 cfs @ 5.07 fps)

Summary for Pond DMH33-P: DMH 33

Inflow Area = 44,429 sf, 37.07% Impervious, Inflow Depth = 1.39" for 10-year event
 Inflow = 1.28 cfs @ 12.12 hrs, Volume= 5,146 cf
 Outflow = 1.28 cfs @ 12.12 hrs, Volume= 5,146 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.28 cfs @ 12.12 hrs, Volume= 5,146 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.39' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.70'	12.0" Round Culvert L= 199.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.70' / 33.70' S= 0.0050 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.25 cfs @ 12.12 hrs HW=35.38' (Free Discharge)
 ↑1=Culvert (Barrel Controls 1.25 cfs @ 3.13 fps)

Summary for Pond DMH9-P: DMH 9

Inflow Area = 80,829 sf, 26.01% Impervious, Inflow Depth = 0.97" for 10-year event
 Inflow = 1.41 cfs @ 12.17 hrs, Volume= 6,504 cf
 Outflow = 1.41 cfs @ 12.17 hrs, Volume= 6,504 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.41 cfs @ 12.17 hrs, Volume= 6,504 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.07' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.40'	12.0" Round Culvert L= 176.9' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.40' / 35.20' S= 0.0068 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.38 cfs @ 12.17 hrs HW=37.06' (Free Discharge)
 ↑1=Culvert (Barrel Controls 1.38 cfs @ 3.53 fps)

Summary for Pond IB4-P: Infiltration Basin #4

Inflow Area = 523,288 sf, 32.44% Impervious, Inflow Depth = 1.24" for 10-year event
 Inflow = 12.82 cfs @ 12.13 hrs, Volume= 53,944 cf
 Outflow = 0.93 cfs @ 15.73 hrs, Volume= 53,944 cf, Atten= 93%, Lag= 216.4 min
 Discarded = 0.93 cfs @ 15.73 hrs, Volume= 53,944 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 32.46' @ 15.73 hrs Surf.Area= 16,554 sf Storage= 25,919 cf

Plug-Flow detention time= 321.2 min calculated for 53,944 cf (100% of inflow)
 Center-of-Mass det. time= 321.0 min (1,197.2 - 876.3)

Volume	Invert	Avail.Storage	Storage Description	
#1	30.70'	117,739 cf	Custom Stage Data (Conic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.70	12,950	0	0	12,950
31.00	13,550	3,975	3,975	13,562
32.00	15,640	14,583	18,557	15,696
32.50	16,640	8,069	26,626	16,721
34.00	18,980	26,696	53,322	19,166
35.50	21,450	30,304	83,625	21,749
36.00	22,310	10,939	94,565	22,648
37.00	24,050	23,175	117,739	24,470

Device	Routing	Invert	Outlet Devices
#1	Discarded	30.70'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	35.50'	15.0' long x 1.0' breadth Broad-Crested Rectangular Weir
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00			
Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31			
3.30 3.31 3.32			

Discarded OutFlow Max=0.93 cfs @ 15.73 hrs HW=32.46' (Free Discharge)
 ↑1=**Exfiltration** (Exfiltration Controls 0.93 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=30.70' (Free Discharge)
 ↑2=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond IB5-P: Infiltration Basin #5

Inflow Area = 70,327 sf, 42.59% Impervious, Inflow Depth = 1.61" for 10-year event
 Inflow = 2.72 cfs @ 12.10 hrs, Volume= 9,433 cf
 Outflow = 0.28 cfs @ 13.55 hrs, Volume= 9,433 cf, Atten= 90%, Lag= 87.0 min
 Discarded = 0.28 cfs @ 13.55 hrs, Volume= 9,433 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.90' @ 13.55 hrs Surf.Area= 5,047 sf Storage= 3,602 cf

Plug-Flow detention time= 131.1 min calculated for 9,433 cf (100% of inflow)
 Center-of-Mass det. time= 131.0 min (993.9 - 862.9)

Hidden Trails-Drainage System-REV1 (Basins 4 and 5) Type III 24-hr 10-year Rainfall=5.05"

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Volume	Invert	Avail.Storage	Storage Description
#1	35.10'	25,516 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
35.10	4,000	0	0	4,000
36.00	5,190	4,124	4,124	5,209
36.10	5,380	528	4,652	5,401
38.00	7,775	12,428	17,080	7,857
39.00	9,115	8,436	25,516	9,236

Device	Routing	Invert	Outlet Devices
#1	Discarded	35.10'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	38.00'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.28 cfs @ 13.55 hrs HW=35.90' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=35.10' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment IB4-10S: To CBN 10

Runoff = 1.08 cfs @ 12.05 hrs, Volume= 3,167 cf, Depth= 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 6,890	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
2,296	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
9,186	83	Weighted Average
2,296		24.99% Pervious Area
6,890		75.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	10	0.0200	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	40	0.0100	0.90		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.43"
1.3	160	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.5	210	Total			

Summary for Subcatchment IB4-11S: To CBN 11

Runoff = 1.40 cfs @ 12.12 hrs, Volume= 5,067 cf, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 6,290	98	Paved Roadway
* 4,600	98	Roofs and Driveways, HSG A
23,113	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
34,003	58	Weighted Average
23,113		67.97% Pervious Area
10,890		32.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.6	190	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.8	290	Total			

Summary for Subcatchment IB4-25S: To CBN 25

Runoff = 2.06 cfs @ 12.14 hrs, Volume= 7,843 cf, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 8,750	98	Paved Roadway
* 8,300	98	Roofs and Driveways, HSG A
40,832	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
57,882	56	Weighted Average
40,832		70.54% Pervious Area
17,050		29.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	250	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.3	350	Total			

Summary for Subcatchment IB4-26S: To CBN 26

Runoff = 1.59 cfs @ 12.15 hrs, Volume= 6,363 cf, Depth= 1.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 6,300	98	Paved Roadway
* 6,900	98	Roofs and Driveways, HSG A
38,797	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
51,997	54	Weighted Average
38,797		74.61% Pervious Area
13,200		25.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.43"
1.8	75	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.0	245	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.2	370	Total			

Summary for Subcatchment IB4-27S: To CBN 27

Runoff = 1.67 cfs @ 12.12 hrs, Volume= 5,972 cf, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 6,000	98	Paved Roadway
* 6,900	98	Roofs and Driveways, HSG A
27,181	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
40,081	58	Weighted Average
27,181		67.82% Pervious Area
12,900		32.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.43"
1.0	43	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	150	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.6	243	Total			

Summary for Subcatchment IB4-28S: To CBN 28

Runoff = 2.10 cfs @ 12.13 hrs, Volume= 7,552 cf, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 7,640	98	Paved Roadway
* 8,700	98	Roofs and Driveways, HSG A
28,106	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
44,446	61	Weighted Average
28,106		63.24% Pervious Area
16,340		36.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	250	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.3	350	Total			

Summary for Subcatchment IB4-29S: To CBN 29

Runoff = 1.13 cfs @ 12.12 hrs, Volume= 3,876 cf, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 5,830	98	Paved Roadway
* 2,600	98	Roofs and Driveways, HSG A
13,463	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
21,893	62	Weighted Average
13,463		61.49% Pervious Area
8,430		38.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.5	30	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	180	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.4	260	Total			

Summary for Subcatchment IB4-30S: To CBN 30

Runoff = 0.81 cfs @ 12.12 hrs, Volume= 2,792 cf, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 3,980	98	Paved Roadway
* 2,300	98	Roofs and Driveways, HSG A
8,869	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
15,149	63	Weighted Average
8,869		58.55% Pervious Area
6,280		41.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.6	190	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.8	290	Total			

Summary for Subcatchment IB4-31S: To CBN 31

Runoff = 0.62 cfs @ 12.05 hrs, Volume= 1,773 cf, Depth= 2.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

	Area (sf)	CN	Description
*	3,960	98	Paved Roadway
*	0	98	Roofs and Driveways, HSG A
	3,772	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	7,732	69	Weighted Average
	3,772		48.78% Pervious Area
	3,960		51.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.43"
2.3	280	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.2	330	Total			

Summary for Subcatchment IB4-32S: To CBN 32

Runoff = 1.54 cfs @ 12.14 hrs, Volume= 5,721 cf, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

	Area (sf)	CN	Description
*	5,610	98	Paved Roadway
*	6,900	98	Roofs and Driveways, HSG A
	24,187	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	36,697	59	Weighted Average
	24,187		65.91% Pervious Area
	12,510		34.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.7	325	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.9	425	Total			

Summary for Subcatchment IB4-33S: To CBN 33

Runoff = 0.73 cfs @ 12.14 hrs, Volume= 2,716 cf, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 5,420	98	Paved Roadway
* 500	98	Roofs and Driveways, HSG A
11,504	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
17,424	59	Weighted Average
11,504		66.02% Pervious Area
5,920		33.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.6	315	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.8	415	Total			

Summary for Subcatchment IB4-7S: To CBN 7

Runoff = 1.74 cfs @ 12.17 hrs, Volume= 7,351 cf, Depth= 1.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 7,600	98	Paved Roadway
* 7,500	98	Roofs and Driveways, HSG A
48,305	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
63,405	53	Weighted Average
48,305		76.18% Pervious Area
15,100		23.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
4.8	284	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	10	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
10.3	344	Total			

Summary for Subcatchment IB4-8S: To CBN 8

Runoff = 0.67 cfs @ 12.05 hrs, Volume= 1,929 cf, Depth= 4.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

	Area (sf)	CN	Description
*	4,200	98	Paved Roadway
*	0	98	Roofs and Driveways, HSG A
	1,538	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	5,738	82	Weighted Average
	1,538		26.80% Pervious Area
	4,200		73.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	10	0.0200	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.2	40	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.1	140	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.8	190	Total			

Summary for Subcatchment IB4-9S: To CBN 9

Runoff = 2.16 cfs @ 12.17 hrs, Volume= 9,346 cf, Depth= 1.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

	Area (sf)	CN	Description
*	6,000	98	Paved Roadway
*	12,200	98	Roofs and Driveways, HSG A
	67,056	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	85,256	52	Weighted Average
	67,056		78.65% Pervious Area
	18,200		21.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
4.0	236	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	92	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
10.2	378	Total			

Summary for Subcatchment IB4-S: Direct to IB #4

Runoff = 2.59 cfs @ 12.09 hrs, Volume= 8,192 cf, Depth= 3.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
14,499	39	>75% Grass cover, Good, HSG A
* 17,900	98	Basin
32,399	72	Weighted Average
14,499		44.75% Pervious Area
17,900		55.25% Impervious Area

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

Summary for Subcatchment IB5-12S: To CBN 12

Runoff = 0.50 cfs @ 12.05 hrs, Volume= 1,428 cf, Depth= 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 3,200	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
3,475	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
6,675	67	Weighted Average
3,475		52.06% Pervious Area
3,200		47.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	5	0.0200	0.78		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
0.9	5	0.0200	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	40	0.0100	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
1.1	130	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.8	180	Total			

Summary for Subcatchment IB5-13S: To CBN 13

Runoff = 0.91 cfs @ 12.11 hrs, Volume= 3,068 cf, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 4,570	98	Paved Roadway
* 2,300	98	Roofs and Driveways, HSG A
9,777	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
16,647	63	Weighted Average
9,777		58.73% Pervious Area
6,870		41.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.5	50	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.1	135	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.0	235	Total			

Summary for Subcatchment IB5-14S: To CBN 14

Runoff = 1.84 cfs @ 12.11 hrs, Volume= 6,225 cf, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 8,380	98	Paved Roadway
* 5,400	98	Roofs and Driveways, HSG A
21,376	39	>75% Grass cover, Good, HSG A
35,156	62	Weighted Average
21,376		60.80% Pervious Area
13,780		39.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.9	55	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	80	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.0	185	Total			

Summary for Subcatchment IB5-S: Direct to IB #5

Runoff = 0.86 cfs @ 12.10 hrs, Volume= 2,717 cf, Depth= 2.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=6.05"

Area (sf)	CN	Description
* 0	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
5,749	39	>75% Grass cover, Good, HSG A
* 6,100	98	Basin
11,849	69	Weighted Average
5,749		48.52% Pervious Area
6,100		51.48% Impervious Area

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

Summary for Pond CBN10-P: CBN 10

Inflow Area = 9,186 sf, 75.01% Impervious, Inflow Depth = 4.14" for 25-year event
 Inflow = 1.08 cfs @ 12.05 hrs, Volume= 3,167 cf
 Outflow = 1.08 cfs @ 12.05 hrs, Volume= 3,167 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.08 cfs @ 12.05 hrs, Volume= 3,167 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.26' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.60'	12.0" Round Culvert L= 9.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.60' / 33.50' S= 0.0102 ' S= 0.0102 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.06 cfs @ 12.05 hrs HW=34.25' (Free Discharge)
 1=Culvert (Barrel Controls 1.06 cfs @ 2.77 fps)

Summary for Pond CBN11-P: CBN 11

Inflow Area = 34,003 sf, 32.03% Impervious, Inflow Depth = 1.79" for 25-year event
 Inflow = 1.40 cfs @ 12.12 hrs, Volume= 5,067 cf
 Outflow = 1.40 cfs @ 12.12 hrs, Volume= 5,067 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.40 cfs @ 12.12 hrs, Volume= 5,067 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.36' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.60'	12.0" Round Culvert

L= 3.2' CPP, projecting, no headwall, Ke= 0.900
 Inlet / Outlet Invert= 33.60' / 33.50' S= 0.0313 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.36 cfs @ 12.12 hrs HW=34.34' (Free Discharge)
 ↑1=Culvert (Barrel Controls 1.36 cfs @ 3.03 fps)

Summary for Pond CBN12-P: CBN 12

Inflow Area = 6,675 sf, 47.94% Impervious, Inflow Depth = 2.57" for 25-year event
 Inflow = 0.50 cfs @ 12.05 hrs, Volume= 1,428 cf
 Outflow = 0.50 cfs @ 12.05 hrs, Volume= 1,428 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.50 cfs @ 12.05 hrs, Volume= 1,428 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.50' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.10'	12.0" Round Culvert L= 14.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.10' / 36.90' S= 0.0143 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.50 cfs @ 12.05 hrs HW=37.50' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.50 cfs @ 1.70 fps)

Summary for Pond CBN13-P: CBN 13

Inflow Area = 16,647 sf, 41.27% Impervious, Inflow Depth = 2.21" for 25-year event
 Inflow = 0.91 cfs @ 12.11 hrs, Volume= 3,068 cf
 Outflow = 0.91 cfs @ 12.11 hrs, Volume= 3,068 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.91 cfs @ 12.11 hrs, Volume= 3,068 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.66' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.10'	12.0" Round Culvert L= 6.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.10' / 36.90' S= 0.0308 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.89 cfs @ 12.11 hrs HW=37.65' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.89 cfs @ 2.00 fps)

Summary for Pond CBN14-P: CBN 14

Inflow Area = 35,156 sf, 39.20% Impervious, Inflow Depth = 2.12" for 25-year event
 Inflow = 1.84 cfs @ 12.11 hrs, Volume= 6,225 cf
 Outflow = 1.84 cfs @ 12.11 hrs, Volume= 6,225 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.84 cfs @ 12.11 hrs, Volume= 6,225 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.59' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.56'	12.0" Round Culvert L= 125.9' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.56' / 36.20' S= 0.0029 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.80 cfs @ 12.11 hrs HW=37.57' (Free Discharge)
 ↑1=Culvert (Barrel Controls 1.80 cfs @ 2.82 fps)

Summary for Pond CBN25-P: CBN 25

Inflow Area = 57,882 sf, 29.46% Impervious, Inflow Depth = 1.63" for 25-year event
 Inflow = 2.06 cfs @ 12.14 hrs, Volume= 7,843 cf
 Outflow = 2.06 cfs @ 12.14 hrs, Volume= 7,843 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.06 cfs @ 12.14 hrs, Volume= 7,843 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.39' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.40'	12.0" Round Culvert L= 7.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.40' / 37.30' S= 0.0135 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.03 cfs @ 12.14 hrs HW=38.38' (Free Discharge)
 ↑1=Culvert (Barrel Controls 2.03 cfs @ 3.27 fps)

Summary for Pond CBN26-P: CBN 26

Inflow Area = 51,997 sf, 25.39% Impervious, Inflow Depth = 1.47" for 25-year event
 Inflow = 1.59 cfs @ 12.15 hrs, Volume= 6,363 cf
 Outflow = 1.59 cfs @ 12.15 hrs, Volume= 6,363 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.59 cfs @ 12.15 hrs, Volume= 6,363 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.26' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.40'	12.0" Round Culvert L= 14.5' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 37.40' / 37.30' S= 0.0069 ' S= 0.0069 ' Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.58 cfs @ 12.15 hrs HW=38.25' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.58 cfs @ 2.97 fps)

Summary for Pond CBN27-P: CBN 27

Inflow Area = 40,081 sf, 32.18% Impervious, Inflow Depth = 1.79" for 25-year event
 Inflow = 1.67 cfs @ 12.12 hrs, Volume= 5,972 cf
 Outflow = 1.67 cfs @ 12.12 hrs, Volume= 5,972 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.67 cfs @ 12.12 hrs, Volume= 5,972 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.32' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.50'	12.0" Round Culvert L= 10.7' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.50' / 36.30' S= 0.0187 ' S= 0.0187 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.61 cfs @ 12.12 hrs HW=37.30' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 1.61 cfs @ 2.40 fps)

Summary for Pond CBN28-P: CBN 28

Inflow Area = 44,446 sf, 36.76% Impervious, Inflow Depth = 2.04" for 25-year event
 Inflow = 2.10 cfs @ 12.13 hrs, Volume= 7,552 cf
 Outflow = 2.10 cfs @ 12.13 hrs, Volume= 7,552 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.10 cfs @ 12.13 hrs, Volume= 7,552 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.48' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.50'	12.0" Round Culvert L= 3.1' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.50' / 36.30' S= 0.0645 ' S= 0.0645 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.05 cfs @ 12.13 hrs HW=37.47' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 2.05 cfs @ 2.64 fps)

Summary for Pond CBN29-P: CBN 29

Inflow Area = 21,893 sf, 38.51% Impervious, Inflow Depth = 2.12" for 25-year event
 Inflow = 1.13 cfs @ 12.12 hrs, Volume= 3,876 cf
 Outflow = 1.13 cfs @ 12.12 hrs, Volume= 3,876 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.13 cfs @ 12.12 hrs, Volume= 3,876 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.84' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.20'	12.0" Round Culvert L= 9.3' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.20' / 35.00' S= 0.0215 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.10 cfs @ 12.12 hrs HW=35.83' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 1.10 cfs @ 2.13 fps)

Summary for Pond CBN30-P: CBN 30

Inflow Area = 15,149 sf, 41.45% Impervious, Inflow Depth = 2.21" for 25-year event
 Inflow = 0.81 cfs @ 12.12 hrs, Volume= 2,792 cf
 Outflow = 0.81 cfs @ 12.12 hrs, Volume= 2,792 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.81 cfs @ 12.12 hrs, Volume= 2,792 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.32' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.80'	12.0" Round Culvert L= 20.1' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.80' / 34.60' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.78 cfs @ 12.12 hrs HW=35.31' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.78 cfs @ 2.80 fps)

Summary for Pond CBN31-P: CBN 31

Inflow Area = 7,732 sf, 51.22% Impervious, Inflow Depth = 2.75" for 25-year event
 Inflow = 0.62 cfs @ 12.05 hrs, Volume= 1,773 cf
 Outflow = 0.62 cfs @ 12.05 hrs, Volume= 1,773 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.62 cfs @ 12.05 hrs, Volume= 1,773 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.45' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.00'	12.0" Round Culvert L= 12.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.00' / 34.80' S= 0.0167 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.60 cfs @ 12.05 hrs HW=35.44' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.60 cfs @ 1.79 fps)

Summary for Pond CBN32-P: CBN 32

Inflow Area = 36,697 sf, 34.09% Impervious, Inflow Depth = 1.87" for 25-year event
 Inflow = 1.54 cfs @ 12.14 hrs, Volume= 5,721 cf
 Outflow = 1.54 cfs @ 12.14 hrs, Volume= 5,721 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.54 cfs @ 12.14 hrs, Volume= 5,721 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.77' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.00'	12.0" Round Culvert L= 6.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.00' / 34.80' S= 0.0323 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.52 cfs @ 12.14 hrs HW=35.77' (Free Discharge)
 ↑1=Culvert (Inlet Controls 1.52 cfs @ 2.35 fps)

Summary for Pond CBN33-P: CBN 33

Inflow Area = 17,424 sf, 33.98% Impervious, Inflow Depth = 1.87" for 25-year event
 Inflow = 0.73 cfs @ 12.14 hrs, Volume= 2,716 cf
 Outflow = 0.73 cfs @ 12.14 hrs, Volume= 2,716 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.73 cfs @ 12.14 hrs, Volume= 2,716 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.19' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.70'	12.0" Round Culvert L= 11.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.70' / 36.50' S= 0.0175 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.72 cfs @ 12.14 hrs HW=37.19' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.72 cfs @ 1.88 fps)

Summary for Pond CBN7-P: CBN 7

Inflow Area = 63,405 sf, 23.82% Impervious, Inflow Depth = 1.39" for 25-year event
 Inflow = 1.74 cfs @ 12.17 hrs, Volume= 7,351 cf
 Outflow = 1.74 cfs @ 12.17 hrs, Volume= 7,351 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.74 cfs @ 12.17 hrs, Volume= 7,351 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.54' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.70'	12.0" Round Culvert L= 5.7' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 36.70' / 36.50' S= 0.0351 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.70 cfs @ 12.17 hrs HW=37.53' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 1.70 cfs @ 2.44 fps)

Summary for Pond CBN8-P: CBN 8

Inflow Area = 5,738 sf, 73.20% Impervious, Inflow Depth = 4.03" for 25-year event
 Inflow = 0.67 cfs @ 12.05 hrs, Volume= 1,929 cf
 Outflow = 0.67 cfs @ 12.05 hrs, Volume= 1,929 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.67 cfs @ 12.05 hrs, Volume= 1,929 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.80' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.30'	12.0" Round Culvert L= 9.1' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.30' / 35.20' S= 0.0110 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.66 cfs @ 12.05 hrs HW=35.79' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.66 cfs @ 2.51 fps)

Summary for Pond CBN9-P: CBN 9

Inflow Area = 85,256 sf, 21.35% Impervious, Inflow Depth = 1.32" for 25-year event
 Inflow = 2.16 cfs @ 12.17 hrs, Volume= 9,346 cf
 Outflow = 2.16 cfs @ 12.17 hrs, Volume= 9,346 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.16 cfs @ 12.17 hrs, Volume= 9,346 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.94' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.05'	15.0" Round Culvert L= 3.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.05' / 34.95' S= 0.0263 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.11 cfs @ 12.17 hrs HW=35.93' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 2.11 cfs @ 3.22 fps)

Summary for Pond DMH10-P: DMH 10

Inflow Area = 171,823 sf, 25.27% Impervious, Inflow Depth = 1.49" for 25-year event
 Inflow = 4.93 cfs @ 12.16 hrs, Volume= 21,342 cf
 Outflow = 4.93 cfs @ 12.16 hrs, Volume= 21,342 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.93 cfs @ 12.16 hrs, Volume= 21,342 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.03' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.70'	18.0" Round Culvert L= 297.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.70' / 33.60' S= 0.0037 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.87 cfs @ 12.16 hrs HW=36.02' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 4.87 cfs @ 3.93 fps)

Summary for Pond DMH11-P: DMH 11

Inflow Area = 193,716 sf, 26.77% Impervious, Inflow Depth = 1.56" for 25-year event
 Inflow = 5.98 cfs @ 12.15 hrs, Volume= 25,218 cf
 Outflow = 5.98 cfs @ 12.15 hrs, Volume= 25,218 cf, Atten= 0%, Lag= 0.0 min
 Primary = 5.98 cfs @ 12.15 hrs, Volume= 25,218 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.02' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.60'	18.0" Round Culvert L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.60' / 33.40' S= 0.0091 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.97 cfs @ 12.15 hrs HW=35.02' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 5.97 cfs @ 4.44 fps)

Summary for Pond DMH12-P: DMH 12

Inflow Area = 208,865 sf, 27.83% Impervious, Inflow Depth = 1.61" for 25-year event
 Inflow = 6.75 cfs @ 12.15 hrs, Volume= 28,010 cf
 Outflow = 6.75 cfs @ 12.15 hrs, Volume= 28,010 cf, Atten= 0%, Lag= 0.0 min
 Primary = 6.75 cfs @ 12.15 hrs, Volume= 28,010 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.89' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.40'	18.0" Round Culvert L= 26.9' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.40' / 33.10' S= 0.0112 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.71 cfs @ 12.15 hrs HW=34.88' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 6.71 cfs @ 4.79 fps)

Summary for Pond DMH13-P: DMH 13

Inflow Area = 87,618 sf, 39.09% Impervious, Inflow Depth = 2.15" for 25-year event
 Inflow = 4.21 cfs @ 12.10 hrs, Volume= 15,728 cf
 Outflow = 4.21 cfs @ 12.10 hrs, Volume= 15,728 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.21 cfs @ 12.10 hrs, Volume= 15,728 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.46' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.25'	15.0" Round Culvert L= 72.3' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.25' / 32.70' S= 0.0076 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.18 cfs @ 12.10 hrs HW=34.46' (Free Discharge)
 ↑1=Culvert (Barrel Controls 4.18 cfs @ 4.40 fps)

Summary for Pond DMH14-P: DMH 14

Inflow Area = 23,322 sf, 43.18% Impervious, Inflow Depth = 2.31" for 25-year event
 Inflow = 1.31 cfs @ 12.09 hrs, Volume= 4,496 cf
 Outflow = 1.31 cfs @ 12.09 hrs, Volume= 4,496 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.31 cfs @ 12.09 hrs, Volume= 4,496 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.54' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.80'	12.0" Round Culvert L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.80' / 36.55' S= 0.0040 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.29 cfs @ 12.09 hrs HW=37.53' (Free Discharge)
 ↑1=Culvert (Barrel Controls 1.29 cfs @ 2.91 fps)

Summary for Pond DMH15-P: DMH 15

Inflow Area = 23,322 sf, 43.18% Impervious, Inflow Depth = 2.31" for 25-year event
 Inflow = 1.31 cfs @ 12.09 hrs, Volume= 4,496 cf
 Outflow = 1.31 cfs @ 12.09 hrs, Volume= 4,496 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.31 cfs @ 12.09 hrs, Volume= 4,496 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.23' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.50'	12.0" Round Culvert L= 71.0' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 36.50' / 36.20' S= 0.0042 ' S= 0.0042 ' Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.29 cfs @ 12.09 hrs HW=37.23' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.29 cfs @ 2.94 fps)

Summary for Pond DMH16-P: DMH 16

Inflow Area = 58,478 sf, 40.78% Impervious, Inflow Depth = 2.20" for 25-year event
 Inflow = 3.14 cfs @ 12.10 hrs, Volume= 10,721 cf
 Outflow = 3.14 cfs @ 12.10 hrs, Volume= 10,721 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.14 cfs @ 12.10 hrs, Volume= 10,721 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.00' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.95'	15.0" Round Culvert L= 14.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.95' / 35.80' S= 0.0106 ' S= 0.0106 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.11 cfs @ 12.10 hrs HW=36.99' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 3.11 cfs @ 3.85 fps)

Summary for Pond DMH26-P: DMH 26

Inflow Area = 109,879 sf, 27.53% Impervious, Inflow Depth = 1.55" for 25-year event
 Inflow = 3.64 cfs @ 12.14 hrs, Volume= 14,205 cf
 Outflow = 3.64 cfs @ 12.14 hrs, Volume= 14,205 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.64 cfs @ 12.14 hrs, Volume= 14,205 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.29' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.05'	15.0" Round Culvert L= 111.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.05' / 36.60' S= 0.0040 ' S= 0.0040 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.60 cfs @ 12.14 hrs HW=38.28' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 3.60 cfs @ 3.71 fps)

Summary for Pond DMH27-P: DMH 27

Inflow Area = 109,879 sf, 27.53% Impervious, Inflow Depth = 1.55" for 25-year event
 Inflow = 3.64 cfs @ 12.14 hrs, Volume= 14,205 cf
 Outflow = 3.64 cfs @ 12.14 hrs, Volume= 14,205 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.64 cfs @ 12.14 hrs, Volume= 14,205 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.68' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.50'	15.0" Round Culvert L= 75.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.50' / 36.10' S= 0.0053 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.60 cfs @ 12.14 hrs HW=37.67' (Free Discharge)
 ↑1=Culvert (Barrel Controls 3.60 cfs @ 3.92 fps)

Summary for Pond DMH28-P: DMH 28

Inflow Area = 109,879 sf, 27.53% Impervious, Inflow Depth = 1.55" for 25-year event
 Inflow = 3.64 cfs @ 12.14 hrs, Volume= 14,205 cf
 Outflow = 3.64 cfs @ 12.14 hrs, Volume= 14,205 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.64 cfs @ 12.14 hrs, Volume= 14,205 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.18' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.00'	15.0" Round Culvert L= 101.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.00' / 35.50' S= 0.0049 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.60 cfs @ 12.14 hrs HW=37.18' (Free Discharge)
 ↑1=Culvert (Barrel Controls 3.60 cfs @ 3.89 fps)

Summary for Pond DMH29-P: DMH 29

Inflow Area = 194,406 sf, 30.60% Impervious, Inflow Depth = 1.71" for 25-year event
 Inflow = 7.35 cfs @ 12.13 hrs, Volume= 27,730 cf
 Outflow = 7.35 cfs @ 12.13 hrs, Volume= 27,730 cf, Atten= 0%, Lag= 0.0 min
 Primary = 7.35 cfs @ 12.13 hrs, Volume= 27,730 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.75' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.25'	18.0" Round Culvert L= 118.3' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.25' / 34.30' S= 0.0080 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=7.21 cfs @ 12.13 hrs HW=36.73' (Free Discharge)
 ↑1=Culvert (Barrel Controls 7.21 cfs @ 5.16 fps)

Summary for Pond DMH30-P: DMH 30

Inflow Area = 194,406 sf, 30.60% Impervious, Inflow Depth = 1.71" for 25-year event
 Inflow = 7.35 cfs @ 12.13 hrs, Volume= 27,730 cf
 Outflow = 7.35 cfs @ 12.13 hrs, Volume= 27,730 cf, Atten= 0%, Lag= 0.0 min
 Primary = 7.35 cfs @ 12.13 hrs, Volume= 27,730 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.31' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.80'	24.0" Round Culvert L= 146.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.80' / 33.40' S= 0.0027 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.21 cfs @ 12.13 hrs HW=35.30' (Free Discharge)
 ↑1=Culvert (Barrel Controls 7.21 cfs @ 3.97 fps)

Summary for Pond DMH31-P: DMH 31

Inflow Area = 194,406 sf, 30.60% Impervious, Inflow Depth = 1.71" for 25-year event
 Inflow = 7.35 cfs @ 12.13 hrs, Volume= 27,730 cf
 Outflow = 7.35 cfs @ 12.13 hrs, Volume= 27,730 cf, Atten= 0%, Lag= 0.0 min
 Primary = 7.35 cfs @ 12.13 hrs, Volume= 27,730 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.79' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.30'	24.0" Round Culvert L= 62.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.30' / 33.10' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.21 cfs @ 12.13 hrs HW=34.77' (Free Discharge)
 ↑1=Culvert (Barrel Controls 7.21 cfs @ 4.06 fps)

Summary for Pond DMH32-P: DMH 32

Inflow Area = 403,271 sf, 29.17% Impervious, Inflow Depth = 1.66" for 25-year event
 Inflow = 14.08 cfs @ 12.14 hrs, Volume= 55,740 cf
 Outflow = 14.08 cfs @ 12.14 hrs, Volume= 55,740 cf, Atten= 0%, Lag= 0.0 min
 Primary = 14.08 cfs @ 12.14 hrs, Volume= 55,740 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.58' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	32.60'	24.0" Round Culvert L= 31.6' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 32.60' / 32.20' S= 0.0127 '/ n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=13.89 cfs @ 12.14 hrs HW=34.56' (Free Discharge)
 ↑1=Culvert (Barrel Controls 13.89 cfs @ 5.63 fps)

Summary for Pond DMH33-P: DMH 33

Inflow Area = 44,429 sf, 37.07% Impervious, Inflow Depth = 2.02" for 25-year event
 Inflow = 1.97 cfs @ 12.12 hrs, Volume= 7,494 cf
 Outflow = 1.97 cfs @ 12.12 hrs, Volume= 7,494 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.97 cfs @ 12.12 hrs, Volume= 7,494 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.60' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.70'	12.0" Round Culvert L= 199.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.70' / 33.70' S= 0.0050 '/ n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.93 cfs @ 12.12 hrs HW=35.59' (Free Discharge)
 ↑1=Culvert (Barrel Controls 1.93 cfs @ 3.45 fps)

Summary for Pond DMH9-P: DMH 9

Inflow Area = 80,829 sf, 26.01% Impervious, Inflow Depth = 1.49" for 25-year event
 Inflow = 2.45 cfs @ 12.16 hrs, Volume= 10,067 cf
 Outflow = 2.45 cfs @ 12.16 hrs, Volume= 10,067 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.45 cfs @ 12.16 hrs, Volume= 10,067 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.38' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.40'	12.0" Round Culvert L= 176.9' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.40' / 35.20' S= 0.0068 '/ n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.42 cfs @ 12.16 hrs HW=37.36' (Free Discharge)
 ↑1=Culvert (Barrel Controls 2.42 cfs @ 3.97 fps)

Summary for Pond IB4-P: Infiltration Basin #4

Inflow Area = 523,288 sf, 32.44% Impervious, Inflow Depth = 1.83" for 25-year event
 Inflow = 20.62 cfs @ 12.12 hrs, Volume= 79,659 cf
 Outflow = 1.03 cfs @ 16.51 hrs, Volume= 79,659 cf, Atten= 95%, Lag= 263.1 min
 Discarded = 1.03 cfs @ 16.51 hrs, Volume= 79,659 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.53' @ 16.51 hrs Surf.Area= 18,234 sf Storage= 44,617 cf

Plug-Flow detention time= 494.5 min calculated for 79,659 cf (100% of inflow)
 Center-of-Mass det. time= 494.3 min (1,358.9 - 864.6)

Volume	Invert	Avail.Storage	Storage Description	
#1	30.70'	117,739 cf	Custom Stage Data (Conic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.70	12,950	0	0	12,950
31.00	13,550	3,975	3,975	13,562
32.00	15,640	14,583	18,557	15,696
32.50	16,640	8,069	26,626	16,721
34.00	18,980	26,696	53,322	19,166
35.50	21,450	30,304	83,625	21,749
36.00	22,310	10,939	94,565	22,648
37.00	24,050	23,175	117,739	24,470

Device	Routing	Invert	Outlet Devices
#1	Discarded	30.70'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	35.50'	15.0' long x 1.0' breadth Broad-Crested Rectangular Weir
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00			
Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31			
3.30 3.31 3.32			

Discarded OutFlow Max=1.03 cfs @ 16.51 hrs HW=33.53' (Free Discharge)
 ↑1=**Exfiltration** (Exfiltration Controls 1.03 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=30.70' (Free Discharge)
 ↑2=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond IB5-P: Infiltration Basin #5

Inflow Area = 70,327 sf, 42.59% Impervious, Inflow Depth = 2.29" for 25-year event
 Inflow = 3.99 cfs @ 12.10 hrs, Volume= 13,438 cf
 Outflow = 0.32 cfs @ 14.05 hrs, Volume= 13,438 cf, Atten= 92%, Lag= 116.7 min
 Discarded = 0.32 cfs @ 14.05 hrs, Volume= 13,438 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.33' @ 14.05 hrs Surf.Area= 5,648 sf Storage= 5,925 cf

Plug-Flow detention time= 205.8 min calculated for 13,427 cf (100% of inflow)
 Center-of-Mass det. time= 205.7 min (1,057.8 - 852.2)

Hidden Trails-Drainage System-REV1 (Basins 4 and 5) Type III 24-hr 25-year Rainfall=6.05"

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Volume	Invert	Avail.Storage	Storage Description
#1	35.10'	25,516 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
35.10	4,000	0	0	4,000
36.00	5,190	4,124	4,124	5,209
36.10	5,380	528	4,652	5,401
38.00	7,775	12,428	17,080	7,857
39.00	9,115	8,436	25,516	9,236

Device	Routing	Invert	Outlet Devices
#1	Discarded	35.10'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	38.00'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.32 cfs @ 14.05 hrs HW=36.33' (Free Discharge)

↑1=**Exfiltration** (Exfiltration Controls 0.32 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=35.10' (Free Discharge)

↑2=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment IB4-10S: To CBN 10

Runoff = 1.44 cfs @ 12.05 hrs, Volume= 4,284 cf, Depth= 5.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 6,890	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
2,296	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
9,186	83	Weighted Average
2,296		24.99% Pervious Area
6,890		75.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	10	0.0200	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	40	0.0100	0.90		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.43"
1.3	160	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.5	210	Total			

Summary for Subcatchment IB4-11S: To CBN 11

Runoff = 2.32 cfs @ 12.12 hrs, Volume= 8,007 cf, Depth= 2.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 6,290	98	Paved Roadway
* 4,600	98	Roofs and Driveways, HSG A
23,113	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
34,003	58	Weighted Average
23,113		67.97% Pervious Area
10,890		32.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.6	190	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.8	290	Total			

Summary for Subcatchment IB4-25S: To CBN 25

Runoff = 3.52 cfs @ 12.13 hrs, Volume= 12,625 cf, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 8,750	98	Paved Roadway
* 8,300	98	Roofs and Driveways, HSG A
40,832	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
57,882	56	Weighted Average
40,832		70.54% Pervious Area
17,050		29.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	250	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.3	350	Total			

Summary for Subcatchment IB4-26S: To CBN 26

Runoff = 2.80 cfs @ 12.15 hrs, Volume= 10,451 cf, Depth= 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 6,300	98	Paved Roadway
* 6,900	98	Roofs and Driveways, HSG A
38,797	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
51,997	54	Weighted Average
38,797		74.61% Pervious Area
13,200		25.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.43"
1.8	75	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.0	245	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.2	370	Total			

Summary for Subcatchment IB4-27S: To CBN 27

Runoff = 2.76 cfs @ 12.12 hrs, Volume= 9,438 cf, Depth= 2.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 6,000	98	Paved Roadway
* 6,900	98	Roofs and Driveways, HSG A
27,181	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
40,081	58	Weighted Average
27,181		67.82% Pervious Area
12,900		32.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.43"
1.0	43	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	150	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.6	243	Total			

Summary for Subcatchment IB4-28S: To CBN 28

Runoff = 3.36 cfs @ 12.12 hrs, Volume= 11,640 cf, Depth= 3.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 7,640	98	Paved Roadway
* 8,700	98	Roofs and Driveways, HSG A
28,106	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
44,446	61	Weighted Average
28,106		63.24% Pervious Area
16,340		36.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	250	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.3	350	Total			

Summary for Subcatchment IB4-29S: To CBN 29

Runoff = 1.78 cfs @ 12.11 hrs, Volume= 5,929 cf, Depth= 3.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 5,830	98	Paved Roadway
* 2,600	98	Roofs and Driveways, HSG A
13,463	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
21,893	62	Weighted Average
13,463		61.49% Pervious Area
8,430		38.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.5	30	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	180	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.4	260	Total			

Summary for Subcatchment IB4-30S: To CBN 30

Runoff = 1.26 cfs @ 12.12 hrs, Volume= 4,238 cf, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 3,980	98	Paved Roadway
* 2,300	98	Roofs and Driveways, HSG A
8,869	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
15,149	63	Weighted Average
8,869		58.55% Pervious Area
6,280		41.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.6	190	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.8	290	Total			

Summary for Subcatchment IB4-31S: To CBN 31

Runoff = 0.90 cfs @ 12.05 hrs, Volume= 2,585 cf, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 3,960	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
3,772	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
7,732	69	Weighted Average
3,772		48.78% Pervious Area
3,960		51.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.94		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.43"
2.3	280	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.2	330	Total			

Summary for Subcatchment IB4-32S: To CBN 32

Runoff = 2.50 cfs @ 12.14 hrs, Volume= 8,962 cf, Depth= 2.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 5,610	98	Paved Roadway
* 6,900	98	Roofs and Driveways, HSG A
24,187	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
36,697	59	Weighted Average
24,187		65.91% Pervious Area
12,510		34.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.7	325	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.9	425	Total			

Summary for Subcatchment IB4-33S: To CBN 33

Runoff = 1.19 cfs @ 12.13 hrs, Volume= 4,255 cf, Depth= 2.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

	Area (sf)	CN	Description
*	5,420	98	Paved Roadway
*	500	98	Roofs and Driveways, HSG A
	11,504	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	17,424	59	Weighted Average
	11,504		66.02% Pervious Area
	5,920		33.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.8	50	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.6	315	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.8	415	Total			

Summary for Subcatchment IB4-7S: To CBN 7

Runoff = 3.15 cfs @ 12.16 hrs, Volume= 12,207 cf, Depth= 2.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

	Area (sf)	CN	Description
*	7,600	98	Paved Roadway
*	7,500	98	Roofs and Driveways, HSG A
	48,305	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	63,405	53	Weighted Average
	48,305		76.18% Pervious Area
	15,100		23.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
4.8	284	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	10	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
10.3	344	Total			

Summary for Subcatchment IB4-8S: To CBN 8

Runoff = 0.90 cfs @ 12.05 hrs, Volume= 2,621 cf, Depth= 5.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

	Area (sf)	CN	Description
*	4,200	98	Paved Roadway
*	0	98	Roofs and Driveways, HSG A
	1,538	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	5,738	82	Weighted Average
	1,538		26.80% Pervious Area
	4,200		73.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	10	0.0200	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.2	40	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.1	140	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.8	190	Total			

Summary for Subcatchment IB4-9S: To CBN 9

Runoff = 4.01 cfs @ 12.16 hrs, Volume= 15,697 cf, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

	Area (sf)	CN	Description
*	6,000	98	Paved Roadway
*	12,200	98	Roofs and Driveways, HSG A
	67,056	39	>75% Grass cover, Good, HSG A
*	0	98	Basin
	85,256	52	Weighted Average
	67,056		78.65% Pervious Area
	18,200		21.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
4.0	236	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	92	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
10.2	378	Total			

Summary for Subcatchment IB4-S: Direct to IB #4

Runoff = 3.71 cfs @ 12.09 hrs, Volume= 11,732 cf, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
14,499	39	>75% Grass cover, Good, HSG A
* 17,900	98	Basin
32,399	72	Weighted Average
14,499		44.75% Pervious Area
17,900		55.25% Impervious Area

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

Summary for Subcatchment IB5-12S: To CBN 12

Runoff = 0.74 cfs @ 12.05 hrs, Volume= 2,109 cf, Depth= 3.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 3,200	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
3,475	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
6,675	67	Weighted Average
3,475		52.06% Pervious Area
3,200		47.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	5	0.0200	0.78		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
0.9	5	0.0200	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.7	40	0.0100	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.43"
1.1	130	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.8	180	Total			

Summary for Subcatchment IB5-13S: To CBN 13

Runoff = 1.42 cfs @ 12.11 hrs, Volume= 4,657 cf, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 4,570	98	Paved Roadway
* 2,300	98	Roofs and Driveways, HSG A
9,777	39	>75% Grass cover, Good, HSG A
* 0	98	Basin
16,647	63	Weighted Average
9,777		58.73% Pervious Area
6,870		41.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.5	50	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.1	135	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.0	235	Total			

Summary for Subcatchment IB5-14S: To CBN 14

Runoff = 2.89 cfs @ 12.11 hrs, Volume= 9,520 cf, Depth= 3.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 8,380	98	Paved Roadway
* 5,400	98	Roofs and Driveways, HSG A
21,376	39	>75% Grass cover, Good, HSG A
35,156	62	Weighted Average
21,376		60.80% Pervious Area
13,780		39.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.43"
0.9	55	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	80	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.0	185	Total			

Summary for Subcatchment IB5-S: Direct to IB #5

Runoff = 1.25 cfs @ 12.09 hrs, Volume= 3,961 cf, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.60"

Area (sf)	CN	Description
* 0	98	Paved Roadway
* 0	98	Roofs and Driveways, HSG A
5,749	39	>75% Grass cover, Good, HSG A
* 6,100	98	Basin
11,849	69	Weighted Average
5,749		48.52% Pervious Area
6,100		51.48% Impervious Area

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

Summary for Pond CBN10-P: CBN 10

Inflow Area = 9,186 sf, 75.01% Impervious, Inflow Depth = 5.60" for 100-year event
 Inflow = 1.44 cfs @ 12.05 hrs, Volume= 4,284 cf
 Outflow = 1.44 cfs @ 12.05 hrs, Volume= 4,284 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.44 cfs @ 12.05 hrs, Volume= 4,284 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.39' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.60'	12.0" Round Culvert L= 9.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.60' / 33.50' S= 0.0102 ' S= 0.0102 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.42 cfs @ 12.05 hrs HW=34.38' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.42 cfs @ 2.96 fps)

Summary for Pond CBN11-P: CBN 11

Inflow Area = 34,003 sf, 32.03% Impervious, Inflow Depth = 2.83" for 100-year event
 Inflow = 2.32 cfs @ 12.12 hrs, Volume= 8,007 cf
 Outflow = 2.32 cfs @ 12.12 hrs, Volume= 8,007 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.32 cfs @ 12.12 hrs, Volume= 8,007 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.70' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.60'	12.0" Round Culvert

L= 3.2' CPP, projecting, no headwall, Ke= 0.900
 Inlet / Outlet Invert= 33.60' / 33.50' S= 0.0313 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.25 cfs @ 12.12 hrs HW=34.67' (Free Discharge)
 ↑1=Culvert (Inlet Controls 2.25 cfs @ 2.87 fps)

Summary for Pond CBN12-P: CBN 12

Inflow Area = 6,675 sf, 47.94% Impervious, Inflow Depth = 3.79" for 100-year event
 Inflow = 0.74 cfs @ 12.05 hrs, Volume= 2,109 cf
 Outflow = 0.74 cfs @ 12.05 hrs, Volume= 2,109 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.74 cfs @ 12.05 hrs, Volume= 2,109 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.60' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.10'	12.0" Round Culvert L= 14.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.10' / 36.90' S= 0.0143 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.74 cfs @ 12.05 hrs HW=37.60' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.74 cfs @ 1.90 fps)

Summary for Pond CBN13-P: CBN 13

Inflow Area = 16,647 sf, 41.27% Impervious, Inflow Depth = 3.36" for 100-year event
 Inflow = 1.42 cfs @ 12.11 hrs, Volume= 4,657 cf
 Outflow = 1.42 cfs @ 12.11 hrs, Volume= 4,657 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.42 cfs @ 12.11 hrs, Volume= 4,657 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.83' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.10'	12.0" Round Culvert L= 6.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.10' / 36.90' S= 0.0308 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.40 cfs @ 12.11 hrs HW=37.82' (Free Discharge)
 ↑1=Culvert (Inlet Controls 1.40 cfs @ 2.29 fps)

Summary for Pond CBN14-P: CBN 14

Inflow Area = 35,156 sf, 39.20% Impervious, Inflow Depth = 3.25" for 100-year event
 Inflow = 2.89 cfs @ 12.11 hrs, Volume= 9,520 cf
 Outflow = 2.89 cfs @ 12.11 hrs, Volume= 9,520 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.89 cfs @ 12.11 hrs, Volume= 9,520 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.43' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.56'	12.0" Round Culvert L= 125.9' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.56' / 36.20' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.84 cfs @ 12.11 hrs HW=38.39' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 2.84 cfs @ 3.62 fps)

Summary for Pond CBN25-P: CBN 25

Inflow Area = 57,882 sf, 29.46% Impervious, Inflow Depth = 2.62" for 100-year event
 Inflow = 3.52 cfs @ 12.13 hrs, Volume= 12,625 cf
 Outflow = 3.52 cfs @ 12.13 hrs, Volume= 12,625 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.52 cfs @ 12.13 hrs, Volume= 12,625 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.28' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.40'	12.0" Round Culvert L= 7.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.40' / 37.30' S= 0.0135 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.44 cfs @ 12.13 hrs HW=39.23' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 3.44 cfs @ 4.38 fps)

Summary for Pond CBN26-P: CBN 26

Inflow Area = 51,997 sf, 25.39% Impervious, Inflow Depth = 2.41" for 100-year event
 Inflow = 2.80 cfs @ 12.15 hrs, Volume= 10,451 cf
 Outflow = 2.80 cfs @ 12.15 hrs, Volume= 10,451 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.80 cfs @ 12.15 hrs, Volume= 10,451 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.78' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.40'	12.0" Round Culvert L= 14.5' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 37.40' / 37.30' S= 0.0069 ' S= 0.0069 ' Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.78 cfs @ 12.15 hrs HW=38.77' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 2.78 cfs @ 3.54 fps)

Summary for Pond CBN27-P: CBN 27

Inflow Area = 40,081 sf, 32.18% Impervious, Inflow Depth = 2.83" for 100-year event
 Inflow = 2.76 cfs @ 12.12 hrs, Volume= 9,438 cf
 Outflow = 2.76 cfs @ 12.12 hrs, Volume= 9,438 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.76 cfs @ 12.12 hrs, Volume= 9,438 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.85' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.50'	12.0" Round Culvert L= 10.7' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.50' / 36.30' S= 0.0187 ' S= 0.0187 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.68 cfs @ 12.12 hrs HW=37.80' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 2.68 cfs @ 3.41 fps)

Summary for Pond CBN28-P: CBN 28

Inflow Area = 44,446 sf, 36.76% Impervious, Inflow Depth = 3.14" for 100-year event
 Inflow = 3.36 cfs @ 12.12 hrs, Volume= 11,640 cf
 Outflow = 3.36 cfs @ 12.12 hrs, Volume= 11,640 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.36 cfs @ 12.12 hrs, Volume= 11,640 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.26' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.50'	12.0" Round Culvert L= 3.1' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.50' / 36.30' S= 0.0645 ' S= 0.0645 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.26 cfs @ 12.12 hrs HW=38.19' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 3.26 cfs @ 4.15 fps)

Summary for Pond CBN29-P: CBN 29

Inflow Area = 21,893 sf, 38.51% Impervious, Inflow Depth = 3.25" for 100-year event
 Inflow = 1.78 cfs @ 12.11 hrs, Volume= 5,929 cf
 Outflow = 1.78 cfs @ 12.11 hrs, Volume= 5,929 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.78 cfs @ 12.11 hrs, Volume= 5,929 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.05' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.20'	12.0" Round Culvert L= 9.3' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.20' / 35.00' S= 0.0215 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.73 cfs @ 12.11 hrs HW=36.04' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 1.73 cfs @ 2.46 fps)

Summary for Pond CBN30-P: CBN 30

Inflow Area = 15,149 sf, 41.45% Impervious, Inflow Depth = 3.36" for 100-year event
 Inflow = 1.26 cfs @ 12.12 hrs, Volume= 4,238 cf
 Outflow = 1.26 cfs @ 12.12 hrs, Volume= 4,238 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.26 cfs @ 12.12 hrs, Volume= 4,238 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.49' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.80'	12.0" Round Culvert L= 20.1' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.80' / 34.60' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.22 cfs @ 12.12 hrs HW=35.47' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.22 cfs @ 3.06 fps)

Summary for Pond CBN31-P: CBN 31

Inflow Area = 7,732 sf, 51.22% Impervious, Inflow Depth = 4.01" for 100-year event
 Inflow = 0.90 cfs @ 12.05 hrs, Volume= 2,585 cf
 Outflow = 0.90 cfs @ 12.05 hrs, Volume= 2,585 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.90 cfs @ 12.05 hrs, Volume= 2,585 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.56' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.00'	12.0" Round Culvert L= 12.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.00' / 34.80' S= 0.0167 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.89 cfs @ 12.05 hrs HW=35.55' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.89 cfs @ 2.00 fps)

Summary for Pond CBN32-P: CBN 32

Inflow Area = 36,697 sf, 34.09% Impervious, Inflow Depth = 2.93" for 100-year event
 Inflow = 2.50 cfs @ 12.14 hrs, Volume= 8,962 cf
 Outflow = 2.50 cfs @ 12.14 hrs, Volume= 8,962 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.50 cfs @ 12.14 hrs, Volume= 8,962 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.20' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.00'	12.0" Round Culvert L= 6.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.00' / 34.80' S= 0.0323 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.46 cfs @ 12.14 hrs HW=36.18' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 2.46 cfs @ 3.13 fps)

Summary for Pond CBN33-P: CBN 33

Inflow Area = 17,424 sf, 33.98% Impervious, Inflow Depth = 2.93" for 100-year event
 Inflow = 1.19 cfs @ 12.13 hrs, Volume= 4,255 cf
 Outflow = 1.19 cfs @ 12.13 hrs, Volume= 4,255 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.19 cfs @ 12.13 hrs, Volume= 4,255 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.36' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.70'	12.0" Round Culvert L= 11.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.70' / 36.50' S= 0.0175 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.17 cfs @ 12.13 hrs HW=37.35' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 1.17 cfs @ 2.17 fps)

Summary for Pond CBN7-P: CBN 7

Inflow Area = 63,405 sf, 23.82% Impervious, Inflow Depth = 2.31" for 100-year event
 Inflow = 3.15 cfs @ 12.16 hrs, Volume= 12,207 cf
 Outflow = 3.15 cfs @ 12.16 hrs, Volume= 12,207 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.15 cfs @ 12.16 hrs, Volume= 12,207 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.31' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.70'	12.0" Round Culvert L= 5.7' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 36.70' / 36.50' S= 0.0351 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.10 cfs @ 12.16 hrs HW=38.28' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 3.10 cfs @ 3.95 fps)

Summary for Pond CBN8-P: CBN 8

Inflow Area = 5,738 sf, 73.20% Impervious, Inflow Depth = 5.48" for 100-year event
 Inflow = 0.90 cfs @ 12.05 hrs, Volume= 2,621 cf
 Outflow = 0.90 cfs @ 12.05 hrs, Volume= 2,621 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.90 cfs @ 12.05 hrs, Volume= 2,621 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.89' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.30'	12.0" Round Culvert L= 9.1' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.30' / 35.20' S= 0.0110 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.89 cfs @ 12.05 hrs HW=35.89' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.89 cfs @ 2.67 fps)

Summary for Pond CBN9-P: CBN 9

Inflow Area = 85,256 sf, 21.35% Impervious, Inflow Depth = 2.21" for 100-year event
 Inflow = 4.01 cfs @ 12.16 hrs, Volume= 15,697 cf
 Outflow = 4.01 cfs @ 12.16 hrs, Volume= 15,697 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.01 cfs @ 12.16 hrs, Volume= 15,697 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.41' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.05'	15.0" Round Culvert L= 3.8' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.05' / 34.95' S= 0.0263 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.96 cfs @ 12.16 hrs HW=36.39' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 3.96 cfs @ 3.23 fps)

Summary for Pond DMH10-P: DMH 10

Inflow Area = 171,823 sf, 25.27% Impervious, Inflow Depth = 2.43" for 100-year event
 Inflow = 8.77 cfs @ 12.15 hrs, Volume= 34,780 cf
 Outflow = 8.77 cfs @ 12.15 hrs, Volume= 34,780 cf, Atten= 0%, Lag= 0.0 min
 Primary = 8.77 cfs @ 12.15 hrs, Volume= 34,780 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.75' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.70'	18.0" Round Culvert L= 297.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.70' / 33.60' S= 0.0037 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=8.74 cfs @ 12.15 hrs HW=37.74' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 8.74 cfs @ 4.95 fps)

Summary for Pond DMH11-P: DMH 11

Inflow Area = 193,716 sf, 26.77% Impervious, Inflow Depth = 2.52" for 100-year event
 Inflow = 10.41 cfs @ 12.14 hrs, Volume= 40,708 cf
 Outflow = 10.41 cfs @ 12.14 hrs, Volume= 40,708 cf, Atten= 0%, Lag= 0.0 min
 Primary = 10.41 cfs @ 12.14 hrs, Volume= 40,708 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.93' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.60'	18.0" Round Culvert L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.60' / 33.40' S= 0.0091 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=10.34 cfs @ 12.14 hrs HW=35.91' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 10.34 cfs @ 5.85 fps)

Summary for Pond DMH12-P: DMH 12

Inflow Area = 208,865 sf, 27.83% Impervious, Inflow Depth = 2.58" for 100-year event
 Inflow = 11.61 cfs @ 12.14 hrs, Volume= 44,946 cf
 Outflow = 11.61 cfs @ 12.14 hrs, Volume= 44,946 cf, Atten= 0%, Lag= 0.0 min
 Primary = 11.61 cfs @ 12.14 hrs, Volume= 44,946 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.01' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.40'	18.0" Round Culvert L= 26.9' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.40' / 33.10' S= 0.0112 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=11.48 cfs @ 12.14 hrs HW=35.97' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 11.48 cfs @ 6.50 fps)

Summary for Pond DMH13-P: DMH 13

Inflow Area = 87,618 sf, 39.09% Impervious, Inflow Depth = 3.26" for 100-year event
 Inflow = 6.60 cfs @ 12.10 hrs, Volume= 23,838 cf
 Outflow = 6.60 cfs @ 12.10 hrs, Volume= 23,838 cf, Atten= 0%, Lag= 0.0 min
 Primary = 6.60 cfs @ 12.10 hrs, Volume= 23,838 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.38' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.25'	15.0" Round Culvert L= 72.3' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.25' / 32.70' S= 0.0076 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.56 cfs @ 12.10 hrs HW=35.36' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 6.56 cfs @ 5.35 fps)

Summary for Pond DMH14-P: DMH 14

Inflow Area = 23,322 sf, 43.18% Impervious, Inflow Depth = 3.48" for 100-year event
 Inflow = 2.01 cfs @ 12.09 hrs, Volume= 6,766 cf
 Outflow = 2.01 cfs @ 12.09 hrs, Volume= 6,766 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.01 cfs @ 12.09 hrs, Volume= 6,766 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.78' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.80'	12.0" Round Culvert L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.80' / 36.55' S= 0.0040 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.97 cfs @ 12.09 hrs HW=37.77' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.97 cfs @ 3.23 fps)

Summary for Pond DMH15-P: DMH 15

Inflow Area = 23,322 sf, 43.18% Impervious, Inflow Depth = 3.48" for 100-year event
 Inflow = 2.01 cfs @ 12.09 hrs, Volume= 6,766 cf
 Outflow = 2.01 cfs @ 12.09 hrs, Volume= 6,766 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.01 cfs @ 12.09 hrs, Volume= 6,766 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.47' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.50'	12.0" Round Culvert L= 71.0' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 36.50' / 36.20' S= 0.0042 ' / ' Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.97 cfs @ 12.09 hrs HW=37.46' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.97 cfs @ 3.26 fps)

Summary for Pond DMH16-P: DMH 16

Inflow Area = 58,478 sf, 40.78% Impervious, Inflow Depth = 3.34" for 100-year event
 Inflow = 4.88 cfs @ 12.10 hrs, Volume= 16,286 cf
 Outflow = 4.88 cfs @ 12.10 hrs, Volume= 16,286 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.88 cfs @ 12.10 hrs, Volume= 16,286 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.39' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.95'	15.0" Round Culvert L= 14.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.95' / 35.80' S= 0.0106 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.88 cfs @ 12.10 hrs HW=37.39' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 4.88 cfs @ 4.32 fps)

Summary for Pond DMH26-P: DMH 26

Inflow Area = 109,879 sf, 27.53% Impervious, Inflow Depth = 2.52" for 100-year event
 Inflow = 6.30 cfs @ 12.14 hrs, Volume= 23,075 cf
 Outflow = 6.30 cfs @ 12.14 hrs, Volume= 23,075 cf, Atten= 0%, Lag= 0.0 min
 Primary = 6.30 cfs @ 12.14 hrs, Volume= 23,075 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.53' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.05'	15.0" Round Culvert L= 111.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.05' / 36.60' S= 0.0040 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.19 cfs @ 12.14 hrs HW=39.47' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 6.19 cfs @ 5.05 fps)

Summary for Pond DMH27-P: DMH 27

Inflow Area = 109,879 sf, 27.53% Impervious, Inflow Depth = 2.52" for 100-year event
 Inflow = 6.30 cfs @ 12.14 hrs, Volume= 23,075 cf
 Outflow = 6.30 cfs @ 12.14 hrs, Volume= 23,075 cf, Atten= 0%, Lag= 0.0 min
 Primary = 6.30 cfs @ 12.14 hrs, Volume= 23,075 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.68' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.50'	15.0" Round Culvert L= 75.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.50' / 36.10' S= 0.0053 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.19 cfs @ 12.14 hrs HW=38.64' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 6.19 cfs @ 5.05 fps)

Summary for Pond DMH28-P: DMH 28

Inflow Area = 109,879 sf, 27.53% Impervious, Inflow Depth = 2.52" for 100-year event
 Inflow = 6.30 cfs @ 12.14 hrs, Volume= 23,075 cf
 Outflow = 6.30 cfs @ 12.14 hrs, Volume= 23,075 cf, Atten= 0%, Lag= 0.0 min
 Primary = 6.30 cfs @ 12.14 hrs, Volume= 23,075 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.33' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.00'	15.0" Round Culvert L= 101.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.00' / 35.50' S= 0.0049 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.19 cfs @ 12.14 hrs HW=38.27' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 6.19 cfs @ 5.05 fps)

Summary for Pond DMH29-P: DMH 29

Inflow Area = 194,406 sf, 30.60% Impervious, Inflow Depth = 2.73" for 100-year event
 Inflow = 12.31 cfs @ 12.13 hrs, Volume= 44,153 cf
 Outflow = 12.31 cfs @ 12.13 hrs, Volume= 44,153 cf, Atten= 0%, Lag= 0.0 min
 Primary = 12.31 cfs @ 12.13 hrs, Volume= 44,153 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 38.55' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.25'	18.0" Round Culvert L= 118.3' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.25' / 34.30' S= 0.0080 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=12.06 cfs @ 12.13 hrs HW=38.45' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 12.06 cfs @ 6.82 fps)

Summary for Pond DMH30-P: DMH 30

Inflow Area = 194,406 sf, 30.60% Impervious, Inflow Depth = 2.73" for 100-year event
 Inflow = 12.31 cfs @ 12.13 hrs, Volume= 44,153 cf
 Outflow = 12.31 cfs @ 12.13 hrs, Volume= 44,153 cf, Atten= 0%, Lag= 0.0 min
 Primary = 12.31 cfs @ 12.13 hrs, Volume= 44,153 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.94' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.80'	24.0" Round Culvert L= 146.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.80' / 33.40' S= 0.0027 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=12.06 cfs @ 12.13 hrs HW=35.90' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 12.06 cfs @ 4.53 fps)

Summary for Pond DMH31-P: DMH 31

Inflow Area = 194,406 sf, 30.60% Impervious, Inflow Depth = 2.73" for 100-year event
 Inflow = 12.31 cfs @ 12.13 hrs, Volume= 44,153 cf
 Outflow = 12.31 cfs @ 12.13 hrs, Volume= 44,153 cf, Atten= 0%, Lag= 0.0 min
 Primary = 12.31 cfs @ 12.13 hrs, Volume= 44,153 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.37' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.30'	24.0" Round Culvert L= 62.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 33.30' / 33.10' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=12.06 cfs @ 12.13 hrs HW=35.34' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 12.06 cfs @ 4.67 fps)

Summary for Pond DMH32-P: DMH 32

Inflow Area = 403,271 sf, 29.17% Impervious, Inflow Depth = 2.65" for 100-year event
 Inflow = 23.89 cfs @ 12.13 hrs, Volume= 89,100 cf
 Outflow = 23.89 cfs @ 12.13 hrs, Volume= 89,100 cf, Atten= 0%, Lag= 0.0 min
 Primary = 23.89 cfs @ 12.13 hrs, Volume= 89,100 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.09' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	32.60'	24.0" Round Culvert L= 31.6' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 32.60' / 32.20' S= 0.0127 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=23.47 cfs @ 12.13 hrs HW=36.01' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 23.47 cfs @ 7.47 fps)

Summary for Pond DMH33-P: DMH 33

Inflow Area = 44,429 sf, 37.07% Impervious, Inflow Depth = 3.12" for 100-year event
 Inflow = 3.15 cfs @ 12.11 hrs, Volume= 11,547 cf
 Outflow = 3.15 cfs @ 12.11 hrs, Volume= 11,547 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.15 cfs @ 12.11 hrs, Volume= 11,547 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.65' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.70'	12.0" Round Culvert L= 199.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.70' / 33.70' S= 0.0050 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.09 cfs @ 12.11 hrs HW=36.56' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 3.09 cfs @ 3.93 fps)

Summary for Pond DMH9-P: DMH 9

Inflow Area = 80,829 sf, 26.01% Impervious, Inflow Depth = 2.44" for 100-year event
 Inflow = 4.32 cfs @ 12.15 hrs, Volume= 16,462 cf
 Outflow = 4.32 cfs @ 12.15 hrs, Volume= 16,462 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.32 cfs @ 12.15 hrs, Volume= 16,462 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.51' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.40'	12.0" Round Culvert L= 176.9' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.40' / 35.20' S= 0.0068 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.29 cfs @ 12.15 hrs HW=39.47' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 4.29 cfs @ 5.47 fps)

Summary for Pond IB4-P: Infiltration Basin #4

Inflow Area = 523,288 sf, 32.44% Impervious, Inflow Depth = 2.86" for 100-year event
 Inflow = 33.93 cfs @ 12.12 hrs, Volume= 124,669 cf
 Outflow = 1.19 cfs @ 17.49 hrs, Volume= 124,669 cf, Atten= 96%, Lag= 322.0 min
 Discarded = 1.19 cfs @ 17.49 hrs, Volume= 124,669 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.28' @ 17.49 hrs Surf.Area= 21,081 sf Storage= 78,977 cf

Plug-Flow detention time= 742.7 min calculated for 124,564 cf (100% of inflow)
 Center-of-Mass det. time= 743.1 min (1,594.9 - 851.8)

Volume	Invert	Avail.Storage	Storage Description
#1	30.70'	117,739 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.70	12,950	0	0	12,950
31.00	13,550	3,975	3,975	13,562
32.00	15,640	14,583	18,557	15,696
32.50	16,640	8,069	26,626	16,721
34.00	18,980	26,696	53,322	19,166
35.50	21,450	30,304	83,625	21,749
36.00	22,310	10,939	94,565	22,648
37.00	24,050	23,175	117,739	24,470

Device	Routing	Invert	Outlet Devices
#1	Discarded	30.70'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	35.50'	15.0' long x 1.0' breadth Broad-Crested Rectangular Weir
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00			
Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31			
3.30 3.31 3.32			

Discarded OutFlow Max=1.19 cfs @ 17.49 hrs HW=35.28' (Free Discharge)
 ↑1=**Exfiltration** (Exfiltration Controls 1.19 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=30.70' (Free Discharge)
 ↑2=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond IB5-P: Infiltration Basin #5

Inflow Area = 70,327 sf, 42.59% Impervious, Inflow Depth = 3.45" for 100-year event
 Inflow = 6.13 cfs @ 12.10 hrs, Volume= 20,248 cf
 Outflow = 0.37 cfs @ 14.85 hrs, Volume= 20,248 cf, Atten= 94%, Lag= 165.0 min
 Discarded = 0.37 cfs @ 14.85 hrs, Volume= 20,248 cf
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 1.00-60.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.04' @ 14.85 hrs Surf.Area= 6,504 sf Storage= 10,202 cf

Plug-Flow detention time= 315.4 min calculated for 20,248 cf (100% of inflow)
 Center-of-Mass det. time= 315.2 min (1,155.4 - 840.1)

Volume	Invert	Avail.Storage	Storage Description
#1	35.10'	25,516 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
35.10	4,000	0	0	4,000
36.00	5,190	4,124	4,124	5,209
36.10	5,380	528	4,652	5,401
38.00	7,775	12,428	17,080	7,857
39.00	9,115	8,436	25,516	9,236

Device	Routing	Invert	Outlet Devices
#1	Discarded	35.10'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	38.00'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.37 cfs @ 14.85 hrs HW=37.04' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.37 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=35.10' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

DEP STORMWATER MANAGEMENT FORMS



Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

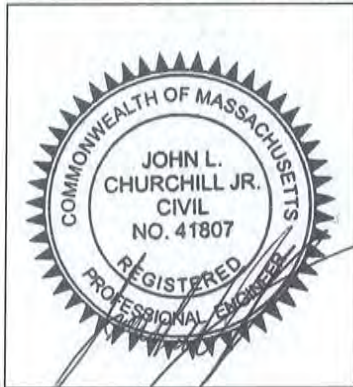
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



[Handwritten Signature] 2/19/24

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- New development
- Redevelopment
- Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- No disturbance to any Wetland Resource Areas
- Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- Reduced Impervious Area (Redevelopment Only)
- Minimizing disturbance to existing trees and shrubs
- LID Site Design Credit Requested:
 - Credit 1
 - Credit 2
 - Credit 3
- Use of "country drainage" versus curb and gutter conveyance and pipe
- Bioretention Cells (includes Rain Gardens)
- Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- Treebox Filter
- Water Quality Swale
- Grass Channel
- Green Roof
- Other (describe): _____

Standard 1: No New Untreated Discharges

- No new untreated discharges
- Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- Soil Analysis provided.
- Required Recharge Volume calculation provided.
- Required Recharge volume reduced through use of the LID site Design Credits.
- Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - Static
 - Simple Dynamic
 - Dynamic Field¹
- Runoff from all impervious areas at the site discharging to the infiltration BMP.
- Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - Site is comprised solely of C and D soils and/or bedrock at the land surface
 - M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - Solid Waste Landfill pursuant to 310 CMR 19.000
 - Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - is within the Zone II or Interim Wellhead Protection Area
 - is near or to other critical areas
 - is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - involves runoff from land uses with higher potential pollutant loads.
 - The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- The BMP is sized (and calculations provided) based on:
 - The ½" or 1" Water Quality Volume or
 - The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- The NPDES Multi-Sector General Permit does **not** cover the land use.
- LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- All exposure has been eliminated.
- All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - Limited Project
 - Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - Bike Path and/or Foot Path
 - Redevelopment Project
 - Redevelopment portion of mix of new and redevelopment.
- Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- The project is **not** covered by a NPDES Construction General Permit.
- The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - Name of the stormwater management system owners;
 - Party responsible for operation and maintenance;
 - Schedule for implementation of routine and non-routine maintenance tasks;
 - Plan showing the location of all stormwater BMPs maintenance access areas;
 - Description and delineation of public safety features;
 - Estimated operation and maintenance budget; and
 - Operation and Maintenance Log Form.
- The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- An Illicit Discharge Compliance Statement is attached;
- NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

STORMWATER OPERATIONS AND MAINTENANCE PLAN

Stormwater Operations and Maintenance Plan: **HIDDEN TRAILS off County Road, West Wareham**

DATE: February 9, 2024

Responsible Party:

Sarajon Realty, LLC
2854 Cranberry Highway
East Wareham, MA 02538

Project Address:

Off County Road
W. Wareham, MA 02576

Engineering By:

JC Engineering, Inc.
2854 Cranberry Highway
East Wareham, MA 02538

The project site will be privately owned and maintained. The responsible party will be responsible for the required inspections and maintenance of the drainage system and best management practices (BMPs).

Illicit Discharges

All Illicit discharges to the stormwater management system are prohibited.

Pre-Construction Requirements

Prior to the start of any construction on the site the following procedures are to be implemented.

- Erosion Control Barriers are to be installed down gradient of all earthwork proposed in that particular phase of work. Erosion Control Barriers are to be installed at the limit of work and/or adjacent to the wetland resource areas and/or natural areas to be protected as shown on the plans.
- All major trees designated to be saved are to be flagged in the field and fenced off as necessary to prevent damage during construction.
- A temporary settling pool is to be constructed on the up-gradient side of Erosion Control Barrier at the limit of work such that stormwater runoff is channeled to the temporary settling pools, if necessary, and filtered through the Erosion Control Barrier prior to leaving the site.

- Safety barriers, warnings, and fences to be installed along County Road as necessary to protect the general public prior to the start of the work adjacent to the roadway.
- A temporary construction entrance is to be constructed at the access point to the site. The entrance is to be stabilized in such a manner as to prevent the tracking of soil onto the public way.
- A dust monitoring plan will be established prior to the start of construction.
- Weekly training sessions will be conducted for all site contractors at the job.
- A person responsible for daily inspection of all erosion control methodologies and action plan for corrections/repairs when needed will be established.

Construction Period Pollution Prevention

- The contractor must install erosion control measures as shown on the plans and details prior to starting any other work on the site construction. Erosion control must be installed at every inlet structure and inlet swale and maintained for the duration of the project. Erosion Control Barriers as shown on plans shall be inspected, repaired and/or maintained by the contractor weekly and within 12 hours of each storm event.
- Water and/or covers to minimize dust and erosion from newly graded areas and stock piles of earth will be implemented during construction as needed or when conditions are anticipated to be greater than 20 m.p.h. Application rate of water shall be sufficient to moisten soil so as to not create runoff and/or ponding. No surfactants shall be used.
- A regular street sweeping schedule of hard surfaces will be established prior to construction and will be continued until the completion of the full site development.
- A person will be assigned to monitor the perimeter erosion control methodologies on a daily basis.
- Owner or its representative shall perform weekly review/training sessions.
- Construction of a temporary settling area is to be utilized as a method of controlling concentrated flows from areas that are under construction.

- Temporary settling areas are to be constructed on an as needed basis and located throughout the construction phase as required by earthwork activities.
- At the beginning of earthwork operations on the site a mechanical on-site sweeper is to be maintained such that the public way can be kept clean during the construction phase.
- As elements of the drainage system are installed, silt fences and “silt sacs” are to be installed around all catch basins and under grates until the tributary area to that basin is completely stabilized.
- As general earthwork is completed the exterior perimeters of the areas that have been completed are to be stabilized using erosion control grass.
- Stabilize slopes steeper than 3:1 (horizontal to vertical) with seed, secured geotextile fabric, or rock rip-rap as required to prevent erosion during construction.
- Sediment shall be contained within the construction site and shall be removed when they reach a depth of 6 inches.
- Clean out catch basins, drain manholes and storm drain pipes after completion of construction.
- No stormwater shall be allowed to enter the structures until all catch basins, drain manholes, and storm drain pipes have been cleaned, the binder course is installed, and all disturbed areas are stabilized.
- If the binder course is in place for more than 3 months without a wearing course, the contractor shall set the rim elevation of the drainage structures level with the binder course. The rim elevations shall be reset just prior to placing the wearing course.
- The contractor is responsible for all stormwater best management practices being in place to contain stormwater in the event that drainage structures are not at pavement grade during a storm event, and all cleanup in the event that such measures fail during said storm event.
- Temporary surfaces should be stabilized as soon as active grading is suspended. Temporary measures include seeding with grass, jute netting, or straw mulch. Permanent stabilization should be established early in the fall to allow good cover before cold weather comes.
- A construction entrance in accordance with construction details shall be installed at the site entrance to prevent sediments from being tracked offsite.
- It is the responsibility of the contractor to maintain and supplement the

specified sedimentation controls as necessary to prevent sedimentation of off-site areas and/or any regulated resource areas. Failure by the contractor to control erosion, pollution and/or siltation shall be cause for the owner to employ outside assistance or to use his own forces to provide the necessary corrective measures, the cost of such assistance plus project engineering costs will be the contractor's responsibility. If the owner shall fail their responsibility of this Plan, the Town has the right to enter upon property after 15 days notice to take corrective actions and bill the Owner for their Services.

- Erosion Control Barriers shall be installed at the following locations: Toe of slope of embankment construction, Toe of temporary earthwork stockpiles. All locations as indicated on the Plans.
- A log of regular inspections and maintenance is to be maintained by the construction superintendent.
- When all areas tributary to any catch basin on the site are stabilized with permanent plantings and paving, that catch basin is to be cleaned of all sediment and debris that has accumulated during construction and the “silt sacs” removed.
- During construction of the project, the Owner and/or its representative, is to be the responsible party for enforcing the installation and maintenance of all erosion control devices. A permanent file is to be established for recording daily inspections, problems and maintenance of the erosion control devices. A 24 hour emergency hotline is to be established with the number posted on a sign at the construction entrance to the project and on the construction trailer indicating who can be contacted in case of an emergency on the site.

Long-Term Operation and Maintenance Program

- At the end of construction on the project, Owner shall be provided with a certified as built plan of all utilities constructed on the site.

- **Deep Sump Catch Basin**

All Catch basins shall be inspected by the owner/operator on a quarterly basis or after a major storm event. Catch basin sumps will be cleaned annually during the early spring or when the sediment rises to within half the available sump height of the catch basin, whichever comes first.

- **Proprietary Structures**

All Proprietary Structures shall be inspected monthly. Proprietary Structures are to be cleaned at least two times per year, once during early spring and late

fall. Sediment and trash removal and disposal shall follow the manufacturer's specifications.

- **Sediment Forebay & Infiltration Basin**

The infiltration basin and sediment forebay should be inspected after every major storm for the first few months after stabilization. After that, the sediment forebay should be inspected monthly and removed of accumulated sediment four times per year. The infiltration basin should be inspected at least twice per year. At a minimum the responsible party should check for signs of differential settlement, cracking, erosion, leakage in the embankments, tree growth, the condition of rip raps, sediment accumulation, and the health of the turf.

At least twice per year, the access area, side slopes and basin bottom should be mowed. Grass clippings should not be left in the basin. Sediment should be removed from the basin as needed.

- Once the system is operational, inspections should occur after every major storm event for the first few months. After the system is in operation, inspections should be every six months. Special attention should be directed towards the depth of sediment in the leaching structures. Sediment removal from the leaching structures accomplished as needed by means of a labor crew. Sediment shall be removed off-site and disposed of in a legal manner. Inspections should also include checking for potential problems that include, but are not limited to, any forms of erosion, tree growth in the leaching area, and sediment accumulation, etc. Trash and debris accumulated within any portion of the Infiltration Structures should be removed at this time. Silt and debris are to be removed using vacuum pumping techniques as required.
- The Owner, is to be responsible for the maintenance of the project after construction has been completed. The owner is to provide the Planning Department, Conservation Commission and Building Department with a contact name and telephone number for purposes of communication between the owner and the Town Boards and Commissions. At each time that the contact person changes, the above Boards and Commission are to be notified of the new contact information.
- The Owner shall hire a Stormwater Professional to inspect the system quarterly as required.
- This Operations and Maintenance plan is to be incorporated into all necessary documents with the stormwater operations and maintenance plan to ensure that a long-term maintenance program is adhered to by the developer and all future property owners.

- Waste shall be properly stored in sealed containers if stored outside. The preferred method is to store waste either indoors or in a structure with a locking cover to prevent entrance from animals. The containers shall be covered to prevent rainfall from leaching through the household waste.
- Vehicle washing shall be performed with non-detergent cleaners. The preferred method is to clean a vehicle at a vehicle washing facility.
- Yard maintenance equipment, including lawn mowers and chainsaws shall be stored in a covered area. Periodic maintenance shall be performed on all equipment to ensure that no gas or oil leak into the ground.
- Yard waste shall be disposed in an approved off-site disposal facility or stored on-site in a composting pile.
- Septic systems shall be properly maintained and inspected in accordance with the State Environmental Code, Title 5. A failing septic system shall be repaired immediately to prevent effluent from discharging into the storm drains. Never discharge gasoline, oils or chemicals into septic systems.
- Gasoline and oils shall be stored in sealed containers and in a covered, secure, and level area to prevent accidental spills. All gasoline, oil, and chemical spills shall be reported to the Wareham Fire Department and Regional DEP office.
- Lawn fertilizers and pesticides shall be in sealed containers within a covered area and remain dry. Slow release lawn fertilizers shall be used to limit the amount of fertilizer entering the groundwater. Limit the application of fertilizers to lawn area only. Sweep up any spills on impervious material to prevent runoff into the storm drains.
- Pet waste shall be properly disposed of to prevent bacteria from washing into storm drains. Small amounts of waste can be buried or sealed in a plastic bag and thrown into the trash. The preferred method is to flush the waste down the toilet.
- Snow de-icing chemicals shall be stored in a sealed container and a covered area.
- Snow shall be removed from all parking surfaces and fire truck clearance areas to provide adequate access for all safety vehicles. Snow shall be removed from all catch basin grates to avoid flooding during snow melt.

- All sand and loam piles stored on-site shall be properly stabilized or covered to prevent sediment from entering the storm drains. All piles shall be contained in a level, upland area and surrounded by a silt fence and/or haybales.
- All structural and non-structural stormwater management facilities shall be maintained to ensure proper working condition during construction and shall be fully maintained in accordance with this plan. The owner shall be responsible for maintaining the site's storm water management system in compliance with Federal, state, and local requirements and in accordance with best management practices. In the event that the Town determines that the owner has materially failed in its obligation to maintain the drainage system in accordance with best management practices and the Stormwater Operation and Maintenance Plan, the Town shall have the right, upon written notice to the Owner, and Owner's failure to remedy the maintenance issue within fifteen (15) days' notice thereof, to enter upon the site to perform the required maintenance. All costs incurred by the Town in connection with its performance of such required maintenance on the site shall be reimbursed by the Owner to the Town within thirty (30) days of the Owner's receipt of the Town's invoice for such costs.

Stormwater BMP Inspection and Maintenance Log

Facility Name	HIDDEN TRAILS
Address	OFF COUNTY ROAD, WEST WAREHAM, MA
Begin Date	End Date

Date	BMP ID#	BMP Description	Inspected by:	Cause for Inspection	Exceptions Noted	Comments and Actions Taken

Instructions: Record all inspections and maintenance for all treatment BMPs on this form. Use additional log sheets and/or attach extended comments or documentation as necessary. Submit a copy of the completed log with the annual independent inspectors' report to the municipality, and start a new log at that time.

- BMP ID# — Always use ID# from the Operation and Maintenance Manual.
- Inspected by — Note all inspections and maintenance on this form, including the required independent annual inspection.
- Cause for inspection — Note if the inspection is routine, pre-rainy-season, post-storm, annual, or in response to a noted problem or complaint.
- Exceptions noted — Note any condition that requires correction or indicates a need for maintenance.
- Comments and actions taken — Describe any maintenance done and need for follow-up.

REFERENCES

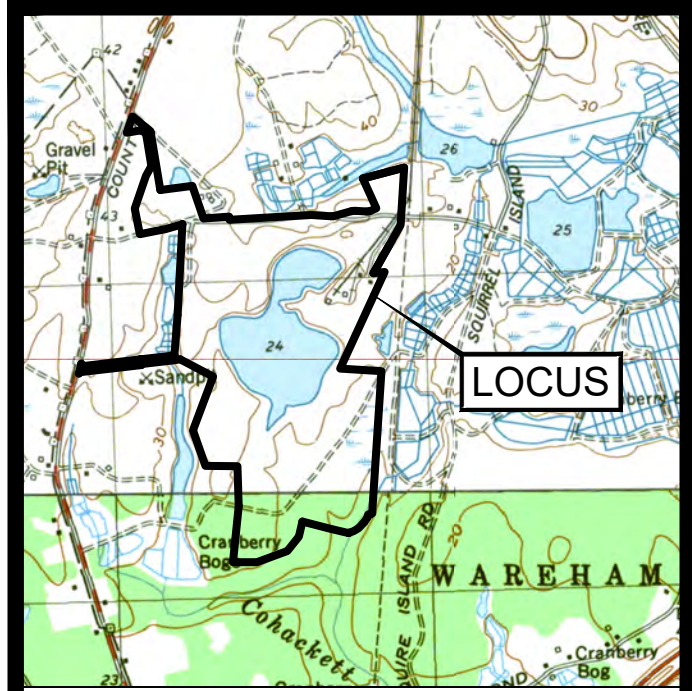
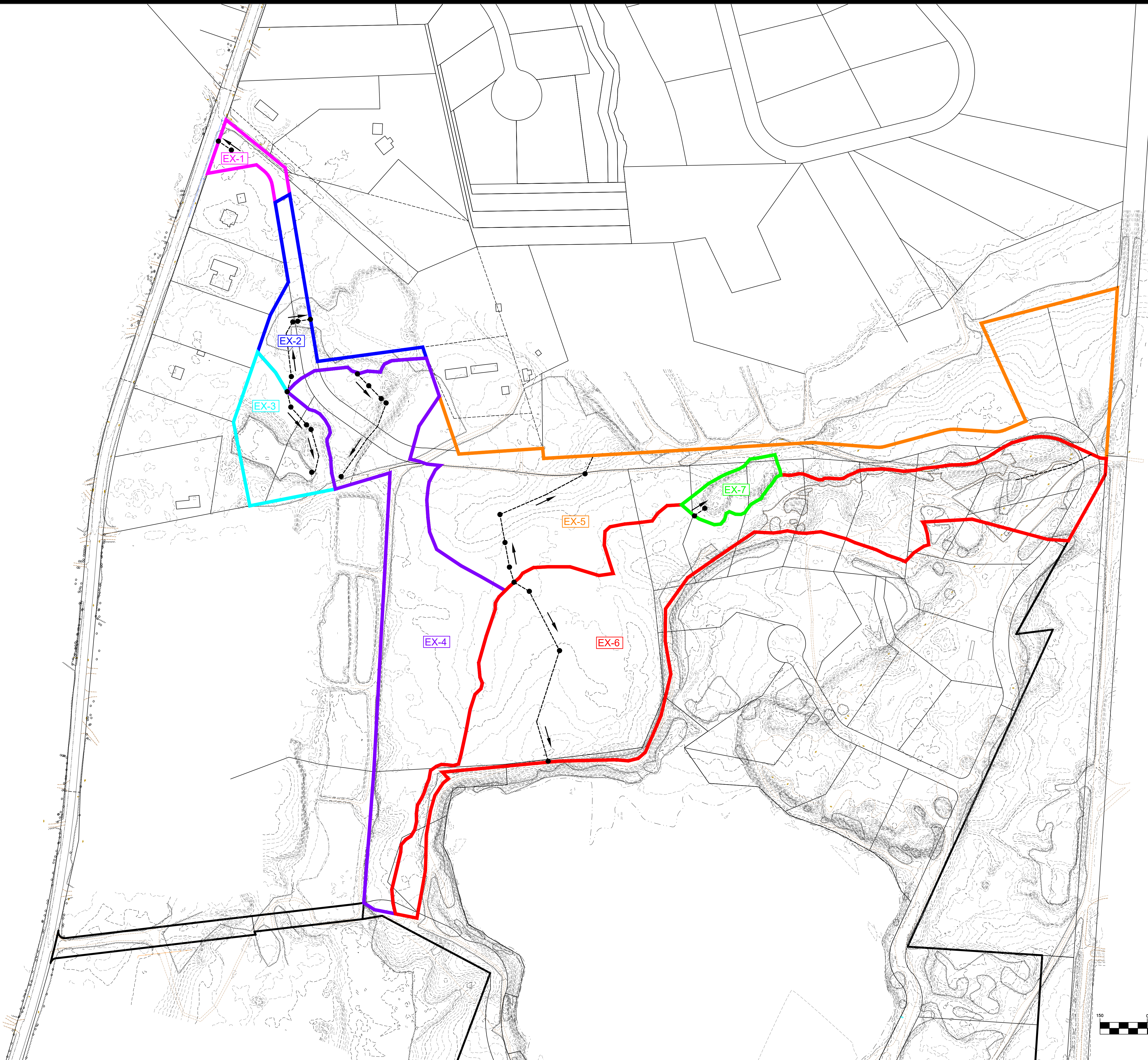
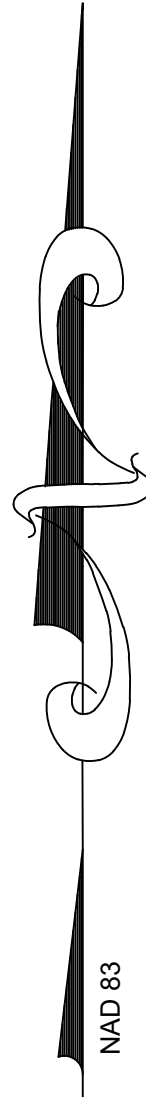
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DRAINAGE AREA PLANS



LOCUS MAP
SCALE 1" = 2000'

**DEFINITIVE
SUBDIVISION PLAN
OF
HIDDEN TRAILS
OFF
COUNTY ROAD
IN
W. WAREHAM
MASSACHUSETTS
(PLYMOUTH COUNTY)**

EX-DA

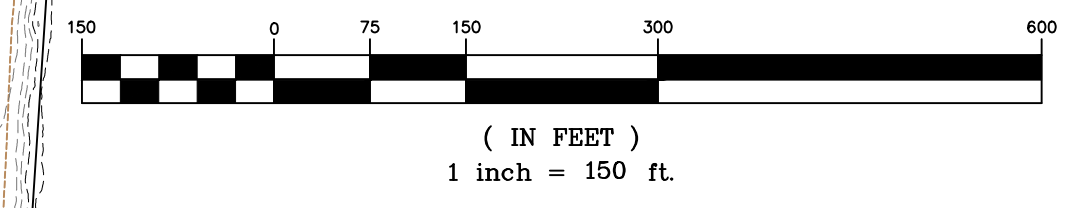
REVISIONS:

No.	DATE	DESC.
1	2/9/24	REVIEW COMMENTS

PREPARED FOR:
SARAJON REALTY, LLC
2854 CRANBERRY HIGHWAY
E. WAREHAM, MA 02538

PREPARED BY:
JC ENGINEERING, INC.
2854 CRANBERRY HIGHWAY
EAST WAREHAM, MA 02538
508-273-0377

GRAPHIC SCALE



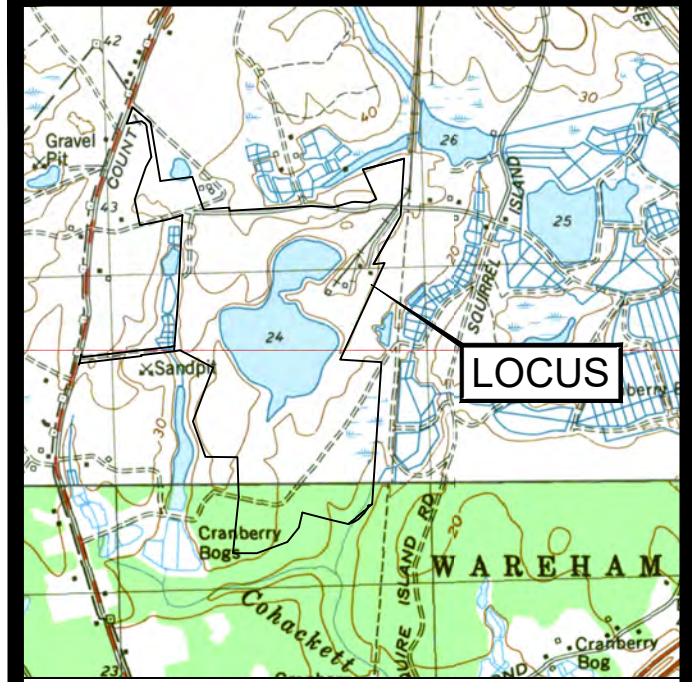
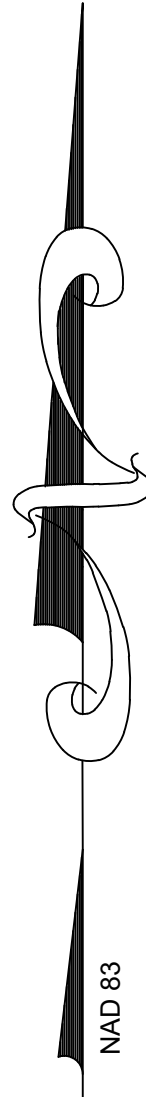
DATE: SEPTEMBER 7, 2023

DRAWN: BMB

CHECK: JLC

SCALE: AS NOTED

JOB NO: 6924



LOCUS MAP
SCALE 1" = 2000'

**DEFINITIVE
SUBDIVISION PLAN
OF
HIDDEN TRAILS
OFF
COUNTY ROAD
IN
W. WAREHAM
MASSACHUSETTS
(PLYMOUTH COUNTY)**

PR-DA

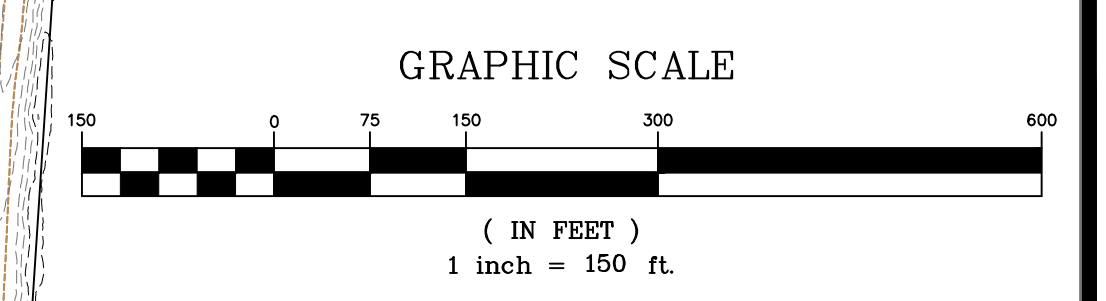
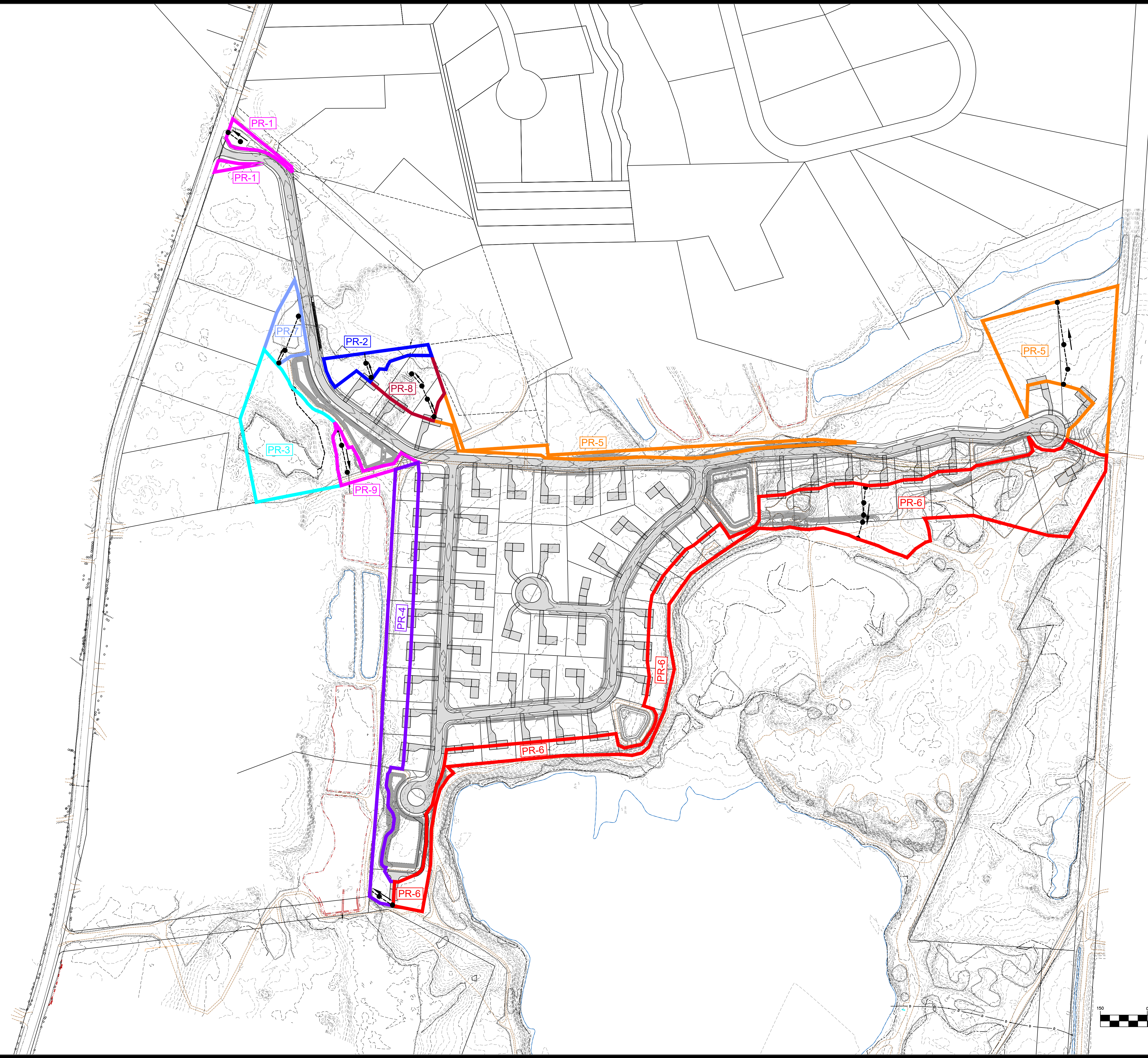
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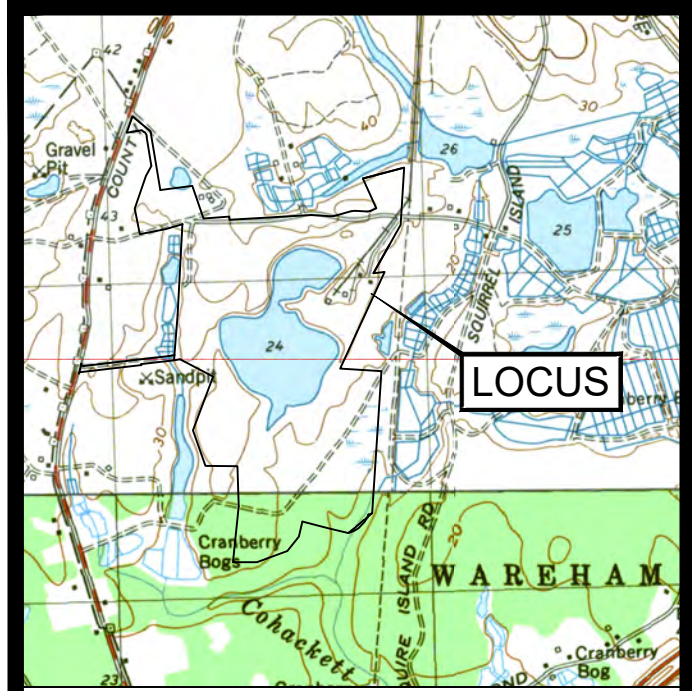
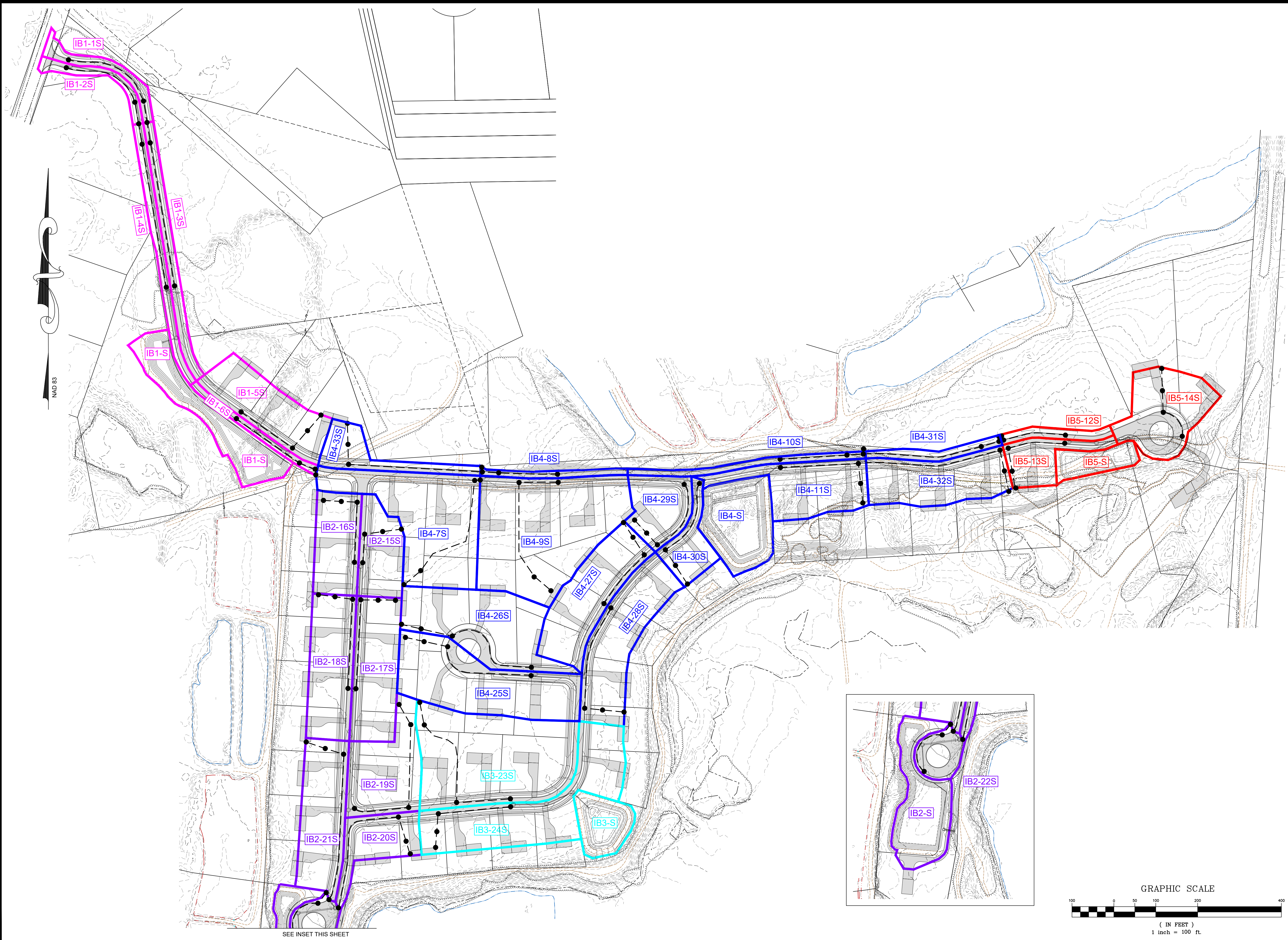
No.	DATE	DESC.
1	2/9/24	REVIEW COMMENTS

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508-273-0377

DATE:	SEPTEMBER 7, 2023
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LOCUS MAP
SCALE 1" = 2000'

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OF
HIDDEN TRAILS
OFF
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IN
W. WAREHAM
MASSACHUSETTS
(PLYMOUTH COUNTY)**

**PR-DA FOR
DRAINAGE SYSTEM**

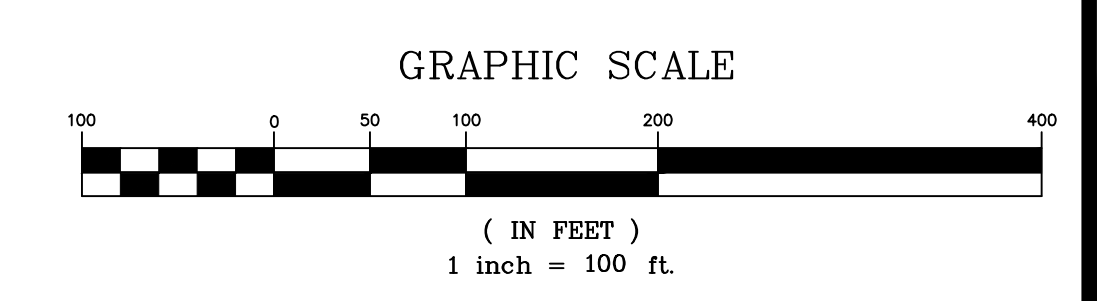
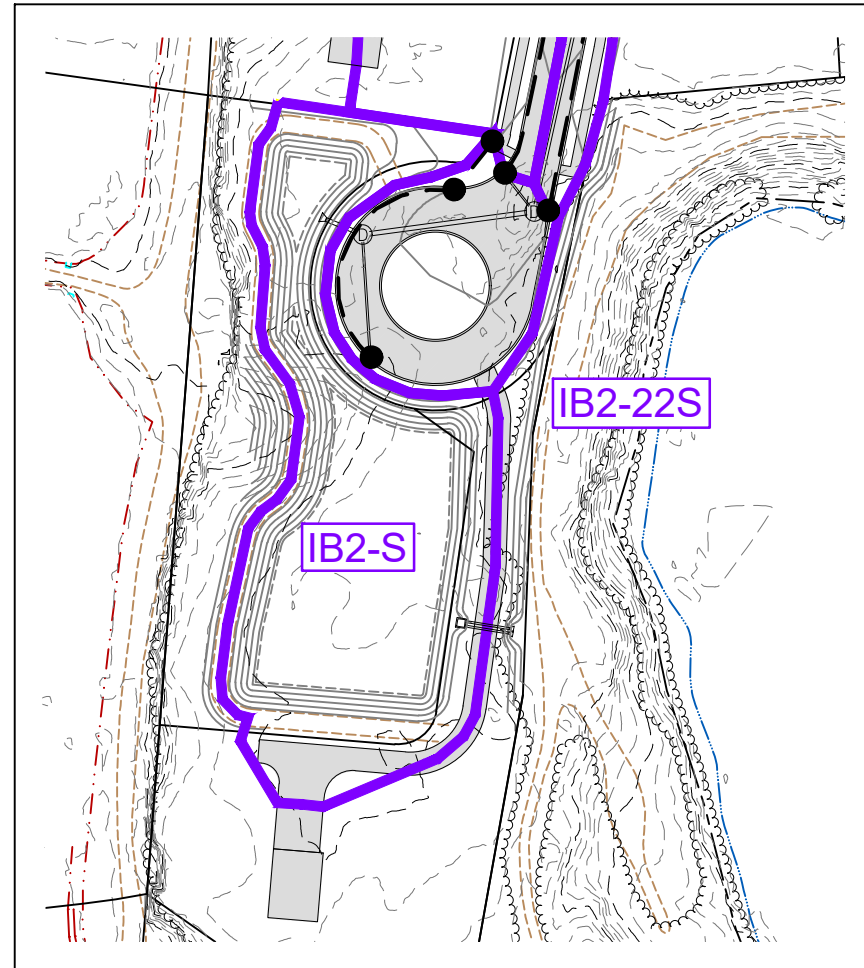
REVISIONS:

No.	DATE	DESC.
1	2/9/24	REVIEW COMMENTS

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2854 CRANBERRY HIGHWAY
E. WAREHAM, MA 02538

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